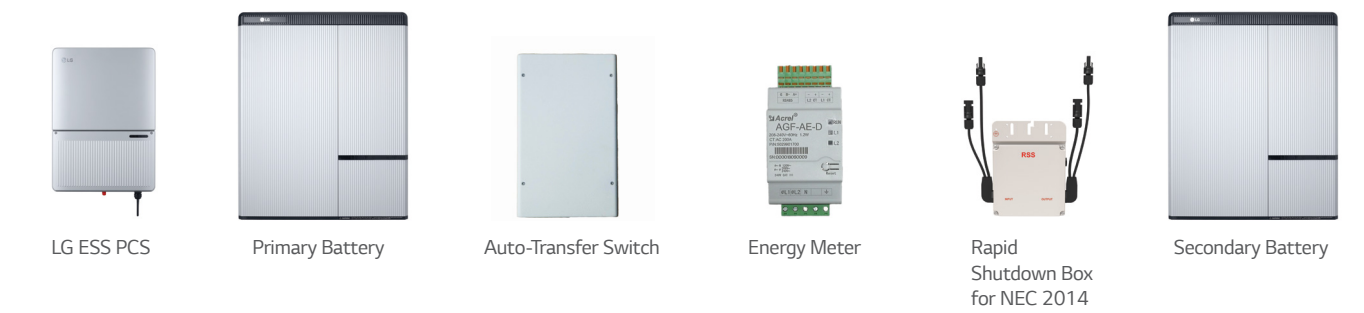


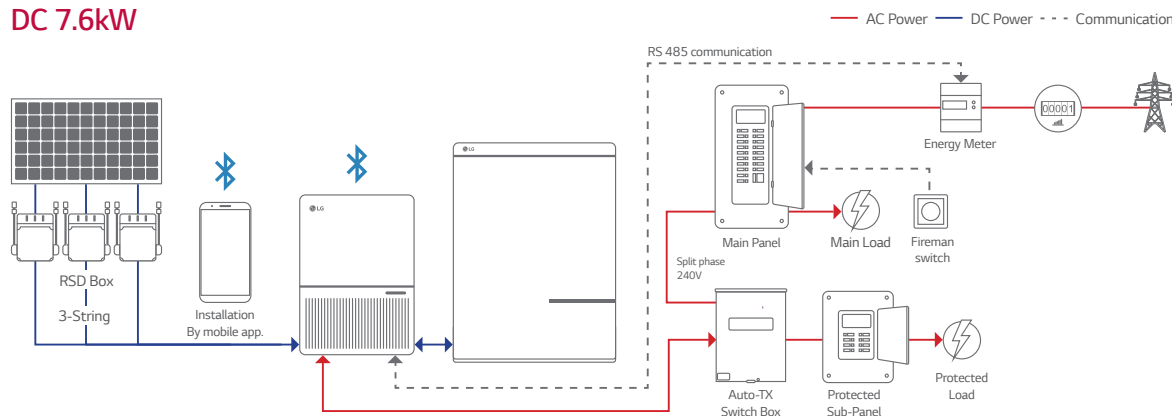
Specification

The LG ESS is provided as an integrated energy storage system, complete with PCS, ATS and Energy Meter. In the case of a DC-coupled system, RSD will also be included. For either the AC or DC-coupled system, a second battery pack is optional.

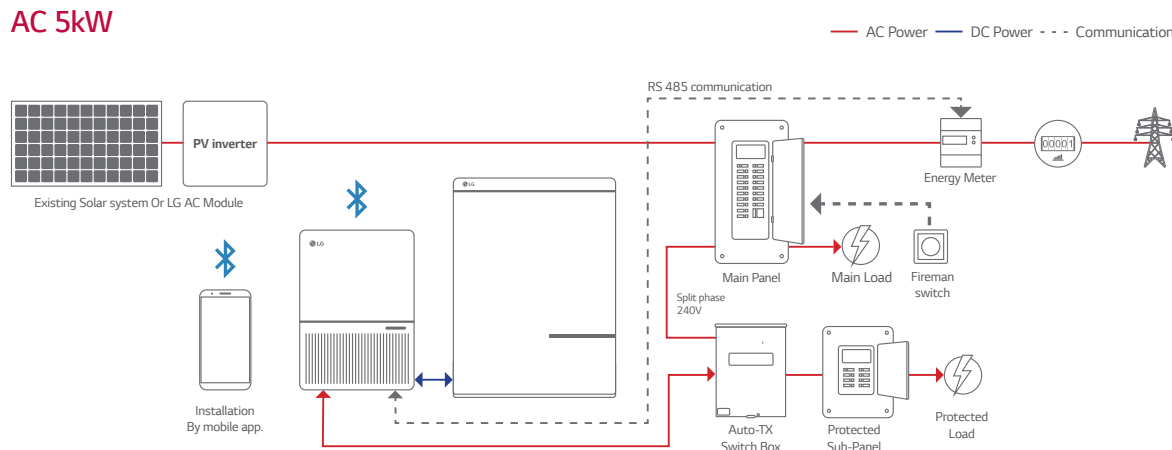


The LG ESS is offered as both an AC-coupled solution and a DC-coupled solution. The 7.6kW DC-coupled product offers unparalleled solar + storage performance, allowing homeowners to seamlessly store excess solar energy to power their home both day and night. The 5kW AC-coupled product can be easily added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

DC 7.6kW



AC 5kW



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The LG ESS  
The Evolution of Home Energy Storage




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 an integrated 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. 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 and provide backup power. Product features include quick and easy installation, a compact and elegant design, and an integrated smart energy management system (EMS). The EMS enables customers to control their electric bill through self-consumption of solar and TOU rate smart scheduling, and includes an off-grid mode to protect the customer’s home in the event of a power outage.




Features at a glance




**Easy Two-Person Installation**  
All required components included for complete install ; Painless commissioning via Auto Self-Check




**High Efficiency PCS**  
Achieving 97.5% CEC Efficiency ; Multi-String & MPPTs for multi-angled roof



**Extremely Reliable Battery and Scalable**  
Up to 19.6kWh for longer back-up time ; Compatible with LG Chem RESU 10H



**Smart Energy Management and Remote System Monitoring**  
Emergency Back-up ; 24-7 energy monitoring



**One-stop service & 10-Year Warranty**  
ESS can be paired with LG PV modules for a single provider for all warranty issues



# Specification      Power Conversion System

## PV Input

	LG AC 5kW	LG DC 7.6kW
Model Name	A005KEEN261.AUSZN	D007KEEN261.AUSZN
Absolute Maximum Input Voltage		450 V DC
Start-up Voltage		120 V DC
Operational DC Voltage Range		50 ~ 450 V DC
Full Power MPPT Range		270 ~ 450 V DC
Maximum Current per MPPT		12 A DC
MPP Tracker		3
Maximum Allowable MPPT In-Parallel	N/A	2(String)
MPPT Scan (Shading Option)		15min (high) / ~ 30min (default) / ~ 60min (low) Full range scan take less than 5s
MPPT Efficiency		>99.6% (Static), >99.3% (Dynamic)
DC Disconnect		Integrated
Input Terminal		Spring Type

## Battery Input / Output

Compatible Battery Pack Size	9.8 to 19.6 kWh @77°F(25°C) Max. 2 in parallel
Rated I/O Power	5000 W                      5000 W
Peak I/O Power(10 sec)	6000 W                      7000 W
Acceptable Input Voltage Range	Charge/DisCharge : 400 ~ 450 V DC / 350 ~ 430 V DC
Rated I/O Current	Max. Charge/Discharge Current : 11.9 A@420 V / 14.3 A@350 V
Peak I/O Current (10 sec)	18.9 A@370 V
Cycle Efficiency Charging to Discharging (PCS Only)	Peak > 95 %
DC Disconnect	Internal
Fuse Rating	30 A
Battery Terminal	Screw Type

## AC Output (On-Grid Mode)

Maximum Output Power	5000 VA                      8000 VA
Grid Voltage Range	a) 240 V AC +10%/-12%, (L-L) b) 208 V AC +10%/-12%, (L-L)
Maximum AC Current	24 A AC                      32 A AC
Frequency Range	57 ~ 63 Hz
Power Factor	Cos phi = 0.85c~0.85i Adjustable
Harmonics Distortion	TRD < 3%
Grid support compliance	UL 1741 SA, CA Rule 21, HECO
RGM *	Optional                      Built-in RGM
Output Terminal	Spring Type

\* Comply with ANSI C12.20

## AC Output (Off-Grid Mode)

Output	Pure Sin-wave Voltage
Maximum Output Power	5000 W
Peak Output Power (10 sec)	6000 W
AC Output Voltage Range	240 V AC
Maximum AC current	21 A
Peak AC Current (10 sec)	25 A
Frequency Range	57 ~ 63 Hz
Voltage Harmonics Distortion @ 100% resistor load	THD < 5%
Maximum allowed Crest Factor	2.5 @5000W

## General PV to AC

	LG AC 5kW	LG DC 7.6kW
Isolation Level	Transformer-less	
Type of Converter	DC/AC	
Peak Efficiency	98%	
CEC Efficiency	97.50%	
RTE	BAT → GRID : 98.0%	PV → GRID : 98.5%
	GRID → BAT : 98.0%	BAT → GRID : 98.0%
	GRID → BAT : 98.0%	
Operating Temperature	-22 °F to 149 °F/ -30 ~ 65 °C	
De-rating Start Temp.	Higher than 113F (45 °C)	
Humidity	0 ~95%	
Maximum Operating Altitude	3000m above sea level De-rating above 2000m	
Audible Noise	< 40 dBA @ 1m	
MTBF	> 500k hrs Calculated Acc. MIL Handbook	

## Mechanical Design

Dimensions (W*L*H)	425 X 590 X 150 [mm]
Weight	20 kg/44 lbs
Cooling	Natural Convection
Enclosure Material	Aluminum Alloy
Installation Type	Wall Mount, Horizontal support Indoor and Outdoor
Enclosure Protection	NEMA Type 4
Warranty	10 years

## Interface

Indicator	5 LEDs
Protocol	Modbus (SunSpec)
Ethernet (optional)	Standard (IPv4, IP6 Supported)
Human Machine Interface (HMI)	BLE (Support 4.0 or higher) Settings can be done through APP from Mobile phone
Remote Diagnose/Monitoring	Bi-direction Through Cloud
Remote Firmware Update	Through Cloud (Optional)
Rapid Shutdown System	Integrated

## Accessory

Rapid Shutdown Box	-                      Offered by LG Electronics
Energy Meter	Offered by LG Electronics
Auto-Transfer Switch	Offered by LG Electronics

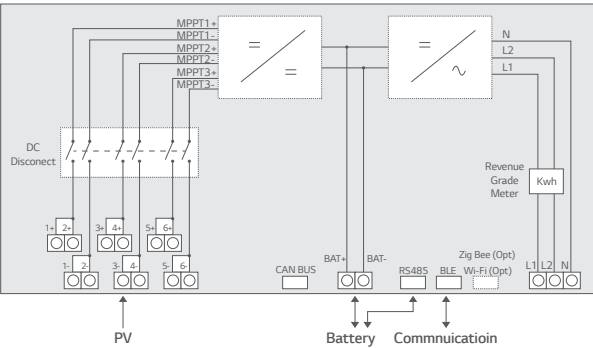
## Standards

Safety Mark	CSA
General Safety	UL1741, CSA 22.2 No. 107-01
Software Safety	UL1998
Grounding Fault Detection	UL1741 CRD, NEC 2014 Article 690.35
Anti-islanding Protection	IEEE1547, IEEE1547.1
EMC	FCC part 15 Class B
AFCI	UL1699B (Type 1), NEC 2014 690.11
Integrated meter	ANSI C12.20 (meets 0.5% accuracy)
Grid support regulation	California Rule 21 , HECO Compliant

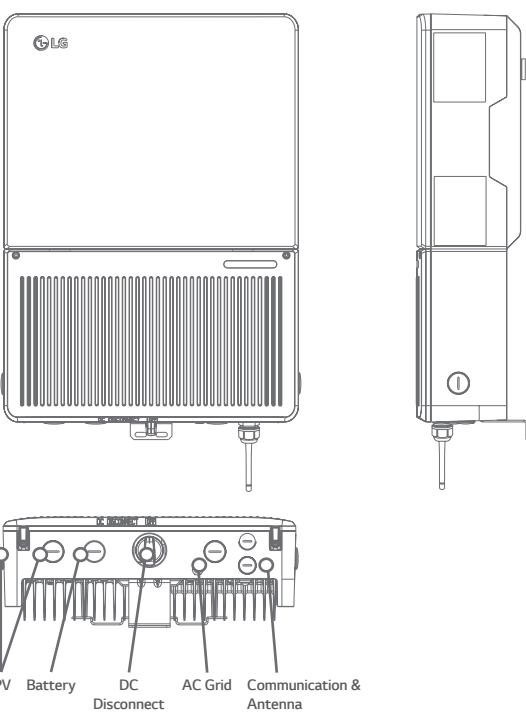
## LG PCS and Battery



## The Block diagram of LG PCS



## Mechanical drawing and cable ports



# Battery

## Electrical Characteristics

Total Energy Capacity	9.8 kWh@25°C (77°F), 100% State of Energy	
Usable Energy Capacity <sup>1)</sup>	9.3 kWh	
Battery Capacity	63 Ah	
Voltage Range	Charge	400 to 450 VDC
	Discharge	350 to 430 VDC
Absolute Max. Voltage	520VDC	
Max. Charge/Discharge Current	11.9A@420V / 14.3A@350V	
Max. Charge/Discharge Power <sup>2)</sup>	5kW	
Peak Power <sup>3)</sup> (only discharging)	7kW for 10 sec.	
Peak Current (only discharging)	18.9A@370V for 10 sec.	
Communication Interface	RS485	
DC Disconnect	Circuit Breaker	
Connection Method	Spring Type Connector	
User interface	LEDs for Normal and Fault operation	

## 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)	-22 to 131°F (-30 to 55°C)
Humidity	5% to 95%
Altitude	Max. 6,562ft (2,000m)
Cooling Strategy Natural Convection	Natural Convection

## Certification

Safety	Cell	UL1642
	Battery Pack	UL1973 / CE / RCM / TUV(IEC 62619)
Emissions	FCC	
Hazardous Materials Calssification	Class 9	
Transportation	UN38.8	
Ingress Rating	IP 55	

\* Test Conditions - Temperature 25°C, at the beginning of life.  
\* Energy is measured under specific condition from LGC (0.3CCCV/0.3CC).  
1) Value for Battery Cell Only(Depth of Discharge 95%).  
2) LG Chem recommends 3kW for maximum battery lifetime.  
3) Peak Current excludes repeated short duration(less than 10 sec. of current pattern).

## Battery Expansion

LG Home Energy Storage System can connect RESU 10H battery up to 2 ea without additional battery expansion kit.

