## Specification  Power Conversion System

### General PV to AC

<table>
<thead>
<tr>
<th></th>
<th>LG AC 5kW</th>
<th>LG DC 7.6kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolation Level</td>
<td>Transformer-less</td>
<td></td>
</tr>
<tr>
<td>Type of Converter</td>
<td>DC/AC</td>
<td></td>
</tr>
<tr>
<td>CEC Efficiency</td>
<td>N/A</td>
<td>97.50%</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-22°F to 149°F / -30°F to 65°F</td>
<td></td>
</tr>
<tr>
<td>De-rating Start Temp.</td>
<td>Higher than 113°F (45°C)</td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>0 - 95%</td>
<td></td>
</tr>
<tr>
<td>Maximum Operating Altitude</td>
<td>3000m above sea level - De-rating above 2000m</td>
<td></td>
</tr>
</tbody>
</table>

### Battery

#### Electrical Characteristics

- **Total Energy Capacity**: 9.8 kWh@25°C (77°F) / 100% State of Energy
- **Usable Energy Capacity**: 9.3 kWh
- **Voltage Range**: Charge 400 to 450 VDC / Discharge 350 to 430 VDC
- **Absolute Max. Voltage**: 5.20VDC
- **Max. Charge/Discharge Current**: 11.9A at 420V / 14.3A at 350V
- **Peak Power**: 7kW for 10 sec.
- **Peak Current**: 18.9A at 370V for 10 sec.
- **Communication Interface**: RS485
- **DC Disconnect**: Circuit Breaker
- **Connection Method**: Spring Type Connector
- **User interface**: LEDs for Normal and Fault operation
- **Safety Certification**: UL1973 / CE / RCM / TUV (IEC 62619)
- **Hazardous Materials Classification**: Class 9
- **Ingress Rating**: IP 55

#### Operating Conditions

- **Installation Location**: Indoor / Outdoor (Wall-Mounted)
- **Operating Temperature**: 14 to 113°F (-10 to 45°C)
- **Operating Temperature (Recommended)**: 59 to 86°F (15 to 30°C)
- **Storage Temperature**: -22 to 131°F (-30 to 55°C)
- **Humidity**: 5% to 95%
- **Altitude**: Max. 6,562ft (2,000m)
- **Cooling Strategy**: Natural Convection

#### Certification

- **Safety Certification**: UL1642
- **Battery Pack**: UL1973 / CE / RCM / TUV (IEC 62619)

### Contact

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The LG ESS - The Evolution of Home Energy Storage

LG is focusing its energy business on the next generation growth engine. LG is the only company that has comprehensive business capabilities throughout the energy value chain: Generation, Storage, Efficient Use, and Management. LG is one of the world’s leading companies offering world-class technology and products for each segment: Energy generation (High Efficiency solar panels) and Efficient Use (electric vehicle battery, charger, smart LED/OLED lighting, smart system air conditioner).

Now, LG introduces the home energy storage system (ESS), which maximizes the value of a homeowner’s PV system.

The 7.6kW DC-coupled product offers unparalleled solar + storage performance, allowing homeowners to seamlessly store excess solar energy to power their home both day and night. The 5kW AC-coupled product can be easily added to an existing solar system, offering a reliable and cost-effective way to manage Time of Use (TOU) rates. Both AC-coupled and DC-coupled ESS products can provide back up power in case of a blackout.

One LG

LG ESS offers a solution for home energy management with technologically outstanding LG Solar Panels and a Home Energy Monitoring System (EnerVu). LG is ready to provide any solution you need for your home - having comprehensive technology in energy generation, storage, management, and energy-related business models. The LG ESS provides a one-stop shop option where we provide the LG Chem battery, PCS, and even the modules. This all-in-one solution means that LG can provide authoritative, professional support, offering its customers the level of service they deserve.

- **02.2012** Initiated household ESS R&D
- **10.2012** Initiated building ESS R&D
- **08.2014** ESS Business division established
- **12.2014** Energy Business Center established (ESS, Solar, EMS, Lighting integrated)
- **12.2015** Shin-Gyeryong substation frequency adjustment 24 MW installation (Client: KEPCO)
- **09.2015** Peak shaving 2 MW installation (Client: Masan University)
LG is constantly researching and developing products to provide world-class energy storage.
Why the LG Home Energy Storage System?

LG ESS helps maximize the efficiency of your home’s renewable energy use.

For consumers, the biggest concern regarding energy is the increase in costs generally through their electricity bills. By adopting renewable energy generation equipment, such as photovoltaic panels, homeowners may be able to reduce their total energy costs. However, to obtain the best possible result, a strategic plan to maximize the self-consumption ratio of the generated power is needed. This can be achieved by adopting an effective Energy Storage System (ESS).

This system ensures ease of product installation and use.

We at LG have focused considerable R&D efforts on ESS in order to provide a world-class system. Our home storage product helps save ESS installation costs, features compact design for a small footprint, optimized rapid shutdown (RSD) for NEC 2014-compliance, and ease of installation through a mobile application. It also features Wi-Fi connectivity with mobile devices to provide a straightforward monitoring function, LG EnerVu, that has been proven successful in the German ESS market.

Rest assured with your choice of LG, the trusted company.

LG ESS is a complete solution with LG-made parts from solar modules to ESS, providing one solution with one warranty. LG offers a true one-stop solution – from the development incubation phase, through consulting, to design, with safety assured by certifying bodies in the United States and other parts of the world.

One-stop service & 10-Year Warranty

ESS can be paired with LG PV modules for a single provider for all warranty issues

Easy Two-Person Installation

Painless commissioning via Auto Self-Check

Scalable and Extremely Reliable Battery

Up to 19.6kWh for longer back-up time

How does the LG Home Energy Storage System work?

Self-Consumption

If you are already planning to go solar, you can maximize your benefits even more by introducing an LG ESS at the same time. A typical household requires high energy during the morning and evening times. However, solar modules generate the most energy during the middle of the day, so all that excess energy is at risk of being wasted. The ESS enhances the efficiency of electric power use by allowing customers to store all that energy from the sun to use when it is most needed.

Back-up power

It is unimaginable to live a life without electricity, and a sudden power outage is never what any family wants. Loss of power leads to many inconveniences beyond frustration in the dark and food concerns. According to the U.S. Department of Energy, the annual economic loss due to power outages in the U.S. totals nearly $150 billion. The LG ESS will always be ready to ride through a power outage by retaining a certain amount of charge on the battery. This emergency power function is extremely beneficial for customers living in areas where periodic hurricanes or frequent grid blackouts occur.
Time of Use

The Net Energy Metering (NEM) program is great for homeowners with residential solar panels, but many utility companies want halt the program for fear of overloading the grid. Time of Use (TOU) electricity rates were mandated as the California Public Utilities Commission decided to maintain the NEM until 2019. This differential energy pricing for Peak and Off-Peak times justifies efforts to store self-generated energy. By using the time-setting function in EnerVu of LG ESS, the homeowner can avoid high prices by presetting their schedule to purchase energy to charge the battery from the grid during off-peak demand hours and limit the power purchased from the grid during peak demand hours.

-Conceptual
How is the LG Home Energy Storage System Installed?

The LG Electronics ESS is a state-of-the-art home energy management system designed for homeowners ready to take control of their home energy usage. The LG ESS is offered in both an AC-coupled and DC-coupled configuration. The 7.6kW DC-coupled solution with a high efficiency PV inverter is well-suited for new solar PV + storage installations. The 5kW AC-coupled solution is ideal for customers looking to install an ESS in a home with an existing solar system.
LG Installation App and Web Monitoring

The LG Electronics Web-monitoring system and installation tool, EnerVu, is not just a monitoring tool. It also provides detailed PV analysis to customers. For the end customer, EnerVu is more and more becoming a brain for managing and operating energy flows. For the installer, it has become the key to an easy installation and a personalized, data-based customer service.

Benefits of EnerVu
Remote firmware update
Easy Wi-Fi installation
Automatic system faults notification
Energy profiling function

With LG EnerVu, enjoy easy monitoring of your energy harvesting.