18/06/2019

ENGLISH

OPERATING MANUAL

Energy Storage System

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

MODEL
D005KD1N111

MFL70421101

https://www.lg.com/global/business/ess/residential/dc-5

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 25 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.
- 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 energy 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 LGE service person or trained installer, qualified to install PCS.
- If the AC circuit breaker is turned off and the PCS is not operated for a long time, the battery may be overdischarged.
- Connect the DC+ and DC- cables to the correct DC+ and DC- terminals on the product.
- Danger of damaging the PCS by overload. Only connect the proper wire to DC terminal block. Refer to the installation wiring diagram for details.
- 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 bloves, boots and glasses
  d) Do not lay tools or metal parts on top of battery.
- Do not leave the ESS in the Fault standby state for a long time because of the battery discharge may occur during the long standby state.
- If the battery fault occurs immediately after starting PCS it means Battery failure. Check the battery SOC also voltage and fault information, and turn off the power of the ESS until service action is taken.

- If the battery SOC is low the battery may charge from the grid for self-protection. (Emergency Charging) This function is to prevent shutdown of the ESS, deep discharge and failure of the Battery Extension Kit. An Emergency Charge is not an ESS fault.

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 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.
- Serving of batteries should be performed or supervised by LG service person or trained installer.
- The battery does not discharged when the load is under the certain level.
- This document is for your reference only. Read the installation manual on the website below. https://www.lg.com/global/business/ess/residential/dc-5
- Please check the following website for warranty policy. https://www.lg.com/global/business/ess/residential/dc-5

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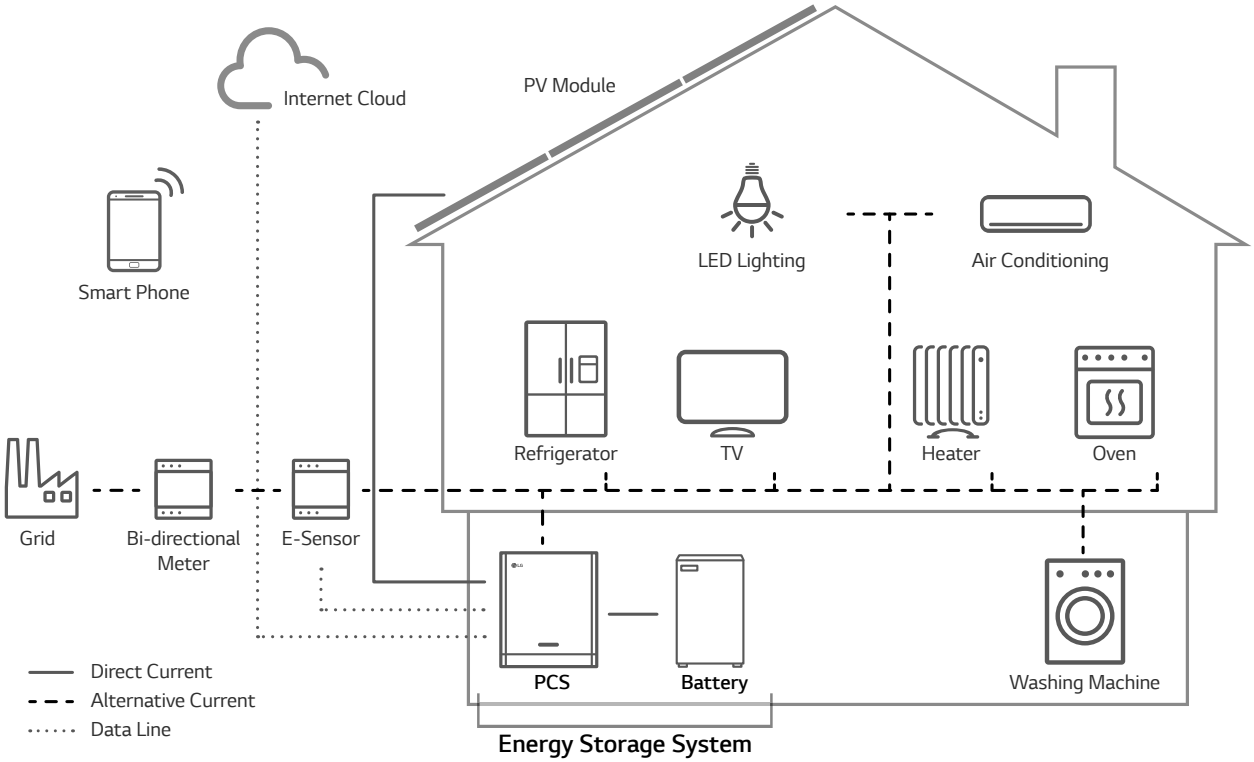
Product Features

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 and PV 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.

Abbreviations on this manual

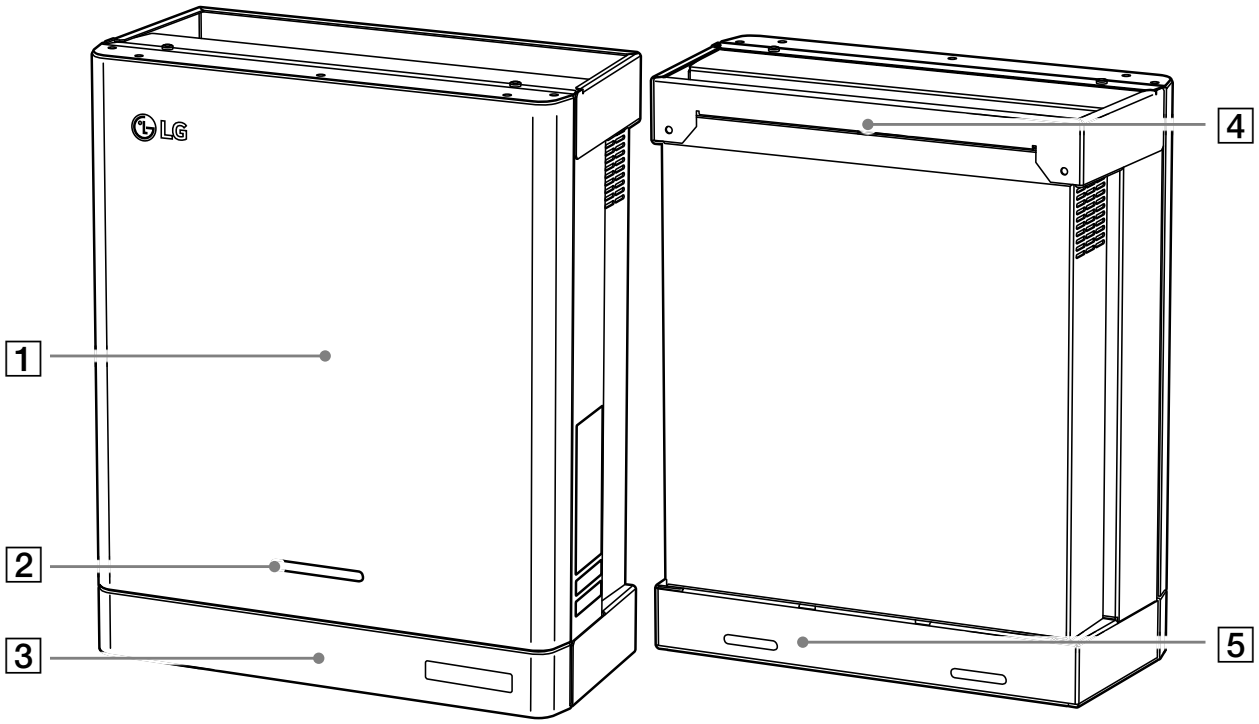
Abbreviation	Designation	Explanation
ESS	Energy Storage System	Inverter system that stores energy into a battery and uses it.
PCS	Power Conditioning System	A device intended to convert DC electricity generated from PV system to AC electricity and feed it to household appliances.
PV	Photovoltaic	Solar 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.

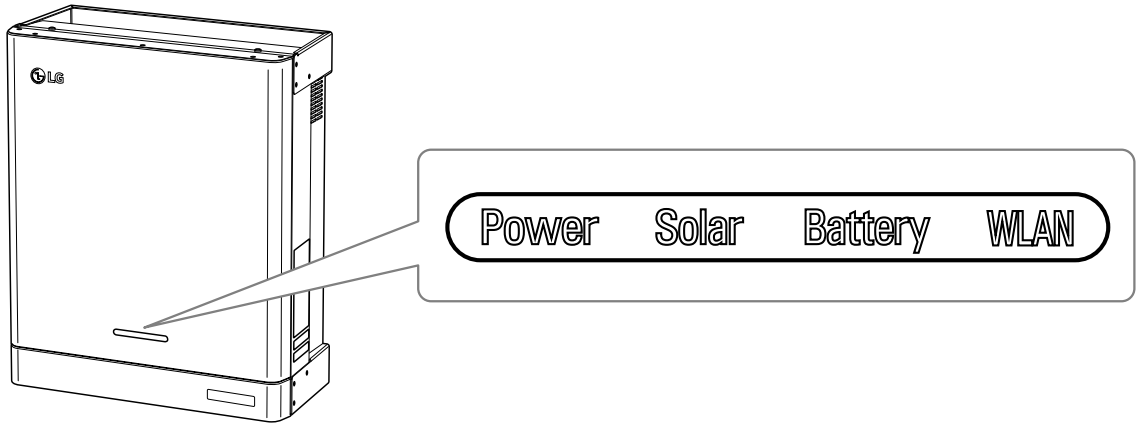
Name of each part

Front and Rear



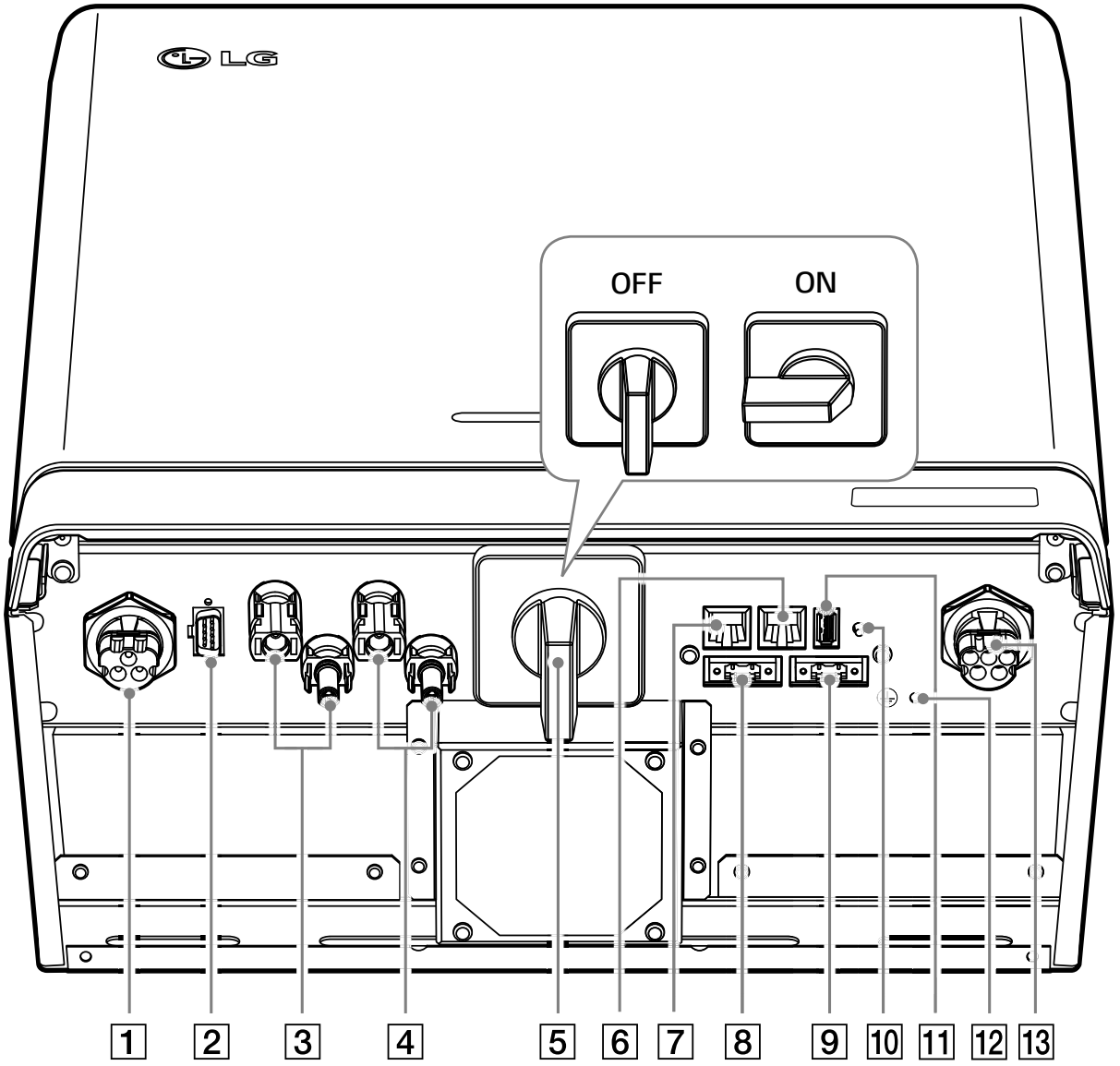
1 PCS body
2 LED Indications
3 Lower Cover
4 Bracket connected part
5 Screw holes for wall mounting

LED indications



LED	Color	Description
Power	Off	Grid is not connected.
	White	Grid is connected.
	White (Blink)	PCS Fault
Solar	Off	Energy is not being generated.
	Green	Energy is being generated.
	White (Blink)	PCS Fault
Battery	Off	Stand by
	Green	Battery is in charging
	Blue	Battery is in discharging
	Red (Blink)	Battery error
	White (Blink)	PCS Fault
WLAN	Off	Not connected
	Green	Network connected
	Blue	WLAN network connected
	Red (Blink)	Network disconnected

Bottom

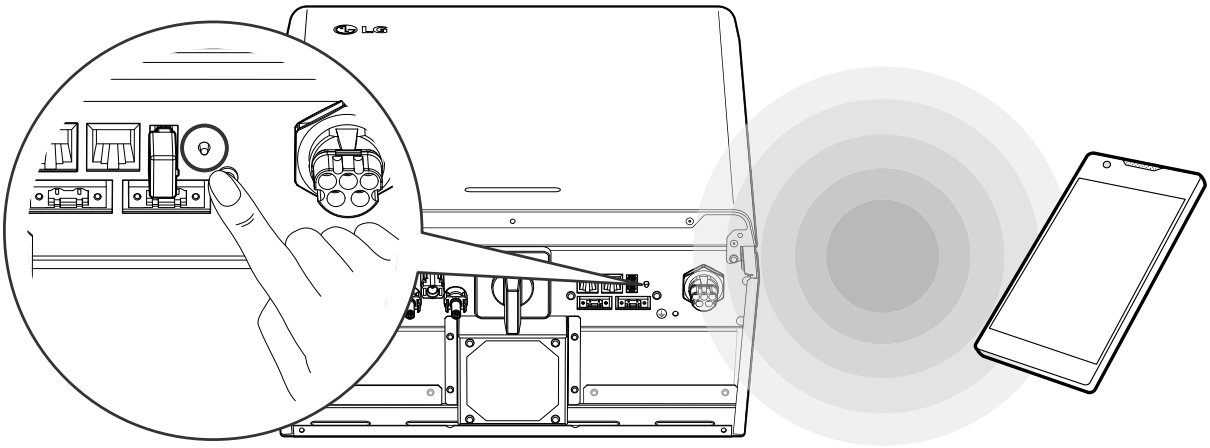


1. Battery DC cable connector
2. BMS control connector
3. PV1(+ and -) connectors
4. PV2 (+ and -) connectors
5. PV switch (DC Disconnect)
6. DRM port (Not supported)
7. Ethernet port
8. Meter connector
9. Heat pump connector (Not supported)
10. Wireless connection button
11. WLAN dongle port (USB type)
12. Additional PE connection hole
13. AC grid cable connector

Connecting to a mobile device

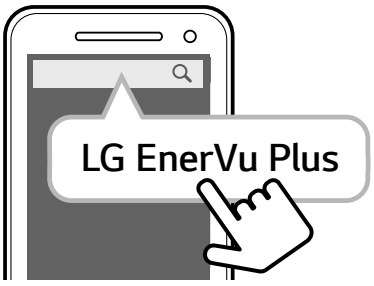
To connect the system to a mobile device, the LG EnerVu Plus mobile application must be installed on your mobile device. Search and download 'LG EnerVu Plus' application from Apple App store or Google Play store.

To connect to the system directly, the WLAN dongle must be connected to the system. Make sure that the supplied WLAN dongle is connected to the system.



Installing 'LG EnerVu Plus' App

Download 'LG EnerVu Plus' on the Apple App Store or Google Play Store.



OR

iOS

NOTE

- Depending on the device, 'LG EnerVu Plus' app may not work.
- LG EnerVu Plus app will be available in version of the software as follow;
  - Android O/S : Lollipop (5.0) or later
  - iOS O/S : iPhone 6 (9.0) or later

Connect via home WLAN

Preparation

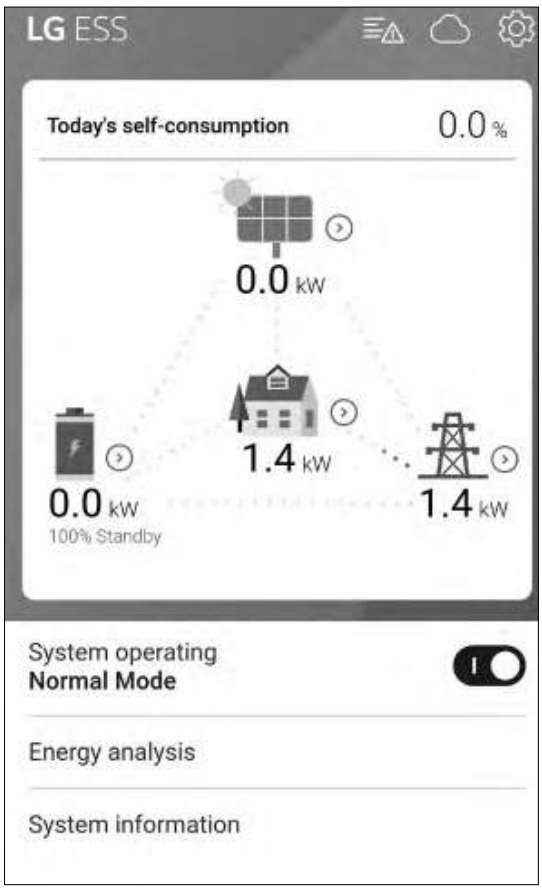
- To connect the mobile device with the system via home network, the system must be connected to your home network. Check the [Network] setting menu on the system.
- Note the SSID of your home network.

1 

Run 'LG EnerVu Plus' app on your mobile device.

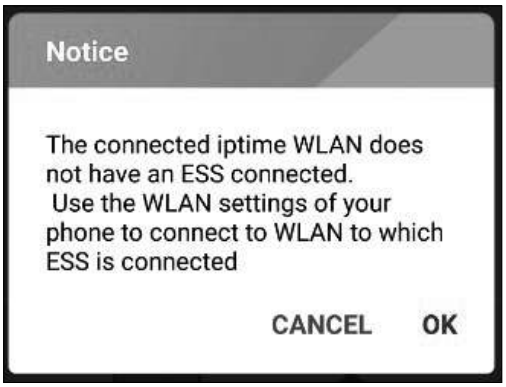
2 

Tap [Connect via Home WLAN] in the connection method selection screen.

3 

The connection will automatically be proceeded and main screen appears when the connection is successful.

4



If the connection fails, a pop-up message appears on the screen.

Tap [OK] to move to the WLAN selection menu of the mobile device.

Select the SSID of your home network.

Connect directly to ESS

1

Run 'LG EnerVu Plus' app on your mobile device.

2

If it is the first time to connect to the system, connection method selection screen appears.

Tap [Connect directly to ESS] option.

3

Press and hold the wireless connection button on the system until [WLAN] LED is lights in blue.

On your mobile device, tap [OK] to go to the next step.

NOTE

If the connection has not been made for 5 minutes, the [WLAN] LED lights green and the WLAN signal is disabled.

4

Read the guidance and tap [OK] to display WLAN selection screen.

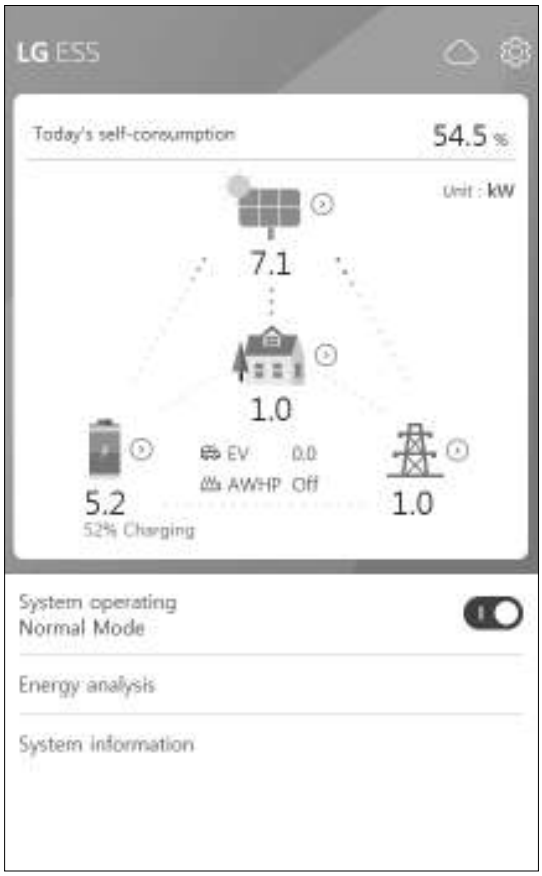
Select the SSID which starts with 'LGE_ESS'. The password input screen appears.

NOTE

The last 2 characters of the SSID are the same as the last 2 characters of the system registration number.

Example :
SSID (LGE_ESS-**5E**)
Registration No. (LGE-ESS-DE1710BKRH0068**5E**)

5



Input WLAN password in the password field to connect to the system.

The WLAN password is 8 digit numbers. Find the 'WLAN password' printed in the label outside of the PCS.

NOTE

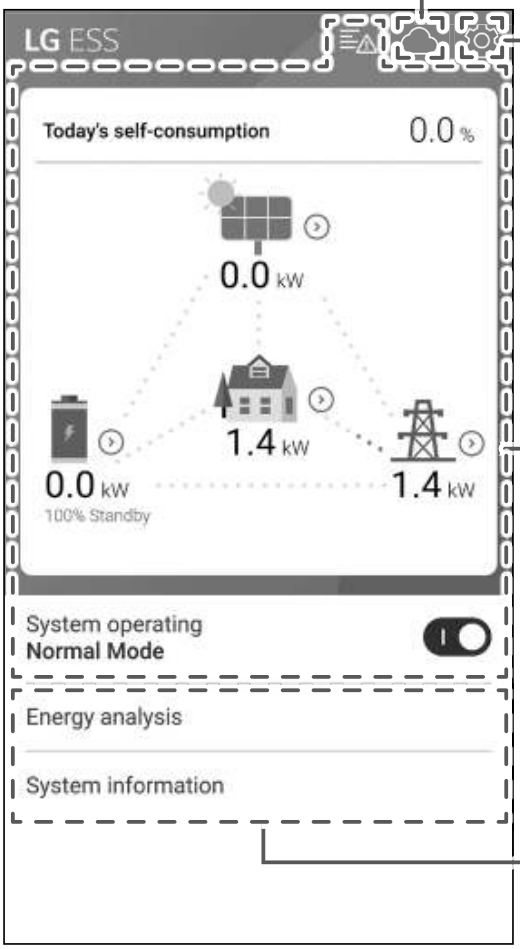
If the connection failed, try after turning off the mobile data option on your mobile device.

Android : If the connection is successful, main screen appears as shown in the figure.

iOS : If the connection is successful, run [LG EnerVu Plus] app to display the main screen as shown in the figure.

About main screen

The main screen displays and indicates current ESS status in the ESS status menu area. And you can check the several settings and information in the ESS setting menu and ESS Information menu areas.



EnerVu web page link

ESS Setting menu

- Language
- Battery
- Quick install guide
- Open source
- Application information
- Installer Settings

ESS Status menu

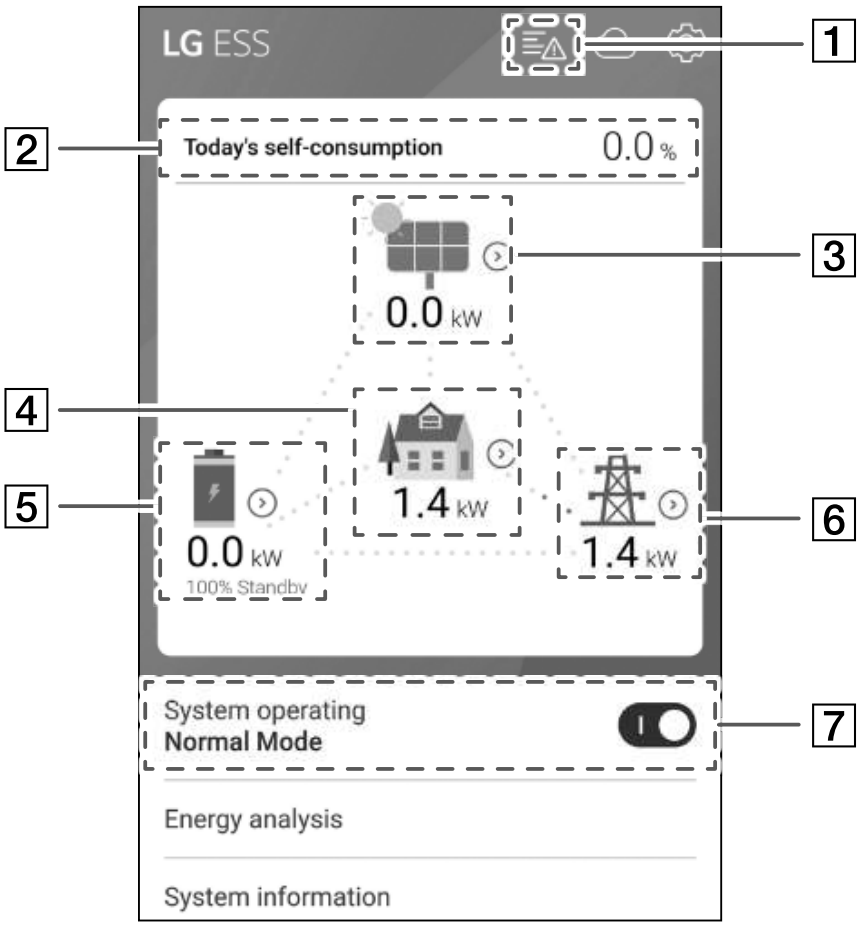
- Load
- Battery
- PV
- Grid
- Energy overview
- Notice list
- System operating

ESS Information menu

- Energy Analysis
- System information

ESS Status menu

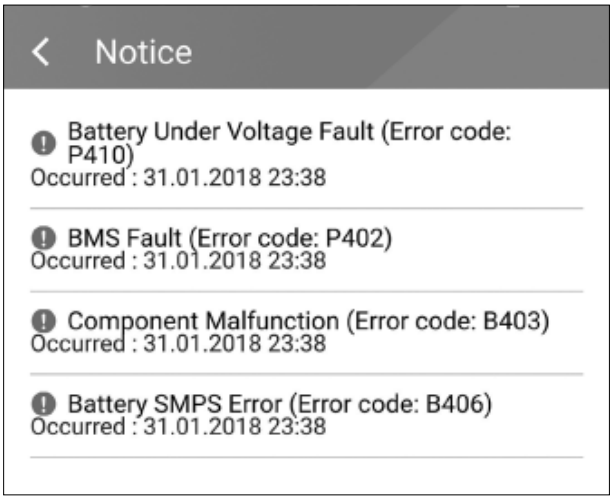
The main screen displays and indicates current ESS status briefly. When you select an area indicated above, it displays detailed information.



NOTE

- The displayed values are not exact values. The values may differ from actual values.
- Please turn on the AP again, if there is a problem at connection with AP.

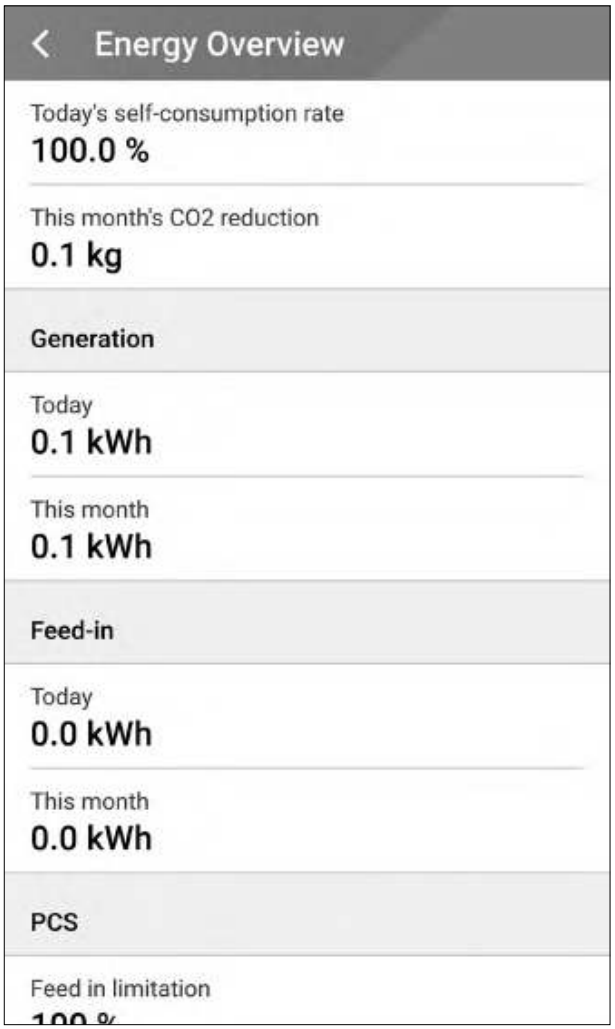
1



Displays a notice list of system status. When there is an error occurred, error code, time and date are displayed on the list.

Refer to installation manual for more information of messages.

2



Displays the [Energy Overview] information on the screen.

Today's self-consumption rate : Displays rate of the consumed energy amount from ESS today.

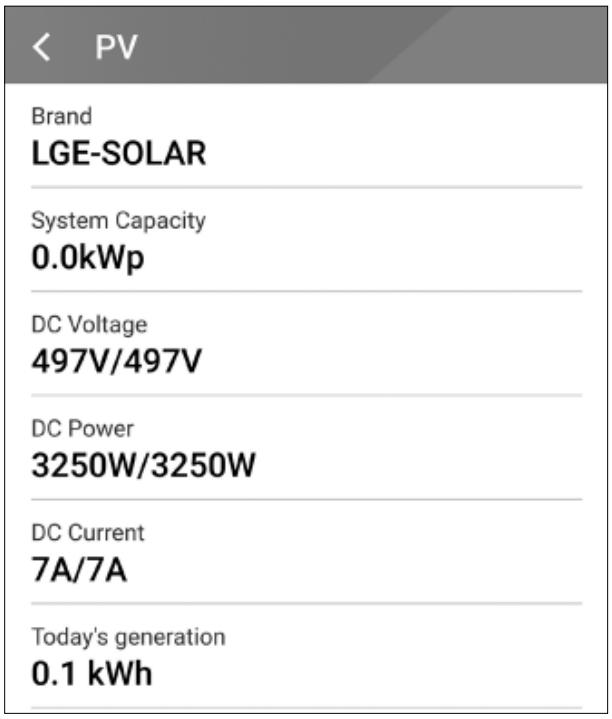
This month's CO2 reduction : Displays monthly amonut of CO2 reduction.

Generation: Displays generated energy information.

Feed-in : Displays consumed energy information.

PCS : Displays PCS information.

3



Displays generating status of the connected PV briefly.

The status values are the sum of PV1 and PV2.

Brand : PV Manufacturer (Default : LGE)

System Capacity : PV capability

DC Voltage : Current PV voltage

DC Power : Current PV power

DC Current : Current PV electric current

Today's generation: Generated PV energy today.

4

Displays detailed status of energy consumed in household.

Load Power : Current power consumed in household

Today

Total consumption : Amount of consumed energy today

From PV : Amount of energy from PV to household today

From Battery : Amount of energy from the battery to household today

From Grid : Amount of energy from the power grid to household today

This month

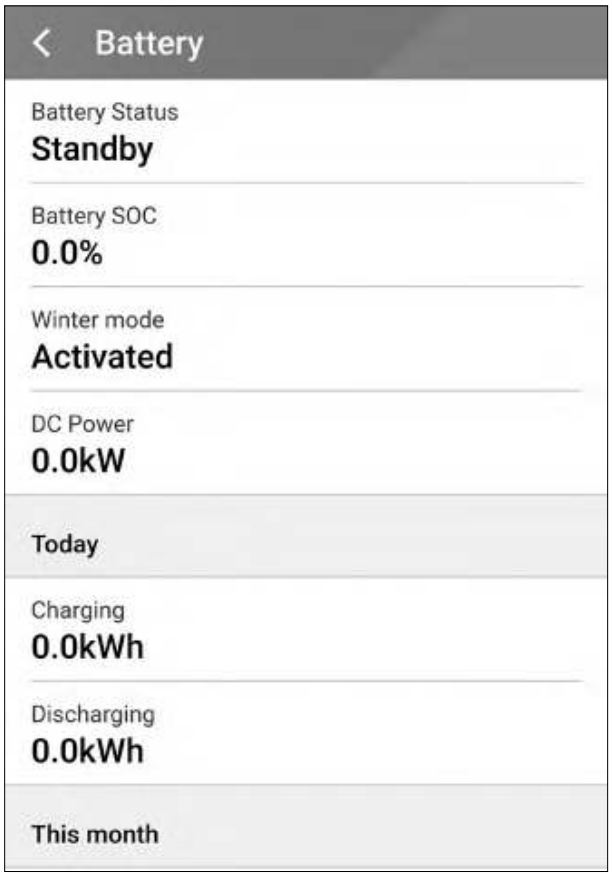
Total consumption : Amount of consumed energy this month

From PV : Amount of energy from PV to household this month

From Battery : Amount of energy from the battery to household this month

From Grid : Amount of energy from the power grid to household this month

5



Displays charging and discharging status of the battery briefly.

Battery Status : Charging/Discharging/ Standby

Battery SOC: Current SOC (state of charge) level

Winter Mode : Shows winter mode status.

DC Power : Current output power from battery

Today

Charging : Amount of charged energy to the battery today.

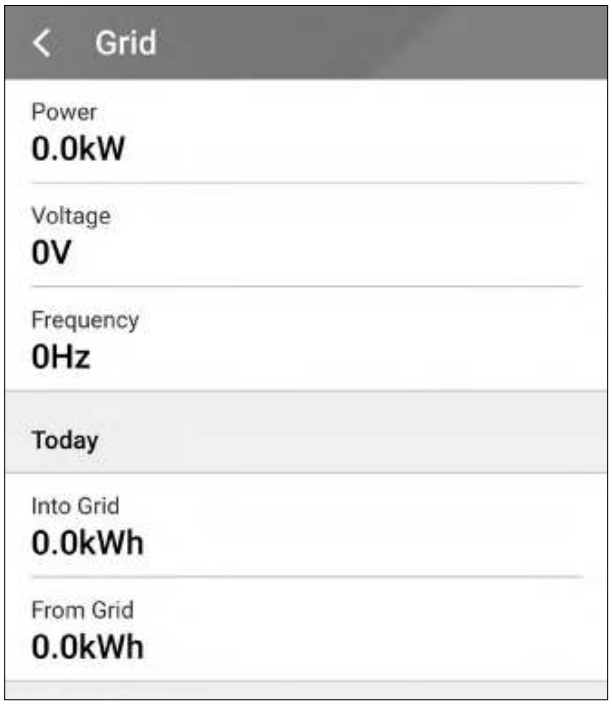
Discharging : Amount of discharged energy from the battery today

This month

Charging : Amount of charged energy to the battery in this month

Discharging : Amount of discharged energy from the battery in this month

6



Displays current status of power grid.

Power: Current grid power

Voltage: Current grid voltage

Frequency : Current grid frequency

Today

Into Grid : Amount of sold energy today

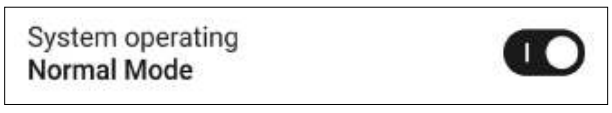
From Grid : Amount of purchased energy today

This month

Into Grid : Amount of sold energy today and this month

From Grid : Amount of purchased energy this month

7



[System Operating]

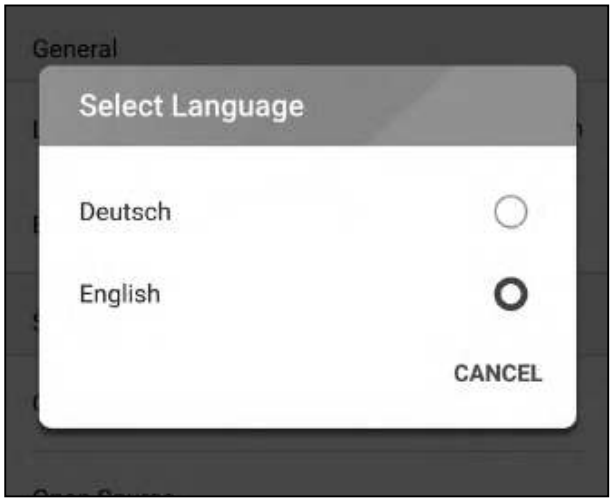
Tap switch to start or stop system operation.

ESS Setting menu

You can adjust general settings of the system. Select [main screen] > [⚙] to display the [Setting] screen.

Language

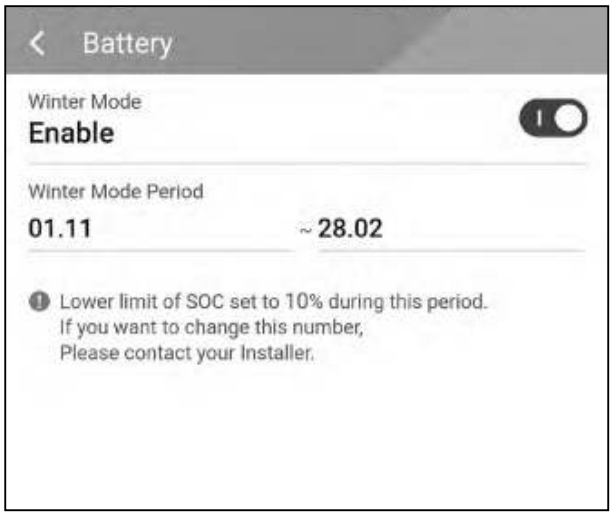
Select [⚙] > [Language] to display the language selection screen.



Select the desired language between [Deutsch] and [English].

Battery

Select [⚙] > [Battery] to display the battery setting screen.



[Winter mode]

Tap this switch to select [Enable] or [Disable].

The minimum SOC level of winter mode can be changed by the installer only.

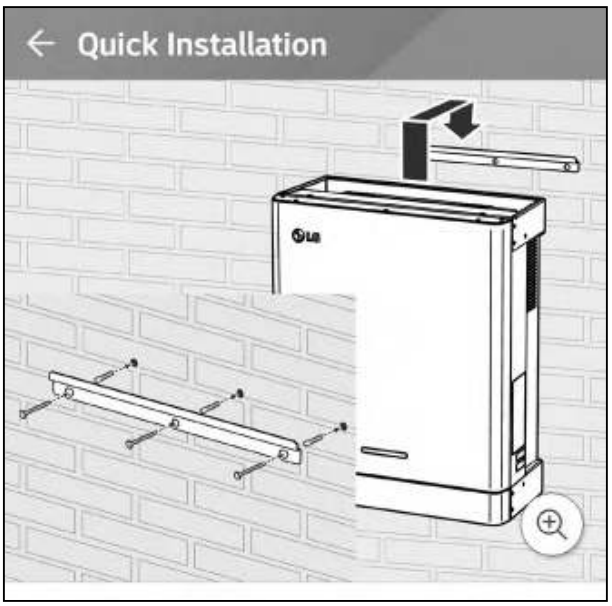
[Winter Mode Period]

Tap current value to display the setting menu. You can change the period

1. Select the currently selected value. Period setting menu is displayed.
2. Adjust [Month] and [Day] using ∨ or ∧.
3. Select [APPLY] to complete the setting.

Quick install guide

Select [⚙] > [Quick install guide] to display the install guidance screen.

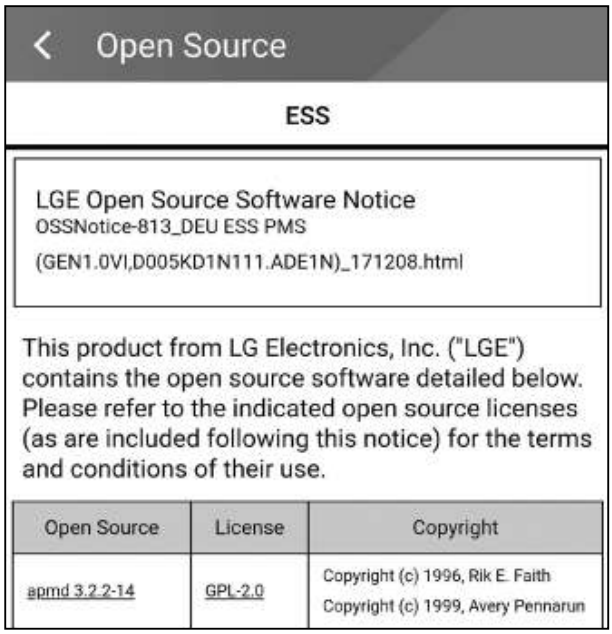


You can check the brief installation instruction on the [Quick install Guide] screen.

Open source

You can check the open source information of the application and the system.

Select [⚙] > [Open source] to display the open source notice screen.



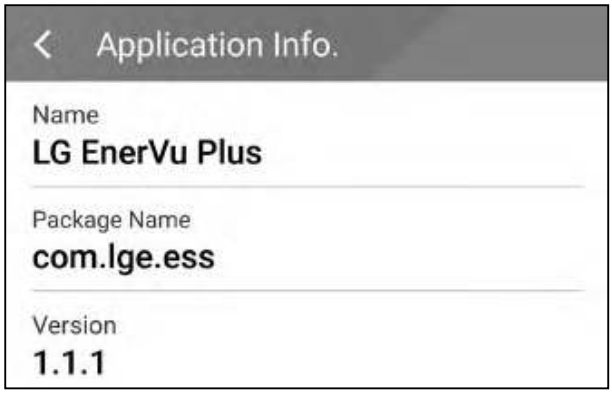
To obtain the source code under GPL, LGPL, MPL, and other open source licenses, that is contained in this product, please visit http://opensource.lge.com.

In addition to the source code, all referred license terms,

warranty disclaimers and copyright notices are available for download. LG Electronics will also provide open source code to you on CD-ROM for a charge covering the cost of performing such distribution (such as the cost of media, shipping, and handling) upon email request to opensource@lge.com. This offer is valid for three(3) years from the date on which you purchased the product.

Application information

Select [⚙] > [Application information] to display the application information screen.



You can check the information of this application such as application name, application package name and application version.

Installer Settings

The system needs various system settingsby installer when installing. Users are not allowed to enter [Installer Settings] menu. Try not to enter the menu. It may cause serious malfuction on the system, if user changes settings on the[Installer Settings] menu.

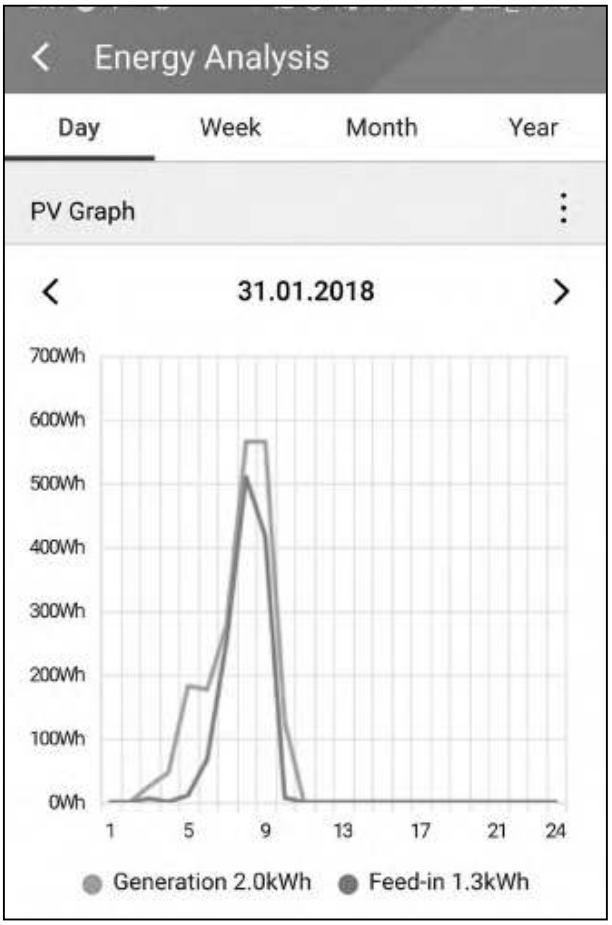
ESS information menu

Energy Analysis

On [Energy Analysis], you can check the statistical information of this system.
You can review the amount of energy generated, consumed, sold and purchased on this system.
The statistical data of the day, week, month and year are supported.

PV Graph

Analyzes the energy generated and sold from PV within selected period and displays as a graph.



Select [PV Graph] on [Energy Analysis].

Generated energy is marked with green and sold energy is marked with purple on the line graph.

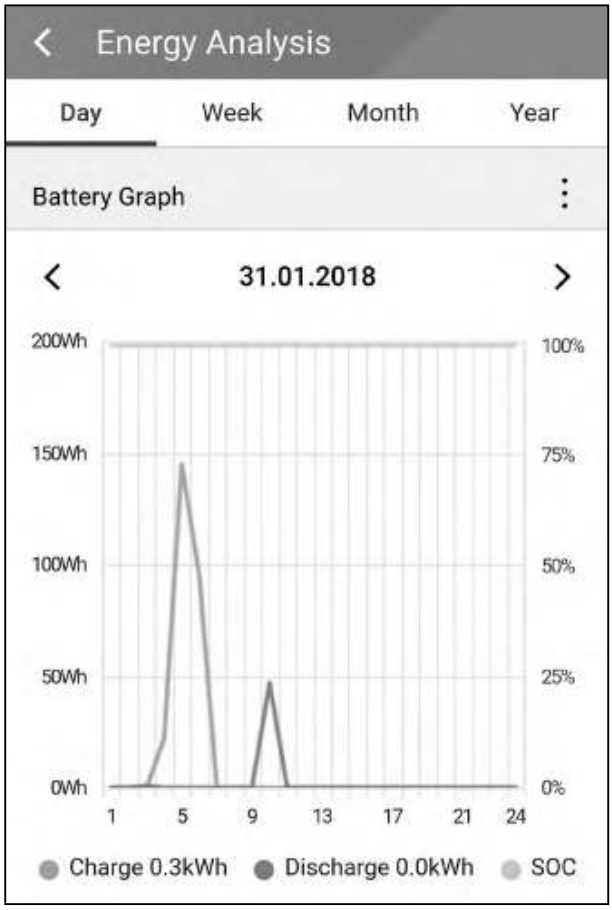
You can change the period by tapping [Day], [Week], [Month] and [Year].

< : Goes to previous [Day], [Week], [Month] or [Year].

> : Goes to next [Day], [Week], [Month] or [Year].

Battery Graph

Analyzes the energy charged and discharged on the battery within selected period and displays as a graph.



Select [Batt Graph] on [Energy Analysis].

Charged energy is marked with green, discharged energy is marked with purple, and current status of the battery is marked with yellow on the line graph.

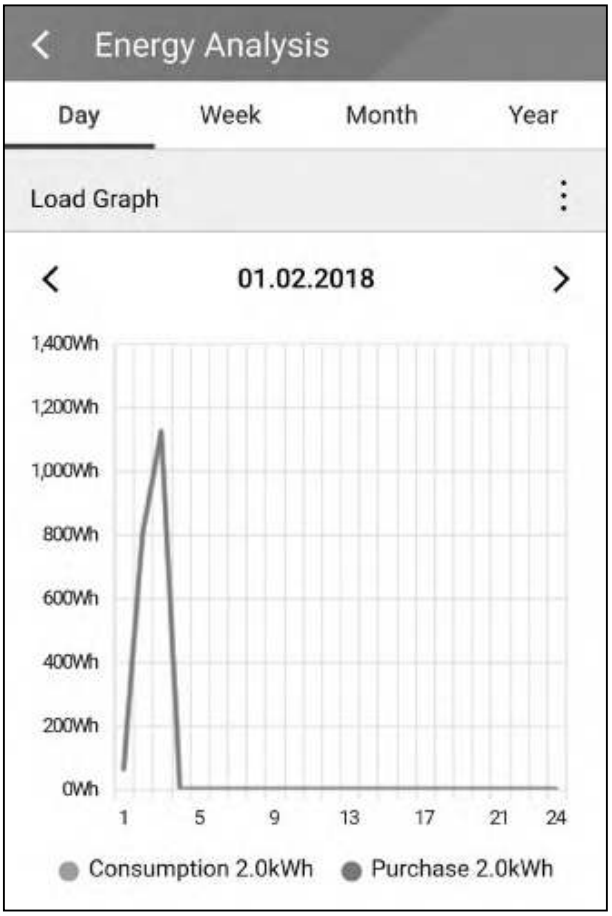
You can change the period by tapping [Day], [Week], [Month] and [Year].

< : Goes to previous [Day], [Week], [Month] or [Year].

> : Goes to next [Day], [Week], [Month] or [Year].

Load Graph

Analyzes the energy consumed and purchased from grid within selected period and displays as a graph.



Select [Load Graph] on [Energy Analysis].

Consumed energy is marked with green, and purchased energy is marked with purple.

You can change the period by tapping [Day], [Week], [Month] and [Year].

< : Goes to previous [Day], [Week], [Month] or [Year].

> : Goes to next [Day], [Week], [Month] or [Year].

System Information

Displays system information of this ESS. You can check information on PCS, battery and network status. Scroll up or down to display next or previous information.

Using EnerVu system

When this product is connected to the internet, you can check variety of information such as system status, information, report using LG EnerVu web monitoring system.

NOTE

End users do not have to register in the EnerVu service. However, if the end user does not use this service, it is not possible to enable maintenance via remote service (such as firmware update) over the Internet.

Preparation

- An internet browser installed computer, tablet or mobile with internet access are needed to access LG ESS web monitoring system.
- This product must be connected to internet. Check [Network] setting menu on the system.

Creating a new account

1

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

2

Select [Sign Up]. The service agreement 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 account creation page appears.

3

Fill your 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.

Checking EnerVu activation

1

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

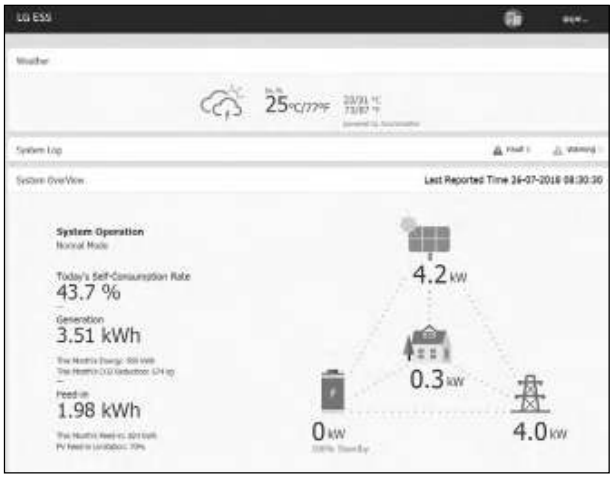
OR

On your mobile app, select [☁] to open the LG EnerVu page with a mobile browser.

2

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

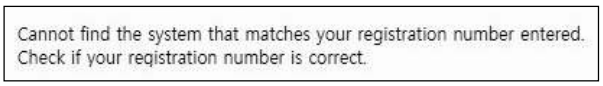
3



You can see the screen on the left when the registration and activation are completed.

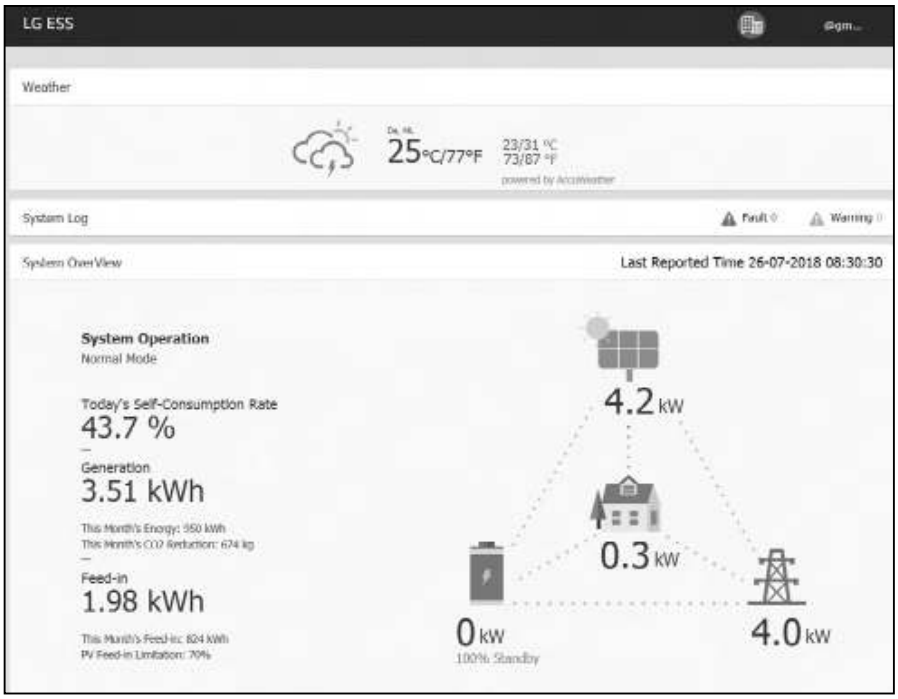
You can see the screen on the left when the registration is in incomplete status.

Input the registration number printed in the label attached outside of the PCS and select [Check] to complete the registration and activation.



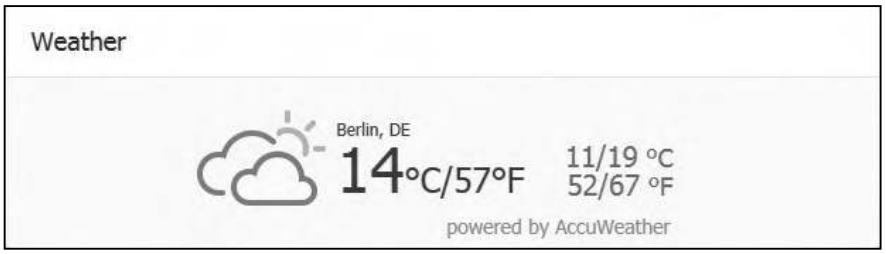
If a pop-up message on the left appears on the screen, contact the installer to activate your system.

Overview of my EnerVu page



When you enter the main page of your EnerVu, you can find and check various information related to your system.

Weather

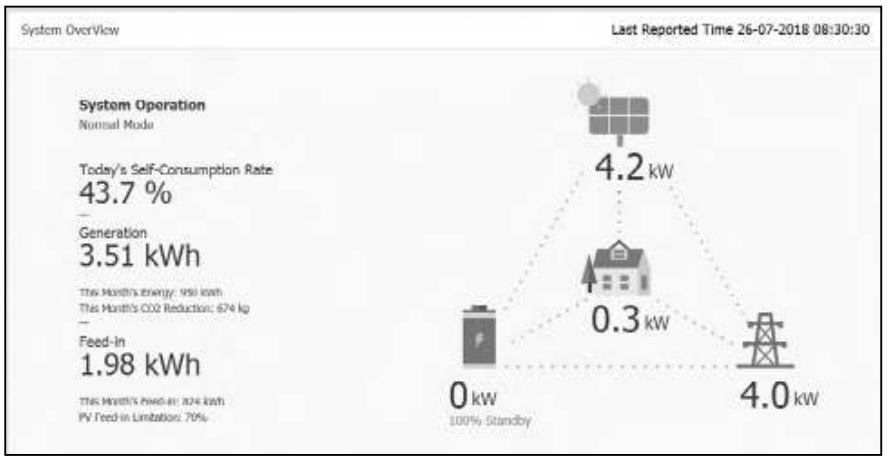


Displays the weather of the location the system has been installed. This page provides you

System Log

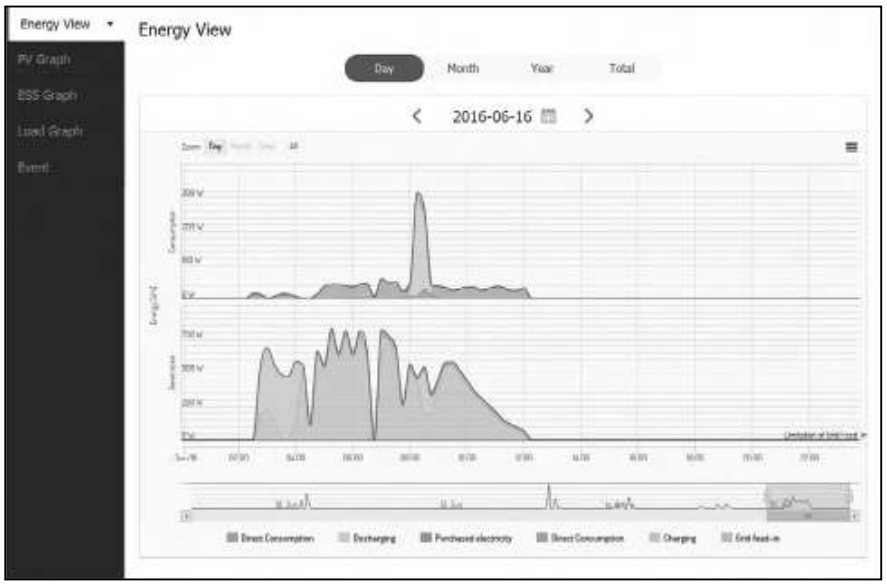
Displays the system fault.

System Overview



Displays the status of the system. This page provides you with system information such as current power generated from PV, power purchased from grid, power charged/discharged from the battery. ALL the information is renewed every 10 seconds..

Analysis



On this page, you can make a statistical graph of the energy analysis.
You can review the amount of energy generated, consumed, sold and purchased on the system. The variety of statistical charts are supported on the page.

On the [Event] tab, you can check the issues occurred on the system.

System Info

Displays information on your system.

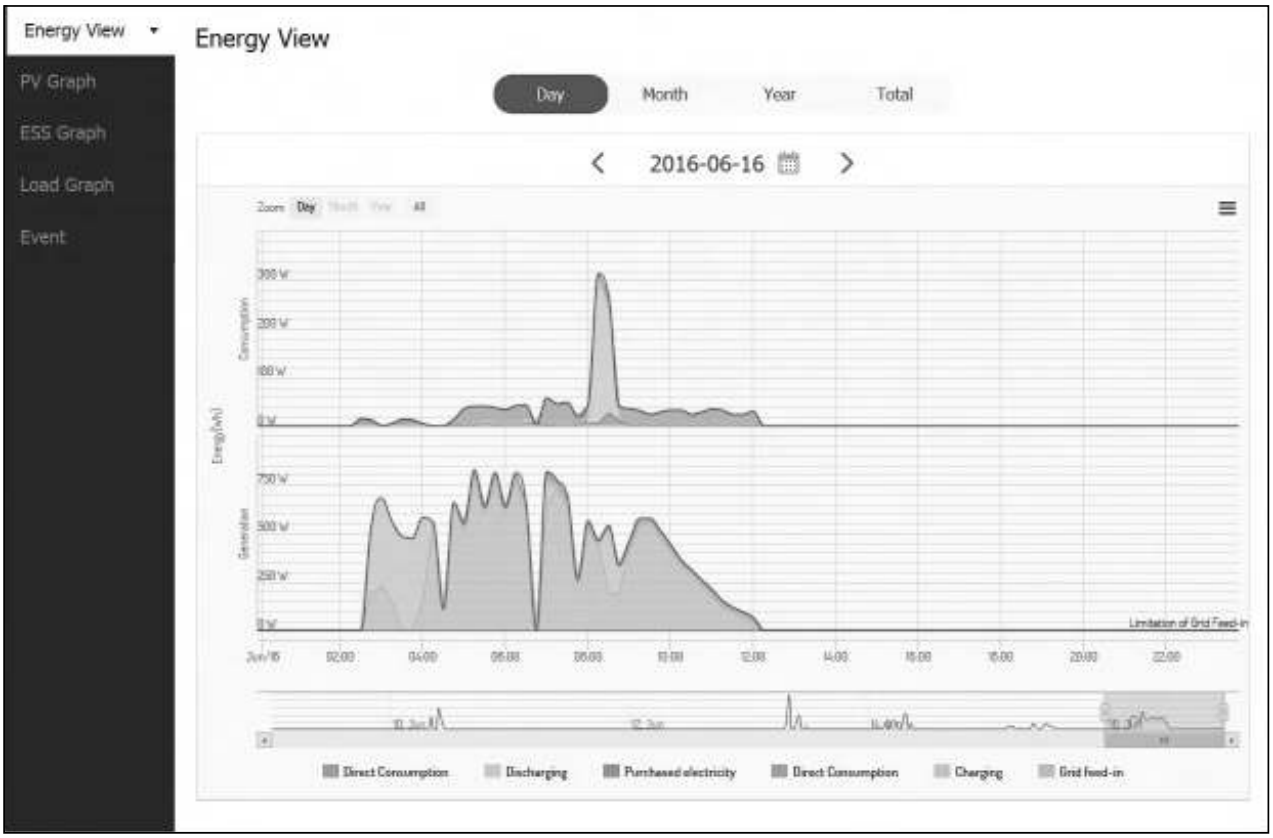
Report

You can make a monthly or an yearly report of statistical data for energy management on your system.

Making a statistical graph

You can make a daily, monthly or an yearly graph of statistical data for energy management on your system.

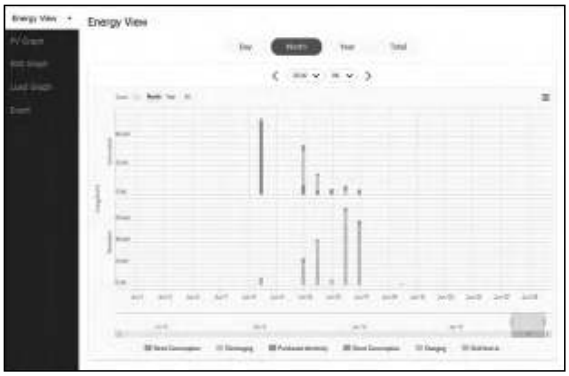
Select the [Day], [Month], [Year] or [Total] option to make a graph of statistical data.

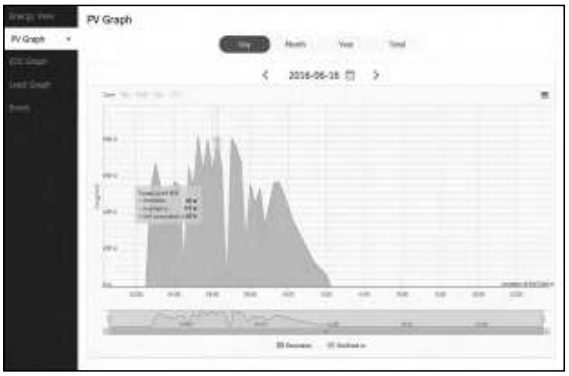


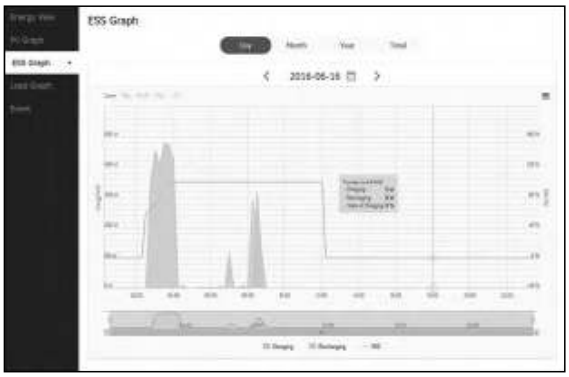
1. Select a tab on the left side of the screen.

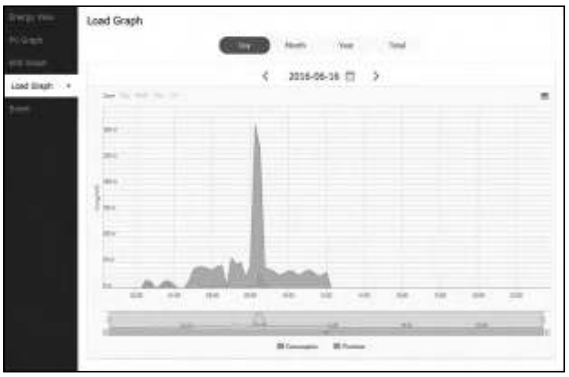
Energy View	Makes an overall graph of statistical data.
PV Graph	Makes a graph of statistical data on PV. (Generation and Grid feed-in)
ESS Graph	Makes a graph of statistical data on ESS (Charging, Discharging and SOC)
Load Graph	Makes a graph of statistical data on household load. (Consumption and Purchase)

2. Select a duration option among [Day], [Month], [Year] or [Total].
3. Select a date, month or year to make a statistical graph.
   After the selection, the graph will be displayed in a short time.

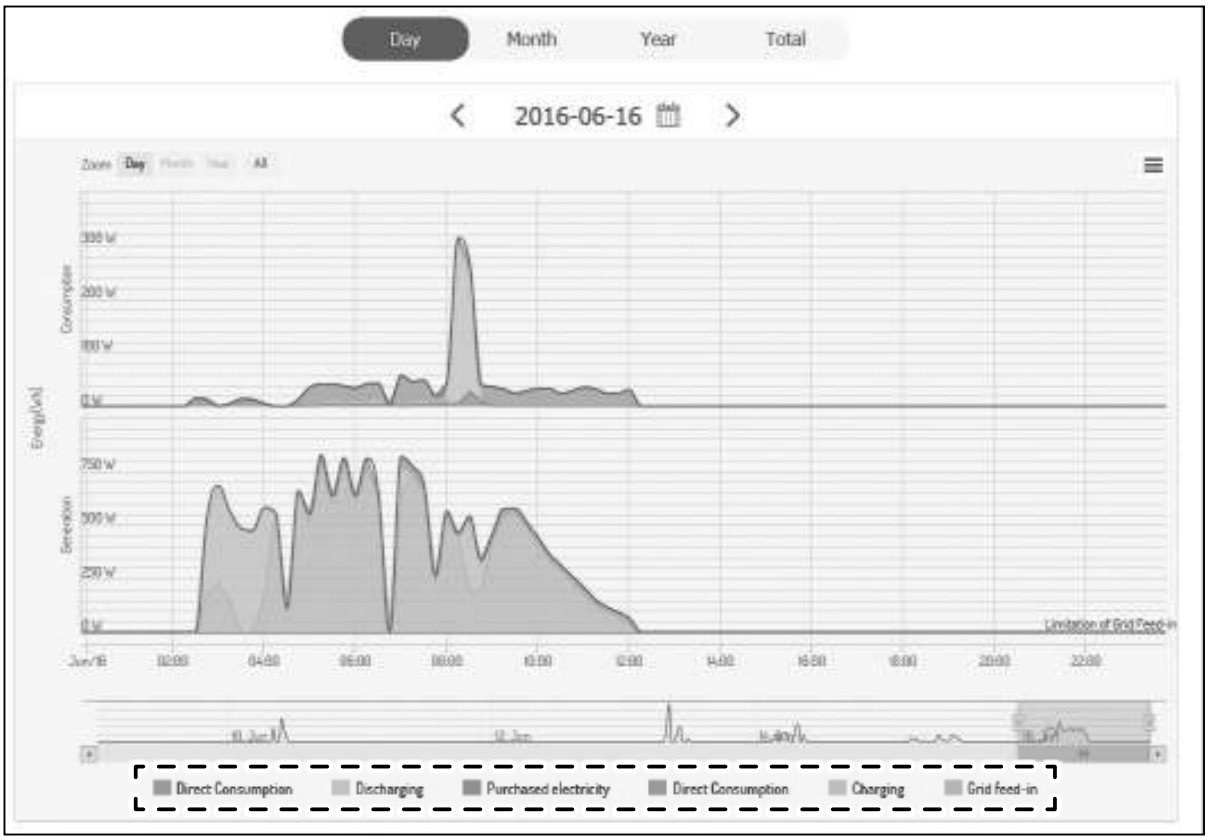

Energy View
Energy View


PV Graph
PV Graph


ESS Graph


Load Graph

4. There are several options at the bottom of a graph, click each option to show or hide the statistical information on the graph.



Available options differ depending on the graph. Refer to table described below for more information of graph options.

Tab	Graph	Options	Description
Energy View	CONSUMPTION	Direct Consumption	Amount of directly used energy from PV.
		Discharging	Amount of energy that used from the battery.
		Purchased electricity	Purchased energy through the power grid.
	GENERATION	Direct Consumption	Amount of directly used energy from PV
		Charging	Amount of energy that charged to the battery.
		Grid feed-in	Amount of sold energy to the power grid.

PV Graph	Energy	Generation	Amount of generated energy from PV.
		Grid feed-in	Amount of sold energy to the power grid.
ESS Graph	Energy	Charging	Amount of energy that charged to the battery.
		Discharging	Amount of used energy from the battery.
		SOC	State of charge
Load Graph	Energy	Consumption	Amount of used energy from ESS.
		Purchase	Amount of purchased energy from the power grid.

5. Select [☰] to print a graph or download as an image file.

Checking system event

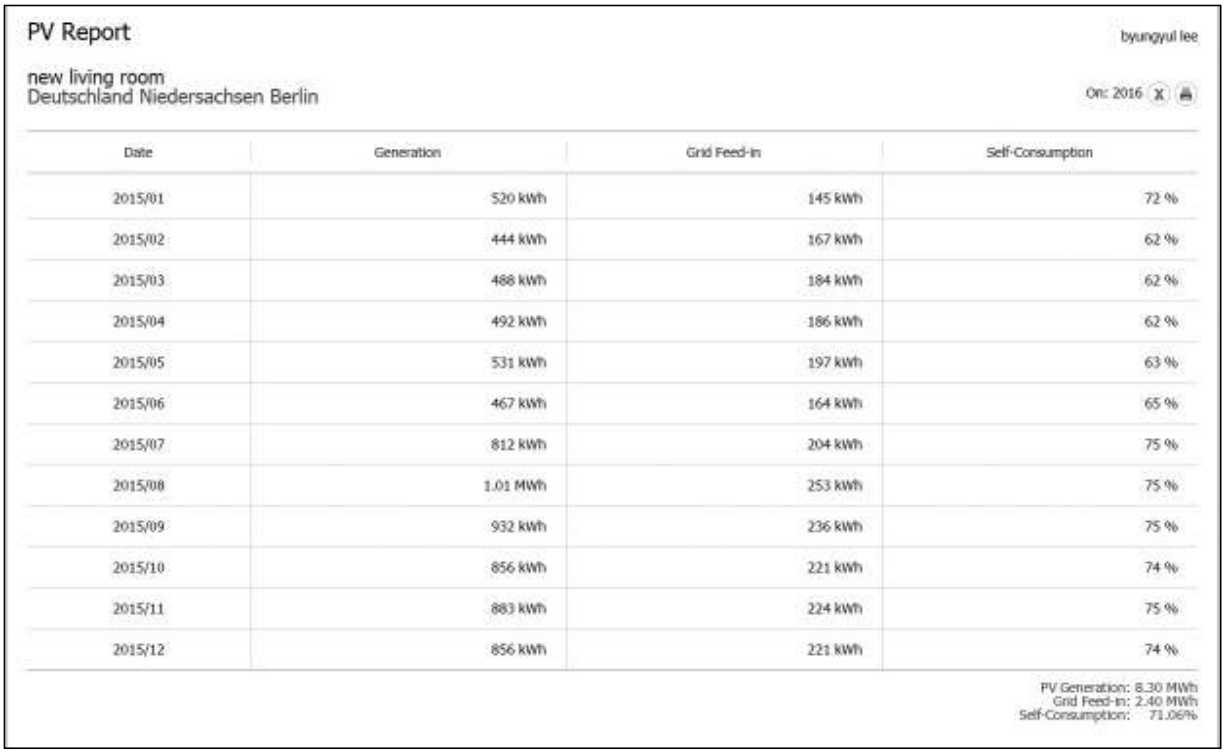
When you select the [Event] tab, the page shows a list of issues occurred such as system fault, warning.

1. Select the [Event] tab on the left side of the screen. A list of issues such as system faults, warnings appears on the screen.
2. Select the [Type] option among [All], [Fault] and [Warning]. The event list will be filtered by selected type option.

Making a statistical report

You can make a monthly or an yearly report of statistical data for energy on your system.

1. Select a report option among [PV Report], [ESS Report], [Load Report], [Balance Report] or [Total Report].
2. Select a reporting period option between [Yearly report] or [Monthly report].
3. Select desired month or year.
4. Select [Run Report]. A statistical report will be displayed.



PV Report

byungyul lee

new living room
Deutschland Niedersachsen Berlin

On: 2016

Date	Generation	Grid Feed-in	Self-Consumption
2015/01	520 kWh	145 kWh	72 %
2015/02	444 kWh	167 kWh	62 %
2015/03	488 kWh	184 kWh	62 %
2015/04	492 kWh	186 kWh	62 %
2015/05	531 kWh	197 kWh	63 %
2015/06	467 kWh	164 kWh	65 %
2015/07	812 kWh	204 kWh	75 %
2015/08	1.01 MWh	253 kWh	75 %
2015/09	932 kWh	236 kWh	75 %
2015/10	856 kWh	221 kWh	74 %
2015/11	883 kWh	224 kWh	75 %
2015/12	856 kWh	221 kWh	74 %

PV Generation: 8.30 MWh
Grid Feed-in: 2.40 MWh
Self-Consumption: 71.06%

Select to download the statistical data as Excel.

Select to print the statistical data.

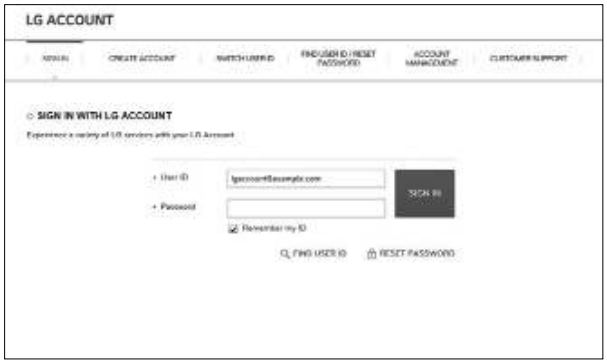
Transferring your system to other owner

You can transfer your system to other owner. Once your system is transferred, the system can not be monitored with your account.

Preparation

- Note the email address of recipient.
- The email address of recipient must be registered as a LG member. If the recipient is still not a LG member, an automatic email requesting to become a member will be sent to the recipient.

1

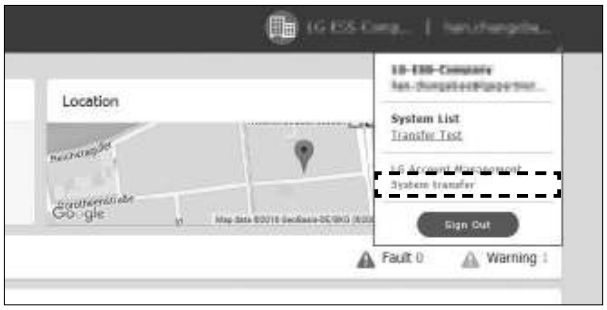


On your browser, visit LG EnerVu page at http://enervu.lg-ess.com.

Select [Sign In]. The [SIGN IN WITH LG ACCOUNT] page appears.

Enter your [User ID] and [Password] then select [SIGN IN] to enter the EnerVu web monitoring system.

2



Select your [User ID] on top of the screen. A menu appears on the screen.

Select [System transfer]. The system transfer page appears on the screen.

3

Enter the email address of the recipient in the [ID] field and select [Check].

If the recipient is not a LG member, a pop-up message appears for sending mail to make a LG account.

4

Enter the recipient information in the [First Name] and [Last Name] fields and select [Done] to complete the system transferring.

The system will automatically log off.

Maintenance

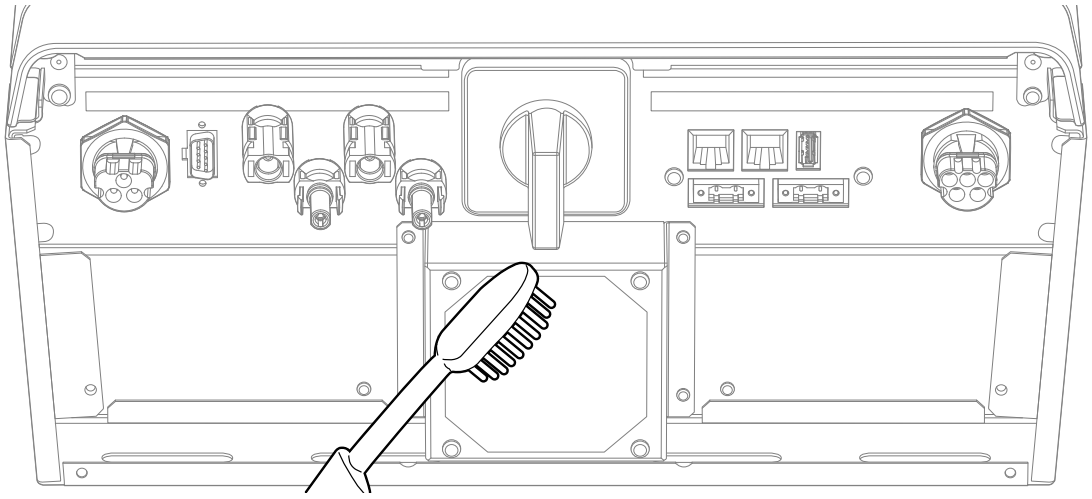
Cleaning the product

Wipe off the outside of the product with a soft towel with lukewarm water and wipe it with a clean hand towel so that dirt will not occur when using a neutral detergent. When cleaning the outside of the product, do not brush it with a rough brush, toothpaste, or flammable materials. Do not use cleaning agents containing flammable substances.

- It may cause discoloration of the product or damage to the product.
- Flammable substances : Alcohol (Ethanol, Methanol, Isopropyl alcohol, Isobutyl alcohol, etc.), Thinner, Benzene, Flammable liquid, Abrasive etc.)

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, clean the filter with soft brush.



Inspecting regularly

It is recommended to check the operating status and connection status once a year. It should be done by technician or authorized people. Contact authorized dealer or where you purchased.

Contact

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

1. Installation Company

   Address :

   Tel :

2. LGE

   LG Electronics ESS | Solar Service
   E-Service Haberkorn GmbH
   Augustenhöhe 7
   06493 Harzgerode

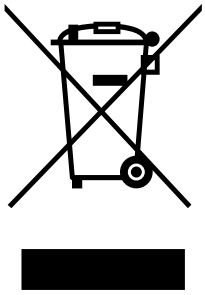
   Tel : DE: 0049 (0)39484 / 976 380
   AT: 0043 (0)720 / 11 66 01
   CH: 0041 (0)44 / 505 11 42
   E-Mail : lge@e-service48.de

   LG Electronics Deutschland GmbH
   Alfred-Herrhausen-Allee 3-5
   65760 Eschborn

   Tel. : + 0049 18 06 807 020
   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

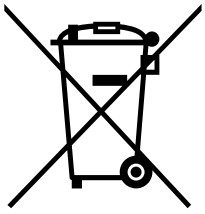
Removal of waste batteries and accumulators

(Product with embedded battery ONLY)

In case this product contains a battery incorporated within the product which cannot be readily removed by end-users, LG recommends that only qualified professionals remove the battery, either for replacement or for recycling at the end of this product's working life. To prevent damage to the product, and for their own safety, users should not attempt to remove the battery and should contact LG Service Helpline, or other independent service providers for advice.

Removal of the battery will involve dismantling of the product case, disconnection of the electrical cables/contacts, and careful extraction of the battery cell using specialized tools. If you need the instructions for qualified professionals on how to remove the battery safely, please visit http://www.lge.com/global/sustainability/environment/take-back-recycling

Disposal of waste batteries/accumulators



1. This symbol may be combined with chemical symbols for mercury (Hg), cadmium (Cd) or lead (Pb) if the battery contains more than 0.0005% of mercury, 0.002% of cadmium or 0.004% of lead.
2. All batteries/accumulators should be disposed separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
3. The correct disposal of your old batteries/accumulators will help to prevent potential negative consequences for the environment, animal and human health.
4. For more detailed information about disposal of your old batteries/accumulators, please contact your city office, waste disposal service or the shop where you purchased the product. (http://www.lg.com/global/sustainability/environment/take-back-recycling/global-network-europe)

Specifications

DC Input	
Max. input voltage	800 V
Min. input voltage	210 V
Max. DC power	6.6 kW (3.3 kW 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

AC Output	
Rated grid voltage	3-NPE 400 V / 230 V
AC voltage range	319 – 458 V / 184 – 264.5 V
Frequency (Frequency Range)	50 Hz (47.5 Hz – 51.5 Hz)
Max.Output Power	5.6 kVA
Rated Output Power	5kW
Current Inrush	70 Aac-peak / 0.05 ms
Max. fault current	80 Aac-peak / 20 ms
Max. output overcurrent protection	11 A
Max. output current	8 A
Total harmonic distortion / Power Factor with Rated Power	< 5% / ±0.9
Phases	3

Battery	
Battery Type	Lithium Polymer
Max Charge(Discharge) Power	3.0 kW
Capacity (Expandable)	6.4 kWh (Max. 12.8 kWh)
DoD	90 %
Current Capacity	31.5 Ah
Rated Input Voltage	207.2 V

Efficiency (PCS)	
Max. Efficiency (PV to Grid)	97.7 %
European Efficiency (PV to Grid)	96 %

General Data	
Dimensions (W/H/D, mm)	408 / 490 / 185 (PCS) 408 / 682 / 180 (Battery)
Weight (PCS / Battery)	25 kg / 58 kg
Operating temperature	0 °C to 40 °C

Feature & function	
Noise emission (Typical)	< 40 dB
Cooling	Forced convection
Topology	Transformerless
Degree of protection	IP21
Max. permissible value of relative humidity (non-condensing)	85 % (Climate class 3K5)
Warranty (PCS)	10 years
Warranty (Battery)	10 years (SOH 80 %)
Certification (PCS)	CE / IEC62109-1/-2, VDE-AR-N-4105 / VDE 0126-1-1 / TOR D4 2016 / OVE / ONORM E 8001-4-712 / IEC61000 series
Certification (Battery)	CE / IEC62133 / IEC62619 / UN38.3

Energy Meter Compatibility	
Manufacturer	**Model**
ABB	B23 112-100
	B23 212-100
	B23 312-100

- The noise emission value is measured in a soundproof room and can vary depending on the environment.
- If you are installing in a place sensitive to noise, please consult the installer.
- Design and specifications are subject to change without notice.

Open Source Software Notice Information

To obtain the source code under GPL, LGPL, MPL, and other open source licenses, that is contained in this product, please visit http://opensource.lge.com. In addition to the source code, all referred license terms, warranty disclaimers and copyright notices are available for download. LG Electronics will also provide open source code to you on CD-ROM for a charge covering the cost of performing such distribution (such as the cost of media, shipping, and handling) upon email request to opensource@lge.com. This offer is valid for three (3) years from the date on which you purchased the product.

LG
Life's Good

How to subscribe to LG ESS web monitoring system

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

https://www.lg.com/global/business/ess

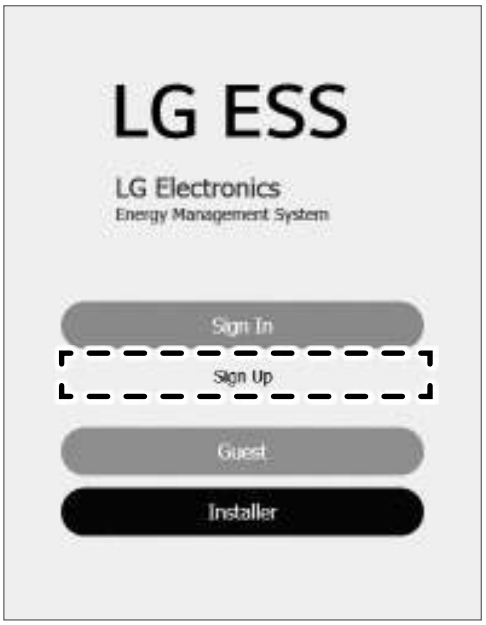
Table of Contents

NOTE

Since system information is shared by the installer, in order to protect your privacy if you do not wish to register, you do not have to do it.

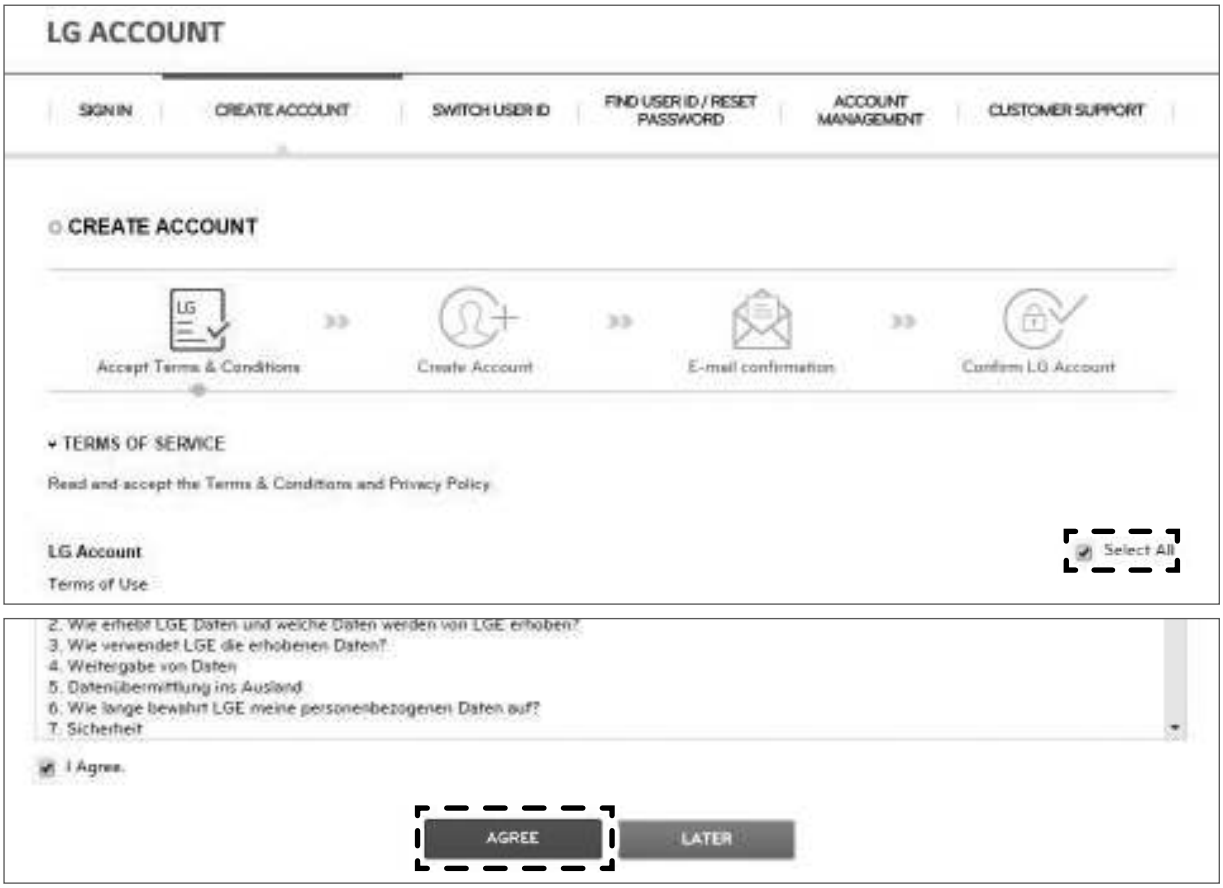
Sign up

Visits the web site http://enervu.lg-ess.com/.



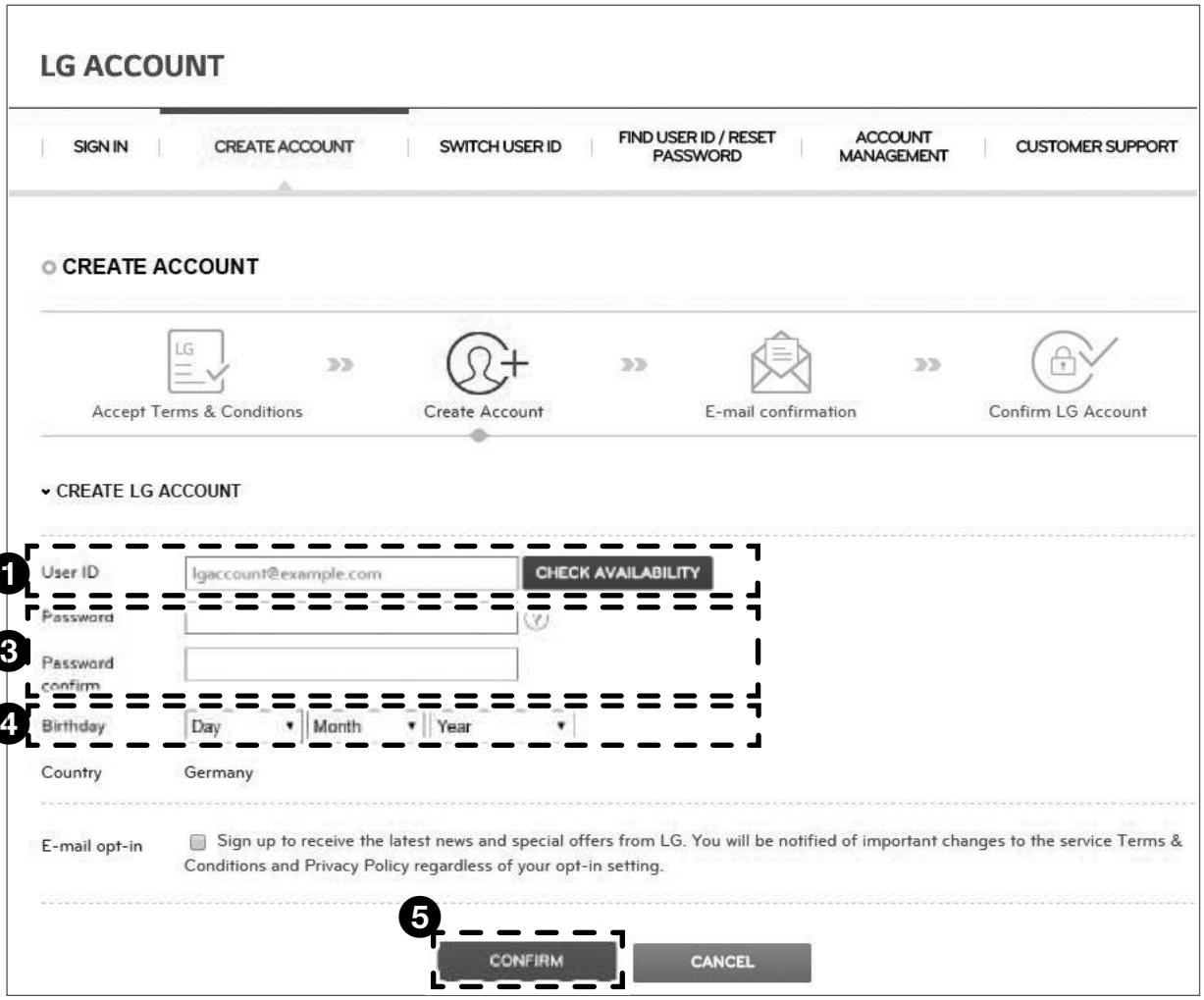
Select the link 'Sign Up' if you have not joined the LG accout service, otherwise 'Sign In'

Accept terms



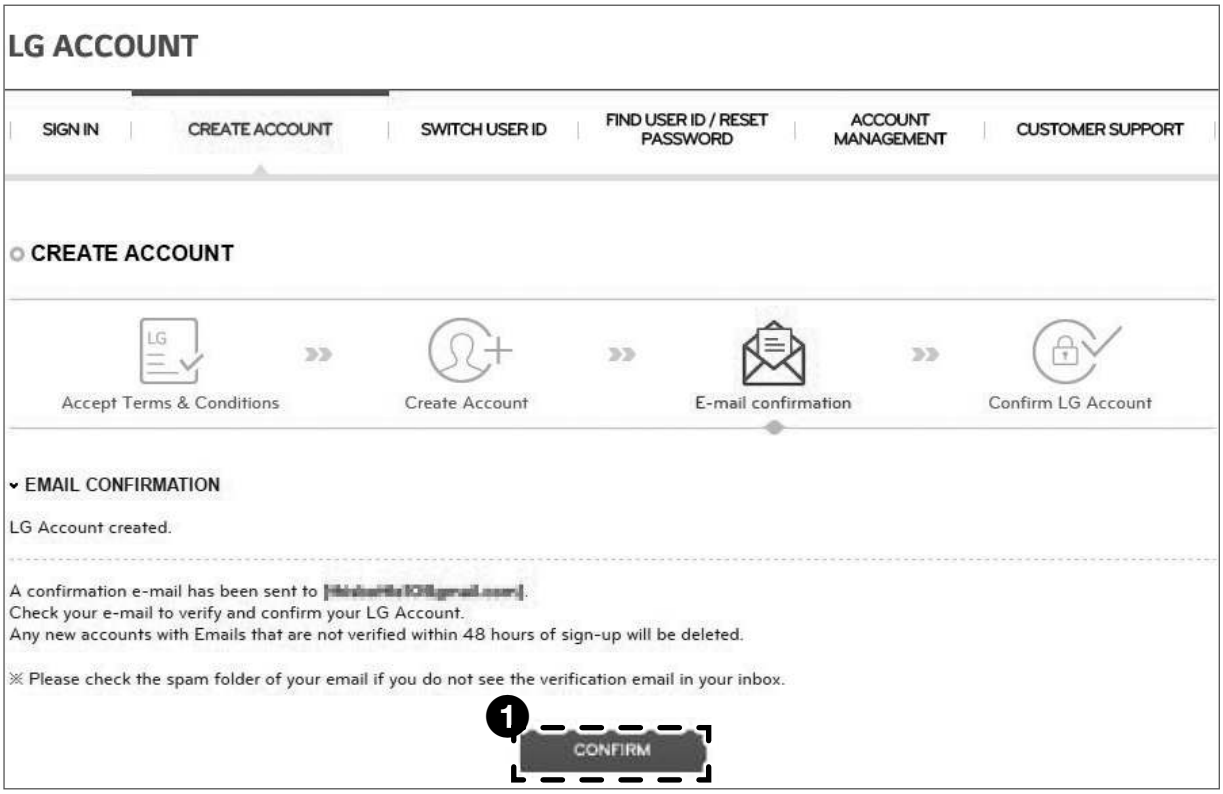
Check 'Select All' and select 'AGREE.'

Input ID

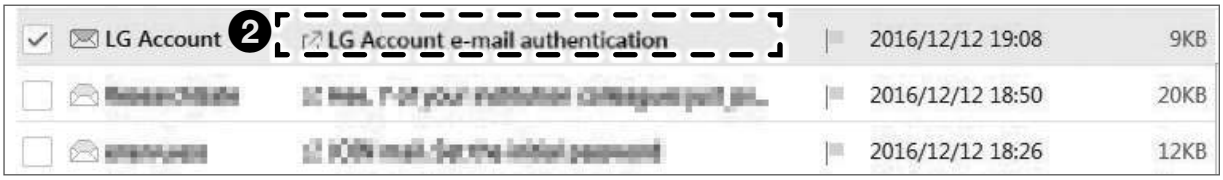


1. Fill in User ID field and select 'CHECK AVAILABILITY' button.
2. Check if e-mail is valid for use when pop-up message 'Email valid for use' appears.
3. Fill in Password and Password confirm fields.
4. Fill in Birthday fields.
5. Select 'CONFIRM.'

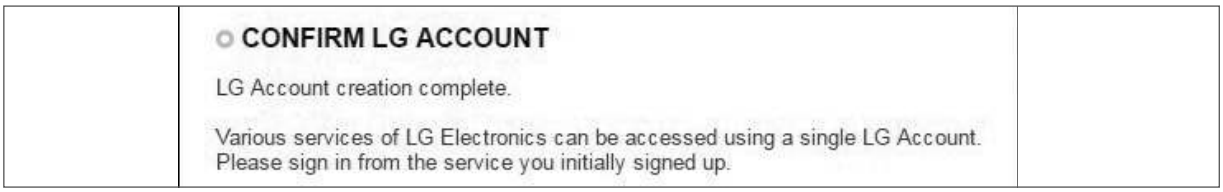
Confirm e-mail



❶ Check EMAIL CONFIRMATION notice and select CONFIRM.



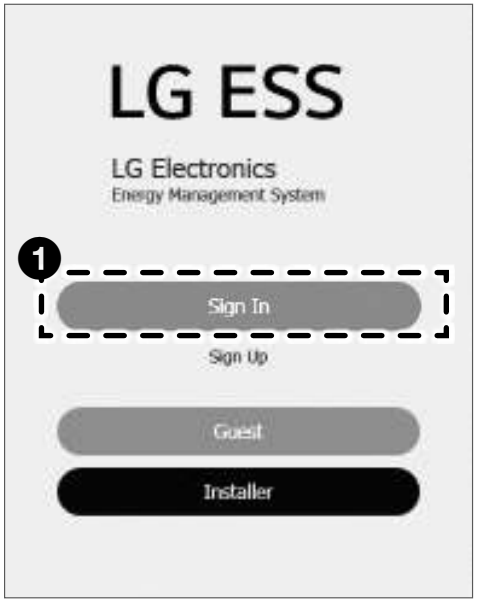
❷ When e-mail is delivered, open "LG Account e-mail authentication".
(Any new accounts with e-mails that are not verified within 48 hours of sign-up will be deleted)



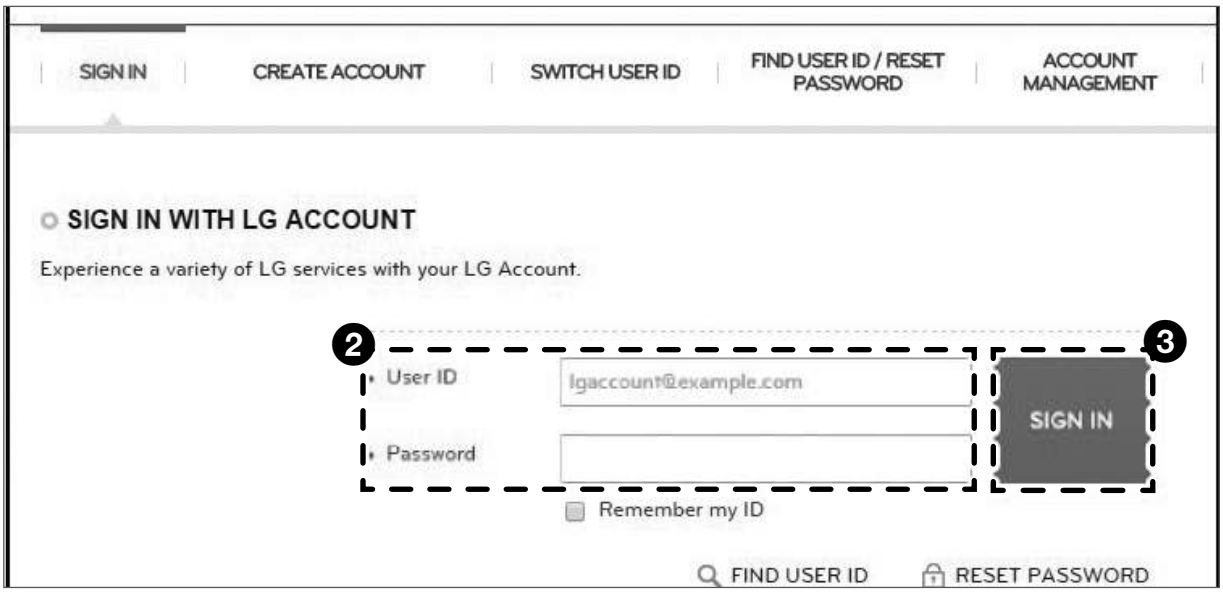
❸ Select 'CONFIRM' after checking LG Account e-mail authentication The message 'LG Account creation complete' shows up.

Sign in

Visit the web site http://enervu.lg-ess.com/.



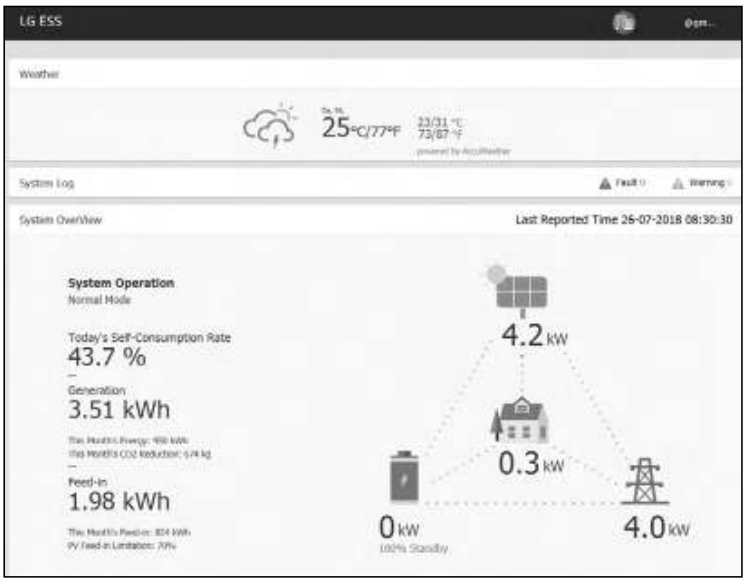
❶ Select the menu 'Sign In'



❷ Input e-mail and password.

❸ Select 'SIGN IN.'

Activation



You can see the screen on the left when the registration and activation are completed.

You can see the screen on the left when the registration is in incomplete status.

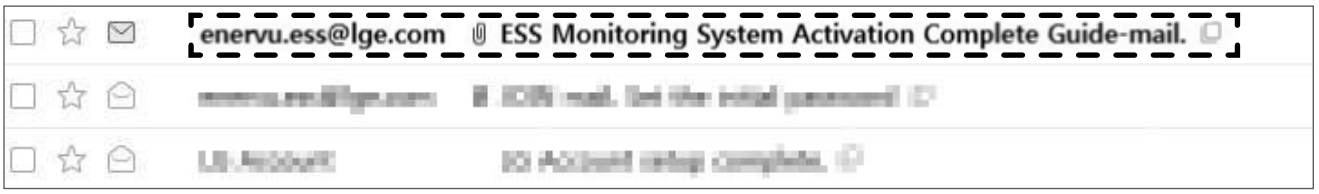
Input the registration number printed in the label attached outside of the PCS and select [Check] to complete the registration and activation.

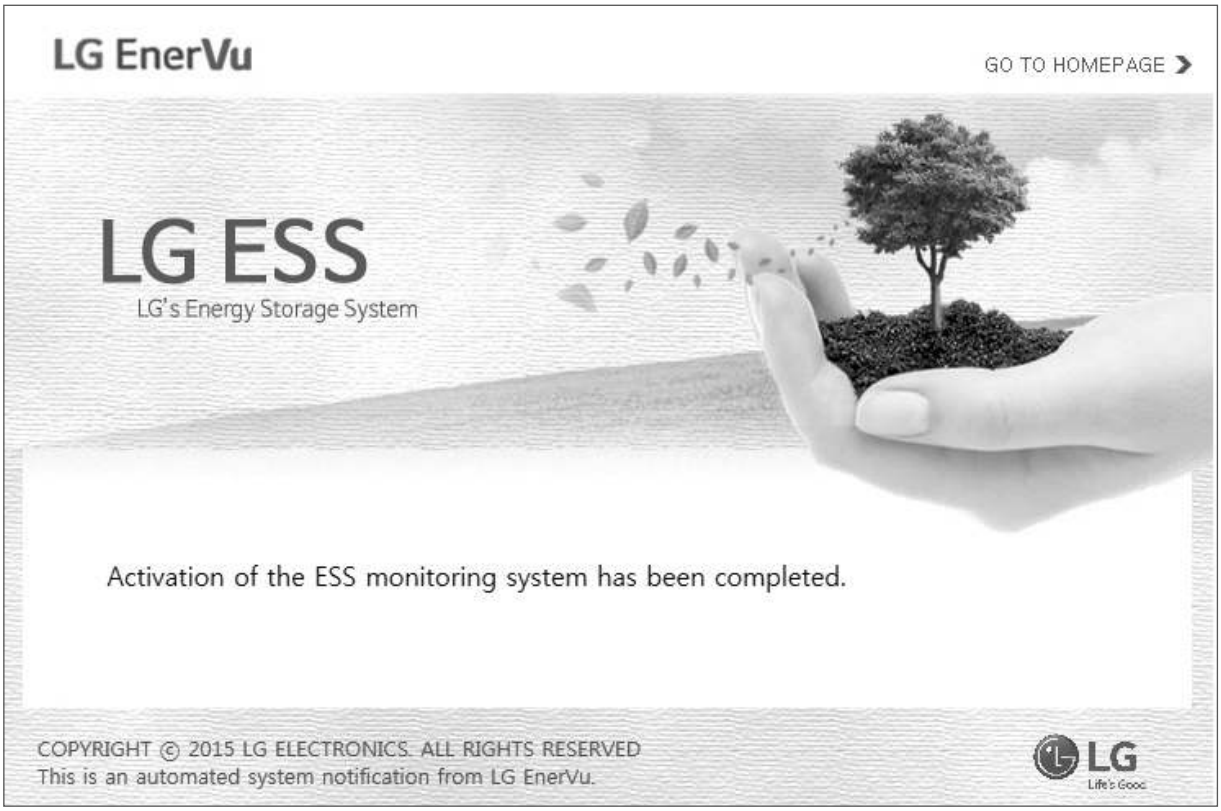
Cannot find the system that matches your registration number entered.
Check if your registration number is correct.

If a pop-up message on the left appears on the screen, contact the installer to activate your system.

Notice of activation

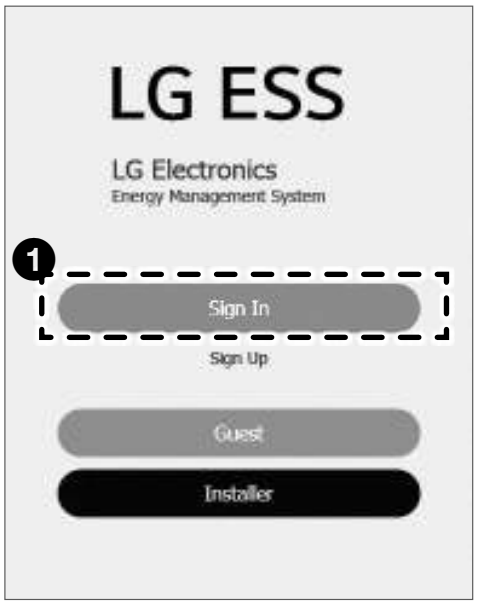
If installer activates your ESS, the e-mail notice of activation of the ESS is sent to the your e-mail.



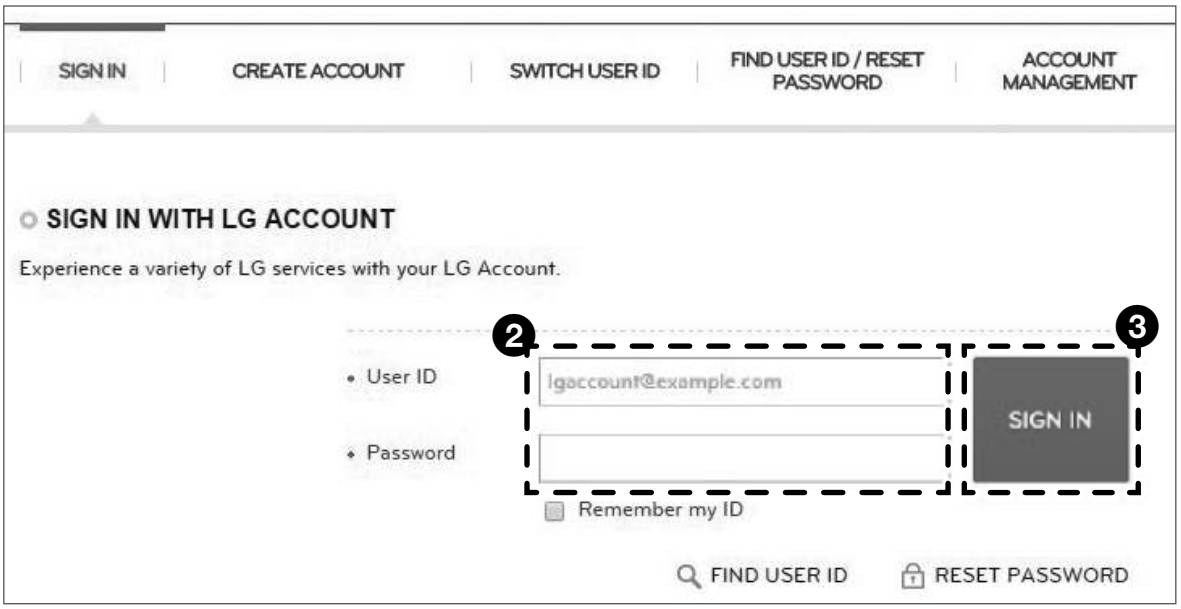


Check system

Now you can see your own ESS. Visits the web site http://enervu.lg-ess.com/.

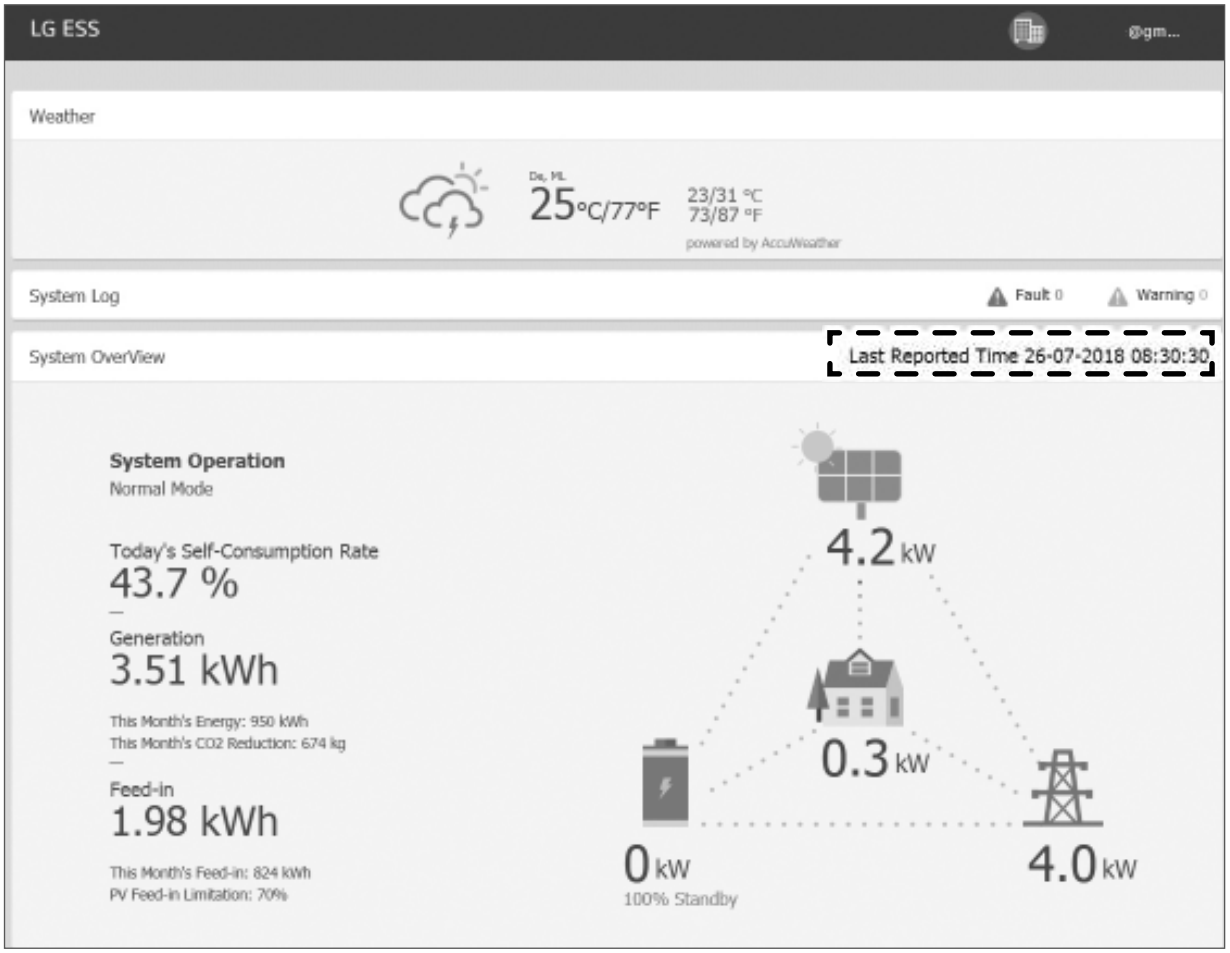


❶ Select the menu 'Sign In.'



❷ Input e-mail and password.

❸ Select 'SIGN IN.'



❹ You can see your own ESS. If the title 'Last Report Time' does not exist, ESS has not yet reported the data for 10 minutes period.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