Residential Energy Storage Unit
6.4 EX Battery Pack

For Photovoltaic Systems

User Guide

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NOTE

The information included in this document is accurate at the time of publication. However, this product is subject to change without prior notice.

Contents

1 Introduction

1.1 Features

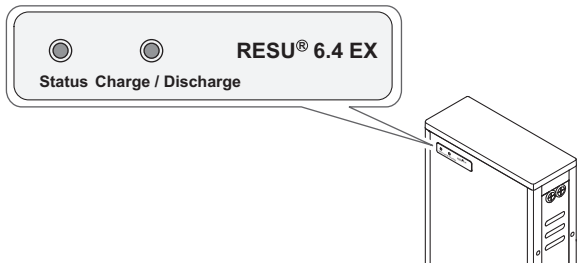
The RESU® 6.4 EX battery pack has the following features:

Photovoltaic system: This battery pack is designed for household photovoltaic systems.

Battery management system (BMS): The battery pack's built-in BMS monitors its operation and prevents the battery from operating outside design limitations. See **Troubleshooting** on page 9.

Expandability: This battery pack can be easily expanded by adding expansion battery packs.

1.2 LED Indicators



The LED indicators on the front of the battery pack show its operational state as follows:

Standby : When the battery pack is ready for operation, the Status indicator is lit in red.

Normal operation : When the battery pack is in normal operation, the Status indicator is lit in green.

Charge in progress : While the battery pack is charging, the Charge / Discharge indicator is lit in red.

Discharge in progress : While the battery pack is discharging, the Charge / Discharge indicator is lit in green.

Alarm : When the battery pack is in a warning or fault state, the Status indicator alternately flashes in green and orange. See **Troubleshooting** on page 9.

1.3 Specifications

Dimensions and weight

Length	406 mm
Width	165 mm
Height	664 mm
Weight	60 kg

Performance

Nominal voltage	51.8 V
Operating voltage	45.2 V to 58.1 V
Nominal capacity	126 A·h
Nominal energy	6.4 kW·h
Nominal charge current	42 A[a]
Nominal discharge current	42 A[b]
Maximum discharge current	110 A

[a] in constant-current/constant-voltage charging mode
[b] in constant-current discharging mode

Cable requirements

Power cable from inverter	4 AWG (21 mm^2) or thicker, UL 1283
Cable lug	M8

Environmental requirements

Available operating temperature	0°C to 40°C
Optimal operating temperature	15°C to 30°C
Operating relative humidity	25% to 95%
Storage temperature	–30°C to 50°C
Storage relative humidity	25% to 95%

Communication interface

Protocol	CAN 2.0B
Channel	1

2 Safety

2.1 General Precautions for the Battery Pack

⚠ WARNING

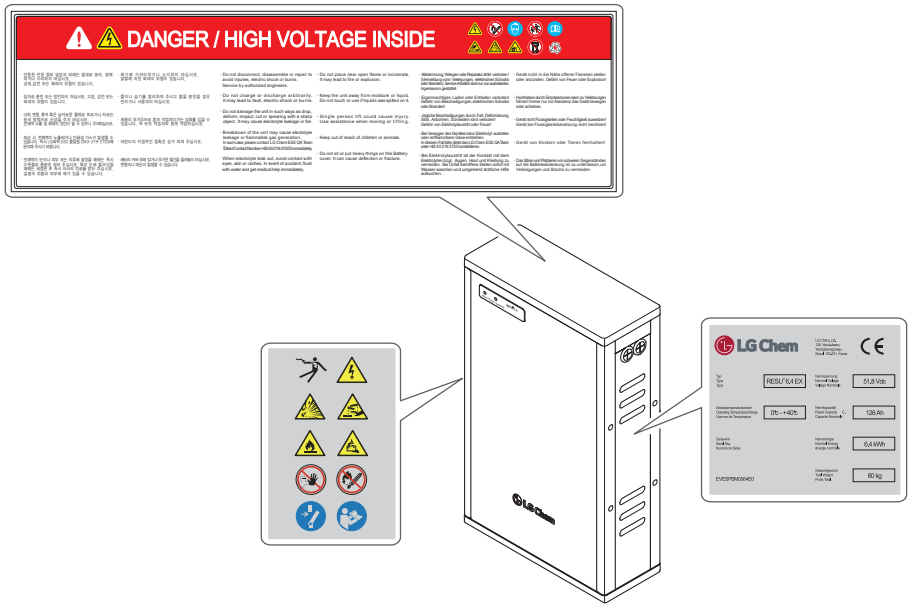
Failure to observe the precautions described in this section can cause serious injury to persons or damage to property.

Observe the following precautions:

- 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 50°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 electric 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.

2.2 Warning Labels

The nameplate is attached to the right side of the battery pack, and warning labels are attached to the top and left side.



3 Troubleshooting

Check the indicators on the front of the battery pack to determine in what state the battery pack is.

Status	Charge/Discharge	
Red → Green[a]	Off	Successfully initialized
Red → Red	Off	Initialization failed[b]
Green	Green	Discharging in normal state
Green	Red	Charging in normal state
Green	Off	Waiting in normal state
Green/Orange	Green	Discharging in warning state
Green/Orange	Red	Charging in warning state
Green/Orange	Off	Waiting in warning state
Off	Off	Circuit breaker tripped[b]

[a] This should change in 7 seconds.
[b] Contact your distributor in this case.

A warning state is triggered when a condition, such as voltage or temperature, is beyond its design limitations.

The battery pack's BMS periodically reports its operational state to the inverter. There are two abnormal states:

Warning: When the battery pack is likely to become faulty, it goes into warning state. When a warning is reported, the inverter shows the warning message on its display but takes no action about it.

Fault: When the battery pack falls outside prescribed limits, it goes into fault state. When a fault is reported, the inverter immediately stops its operation and shows the fault message on the display.

The possible warning or fault 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`

An abnormal state is released when the battery pack recovers its normal condition.

NOTE

For a serious fault, if no proper corrective actions are taken by the inverter, the battery pack's circuit breaker automatically trips to protect itself. For example, if the Status indicator stays red for more than 5 minutes, the circuit breaker trips. Use the monitoring software on the inverter to identify what caused the fault.

4 Emergency Situations

The RESU 6.4 EX battery pack comprises multiple batteries that are designed to prevent hazards resulting from failures. However, LG Chem cannot guarantee their absolute safety.

4.1 Leaking Batteries

If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas. If one is exposed to the leaked substance, immediately perform the actions described below.

Inhalation: Evacuate the contaminated area, and seek medical attention.

Contact with eyes: Rinse eyes with flowing water for 15 minutes, and seek medical attention.

Contact with skin: Wash the affected area thoroughly with soap and water, and seek medical attention.

Ingestion: Induce vomiting, and seek medical attention.

4.2 Fire

In case of fires, make sure that the following equipment is available near the battery pack.

- SCBA (self-contained breathing apparatus) and protective gear in compliance with the Directive on Personal Protective Equipment 89/686/EEC
- Novec 1230, FM-200, or dioxide extinguisher.

NOTE

ABC extinguishers are not effective when the battery pack is on fire.

Batteries may explode when heated above 150°C. If possible, move the battery pack to a safe area before it catches fire.

4.3 Wet Batteries

If the battery pack is wet or submerged in water, do not let people access it, and then contact LG Chem or an authorized dealer for technical support.

4.4 Damaged Batteries

Damaged batteries are dangerous and must be handled with the utmost care. 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 an authorized dealer.

NOTE

Damaged batteries may leak electrolyte or produce flammable gas. If such a damage occurs, immediately contact LG Chem at +82-43-219-2720.

5 Warranty

5.1 Warranty Coverage

LG Chem protects this product under warranty when this product is installed and used as detailed in this manual. Violating the installation procedure or using this product in any way not described in this manual immediately voids all warranties on this product.

5.2 Limitation of Liability

LG Chem does not provide warranty coverage or assume any liability for direct or indirect damages or defects that result from the following causes:

- Transportation or storage
- Incorrect installation
- Operating the product in an inappropriate environment
- Incorrect or inappropriate operation
- Insufficient ventilation
- Failure to adhere to safety warnings or instructions
- Repairs or modifications performed by unauthorized personnel
- Rectifier failure or overcurrent.
- Force majeure events
- External influences, such as unusual physical or electrical stress.
- Use of a rectifier that fails to meet the requirements.

Keep this manual for later use.

LG Chem
LG Twin Tower, 128 Yeoui-daero Yeongdeungpo-gu Seoul
150-721, Korea