

# RESU 3.3

3.3kWh Battery Pack Specification

**DATE**

Revision Date : Aug. 30. 2016

**MODEL P/N**

48V 3.3kWh : R4863P3S

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# INTRODUCTION

## 1. Features

RESU 3.3 battery pack designed for indoor photovoltaic systems is easily adaptable energy storage solution. With RESU Plus, all 48V models can be “cross-connected” with one other 48V unit of any capacity.

※ RESU Plus is an expansion kit specially designed for 48V models.  
 Number of expandable battery units : up to 2

- ❑ Compact and light weight
- ❑ Powerful Performance : World Best Energy Density
- ❑ Easy and Flexible installation
  - : Easy wall-mounted or floor-standing installation enable
  - : Diverse Matched Inverters Available
- ❑ BMS firmware can be updated easily by using SD Card

## 2. Outline Dimensions

(Unit : mm)



Physical Characteristics			
Model P/N		R4863P3S	
Width	mm	452	
Depth	mm	120	
Height	mm	401	
Weight	kg	31	

# TECHNICAL INFORMATION

## 3. Technical Data

Electrical Characteristics	
Total Energy Capacity	3.3 kWh
Usable Energy Capacity	2.9kWh
Battery Capacity	63 Ah
Voltage Range	42.0~58.8V <sub>DC</sub>
Nominal Voltage	51.8V <sub>DC</sub>
Max. Charge/Discharge Current	71.4A
Max. Charge/Discharge Power <sup>1)</sup>	3.0kW
Peak Power <sup>2)</sup>	3.3kW for 3 sec.
Peak Current	78.6 A for 3 sec.
Battery Pack Round-Trip Efficiency	>95% (under specific condition)
Communication Interface	CAN
DC Disconnect	Circuit Breaker, Contactor, Fuse

Operating Conditions	
Installation Location	Indoor(Wall-Mounted) / Outdoor
Operating Temperature	-10~45°C
Operating Temperature (Recommended)	15~30°C
Storage Temperature	-30~60°C
Humidity	5%~95%
Altitude	Max. 2,000m
Cooling Strategy	Natural Convection

Reliability & Certification		
Safety	Cell	UL1642
	Battery Pack	CE / RCM / FCC / TUV (IEC 62619) / UL1973
Hazardous Materials Classification		Class 9
Transportation		UN38.3 (UNDOT)
Ingress Rating		IP55

※ Test Conditions - Temperature 25°C

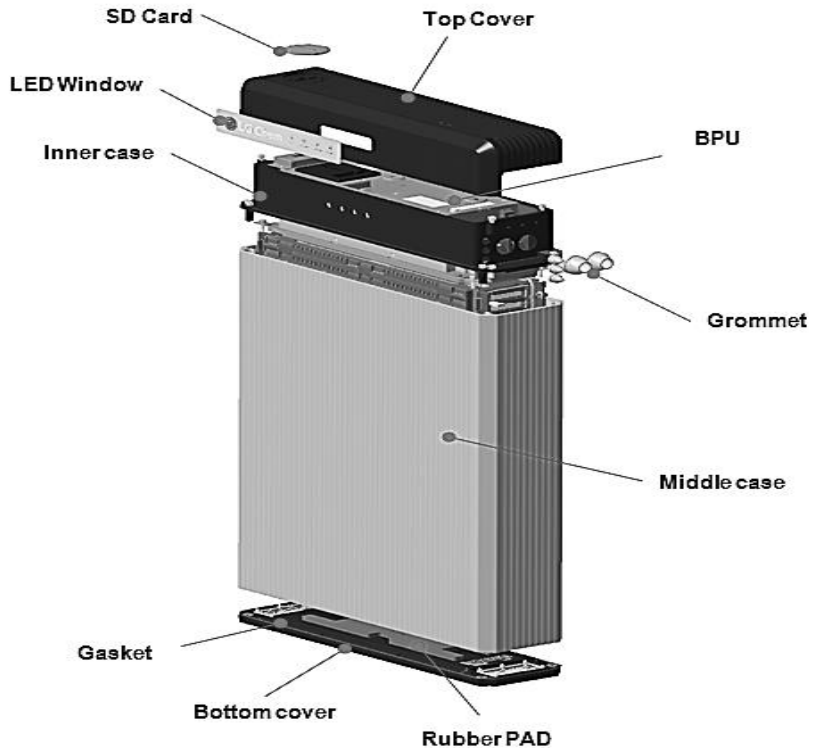
1) LG Chem recommends 1.1kW for maximum battery lifetime

2) Peak Current excludes repeated short duration (less than 3 sec.) of current pattern.

# MECHANICAL DESCRIPTION

## 4. Product Composition

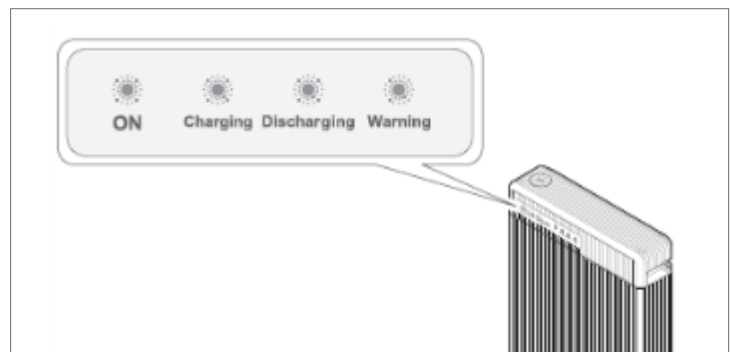
- The exploded view



## 5. LED indicators

The LED indicators on the front of the battery pack show its operating state:

- ON : This indicator is lit when the circuit breaker switch is in the ON position.
- Charging : This indicator is lit while the battery pack is charging.
- Discharging : This indicator is lit while the battery pack is discharging.
- Warning : This indicator is lit when the battery pack is in a warning state.

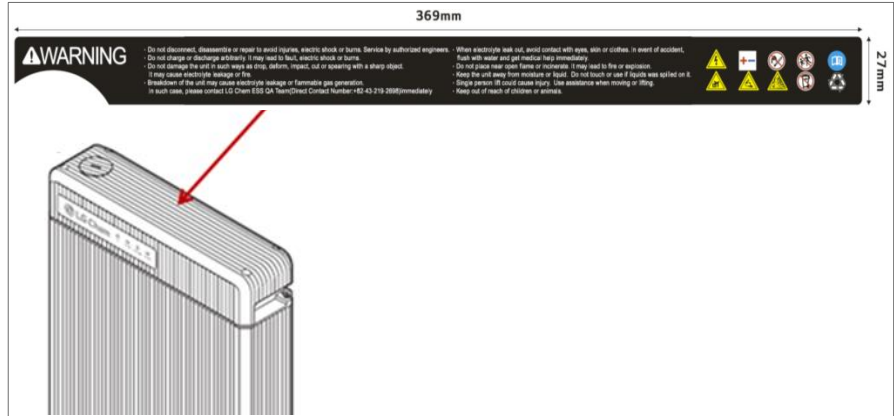


# PRODUCT PACKAGING

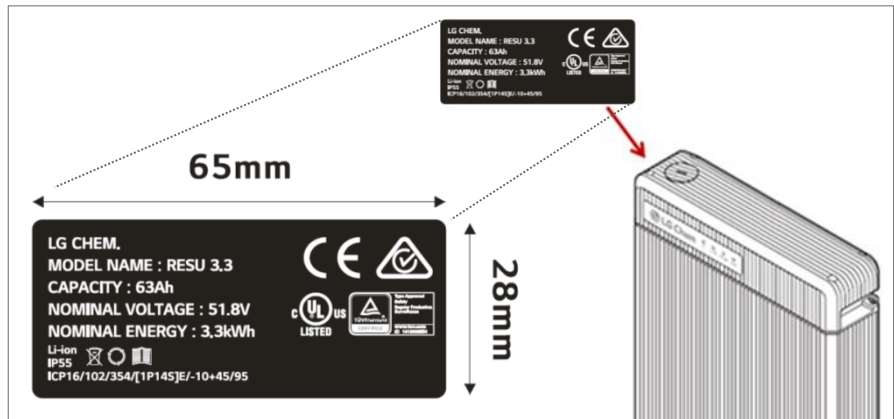
## 6. Packaging

### 6-1. Pack Labels

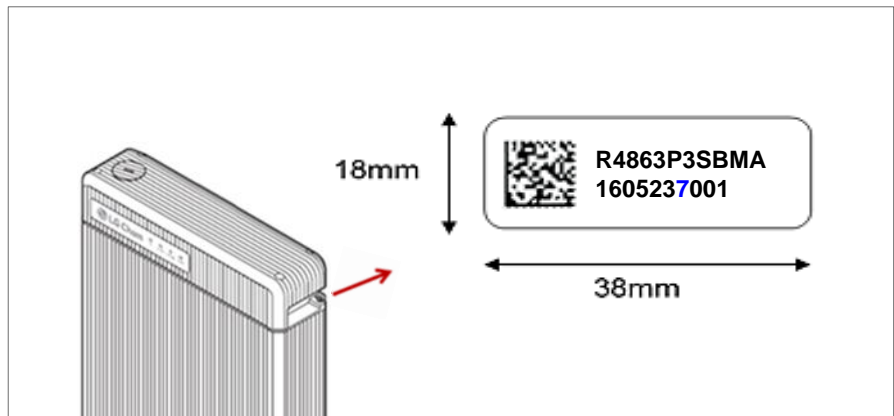
- Warning Label



- Product Spec. & Certification Label



- Serial Label

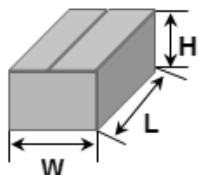


# PRODUCT PACKAGING

The battery Box packaging was approved the International Maritime Dangerous Goods regulation certification. (IMDG Code P903, IATA DGR PI965)

## 6-2. Box packaging specification

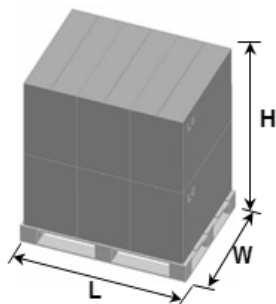
### ▪ Packing Unit



	Size	Weight (kg)	Packing Qty.	Outer packing material
	L x W x H (mm)			
Product	452x401x120	30	1	-
Box	670x500x180	5	1	Corrugated paper
PU *	670x500x180	35	1	Corrugated paper

\* PU : Packing Unit

### ▪ Handling Unit



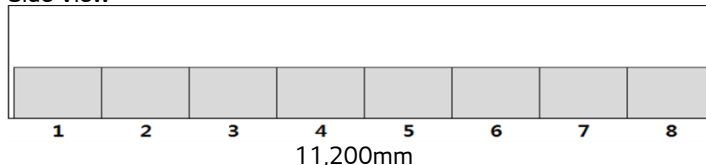
	Size	Weight (kg)	Packing Qty.	Outer packing material
	L x W x H (mm)			
Product	452x401x120	30	20	-
PU	670x500x180	35	20	Corrugated paper
Pallet	1,400x1,100x120	16	1	Wooden
HU *	1,400x1,100x1,020	716	1	-

\* HU : Handling Unit

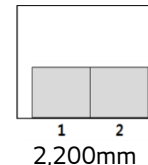
### ▪ 40Ft Container Loading Information

RESU 3.3			Remark
Container	Pallets	16	-
Loading (ea)	Products	320	320ea/CT = 20ea/Pallet×16Pallets
Weight (ton)		11.45	11,456kg = 716kg/Pallet×16Pallets

Side View



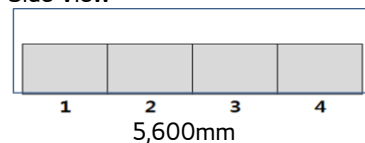
Front View



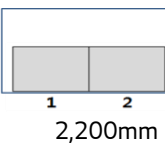
### ▪ 20Ft Container Loading Information

RESU 3.3			Remark
Container	Pallets	16	-
Loading (ea)	Products	160	160ea/CT = 20ea/Pallet×8Pallets
Weight (ton)		5.72	5,728kg = 716kg/Pallet×8Pallets

Side View



Front View



# BATTERY SAFETY INSTRUCTIONS

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For safety reasons, installers are responsible for familiarizing themselves with the contents of this document and all warnings before performing installation.

## 7. General Precautions

Failure to observe the precautions described in this section can cause serious injury to persons or damage to property.

### ▪ Risks of explosion

- Do not subject the battery pack to strong impacts.
- Do not crush or puncture the battery pack.
- Do not dispose of the battery pack in a fire.

### ▪ Risks of fire

- Do not expose the battery pack to temperatures in excess of 60°C.
- Do not place the battery pack near a heat source, such as a fireplace.
- Do not expose the battery pack to direct sunlight.
- Do not allow the battery connectors to touch conductive objects such as wires.

### ▪ Risks of electrical shock

- Do not disassemble the battery pack
- Do not touch the battery pack with wet hands
- Do not expose the battery pack to moisture or liquids
- Keep the battery pack away from children and animals

### ▪ Risks of damage to the battery pack

- Do not allow the battery pack to come in contact with liquids.
- Do not subject the battery pack to high pressures.
- Do not place any objects on top of the battery pack.



# BATTERY SAFETY INSTRUCTIONS

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Over-voltages or wrong wiring can damage the Battery Pack and cause deflagration, which can be extremely dangerous. Do not install the battery pack on flammable construction materials, in areas, where highly inflammable materials are stored, or in potentially explosive environments. Work with the cover removed must be carried out by a qualified electrician. High contact voltages are present in the device.

## 8. Battery Handling Guide

- Do not expose battery to temperature over 50°C and open flame.
- Do not damage the unit in such ways as dropping, deforming, impacting, cutting or penetrating with a sharp object. It may cause a leakage of electrolyte or fire.
- Do not connect anode and cathode terminal block opposite direction. It may cause severe short circuits.
- Do not charge or discharge damaged battery.
- Do not place any kind of foreign matters on the cooling path.
- Do not put the battery module upside down on the ground.
- Hold with insulated gloves when carrying the battery modules.
- Do not disconnect, disassemble or repair by unauthorized persons. Services must be made by authorized engineers only.
- All types of breakdown of the product may lead to a leakage of electrolyte or flammable gas.
- Do not place the product nearby flammables. It may lead to fire or explosion in case of accident.
- Keep out of reach of children or animals.
- Keep the product away from moisture or liquid. Do not touch or use if liquid is spilled on the product.
- Store at cool and dry place

## 9. Response to Emergency Situations

The RESU battery pack comprises multiple batteries that are designed to prevent hazards resulting from failures. However, LG Chem cannot guarantee their absolute safety.

### ▪ Leaking batteries

If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas. Electrolyte is corrosive and contact may cause skin irritation and chemical burns. If one is exposed to the leaked substance, do these actions:

- **Inhalation**  
: Evacuate the contaminated area, and seek medical attention immediately.
- **Eye contact**  
: Rinse eyes with flowing water for 15 minutes, and seek medical attention immediately.
- **Skin contact**  
: Wash the affected area thoroughly with soap and water, and seek medical attention immediately.
- **Ingestion**  
: Induce vomiting, and seek medical attention immediately.

### ▪ Fire

In case there is a fire, always have an ABC or carbon dioxide extinguisher. If a fire breaks out where the battery pack is installed, do these actions:

- Extinguish the fire before the battery pack catches fire.
  - If it is impossible to extinguish the fire but you have time, move the battery pack to a safe area before it catches fire.
  - If the battery pack has caught fire, do not try to extinguish the fire. Evacuate people immediately.
- ※ If the battery catches fire, it will produce noxious and poisonous gases. Do not approach.

### ▪ Wet batteries

If the battery pack is wet or submerged in water, do not try to access it. Contact LG Chem or your distributor for technical assistance.

### ▪ Damaged batteries

Damaged batteries are dangerous and must be handled with extreme caution. They are not fit for use and may pose a danger to people or property. If the battery pack seems to be damaged, pack it in its original container, and then return it to LG Chem or your distributor.

## 10. Troubleshooting

Check the indicators on the front to determine the state of the battery pack. A warning state is triggered when a condition, such as with voltage or temperature, is beyond design limitations. The battery pack's BMS periodically reports its operating state to the inverter.

When the battery pack falls outside prescribed limits, it enters a warning state. When a warning is reported, the inverter immediately stops operation. Use the monitoring software on the inverter to identify what caused the warning. The possible warning messages are as follows

- Battery Over Voltage
- Battery Under Voltage
- Battery Over Temperature
- Battery Under Temperature
- Battery Discharge Over Current
- Battery Charge Over Current
- BMS Internal Communication
- Battery Cell Voltage Imbalance

The abnormal state is cleared when the battery pack recovers normal operation.

※ For a serious warning, if no proper corrective actions are taken by the inverter, the battery pack's circuit breaker automatically trips to protect itself.

### 10-1. Contact Information

Use the contacts below for technical assistance. These phone numbers are available only during business hours on weekdays.

	Telephone	Email
Europe	+49 (0)162 2970918	<a href="mailto:aburkert@lgchem.com">aburkert@lgchem.com</a>
USA	+1 (0)248 808 0016	<a href="mailto:jturner@lgchem.com">jturner@lgchem.com</a>
Asia	+82 (0)43 219 2695	<a href="mailto:soongkyu@lgchem.com">soongkyu@lgchem.com</a>
Other regions	+82 (0)43 219 2695	<a href="mailto:soongkyu@lgchem.com">soongkyu@lgchem.com</a>

