

RESU 10

9.8kWh Battery Pack Specification

DATE

Revision Date : Oct. 24. 2016

MODEL P/N

48V 9.8kWh : R48189P3S

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INTRODUCTION

1. Features

RESU10 battery pack designed for 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



Physical Characteristics		
Model P/N		R48189P3S
Width	mm (in)	452 (17.8)
Depth	mm (in)	227 (8.9)
Height	mm (in)	484 (19)
Weight	Kg (lb)	75 (165.3)

TECHNICAL INFORMATION

3. Technical Data

Electrical Characteristics	
Total Energy Capacity	9.8 kWh
Usable Energy Capacity	8.8kWh
Battery Capacity	189 Ah
Voltage Range	42.0~58.8V _{DC}
Nominal Voltage	51.8V _{DC}
Max. Current	119A
Max. Power ¹⁾	5.0kW
Peak Power ²⁾	7.0kW for 3 sec.
Peak Current	166.7 A for 3 sec.
Battery Pack Round-Trip Efficiency	>95% (under specific condition)
Communication Interface	CAN 2.0B
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

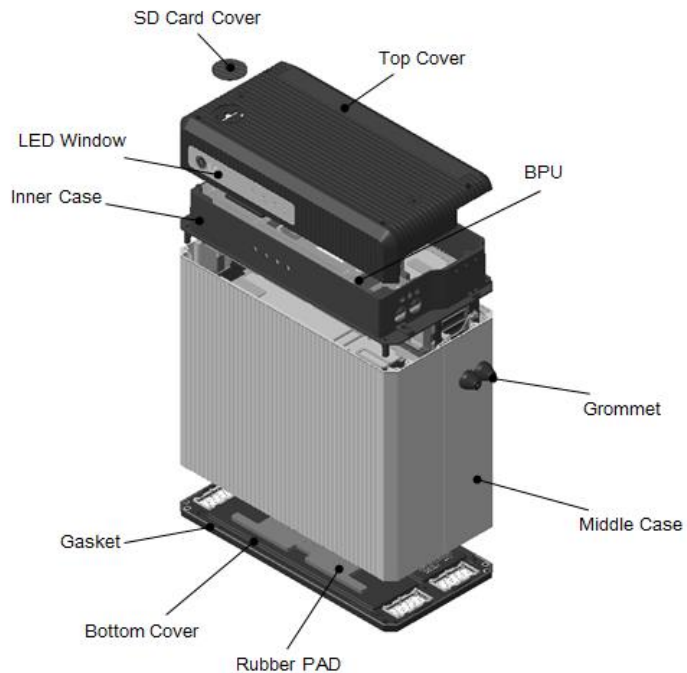
1) LG Chem recommends 3.3kW for maximum battery lifetime

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

MECHANICAL DESCRIPTION

4. Product Composition

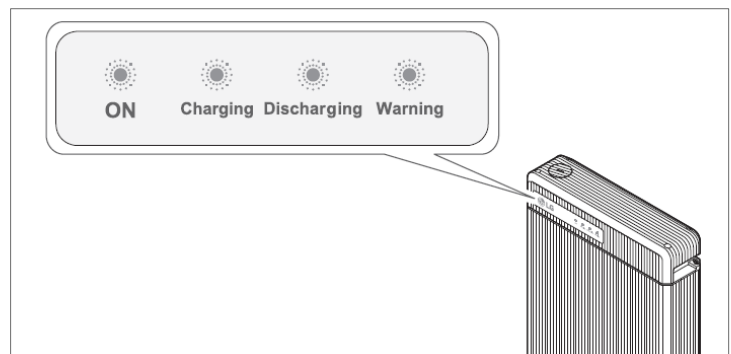
- The exploded view



5. LED indicators

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

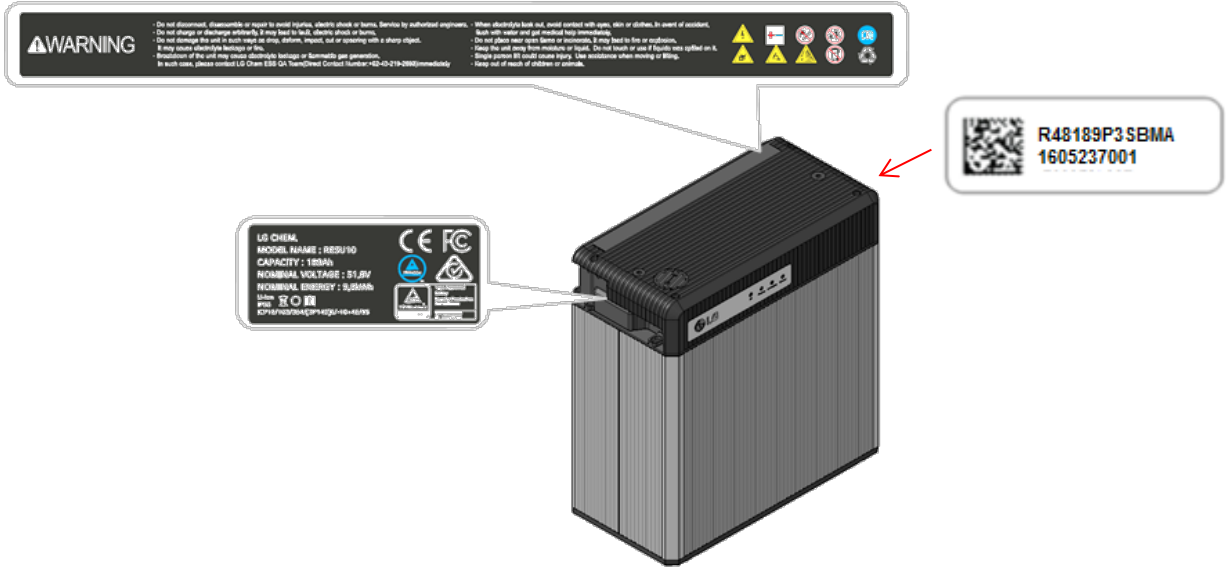
- ON : This indicator is lit when the circuit breaker switch is in the ON position.
- Charging : This indicator is lit while the battery pack is charging.
- Discharging : This indicator is lit while the battery pack is discharging.
- Warning : This indicator is lit when the battery pack is in a warning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



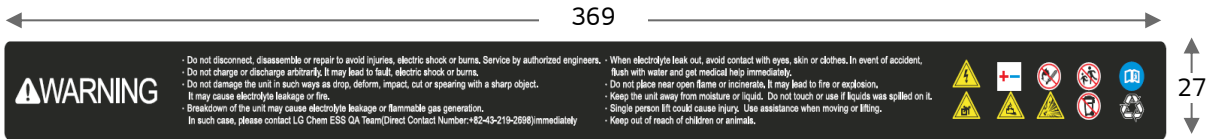
PRODUCT PACKAGING

6. Packaging

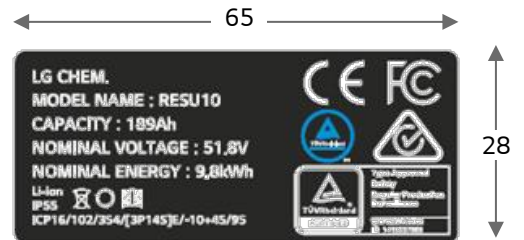
6-1. Pack Labels



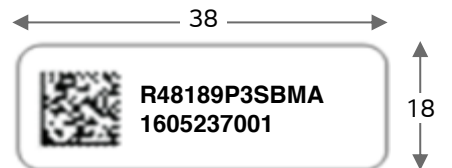
Warning Label



Product Spec. & Certification Label



Serial Label:

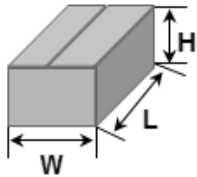


PRODUCT PACKAGING

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

6-2. Box packaging specification

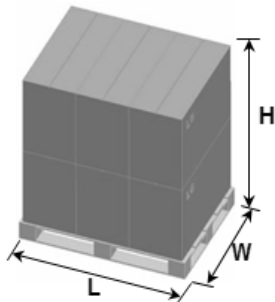
▪ Packing Unit



	Size	Weight (kg)	Packing Qty.	Outer packing material
	L x W x H (mm)			
Product	452x484x227	75	1	-
Box	630x800x280	9	1	Corrugated paper
PU *	630x800x280	84	1	Corrugated paper

* PU : Packing Unit

▪ Handling Unit



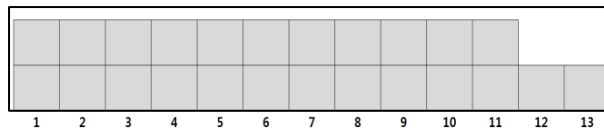
	Size	Weight (kg)	Packing Qty.	Outer packing material
	L x W x H (mm)			
Product	452x484x227	75	3	-
PU	630x800x280	225	1	Corrugated paper
Pallet	870x720x120	19	1	Wooden
HU *	870x720x960	244	1	-

* HU : Handling Unit

▪ 40Ft Container Loading Information

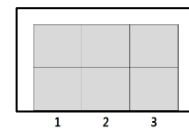
RESU 10			Remark
Container	Pallets	72	870mm×720mm×960mm (L×W×H)
Loading (ea)	Products	216	216ea/CT = 3ea×72Pallets
Weight (ton)		17.56	17,568kg = 244kg×72Pallets

Side View



11,440mm

Front View

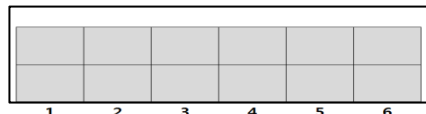


2,160mm

▪ 20Ft Container Loading Information

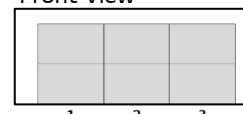
RESU 10			Remark
Container	Pallets	36	870mm×720mm×960mm (L×W×H)
Loading (ea)	Products	108	108ea/CT = 3ea×36Pallets
Weight (ton)		8.78	8,784kg = 244kg×36Pallets

Side View



5,220mm

Front View



2,160mm

BATTERY SAFETY INSTRUCTIONS

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

The RESU battery pack is rated at IP55 and thus can be installed outdoors as well as indoors. However, if installed outdoors, do not allow the battery pack to be exposed to direct sunlight and moisture. If the ambient temperature is outside the operating range, the battery pack stops operating to protect itself. The optimal temperature range for the battery pack to operate is 15°C to 30°C. Frequent exposure to harsh temperatures may deteriorate the performance and lifetime of the battery pack.

8. Battery Handling Guide

- Use the battery pack only as directed.
- Do not use the battery pack if it is defective, appears cracked, broken or otherwise damaged, or fails to operate.
- Do not attempt to open, disassemble, repair, tamper with, or modify the battery pack. The battery pack is not user serviceable.
- To protect the battery pack and its components from damage when transporting, handle with care.
- Do not impact, pull, drag or step on the battery pack. Do not subject it to any strong force.
- Do not insert foreign objects into any part of the battery pack.
- Do not use cleaning solvents to clean the battery pack.

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 of a fire, make sure that an ABC or carbon dioxide extinguisher is nearby. If a fire breaks out where the battery pack is installed, do these actions:

- Extinguish the fire before the battery pack catches fire.
 - If the battery pack has caught fire, do not try to extinguish the fire. Evacuate people immediately.
- ※ The battery pack may catch fire when heated above 150°C.
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.

- ※ Damaged batteries may leak electrolyte or produce flammable gas. If you suspect such damage, immediately contact LG Chem for advice and information.

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	+49 162 2970918	aburkert@lgchem.com
USA	+1 248 808 0016	CSNorthAmericaESS@lgchem.com
Australia	+61 1300 178 064	m_AUservice@lgchem.com
Korea and Other regions	+82 43 219 2695	soongkyu@lgchem.com

