

PRODUCT BOOK
: Essential Information for

RESU
RESU LV / HV

LG Chem RESU Product Guide

2019.04.09

| <u>Rev</u> | <u>Date</u> | <u>Writer</u> | <u>Updates</u> |
|------------|-------------|---------------|---|
| Ver1.3 | 2019.04.09 | Max Im | RESU LV Compatible Inverter List Updated(to ver7.9) |
| | | | RESU HV Compatible Inverter List Updated(to ver1.3) |
| | | | RESU HV Charging Caution Letter Deleted |
| | | | Deep Discharged Battery & Charging Caution Letter added |
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About this product book

This product book includes essential information for RESU Low Voltage (LV) and High Voltage (HV) battery products. The information included in this product book is accurate at the time of publication. However, the product specifications are subject to change without prior notice. If changes occur, LG Chem will share the updated product book to our RESU Partners.

Contents

| | |
|---|----|
| 0.0 Document revision history | 02 |
| 0.1 About this product book | 03 |
| 0.2 Contents | 04 |
| 1. Compatible Inverter List | |
| 1.1 RESU LV Compatible Inverter List (v7.9) | 05 |
| 1.2 RESU HV Compatible Inverter List (v1.3) | 06 |
| 2. Introduction for RESU new products | |
| 2.1 RESU13 Introduction | 07 |
| 2.2 RESU7H(Type-C) Introduction | 08 |
| 3. Datasheet | |
| 3.1 RESU LV | 09 |
| 3.1.1 RESU3.3 Datasheet | 11 |
| 3.1.2 RESU6.5 Datasheet | 13 |
| 3.1.3 RESU10 Datasheet | 15 |
| 3.1.4 RESU13 Datasheet | 15 |
| 3.2 RESU HV | 17 |
| 3.2.1 RESU7H(Type-R) Datasheet | 19 |
| 3.2.2 RESU7H(Type-C) Datasheet | 21 |
| 3.2.3 RESU10H(Type-R) Datasheet | 23 |
| 3.2.4 RESU10H(Type-C) Datasheet | 23 |
| 4. Deep Discharged Battery & Charging Caution Letter | 25 |

1. Compatible Inverter List

1.1 Compatible storage Inverters with RESU LV (v7.9)








All RESU installations require a compatible inverter.

Using a non-approved inverter will void the warranty provided by LG Chem.

See below important instructions when installing and using RESU LV.

- 1) Battery inverters should operate in On-Grid only. (Not in Off-Grid)
- 2) For On-Grid applications where Back-up mode may be sometimes utilized the backed up circuits and inverters AC draw must not exceed the battery current limit specifications.

Following list of Inverters are currently compatible with LG Chem home battery, RESU LV Series.

| Inverter | | | Battery | | | | Remark |
|--|---|---|------------------|--------------------|-----------------|-----------------|---|
| Manufacturer | Model | Software Version* | RESU3.3 (3kW) | RESU6.5 (4.2kW) | RESU10 (5kW) | RESU13 (5kW) | |
|  | Sunny Island 3.0M(EU) | 3.110 | ○ | ○ | ○ | | *Cannot use in Back-up Mode |
| | Sunny Island 4.4M(EU) | 1.02.10.R | ○ | ○ | ○ | ○ | *Cannot use in Back-up Mode |
| | Sunny Island 6.0H(EU) | | ○ | ○ | ○ | ○ | *Exclusively, RESU13 can be used in Back-up Mode |
|  | SH5K | SH5K_V11_V1_A | ○ | ○ | ○ | | *Can use in Back-up Mode under the condition 2) above |
| | SH5K+ | SH5K-V13_FW_V13 | | | | | |
| | SH3K6 | SH3K6-V11_FW_V28 | ○ | ○ | ○ | ○ | |
| | SH4K6 SH5K-20 | SH4K6-V11_FW_V28 SH5K-20_FW_V57 | ○ | ○ | ○ | ○ | |
|  | SK-SU5000E | Inverter_M V2.15 Charger_28035_M_2.23 | ○ | ○ | ○ | ○ | *Can use in Back-up Mode under the condition 2) above |
| | SK-SU3700E | | | | | | |
| | SK-SU3000E | | | | | | |
| | SK-TL5000E | | | | | | |
| | SK-TL3700E SK-TL3000E | | | | | | |
|  | ISS1Play 3TL ISS1Play 3 with Transformer | FW : ABH1002_F1 DFW : ABH1003_H D.BOOT : ABH100 | ○ | ○ | ○ | | *Can use in Back-up Mode under the condition 2) above |
|  | MultiPlus 48/3000/35 | CCGX S-v1.72-recover | ○ | ○ | ○ | | *Can use in Back-up Mode under the condition 2) above |
|  | GW3048D-ES GW3648D-ES GW5048D-ES | FW : 15158 App : V3.6.0 | ○ | ○ | ○ | ○ | *Can use in Back-up Mode under the condition 2) above |
| | GW3048-EM GW3648-EM GW5048-EM | FW : 05058 App : V3.6.0 | ○ | ○ | ○ | ○ | |
| | GW3600S-BP GW5000S-BP | FW : 04048 App : V3.6.0 | | ○ | ○ | ○ | |
|  | SPMC481 SPMC482 | SP Link : 11.15.7006 | ○ | ○ | ○ | ○ | *Exclusively, can use in Off-Grid |

* Only compatible with the software versions which are mentioned above.

※ More compatible inverters will be added.

1. Compatible Inverter List

1.2 Compatible storage Inverters with RESU HV (v1.3)

All RESU installations require a compatible inverter.

Using a non-approved inverter will void the warranty provided by LG Chem.

See below important instructions when installing and using RESU HV.

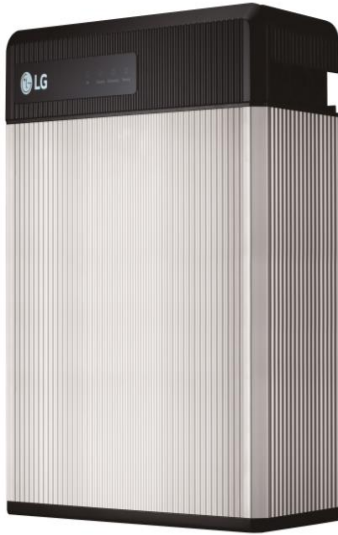
- 1) Battery/Hybrid inverters should operate in On-Grid only. (Not in Off-Grid)
- 2) For On-Grid applications where Back-up mode may be sometimes utilized, the backed up circuits and inverters AC draw must not exceed the battery current limit specifications.

| Inverter | | | Battery | | | | Remark |
|----------|--|---------------------------------------|---------|--------|---------|-------------|--|
| Brand | Model | Software Version* | RESU7H | | RESU10H | | |
| | | | Type C | Type R | Type C | Type R | |
| | Sunny Boy Storage 2.5 | 2.4.19.R or above | ○ | | ○ | | - Cannot use in Back-up Mode |
| | Sunny Boy Storage 3.7 Sunny Boy Storage 5.0 Sunny Boy Storage 6.0 | 1.50.10.R or above | ○ | | ○ | | - Can use in Back-up Mode - SPS(Secure Power Supply) mode is supported |
| | Sunny Boy Storage 3.8 – US Sunny Boy Storage 5.0 – US Sunny Boy Storage 6.0 – US | 1.50.10.R or above | ○ | | ○ | | - Can use in Back-up Mode - SPS(Secure Power Supply) mode is supported |
| | SE5000-RWS / SE6000-RWS (EU) SE7600A-USS2 / SE3800A-USS2 (US) SE5000-RWS2 / SE6000-RWS2 (EU) SE5000-AUS2 / SE6000-AUS2 (AU) SE2000H ~ SE10000H with SESTI-S4 | 3.2150 or above 3.2186 or above | | ○ | | ○ ○ ○ | - Can use in Back-up Mode - RESU10H can be expanded up to 2 units - Cannot use in Back-up Mode |
| | Symo Hybrid 3.0-3-S Symo Hybrid 4.0-3-S Symo Hybrid 5.0-3-S | 1.9.2-1 or above | | ○ | | ○ | - Cannot use in Back-up Mode |
| | *Inverter S/W(for Disconnect switch applied RESU HV Battery) will be available within April. | | | | | | |
| | SUN2000L- 2KTL (EU/AU) SUN2000L- 3KTL (EU/AU) SUN2000L- 3.68KTL (EU/AU) SUN2000L- 4KTL (EU/AU) SUN2000L- 4.6KTL (EU/AU) SUN2000L- 5KTL (EU/AU) | V100R001C00SPC 312 or above | | ○ | | ○ | - In case of RESU10H, Charge/Discharge Power is limited to 3.5kW |
| | SUN2000-3.8KTL-USL0 (NA) SUN2000-5KTL-USL0 (NA) | V100R001C10SPC 103B044 or above | | | | ○ | - Can use in Back-up Mode only with PV in operation under rated power - In case of RESU10H, Charge/Discharge Power is limited to 3.5kW |
| | SUN2000-7.6KTL-USL0 (NA) SUN2000-9KTL-USL0 (NA) SUN2000-10KTL-USL0 (NA) SUN2000-11.4KTL-USL0 (NA) | | | | | | - Can use in Back-up Mode only with PV in operation under rated power |

※ Only compatible with the software versions which are mentioned above. More compatible inverters will be added.

2. Introduction for RESU new products

2.1 RESU13 Introduction



- ✓ **“Back-up” functionality** supported
- ✓ Compatible with
 - SMA (SI4.4M & SI6.0H),**
 - Sungrow (SH3K6 , SH4K6 & SH5K-20),**
 - GoodWe (ES-Series) and more brands to be added**
- ✓ **Wall mounted as well as stand type installation**
- ✓ Expandable up to 2 units in parallel for a total **capacity of 26kWh** with one inverter (by RESU Plus)

※ RESU13 is not allowed to be expanded with the other models(RESU3.3/6.5/10) by RESU Plus, but only with RESU13

| RESU13 | |
|-----------------------------|---------------|
| P/N | EH048252P3S1 |
| Width | 452 mm |
| Height | 626 mm |
| Depth | 227 mm |
| Weight ¹⁾ | 98.5kg |

1) A battery pack's weight may vary slightly.

| Electrical Characteristics | | |
|---|--|--|
| Nominal voltage | 51.8 V | |
| Operating voltage range | 42~58.8 V | |
| Nominal Capacity | 252 Ah | |
| Total Energy | 13.1kWh | |
| Usable Energy | 12.4kWh(Depth of Discharge 95%) | |
| Maximum power | 5kW | |
| Peak power for 3 seconds | 7kW | |
| Peak current for 3 seconds | 166.7 A | |
| Peak power for 3 seconds in backup mode | 11kW for 3sec. | |
| Peak current for 3 seconds in backup mode | 261.9 A | |
| Battery round-trip efficiency(0.3C, 25°C) | 95% | |
| Expected lifetime at 25°C/77°F | More than 10 years | |
| Communication Interface | CAN 2.0 B | |
| Operating Conditions | | |
| Installation Location | Indoor / Outdoor (Stand / Wall) | |
| Operating Temperature(Recommended) | -10 to 50°C(15 to 30°C) | |
| Humidity | 5% to 95% | |
| Altitude | Max. 6,562ft (2,000m) | |
| Cooling Strategy | Natural Convection | |
| Certification | | |
| Safety | Cell | UL1642 |
| | Battery Pack | CE / RCM / TUV(IEC 62619) / FCC |
| EMC | | IEC61000-6-1 , IEC61000-6-3 |
| Hazardous Materials Classification | | Class 9 |
| Transportation | | UN38.3 |
| Ingress Rating | | IP55 |

2.2 RESU7H(Type-C) Introduction



- ✓ Compatible with **SMA Sunny Boy Storage 2.5 and new Sunny Boy Storage 3.7/5.0/6.0**
- ✓ It can be installed with SMA Sunny Boy Storage inverter for the existing PV system.
- ✓ **Wall mounted, compact design**

| RESU7H | |
|-----------------------------|---------------|
| P/N | EH111063P3S3 |
| Width | 744 mm |
| Height | 907 mm |
| Depth | 206 mm |
| Weight ¹⁾ | 87.0kg |

1) A battery pack's weight may vary slightly.

| Electrical Characteristics | | |
|---|--|----------------------------------|
| Total Energy Capacity ¹⁾ | 7.0 kWh @25°C (77°F), Beginning of Life | |
| Usable Energy Capacity ¹⁾ | 6.6 kWh @25°C (77°F) | |
| Battery Capacity | 63 Ah | |
| Voltage Range | Charge | 468 to 550 V_{DC} |
| | Discharge | 430 to 507 V_{DC} |
| Absolute Max. Voltage | 570 V_{DC} | |
| Max. Charge/Discharge Current | 7.5A@467V / 8.1A@427V | |
| Max. Charge/Discharge Power ²⁾ | 3.5kW | |
| Peak Power (only discharging) ³⁾ | 5kW for 10 sec. | |
| Peak Current (only discharging) | 11.6A@430V for 10 sec. | |
| Communication Interface | CAN | |
| DC Disconnect | Circuit Breaker, 25A, 600V rating | |
| Connection Method | Spring Type Connector | |
| Operating Conditions | | |
| Installation Location | Indoor / Outdoor (Stand / Wall) | |
| Operating Temperature(Recommended) | -10 to 45°C(15 to 30°C) | |
| Humidity | 5% to 95% | |
| Altitude | Max. 6,562ft (2,000m) | |
| Cooling Strategy | Natural Convection | |
| Noise Emission | < 40 dBA | |
| Certification | | |
| Safety | Cell | UL1642 |
| | Battery Pack | CE / RCM / TUV(IEC 62619) |
| Emissions | FCC | |
| Hazardous Materials Classification | Class 9 | |
| Transportation | UN38.3 | |
| Ingress Rating | IP55 | |

3.1 RESU LV (48V)

3.1.1 RESU3.3 (v1.9)

Features

RESU3.3 battery pack, designed for photovoltaic systems, can be easily connected with other models to expand its energy capacity. With RESU Plus, RESU3.3/6.5/10 can be “cross-connected” with each other.

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

- Easy and Flexible installation
 - : Easy to wall mount or install on floor
 - : Wide range of inverters available
- Proven Safety and 10 year warranty
- Compact size and space saving



Mechanical Characteristics

| | | |
|------------|--------|-----------------|
| Dimensions | Width | 452 mm (17.8") |
| | Height | 401 mm (15.8") |
| | Depth | 120 mm (4.7") |
| Weight | | 31 kg (68.3lbs) |

3.1 RESU LV (48V)

3.1.1 RESU3.3 (v1.9)

Electrical Characteristics

| | |
|---|----------------------------------|
| Total Energy Capacity | 3.3 kWh |
| Usable Energy Capacity ¹⁾ | 2.9 kWh |
| Battery Capacity | 63 Ah |
| Voltage Range | 42.0 to 58.8 V _{DC} |
| Nominal Voltage | 51.8 V _{DC} |
| Max. Charge/Discharge Current | 71.4A |
| Peak Current ²⁾ | 78.6A for 3 sec. |
| Max. Charge/Discharge Power ³⁾ | 3.0kW |
| Peak Power ²⁾ | 3.3kW 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 / Outdoor (Stand / Wall-Mounted) |
| Operating Temperature | -10 to 50°C |
| Operating Temperature (Recommended) | 15 to 30°C |
| Storage Temperature | -30 to 60°C : ~7 days -20 to 45°C : ~ 6 months |
| Humidity | 5% to 95% |
| Altitude | Max. 2,000m |
| Cooling Strategy | Natural Convection |

Certification

| | | |
|------------------------------------|----------------------------|---|
| Safety | Cell | UL1642 |
| | Battery Pack | CE / RCM / FCC / TUV (IEC 62619) / UL1973 |
| EMC | IEC61000-6-1, IEC61000-6-3 | |
| Hazardous Materials Classification | Class 9 | |
| Transportation | UN38.3 | |
| Ingress Rating | IP55 | |

※ Test Conditions - Temperature 25°C, at the beginning of life

※ Total Energy is measured under specific condition from LGC(0.3CCCV/0.3CC)

1) Value for Battery Cell Only (Depth of Discharge 90%). Actual usable energy at the AC output may vary by condition, such as the inverter efficiency and temperature.

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

3) LG Chem recommends 1.1kW for maximum battery lifetime.

3.1 RESU LV (48V)

3.1.2 RESU6.5 (v2.6)

Features

RESU6.5 battery pack, designed for photovoltaic systems, can be easily connected with other models to expand its energy capacity. With RESU Plus, RESU3.3/6.5/10 can be “cross-connected” with each other.

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

Easy and Flexible installation

: Easy to wall mount or install on floor

: Wide range of inverters available

Proven Safety and 10 year warranty

Compact size and space saving



Mechanical Characteristics

| | | |
|------------|--------|------------------|
| Dimensions | Width | 452 mm (17.8") |
| | Height | 656 mm (25.8") |
| | Depth | 120 mm (4.7") |
| Weight | | 52 kg (114.6lbs) |

3.1 RESU LV (48V)

3.1.2 RESU6.5 (v2.6)

Electrical Characteristics

| | |
|---|----------------------------------|
| Total Energy Capacity | 6.5 kWh |
| Usable Energy Capacity ¹⁾ | 5.9 kWh |
| Battery Capacity | 126 Ah |
| Voltage Range | 42.0 to 58.8 V _{DC} |
| Nominal Voltage | 51.8 V _{DC} |
| Max. Charge/Discharge Current | 100A |
| Peak Current ²⁾ | 109.5A for 3 sec. |
| Max. Charge/Discharge Power ³⁾ | 4.2kW |
| Peak Power ²⁾ | 4.6kW 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 / Outdoor (Stand / Wall-Mounted) |
| Operating Temperature | -10 to 50°C |
| Operating Temperature (Recommended) | 15 to 30°C |
| Storage Temperature | -30 to 60°C : ~7 days -20 to 45°C : ~ 6 months |
| Humidity | 5% to 95% |
| Altitude | Max. 2,000m |
| Cooling Strategy | Natural Convection |

Certification

| | | |
|------------------------------------|----------------------------|---|
| Safety | Cell | UL1642 |
| | Battery Pack | CE / RCM / FCC / TUV (IEC 62619) / UL1973 |
| Emissions | IEC61000-6-1, IEC61000-6-3 | |
| Hazardous Materials Classification | Class 9 | |
| Transportation | UN38.3 | |
| Ingress Rating | IP55 | |

※ Test Conditions - Temperature 25°C, at the beginning of life

※ Total Energy is measured under specific condition from LGC(0.3CCCV/0.3CC)

1) Value for Battery Cell Only (Depth of Discharge 90%). Actual usable energy at the AC output may vary by condition, such as the inverter efficiency and temperature.

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

3) LG Chem recommends 2.2kW for maximum battery lifetime.

3.1 RESU LV (48V)

3.1.3 RESU10 (v1.5)

Features

RESU10 battery pack, designed for photovoltaic systems, can be easily connected with other models to expand its energy capacity. With RESU Plus, RESU3.3/6.5/10 can be “cross-connected” with each other.

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

- Easy and Flexible installation
 - : Easy to wall mount or install on floor
 - : Wide range of inverters available
- Proven Safety and 10 year warranty
- Compact size and space saving



Mechanical Characteristics

| | | |
|------------|--------|------------------|
| Dimensions | Width | 452 mm (17.8") |
| | Height | 484 mm (19.0") |
| | Depth | 227 mm (8.9") |
| Weight | | 75 kg (165.3lbs) |

3.1 RESU LV (48V)

3.1.3 RESU10 (v1.5)

Electrical Characteristics

| | |
|---|----------------------------------|
| Total Energy Capacity | 9.8 kWh |
| Usable Energy Capacity ¹⁾ | 8.8 kWh |
| Battery Capacity | 189 Ah |
| Voltage Range | 42.0 to 58.8 V _{DC} |
| Nominal Voltage | 51.8 V _{DC} |
| Max. Charge/Discharge Current | 119A |
| Peak Current ²⁾ | 166.7A for 3 sec. |
| Max. Charge/Discharge Power ³⁾ | 5.0kW |
| Peak Power ²⁾ | 7.0kW 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 / Outdoor (Stand / Wall-Mounted) |
| Operating Temperature | -10 to 50°C |
| Operating Temperature (Recommended) | 15 to 30°C |
| Storage Temperature | -30 to 60°C : ~7 days -20 to 45°C : ~ 6 months |
| Humidity | 5% to 95% |
| Altitude | Max. 2,000m |
| Cooling Strategy | Natural Convection |

Certification

| | | |
|------------------------------------|----------------------------|---|
| Safety | Cell | UL1642 |
| | Battery Pack | CE / RCM / FCC / TUV (IEC 62619) / UL1973 |
| Emissions | IEC61000-6-1, IEC61000-6-3 | |
| Hazardous Materials Classification | Class 9 | |
| Transportation | UN38.3 | |
| Ingress Rating | IP55 | |

※ Test Conditions - Temperature 25°C, at the beginning of life

※ Total Energy is measured under specific condition from LGC(0.3CCCV/0.3CC)

1) Value for Battery Cell Only (Depth of Discharge 90%). Actual usable energy at the AC output may vary by condition, such as the inverter efficiency and temperature.

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

3) LG Chem recommends 3.3kW for maximum battery lifetime.

3.1 RESU LV (48V)

3.1.4 RESU13 (v1.1)

Features

RESU13 battery pack, designed for photovoltaic systems, can be easily connected with other models to expand its energy capacity. With RESU Plus, RESU13 can be connected only with another RESU13.

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

- Emergency Power Back-up
- Easy and Flexible installation
 - : Easy to wall mount or install on floor
 - : Wide range of inverters available
- Proven Safety and 10 year warranty
- Compact size and space saving



Mechanical Characteristics

| | | |
|------------|--------|--------------------|
| Dimensions | Width | 452 mm (17.8") |
| | Height | 626 mm (24.7") |
| | Depth | 227 mm (8.9") |
| Weight | | 98.5 kg (217.2lbs) |

3.1 RESU LV (48V)

3.1.4 RESU13 (v1.1)

Electrical Characteristics

| | |
|--------------------------------------|----------------------------------|
| Total Energy Capacity | 13.1 kWh |
| Usable Energy Capacity ¹⁾ | 12.4 kWh |
| Battery Capacity | 252 Ah |
| Voltage Range | 42.0 to 58.8 V _{DC} |
| Nominal Voltage | 51.8 V _{DC} |
| Max. Charge/Discharge Current | 119A |
| Peak Current ²⁾ | 166.7A for 3 sec. |
| Max. Charge/Discharge Power | 5.0kW |
| Peak Power ²⁾ | 7.0kW for 3 sec. |
| Peak Power for backup mode | 11.0kW 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 / Outdoor (Stand / Wall-Mounted) |
| Operating Temperature | -10 to 50°C |
| Operating Temperature (Recommended) | 15 to 30°C |
| Storage Temperature | -30 to 60°C : ~7 days -20 to 45°C : ~ 6 months |
| Humidity | 5% to 95% |
| Altitude | Max. 2,000m |
| Cooling Strategy | Natural Convection |

Certification

| | | |
|------------------------------------|--------------|----------------------------------|
| Safety | Cell | UL1642 |
| | Battery Pack | CE / RCM / TUV (IEC 62619) / FCC |
| EMC | | IEC61000-6-1, IEC61000-6-3 |
| Hazardous Materials Classification | | Class 9 |
| Transportation | | UN38.3 |
| Ingress Rating | | IP55 |

※ Test Conditions - Temperature 25°C, at the beginning of life

※ Total Energy is measured under specific condition from LGC(0.3CCCV/0.3CC)

1) Value for Battery Cell Only (Depth of Discharge 95%). Actual usable energy at the AC output may vary by condition, such as the inverter efficiency and temperature.

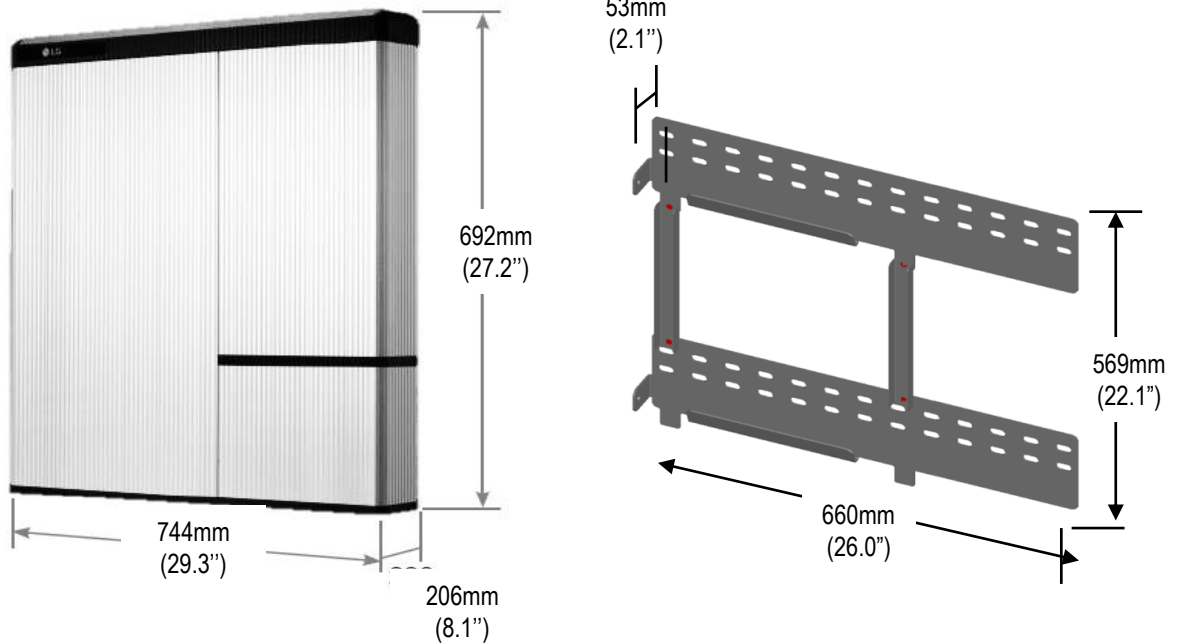
2) Peak Current excludes repeated short duration (less than 3 sec. of current pattern).

3.2 RESU HV (400V)

3.2.1 RESU7H _ Type-R (v4.2)

Features

- Emergency Power Back-up
- Compact size and space saving
- Wide range of inverters available for matching
- Wall mounting installation
- Proven safety and 10 year warranty



Mechanical Characteristics

| | | |
|------------|--------|-----------------|
| Dimensions | Width | 744 mm (29.3") |
| | Height | 692 mm (27.2") |
| | Depth | 206 mm (8.1") |
| Weight | | 75kg (165.4lbs) |

3.2 RESU HV (400V)

3.2.1 RESU7H _ Type-R (v4.2)

Electrical Characteristics

| | | |
|---|---|----------------------------|
| Total Energy Capacity ¹⁾ | 7.0 kWh @25°C (77°F), Beginning of Life | |
| Usable Energy Capacity ¹⁾ | 6.6 kWh @25°C (77°F) | |
| Battery Capacity | 63 Ah | |
| Voltage Range | Charge | 400 to 450 V _{DC} |
| | Discharge | 350 to 430 V _{DC} |
| Absolute Max. Voltage | 520 V _{DC} | |
| Max. Charge/Discharge Current | 8.5A@420V / 10.0A@350V | |
| Max. Charge/Discharge Power ²⁾ | 3.5kW | |
| Peak Power (only discharging) ³⁾ | 5kW for 5 sec. | |
| Peak Current (only discharging) | 13.5A@370V for 5 sec. | |
| Communication Interface | RS485 | |
| DC Disconnect | Circuit Breaker, 25A, 600V rating | |
| Connection Method | Spring Type Connector | |
| User interface | LEDs for Normal and Fault operation | |

Operating Conditions

| | | |
|-------------------------------------|---------------------------------|--|
| Installation Location | Indoor / Outdoor (Wall-Mounted) | |
| Operating Temperature | 14 to 113°F (-10 to 45°C) | |
| Operating Temperature (Recommended) | 59 to 86°F (15 to 30°C) | |
| Storage Temperature | -22 to 131°F (-30 to 55°C) | |
| Humidity | 5% to 95% | |
| Altitude | Max. 6,562ft (2,000m) | |
| Cooling Strategy | Natural Convection | |
| Noise Emission | < 40 dBA | |

Certification

| | | |
|------------------------------------|----------------|----------------------------|
| Safety | Cell | UL1642 |
| | Battery Pack | CE / RCM / TUV (IEC 62619) |
| Emissions | FCC | |
| Hazardous Materials Classification | Class 9 | |
| Transportation | UN38.3 (UNDOT) | |
| Ingress Rating | IP55 | |

※ Test Conditions - Temperature 25°C, at the beginning of life

※ Total Energy is measured under specific condition from LGC(0.3CCC/0.3CC)

※ DC/DC Discharge Efficiency 94.5% @ 2.3kW

1) Value for Battery Cell Only (Depth of Discharge 95%). Actual usable energy at the AC output may vary by condition, such as the battery converter, inverter efficiency and temperature.

2) LG Chem recommends 2.1kW for maximum battery lifetime

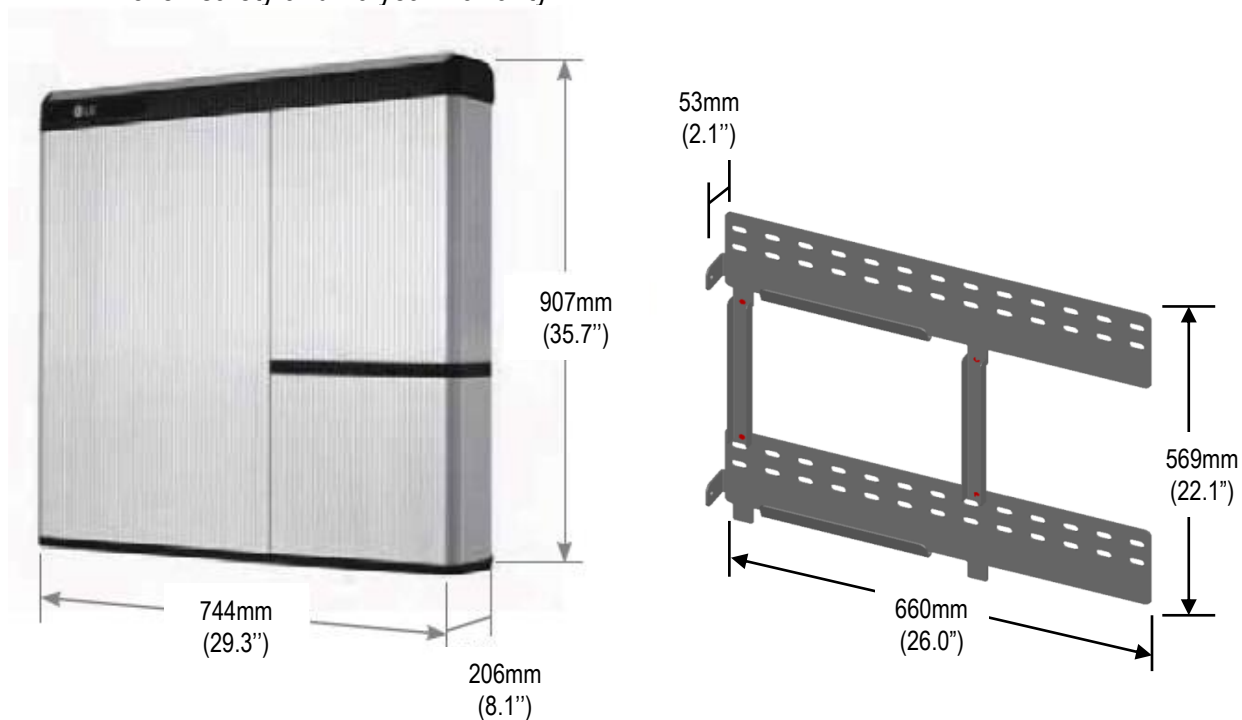
3) Peak Current excludes repeated short duration (less than 5 sec. of current pattern).

3.2 RESU HV (400V)

3.2.2 RESU7H_ Type-C (v4.2)

Features

- Emergency Power Back-up
- Compact size and space saving
- Matched with SMA Sunny Boy Storage models
- Wall mounting installation
- Proven safety and 10 year warranty



Mechanical Characteristics

| | | |
|------------|--------|-----------------|
| Dimensions | Width | 744mm (29.3") |
| | Height | 907mm (35.7") |
| | Depth | 206mm (8.1") |
| Weight | | 87kg (191.8lbs) |

3.2 RESU HV (400V)

3.2.2 RESU7H_ Type-C (v4.2)

| Electrical Characteristics | | |
|---|-----------|---|
| Total Energy Capacity ¹⁾ | | 7.0 kWh @25°C (77°F), Beginning of Life |
| Usable Energy Capacity ¹⁾ | | 6.6 kWh @25°C (77°F) |
| Battery Capacity | | 63 Ah |
| Voltage Range | Charge | 468 to 550 V _{DC} |
| | Discharge | 430 to 507 V _{DC} |
| Absolute Max. Voltage | | 570 V _{DC} |
| Max. Charge/Discharge Current | | 7.5A@467V / 8.1A@427V |
| Max. Charge/Discharge Power ²⁾ | | 3.5kW |
| Peak Power (only discharging) ³⁾ | | 5kW for 10 sec. |
| Peak Current (only discharging) | | 11.6A@430V for 10 sec. |
| Communication Interface | | CAN |
| DC Disconnect | | Circuit Breaker, 25A, 600V rating |
| Connection Method | | Spring Type Connector |
| User interface | | LEDs for Normal and Fault operation |

| Operating Conditions | |
|-------------------------------------|---------------------------------|
| Installation Location | Indoor / Outdoor (Wall-Mounted) |
| Operating Temperature | 14 to 113°F (-10 to 45°C) |
| Operating Temperature (Recommended) | 59 to 86°F (15 to 30°C) |
| Storage Temperature | -22 to 131°F (-30 to 55°C) |
| Humidity | 5% to 95% |
| Altitude | Max. 6,562ft (2,000m) |
| Cooling Strategy | Natural Convection |
| Noise Emission | < 40 dBA |

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

※ Test Conditions - Temperature 25°C, at the beginning of life

※ Total Energy is measured under specific condition from LGC(0.3CCCV/0.3CC)

1) Value for Battery Cell Only (Depth of Discharge 95%). Actual usable energy at the AC output may vary by condition, such as the battery converter, inverter efficiency and temperature.

2) LG Chem recommends 2.1kW for maximum battery lifetime

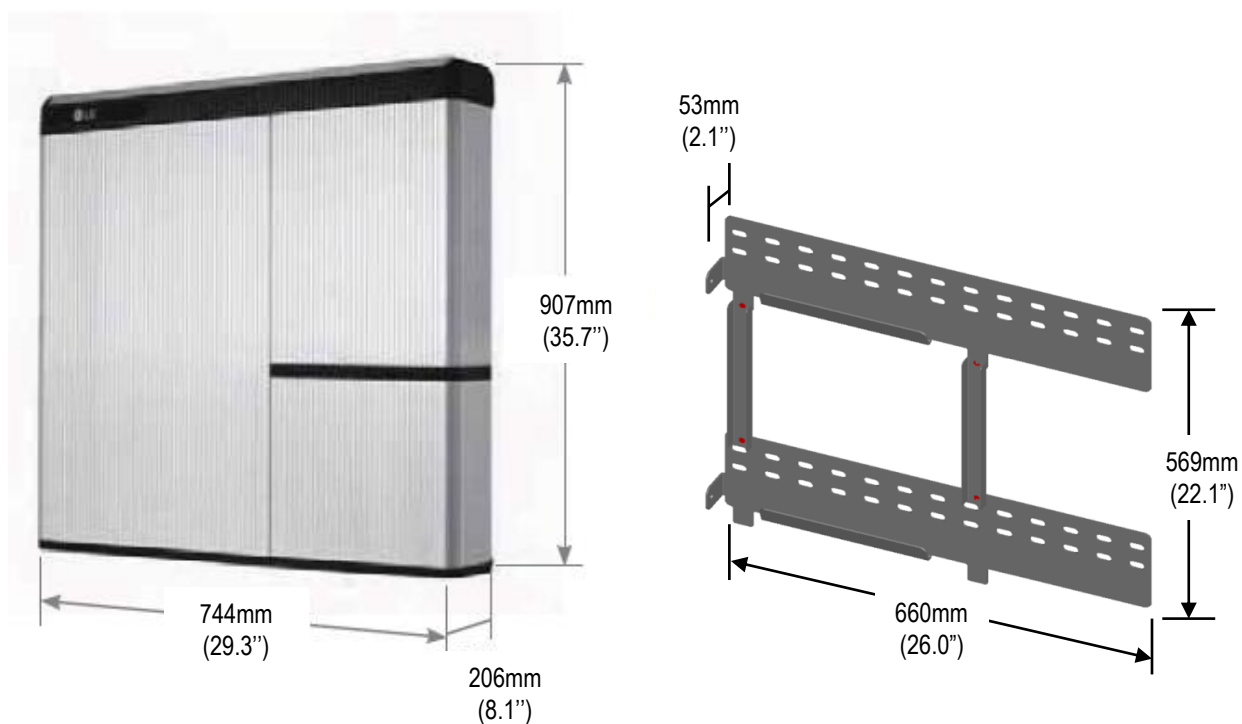
3) Peak Current excludes repeated short duration (less than 5 sec. of current pattern).

3.2 RESU HV (400V)

3.2.3 RESU10H_Type-R (v4.2)

Features

- Emergency Power Back-up
- Compact size and space saving
- Wide range of inverters available for matching
- Wall mounting installation
- Proven safety and 10 year warranty



Mechanical Characteristics

| | | |
|------------|--------|----------------|
| Dimensions | Width | 744 mm (29.3") |
| | Height | 907 mm (35.7") |
| | Depth | 206 mm (8.1") |
| Weight | | 97 kg (214lbs) |

3.2 RESU HV (400V)

3.2.3 RESU10H_Type-R (v4.2)

Electrical Characteristics

| | | |
|---|---|----------------------------|
| Total Energy Capacity ¹⁾ | 9.8 kWh @25°C (77°F), Beginning of Life | |
| Usable Energy Capacity ¹⁾ | 9.3 kWh @25°C (77°F) | |
| Battery Capacity | 63 Ah | |
| Voltage Range | Charge | 400 to 450 V _{DC} |
| | Discharge | 350 to 430 V _{DC} |
| Absolute Max. Voltage | 520 V _{DC} | |
| Max. Charge/Discharge Current | 11.9A@420V / 14.3A@350V | |
| Max. Charge/Discharge Power ²⁾ | 5kW | |
| Peak Power (only discharging) ³⁾ | 7kW for 10 sec. | |
| Peak Current (only discharging) | 18.9A@370V for 10 sec. | |
| Communication Interface | RS485 | |
| DC Disconnect | Circuit Breaker, 25A, 600V rating | |
| Connection Method | Spring Type Connector | |
| User interface | LEDs for Normal and Fault operation | |

Operating Conditions

| | | |
|-------------------------------------|---------------------------------|--|
| Installation Location | Indoor / Outdoor (Wall-Mounted) | |
| Operating Temperature | 14 to 113°F (-10 to 45°C) | |
| Operating Temperature (Recommended) | 59 to 86°F (15 to 30°C) | |
| Storage Temperature | -22 to 131°F (-30 to 55°C) | |
| Humidity | 5% to 95% | |
| Altitude | Max. 6,562ft (2,000m) | |
| Cooling Strategy | Natural Convection | |
| Noise Emission | < 40 dBA | |

Certification

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

※ Test Conditions - Temperature 25°C, at the beginning of life

※ Total Energy is measured under specific condition from LGC(0.3CCCV/0.3CC)

1) Value for Battery Cell Only (Depth of Discharge 95%). Actual usable energy at the AC output may vary by condition, such as the battery converter, inverter efficiency and temperature.

2) LG Chem recommends 3.3kW for maximum battery lifetime

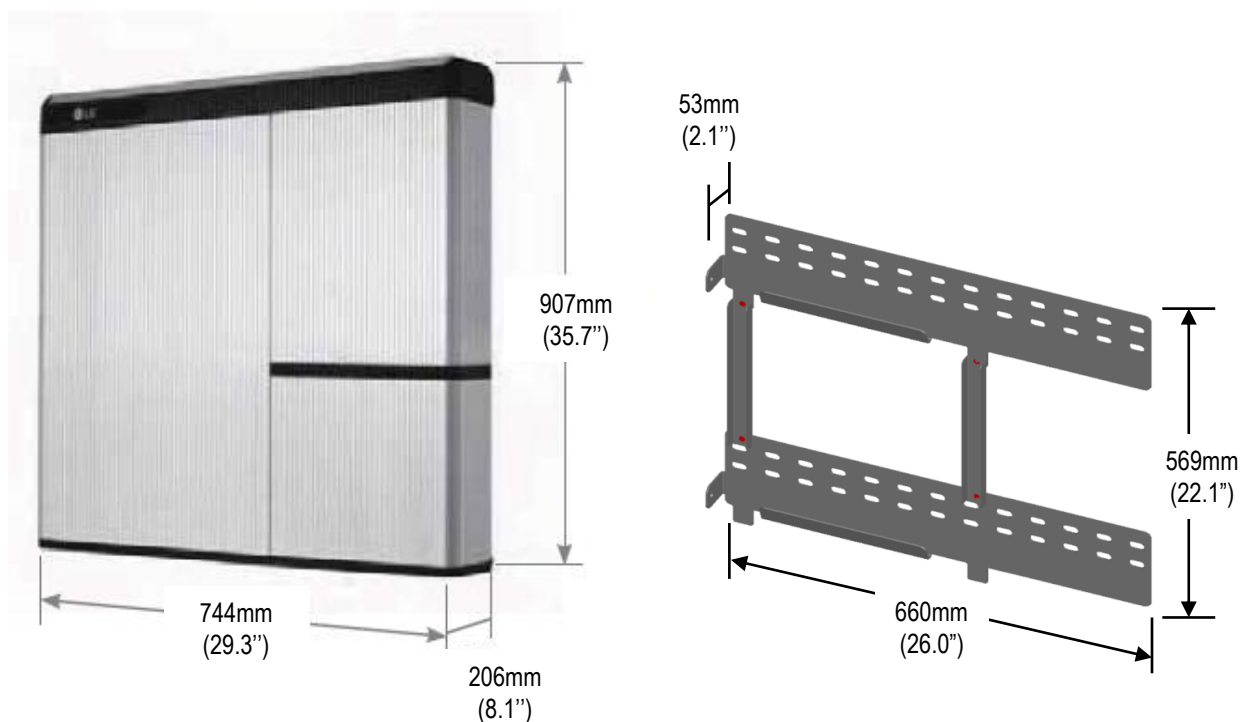
3) Peak Current excludes repeated short duration (less than 10 sec. of current pattern).

3.2 RESU HV (400V)

3.2.4 RESU10H_Type-C (v4.2)

Features

- Emergency Power Back-up
- Compact size and space saving
- Matched with SMA Sunny Boy Storage models
- Wall mounting installation
- Proven safety and 10 year warranty



Mechanical Characteristics

| | | |
|------------|--------|------------------|
| Dimensions | Width | 744 mm (29.3") |
| | Height | 907 mm (35.7") |
| | Depth | 206 mm (8.1") |
| Weight | | 99.8 kg (220lbs) |

3.2 RESU HV (400V)

3.2.4 RESU10H_Type-C (v4.2)

Electrical Characteristics

| | | |
|---|---|----------------------------|
| Total Energy Capacity ¹⁾ | 9.8 kWh @25°C (77°F), Beginning of Life | |
| Usable Energy Capacity ¹⁾ | 9.3 kWh @25°C (77°F) | |
| Battery Capacity | 63 Ah | |
| Voltage Range | Charge | 468 to 550 V _{DC} |
| | Discharge | 430 to 507 V _{DC} |
| Absolute Max. Voltage | 570 V _{DC} | |
| Max. Charge/Discharge Current | 10.7A@467V / 11.7A@427V | |
| Max. Charge/Discharge Power ²⁾ | 5kW | |
| Peak Power (only discharging) ³⁾ | 7kW for 10 sec. | |
| Peak Current (only discharging) | 16.3A@430V for 10 sec. | |
| Communication Interface | CAN | |
| DC Disconnect | Circuit Breaker, 25A, 600V rating | |
| Connection Method | Spring Type Connector | |
| User interface | LEDs for Normal and Fault operation | |

Operating Conditions

| | | |
|-------------------------------------|---------------------------------|--|
| Installation Location | Indoor / Outdoor (Wall-Mounted) | |
| Operating Temperature | 14 to 113°F (-10 to 45°C) | |
| Operating Temperature (Recommended) | 59 to 86°F (15 to 30°C) | |
| Storage Temperature | -22 to 131°F (-30 to 55°C) | |
| Humidity | 5% to 95% | |
| Altitude | Max. 6,562ft (2,000m) | |
| Cooling Strategy | Natural Convection | |
| Noise Emission | < 40 dBA | |

Certification

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

※ Test Conditions - Temperature 25°C, at the beginning of life

※ Total Energy is measured under specific condition from LGC(0.3CCCV/0.3CC)

1) Value for Battery Cell Only (Depth of Discharge 95%). Actual usable energy at the AC output may vary by condition, such as battery converter, inverter efficiency and temperature.

2) LG Chem recommends 3.3kW for maximum battery lifetime

3) Peak Current excludes repeated short duration (less than 10 sec. of current pattern).

4. Deep Discharged Battery & Charging Caution Letter

Dear Valued Customers,

LG Chem would like to thank you for you for choosing RESU and your confidence in LG Chem as your battery supplier. As market leaders we have an ongoing committed to providing a safe, reliable and quality residential storage solutions.

Since 2015 we have seen a rapid increase of installations of RESU batteries globally and in some cases, we are seeing an increase of RESU HV (Type-R) batteries installed prior to 2019 that have become deep discharged (drained/over-discharged) LG Chem has addressed this potential concern for all new production RESU HV (Type R) batteries since late 2018 by adding a new smart BMS controlled breaker for additional protection.

Since 2017 LG Chem has notified the market with bulletins, product stickers and updated user manuals explaining the ways to protect already installed batteries from potentially becoming deep discharged.

This letter serves a reminder to installers and also the system owners of how to ensure this models battery is not deep discharged in a protection mode due to the Auxiliary (AUX) power drawing small amounts of energy over time during a system fault state stopping the system's ability to charge the battery.

Reminder

The Battery **DC/DC Circuit Breaker must be turned OFF first** and then importantly the **AUX Power switch turned OFF second** for any of the below cases immediately then contact your installer or LG Chem to resolve the fault.

Potential States where system must be turned off

- System not operating immediately after installation and commissioning test
- Battery DC/DC Circuit Breaker (CB) is automatically tripped by fault diagnosis
- DCDC Converter Link Overvoltage (Ex. inverter error code: 3 or 8)
- Communication fault between the inverter and the battery. (Ex. error code : 3x6b)
- Failure of remote firmware update
- Failure of an inverter or PV system
- In case of turn off the battery for any other reasons
- If the battery cannot be installed for more than 6 months after the battery production date

This guide covers units with the AUX switch with production serial numbers in the table below.

| Product (Type-R) | Production Before | Battery Serial No. below than |
|-------------------|---------------------------------|----------------------------------|
| RESU10H Primary | September 17 th 2018 | R15563P3SSEG1 180917 9045 |
| RESU10H Secondary | October 10 th 2018 | R15563P3SSEG2 181010 9001 |
| RESU7H | September 19 th 2018 | R11163P3SSEG1 180919 9001 |

4. Deep Discharged Battery & Charging Caution Letter

Instructions to prevent deep discharged battery

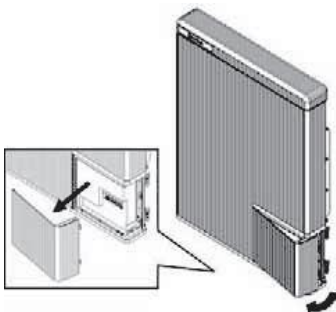
To prevent deep discharged battery, when the RESU battery is not in use after installation, **please turn off the Circuit Breaker(CB) first and then be sure to turn the AUX POWER switch off afterwards. Even if the Circuit Breaker(CB) is automatically tripped, the AUX POWER switch must be turned off manually.**

Also, ensure that the battery must be installed and operated within six months of the date of production.

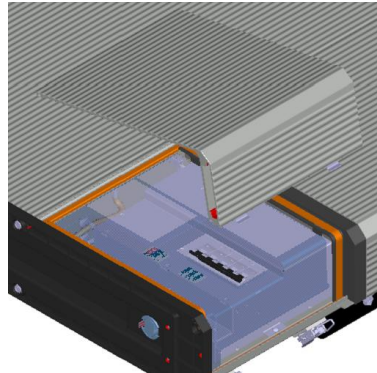
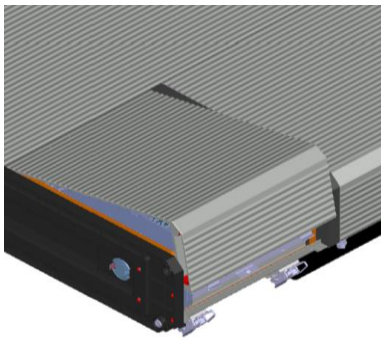
Please follow the procedure below to prevent deep discharged battery. We recommend contacting your certified RESU installer for guidance on how to turn off the AUX switch.

<How to turn off AUX POWER switch>

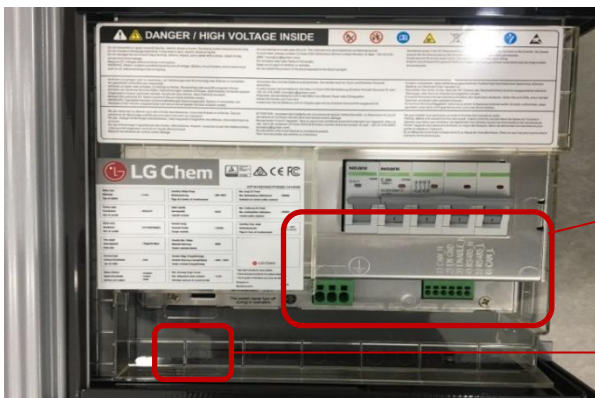
- 1) Turn OFF the inverter and system AC & DC isolators
- 2) Open the RESU front door by releasing the 2 child proof latches on the right-hand side of the unit.



- 3) Open the wiring box cover (about 2~10 degrees) and pull to remove it.



- 4) Turn off the Circuit Breaker (CB) first and then be sure AUX POWER switch off afterwards.



① Circuit Breaker



② AUX Power Switch



4. Deep Discharged Battery & Charging Caution Letter

LG Chem guideline for charging battery

- Manual charge is possible for the RESU HV batteries only if the measured voltage is higher than the values mentioned in the table below.

| | |
|--------|---------|
| RESU7H | RESU10H |
| 60V | 84V |

- LG Chem requires suitably qualified electricians to be trained with use of the battery charger prior to performing manually charging of RESUs and follow our strict procedures.
- Please contact LG Chem prior to any manually charging of a RESU battery.
- Only a charger supplied or approved by LG Chem can be used. Do not use a custom built or individually purchased charger.
- For manual charging do not charge the battery overnight.
- Please be aware that charger settings are different for RESU7H and RESU10H and the Voltage & current controller of the charger shall be blocked to prevent potential safety concerns with wrong value setting.
- IF you find any swollen cell, please contact LG Chem immediately.

Regional contact point of LG Chem Service

| | | |
|---------------------------------------|----------------------|--|
| HQ (KOR) / Other Regions | | essservice@lgchem.com |
| United States | +1 888 375 8044 | CSNorthAmericaESS@lgchem.com |
| EUROPE / UK (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 |

We thank you for your support while we continue to improve our RESU support service.

Sincerely yours,

30th of January, 2019

LG Chem HQ ESS Customer Service Team Leader

Yunseong Hwang

