

# Limited Warranty for RESU12 Battery Storage System

**Effective Date: 27<sup>th</sup> of August, 2021**

This limited warranty (hereinafter 'Warranty') specified below applies to LG Energy Solution Lithium-ion battery and the Accessory Component (hereinafter 'Products') supplied by LG Energy Solution, Ltd. (hereinafter 'LG Energy Solution') to End-user (hereinafter 'Buyer') through their Reseller.

Following warranty is provided for the below product.

Product Model	Serial Number
RESU12	EH048252P3S2BMAxxxxxxxxxx

## 1. Purpose

The primary purpose of this 'Warranty' is to clearly define the matters related to warranty policy of the 'Products'.

## 2. Obligations

2.1 'Buyer' should use and maintain the 'Products' as specified in the Attachment 1 ('Battery Technical Specifications') and Attachment 2 ('Standard Conditions of Use').

2.2 'Buyer' shall comply with the manuals and precautions provided by 'LG Energy Solution' (hereinafter referred to as 'Safety Documents') when using the 'Products'. In addition, the 'Products' shall be used only for the purpose designated by 'LG Energy Solution'.

## 3. Warranty Term

3.1 The warranty shall begin to take effect either (i) on the date of installation or (ii) twelve (12) months from the date of manufacture, whichever occurs first, and such warranty shall be valid for a period of ten (10) years.

## 4. Warranty

4.1 'LG Energy Solution' guarantees Energy Retention upon the earlier of the date the Warranty Term has expired or the Aggregate Energy Throughput referred in below table is reached, when the battery system is operated under normal use. 'LG Energy Solution' warrants the performance of the 'Products'

shall begin to take effect either (i) on the date of installation or (ii) twelve (12) months from the date of manufacture, whichever occurs first.

Contract Parts	Performance Warranty Term	Application	Operating Limitation	Energy Retention
RESU12	10 years	Self-consumption, Back-up	30MWh of aggregate throughput	80%

The value of energy aggregate throughput and retention shall be measured on the following conditions by 'LG Energy Solution', when warranty validation is required by 'Buyer'.

Capacity measurement condition

- Ambient temperature: 25~30°C
- Initial battery temperature from BMS: 25~30°C
- Charging/discharging method
  - Charge: 0.2CC/CV, Cut-off current 0.05C at 58.8V
  - Discharge: 0.2CC, Cut off voltage 42V
  - Current and voltage measurement at battery side

## 5. Notification of Defect and Identification of Cause

5.1 The 'Buyer' shall promptly notify their Reseller or 'LG Energy Solution' if any of the 'Products' are found to be defective or if any quality-related problems are raised due to the defect. The same shall apply if the 'Products' do not meet the performance as described in Article 4.

5.2 If the 'Buyer' intends to raise a claim due to the quality defect of the 'Products', the 'Buyer' shall provide LG Energy Solution with each of the following information.

- (1) Proof of the purchase
- (2) Symptoms of the defect and when it occurred
- (3) Serial number of the 'Products'

5.3 'LG Energy Solution' should promptly identify the defect notified by 'Buyer', and repair or replace the defect under warranty by using an objective inspection method.

## 6. Replace or Repair

6.1 If 'LG Energy Solution' is found to be liable for the defect of the 'Products' under Article 5, 'LG Energy Solution' shall finally decide whether to (i) repair the defective 'Products', or (ii) replace the defective 'Products' with intact parts that are free of any defects and equal in value.

6.2 The warranty period for the repaired or replaced part shall be the remainder of the warranty period for the original parts.

6.3 'LG Energy Solution' shall not indemnify or compensate for any damages unless otherwise explicitly specified herein.

6.4 The Warranty for defective 'Products' are only valid when they have been repaired or replaced by LG Energy Solution qualified personnel.

In the event the Products are not available in the market anymore, 'LG Energy Solution', at its option, may replace it with different kind of product with equivalent functions and performances or refund the remaining annually depreciated value of the purchase price of the Products during the Term of Performance Warranty as the Compensation Scheme below. The purchase price mentioned hereinabove means the list price actually paid by the Buyer for the purchase.

#### **- Compensation Scheme -**

- Residual value in [Local Currency] = purchasing price in [Local Currency] / 120 x (120 - Operation time after installation in month)
- No warranty of performance will be provided from the 121st month

## **7. General Exclusions**

This Limited Warranty does not apply to any defect or performance failure resulting from any of the following.

- When the 'Products' are not manufactured by 'LG Energy Solution'
- When the 'Products' are transported, stored, installed or wired improperly and in violation of the official installation manual.
- When the 'Buyer' disassembles or dismantles the 'Products' without prior consent of 'LG Energy Solution'.
- When a third-party's product or part is assembled or used in combination with 'Products' of 'LG Energy Solution'.
- When the defect occurs or the scope of the defect expands due to improper repair of 'Products' carried out by non- approved technician by 'LG Energy Solution'.
- When a fault occurs in the 'Products' due to the willful misconduct or negligence of the 'Buyer'.
- When the defect occurs due to the misuse, faulty use, or negligent use of the 'Products'.
- When the 'Buyer' violated Article 8.
- When the 'Products' are used with an incompatible (Not Matched) inverter.
- When the 'Products' are used for purposes other than the Application under Article 4.
- When a claim is raised for the 'Products' after the warranty period specified in Article 3 and Article 4 has elapsed.
- When the scope of the defect has expanded because the 'Buyer' did not immediately notify 'LG Energy Solution' of the defect of the 'Products'.

- When the ‘Products’ are affected by unusual physical or electrical stresses such as blackout, inrush current, lightning, flood, fire, incidental damage, or etc.
- When the defect occurs in the ‘Products’ due to force majeure events, such as war, riot, civil war, natural disasters, etc., that ‘LG Energy Solution’ cannot be held responsible for.
- When the ‘Products’ are externally damaged but its performance and function is not affected.
- When the ‘Buyer’ violates applicable laws or regulations of the state, county or local government while using the ‘Products’
- Other defects not attributable to ‘LG Energy Solution’
- When the ‘Products’ are NOT purchased and installed by ‘LG Energy Solution’ certified installer.
- When the ‘Products’ are NOT registered on ‘LG ESS Battery Website’. The ‘Products’ which are not registered, must be registered prior to any warranty claim.
- When the ‘Products’ are out of warranty.

## 8. Special Exclusions

### 8.1 Exclusion of Warranties

The Warranty will not apply if the Buyer violates any of the following provisions:

- The ‘Products’ shall not be used in facilities with radiation control, nuclear reactors, and facilities related to nuclear safety or nuclear power uses, as well as facilities that may have direct contact with patients.
- The ‘Products’ shall not be used to power medical devices or life-support equipment.
- The ‘Products’ shall not be used or installed in a location where vibrations may occur. For example, aircraft, ship (vessel, boat, yacht), car or train are not allowed.
- The ‘Products’ shall be used for residential stationary storage applications.

### 8.2 Exclusion of Incidental or Consequential Damages

To the maximum extent permitted by applicable law, in no event will seller or any of its representatives be liable to ‘Buyer’ for any incidental or consequential damages arising out of breach of the warranty whether or not the ‘Buyer’ has been advised of the possibility of such damages.

## 9. Contact

Should ‘Buyer’ have any questions or want to file a claim, ‘Buyer’ shall contact ‘LG Energy Solution’ using the following contact information.

LOCATION	TELEPHONE	E-MAIL
HEADQUARTERS		essservice@lgensol.com

EUROPE / UNITED KINGDOM (EXCEPT ITALY)	+49 (0) 6196 5719 660	lgchem@e-service48.de
ITALY	+39 (0)2 8239 7609	assistenza@lgresu.eu
AUSTRALIA	+61 1300 178 064	essserviceau@lgensol.com

## 10. Applicable law

The Warranty is subject to the law of the country or state or jurisdiction in which the 'Buyer' resides. The 'Buyer' is entitled to a replacement or refund for a major failure. The 'Buyer' is also entitled to have the 'Products' repaired or replaced if the 'Products' fails to be of acceptable quality and the failure does not amount to a major failure. This Warranty only applies to the 'Buyer' who has purchased the 'Products' for his or her own use.

## 11. Applicable Countries

This warranty is applicable only in the countries listed as below, and 'LG Energy Solution' is not responsible for any claims against this Warranty made in and/or based on the event occurred in any countries other than listed herein.

- Germany

Attachment 1. 'Battery Technical Specifications'

Attachment 2. 'Standard Conditions of Use'

**Attachment 1. Battery Technical Specifications**

**Table 1.1 Specification Overview of RESU12**

Items		RESU12	
Electrical	Cell	JH3	
	Nom. Voltage/ Operating Voltage Range	51.8 V / 42 ~ 58.8V	
	Total Energy Capacity	13.048 kWh	
	Max. Power / Max. Current	5 kW / 119 A	
	Peak Power (for 3sec) / Peak Current (for 3sec)		7 kW / 166.7 A
			Peak Current excludes repeated short duration (less than 3 sec.) of current pattern.
	Peak Power for Backup Mode	11kW for 3sec	
	Standard Charging Condition (CC)	Charging Current	56.7 A
		Cut off condition (58.8 V)	12.6A @ 58.8V, Ambient 25°C
	Std. Discharging Condition (CC)	Discharge Current	56.7 A
		Cut off Condition	Discharge Cut off voltage : 42 V
	Battery pack Round-trip Efficiency	>95% (under specific condition)	
Communication Interface	CAN 2.0b Standard ID (500kbps)		
DC Disconnect	Circuit Breaker, Contactor, Fuse		
Environmental	Installation location	Indoor(Wall-mounted) / Outdoor (if installed outdoors, do not allow the battery pack to be exposed to direct sunlight and moisture)	
	Temperature	Operating Range (Optimal Range)	-10 ~ 50 °C (15 ~ 30 °C)
		Storage Range <sup>a)</sup>	1) - 30°C ~ 60°C (acceptable for 7 days in total)
			2) - 20°C ~ 45°C (acceptable for the first 6 months)
	3) - 20°C ~ 30°C (acceptable for 7 <sup>th</sup> month~12 <sup>th</sup> month)		
	Operating Humidity Range <sup>b)</sup>	5 ~ 95% RH, Non Condensing	
Altitude	Max. 2,000m		
Cooling Strategy	Natural convection		
Reliability & Certification	Safety	Cell	UL1642
		Battery Pack	CE/ FCC / RCM / TUV (IEC 62619)
	Hazardous Materials Classification	Class 9	
	Transportation	UN38.3 (UNDOT)	
	Ingress	IP55	

- a) Storage Temperature Range is temperature range during transporting and storing the 'Products' until the installation
- b) Storage Humidity is exactly same as Operating Humidity, and if it falls outside of the range, corrosion may occur or insulation performance may be affected.

※ The 'Products' shall not be installed in an airtight enclosure or in an area without adequate air flow to support natural air convection cooling methods. The 'Product' shall not be installed in sleeping areas or near flammable materials.

## Attachment 2. Standard Conditions of Use

### 2.1 Operating Condition

The 'Products' shall be operated in accordance with the basic operating conditions (Table 2.1)

**Table 2.1 Basic operating condition**

Items		RESU12
Depth of Discharge		90% (User DoD 100%)
SOC	Min. SOC	5% (User SoC 0%)
	Max. SOC	95% (User SoC 100%)