LG Chem Lithium-ion Battery Limited Warranty

RESU7H / RESU10H Battery Storage System

This limited warranty (hereinafter ''Warranty") specified below applies to LG Chem Lithium-ion batteries and the Accessory Components (hereinafter "Products") supplied by LG Chem, Ltd. (hereinafter "LGC or Seller") to End-user (hereinafter "Buyer") through Authorized Reseller

1. Purpose

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

2. Warranty Condition

2-1. Warranty Period

The Performance Warranty for the Products is valid for 10 years after the date of invoice commencing from 3 months after a product arrives at the delivery point or starting from the day of the successful completion of the commissioning, whichever comes earlier. (the "Term of Performance Warranty").

2-2. Limitation of Warranty scope

LGC's liability under this Warranty shall be limited to replacement, repair, refund and compensation. Replaced or repaired Products shall be warranted for the remainder of the original Term of Performance Warranty. In any event, the replacement shall not justify the renewal of the Term of Performance Warranty.

2-3. Exclusion of Warranty

Damage to the Products resulting from any of following activities is NOT covered by this Limited Warranty:

- Improper transportation, storage, installation or wiring by Buyer
- Modification, alteration, disassembly, repair or replace by someone other than a personnel certified by LGC
- Noncompliance with LGC's official installation manual
- External influences including unusual physical or electrical stress (power failure surges, inrush current, lightning, flood, fire, accidental breakage, etc.)
- Use of an incompatible inverter, rectifier or PCS.

2-4. Warranty Claim

Buyer shall contact installer directly for any warranty claims in order to avoid additional problems in the products.

Note. Products are unavailable to protect itself from the self-discharge in condition of shut down mode.

3. Performance Warranty (Standard)

LGC warrants and represents that the Product retains at least 60% of Nominal Energy for the either 10 years after the date of the initial installation or for a minimum Energy Throughput as per the table below (whichever comes first) when the battery system is operated under a normal use followed by the specification and the manual provided by LGC.

The term "Nominal Energy" herein means the initially rated capacity of the Products as printed on the label of the Products. The precondition of the valid 10year Performance Warranty shall be as follows:

(i) The ambient temperature during the operation of the Products shall not fall below -10^{0}C or exceed 45^{0}C

(ii) The energy throughput for (10) years is less than values in table below:

Product Name	Nominal Energy	Energy Throughput
RESU7H	7.0kWh	19.6MWh
RESU10H	9.8kWh	27.4MWh

Capacity measurement condition

- Ambient temperature: 25~30℃
- Initial battery temperature from BMS: 25~30℃

- Charging/discharging method
  - Charge: (0.2)CC/CV (Constant voltage: RESU7H_BPI(126)V/ RESU10H_BPI(176.4)V, Cut-off current (0.05)C)
  - Discharge: (0.2)CC (Cut-off voltage: RESU7H_BPI(90)V/ RESU10H_BPI(126)V)
  - Current at (0.2)C: (12.6)A
- Current and voltage measurement at battery DC side

4. Out of Warranty Policy

Products damage which is not caused by seller, LGC shall provide charged service, including all the expenses of such as material cost, labor cost, warehouse cost, transportation cost, customs duties, analysis cost, management cost, corporate profits, disposal expense(If necessary) and so on.

5. About Service Products/Parts

Service products/parts are able to be used as new or refurbished condition which performance is equal to or higher than defective Products and guaranteed by LGC.

In the event the Products are not available in the market anymore, LGC, 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 -

CLASS I : 100% of the purchase price from the initial installation date to 24th month
CLASS II : 72% of the purchase price from 25th to 36th month
CLASS III : 58% of the purchase price from 37th to 48th month
CLASS IV : 44% of the purchase price from 49th to 60th month
CLASS V : 30% of the purchase price from 61st to 72nd month
CLASS VI : 16% of the purchase price from 73rd to 84th month
CLASS VII : 6% of the purchase price from 85th to 96th month
CLASS VIII: 4% of the purchase price from 97th to 108th month
CLASS IX : 2% of the purchase price from 109th to 120th month
No warranty of performance will be provided from the 121st month

6. Claim Payment Policy

Claims under this Warranty must be made by notifying the Authorized Reseller from whom the Product was purchased. For a Warranty Claim to be processed, it must include following items;

(1) Proof of the original purchase
(2) Description of the alleged defect(s) from authorized service center
(3) The relevant Product's serial number and the initial installation date

Buyers who are unable to contact the Authorized Reseller from whom the Product was purchased should contact LGC at the Q&A page of the LGC Partner Website http://www.lgesspartner.com

7. Applicable Countries

This Warranty is applicable only in the countries listed as below, and LGC 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.

- Austria, Belgium, Czech Republic, Denmark, Finland, France, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom

Limited Warranty for RESU13 Battery Storage System

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

Following warranty is provided for the below product.

Product Model	Serial Number
RESU13	EH048252P3S1BMAxxxxxxxxxx

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 Chem’ (hereinafter referred to as 'Safety Documents') when using the ‘Products’. In addition, the ‘Products’ shall be used only for the purpose designated by 'LG Chem'.

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 Chem’ 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 Chem' 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
RESU13	10 years	Self-consumption, Back-up	39MWh of aggregate throughput	60%

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

Capacity measurement condition

- Ambient temperature: 25~30℃
- Initial battery temperature from BMS: 25~30℃
- 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 Chem' 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 Chem 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 Chem’ 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 Chem' is found to be liable for the defect of the 'Products' under Article 5, ‘LG Chem’ 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 Chem' 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 Chem qualified personnel.

In the event the Products are not available in the market anymore, LGC, 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 EUR = purchasing price in EUR / 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 Chem'
- 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 Chem'.
- When a third-party’s product or part is assembled or used in combination with ‘Products’ of 'LG Chem'.
- 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 Chem’.
- 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 Chem’ 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 Chem’ 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 Chem'

8. Special Provisions

The 'Products’ covered by this Warranty shall not be used for the facilities such as radiation control areas, nuclear reactors, facilities related to nuclear safety, facilities that use nuclear power, and other related facilities as well as the facilities that potentially may have direct patient contact.

The ‘Products’ covered by this Warranty may be used for life-support equipment only with the prior written consent of 'LG Chem.'

9. Contact

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

LOCATION	TELEPHONE	E-MAIL
HEADQUARTERS		essservice@lgchem.com
UNITED STATES	+1 888 375 8044	CSNorthAmericaESS@lgchem.com
EUROPE / UNITED KINGDOM (EXCEPT ITALY)	+49 (0) 6196 5719 660	lgchem@e-service48.de
ITALY	+39 (0)2 9475 9742	lgchemresu@kndpoweritalia.com
AUSTRALIA / NEW ZEALAND	+61 1300 178 064	ESSserviceAU@lgchem.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 Chem’ 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.

- Austria, Belgium, Czech Republic, Denmark, Finland, France, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom

Attachment 1. ‘Battery Technical Specifications’

Attachment 2. ‘Standard Conditions of Use’

Attachment 1. Battery Technical Specifications

Table 1.1 Specification Overview of RESU13

Items			RESU13
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℃
	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 ℃ (15 ~ 30 ℃)
		Storage Range[a)]	1) - 30℃ ~ 60℃ (acceptable for 7 days in total) 2) - 20℃ ~ 45℃ (acceptable for the first 6 months) 3) - 20℃ ~ 30℃ (acceptable for 7th month~12th month)
	Operating Humidity Range[b)]		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.

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		RESU13
Depth of Discharge		95% (User DoD 100%)
SOC	Min. SOC	3% (User SoC 0%)
	Max. SOC	98% (User SoC 100%)

LG Chem Lithium-ion Battery Limited Warranty

RESU3.3 / RESU6.5 / RESU10 Battery storage system

This limited warranty (hereinafter ''Warranty") specified below applies to LG Chem Lithium-ion batteries and the Accessory Components (hereinafter "Products") supplied by LG Chem, Ltd. (hereinafter "LGC or Seller") to End-user (hereinafter "Buyer") through Authorized Reseller

1. Purpose

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

2. Warranty Condition

2-1. Warranty Period

The Performance Warranty for the Products is valid for 10 years from the initial (first) installation date (the "Term of Performance Warranty").

2-2. Limitation of Warranty scope

LGC's liability under this Warranty shall be limited to replacement, repair, refund and compensation. Replaced or repaired Products shall be warranted for the remainder of the original Term of Performance Warranty. In any event, the replacement shall not justify the renewal of the Term of Performance Warranty.

2-3. Exclusion of Warranty

Damage to the Products resulting from any of following activities is NOT covered by this Limited Warranty:

- Improper transportation, storage, installation or wiring by Buyer
- Modification, alteration, disassembly, repair or replace by someone other than a personnel certified by LGC
- Noncompliance with LGC's official installation manual
- External influences including unusual physical or electrical stress (power failure surges, inrush current, lightning, flood, fire, accidental breakage, etc.)
- Use of an incompatible inverter, rectifier or PCS.

3. Performance Warranty (Standard)

LGC warrants and represents that the Product retains at least 60% of Nominal Energy for the either 10 years after the date of the initial installation or for a minimum Energy Throughput as per the table below (whichever comes first) when the battery system is operated under a normal use followed by the specification and the manual provided by LGC.

The term "Nominal Energy" herein means the initially rated capacity of the Products as printed on the label of the Products. The precondition of the valid 10year Performance Warranty shall be as follows:

(i) The ambient temperature during the operation of the Products must not fall below -10^{0}C or exceed 45^{0}C

(ii) The energy throughput is less than values in table below:

Product Name	Nominal Energy	Energy Throughput
RESU3.3	3.3kWh	8.2MWh
RESU6.5	6.5kWh	16.1MWh
RESU10	9.8kWh	24.3MWh

Capacity measurement condition

- Ambient temperature: 25~30℃
- Initial battery temperature from BMS: 25~30℃
- Charging/discharging method
  - Charge: (0.2)CC/CV (Constant voltage (58.8)V, Cut-off current (0.05)C)
  - Discharge: (0.2)CC (Cut-off voltage (42)V)
  - Current at (0.2)C: (12.6)A (RESU3.3), (25.2)A (RESU6.5), (37.8)A (RESU10)
- Current and voltage measurement at battery DC side

4. Out of Warranty Policy

Products damage which is not caused by seller, LGC shall provide charged service, including all the expenses of such as material cost, labor cost, warehouse cost, transportation cost, customs duties, analysis cost, management cost, corporate profits, disposal expense(If necessary) and so on.

5. About Service Products/Parts

Service products/parts are able to be used as new or refurbished condition which performance is equal to or higher than defective Products and guaranteed by LGC.

In the event the Products are not available in the market anymore, LGC, 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 -

CLASS I : 100% of the purchase price from the initial installation date to 24th month
CLASS II : 72% of the purchase price from 25th to 36th month
CLASS III : 58% of the purchase price from 37th to 48th month
CLASS IV : 44% of the purchase price from 49th to 60th month
CLASS V : 30% of the purchase price from 61st to 72nd month
CLASS VI : 16% of the purchase price from 73rd to 84th month
CLASS VII : 6% of the purchase price from 85th to 96th month
CLASS VIII: 4% of the purchase price from 97th to 108th month
CLASS IX : 2% of the purchase price from 109th to 120th month
No warranty of performance will be provided from the 121st month

6. Claim payment policy

Claims under this Warranty must be made by notifying the Authorized Reseller from whom the Product was purchased. For a Warranty Claim to be processed, it must include following items;

(1) Proof of the original purchase
(2) Description of the alleged defect(s) from authorized service center
(3) The relevant Product's serial number and the initial installation date

Buyers who are unable to contact the Authorized Reseller from whom the Product was purchased should contact LGC at the Q&A page of the LGC Partner Website http://www.lgesspartner.com

7. Applicable Law

The Warranty is subject to the law of Australian State. Products come with guarantees that cannot be excluded under the Australian Consumer Law. The Buyer is entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. The Buyer is also entitled to have the goods repaired or replaced if the Products fail to be of acceptable quality and the failure does not amount to a major failure. The benefits to the consumer given by the warranty are in addition to any other rights and remedies of the consumer under a law in relation to the goods or services to which the warranty relates. This warranty only applies to the Buyer who have purchased the Products for their own use.