LG Chem

PRODUCT BOOK

: Essential Information for RESU

RESU LV / HV

9th Apr, ’19 (V1.3)

LG Chem RESU Product Guide

2019.04.09

Rev	Date	Writer	Updates
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

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

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)	
SMA	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 *Exclusively, RESU13 can be used in Back-up Mode
	Sunny Island 6.0H(EU)		○	○	○	○	
SUNGROW	SH5K SH5K+	SH5K_V11_V1_A SH5K-V13_FW_V13	○	○	○		*Can use in Back-up Mode under the condition 2) above
	SH3K6 SH4K6 SH5K-20	SH3K6-V11_FW_V28 SH4K6-V11_FW_V28 SH5K-20_FW_V57	○	○	○	○	
SOLAX POWER	SK-SU5000E SK-SU3700E SK-SU3000E SK-TL5000E SK-TL3700E SK-TL3000E	Inverter_M V2.15 Charger_28035_M_2.23	○	○	○	○	*Can use in Back-up Mode under the condition 2) above
Ingeteam	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
victron	MultiPlus 48/3000/35	CCGX S-v1.72-recover	○	○	○		*Can use in Back-up Mode under the condition 2) above
GOODWE	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		○	○	○	
SELECTRONIC	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.

April. 2019

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.

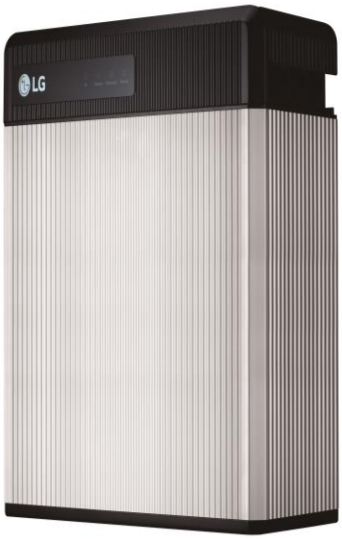
1) Battery/Hybrid inverters should operate in On-Grid only. (Not in Off-Grid)
2) For On-Grid applications where Back-up mode may be sometimes utilized, the backed up circuits and inverters AC draw must not exceed the battery current limit specifications.

Inverter			Battery				Remark
Brand	Model	Software Version*	RESU7H		RESU10H		
			Type C	Type R	Type C	Type R	
SMA	Sunny Boy Storage 2.5	2.4.19.R or above	○		○		- Cannot use in Back-up Mode
SMA	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
SMA	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
solaredge	SE5000-RWS / SE6000-RWS (EU)	3.2150 or above		○			- Can use in Back-up Mode - RESU10H can be expanded up to 2 units
solaredge	SE7600A-USS2 / SE3800A-USS2 (US)					○	
solaredge	SE5000-RWS2 / SE6000-RWS2 (EU)					○	
solaredge	SE5000-AUS2 / SE6000-AUS2 (AU)			○		○	
solaredge	SE2000H ~ SE10000H with SESTI-S4	3.2186 or above		○		○	- Cannot use in Back-up Mode
Fronius	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
Fronius	*Inverter S/W(for Disconnect switch applied RESU HV Battery) will be available within April.						
HUAWEI	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)	V100R001C00SPC312 or above		○		○	- In case of RESU10H, Charge/Discharge Power is limited to 3.5kW
HUAWEI	SUN2000-3.8KTL-USL0 (NA) SUN2000-5KTL-USL0 (NA)	V100R001C10SPC103B044 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
HUAWEI	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)

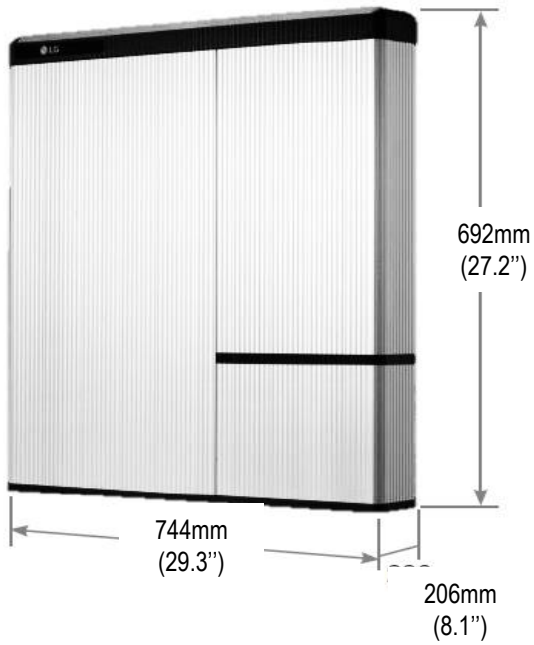
1) Value for Battery Cell Only (Depth of Discharge 95%). Actual usable energy at the AC output may vary by condition, such as the inverter efficiency and temperature.
2) Peak Current excludes repeated short duration (less than 3 sec. of current pattern).

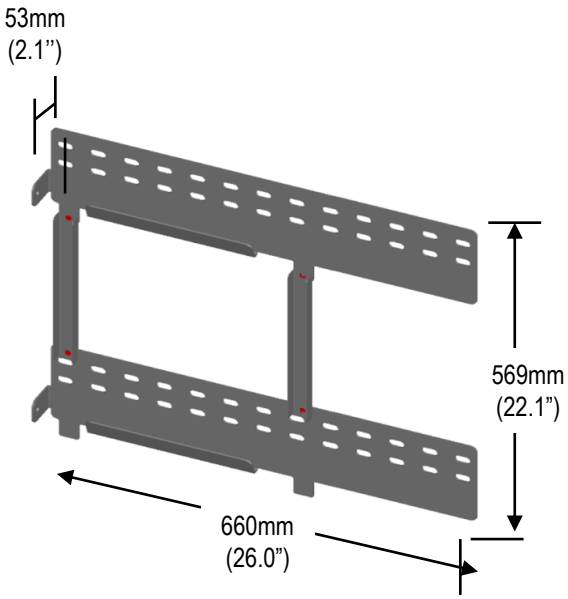
3.2 RESU HV (400V)

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(0.3CCCV/0.3CC)
※ DC/DC Discharge Efficiency 94.5% @ 2.3kW

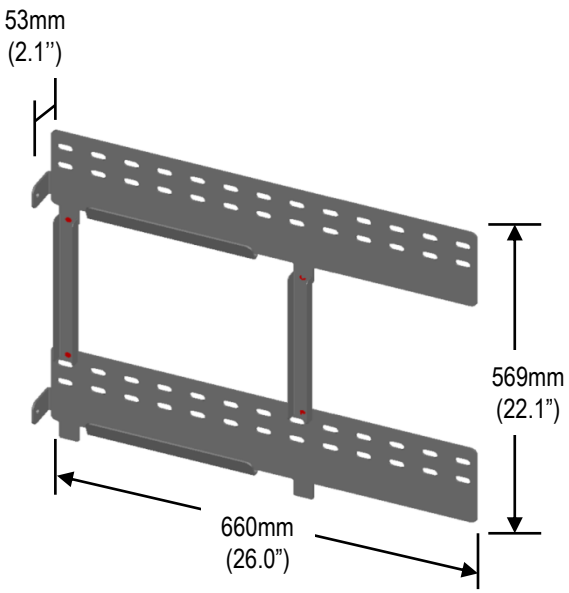
1) Value for Battery Cell Only (Depth of Discharge 95%). Actual usable energy at the AC output may vary by condition, such as the battery converter, inverter efficiency and temperature.
2) LG Chem recommends 2.1kW for maximum battery lifetime
3) Peak Current excludes repeated short duration (less than 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)

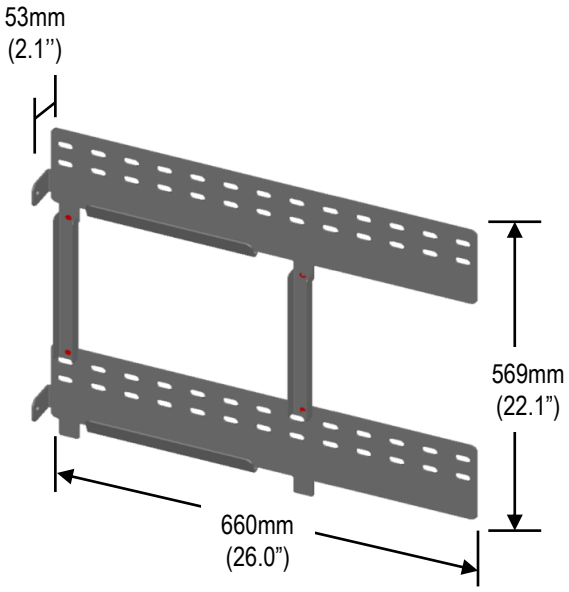
1) Value for Battery Cell Only (Depth of Discharge 95%). Actual usable energy at the AC output may vary by condition, such as the battery converter, inverter efficiency and temperature.
2) LG Chem recommends 2.1kW for maximum battery lifetime
3) Peak Current excludes repeated short duration (less than 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)

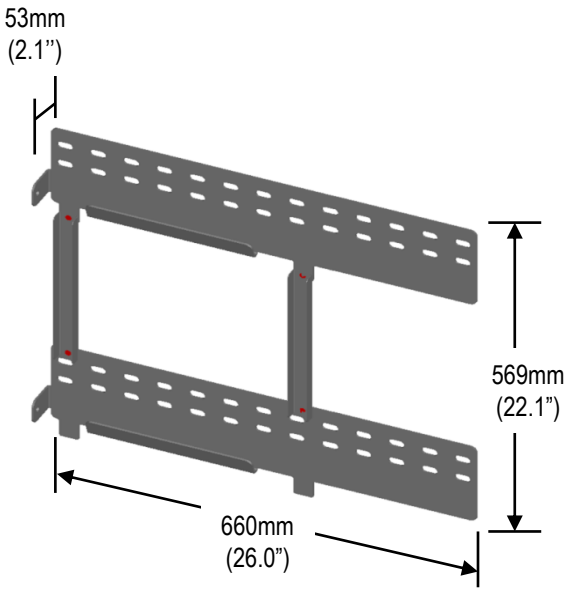
1) Value for Battery Cell Only (Depth of Discharge 95%). Actual usable energy at the AC output may vary by condition, such as the battery converter, inverter efficiency and temperature.
2) LG Chem recommends 3.3kW for maximum battery lifetime
3) Peak Current excludes repeated short duration (less than 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 17th 2018	R15563P3SSEG1**1809179**045
RESU10H Secondary	October 10th 2018	R15563P3SSEG2**1810109**001
RESU7H	September 19th 2018	R11163P3SSEG1**1809199**001

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.**

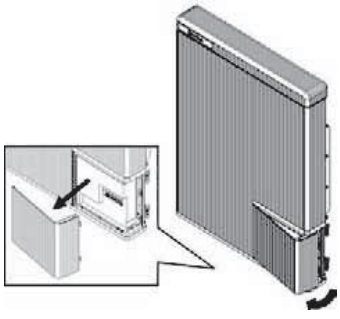
Also, ensure that the battery must be installed and operated within six months of the date of production.

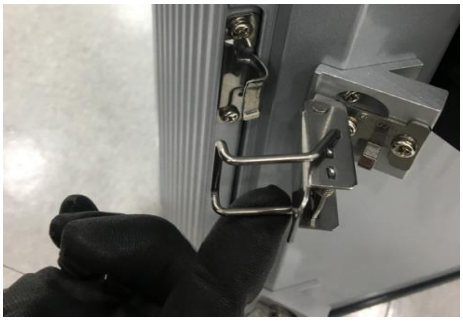
Please follow the procedure below to prevent deep discharged battery. We recommend contacting your certified RESU installer for guidance on how to turn off the AUX switch.

<How to turn off AUX POWER switch>

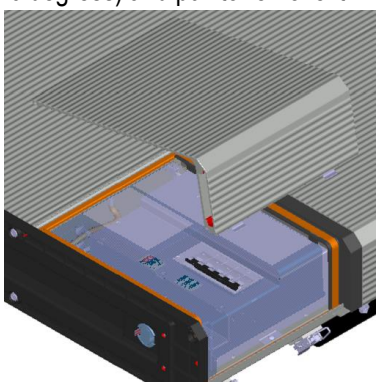
1) Turn OFF the inverter and system AC & DC isolators

2) Open the RESU front door by releasing the 2 child proof latches on the right-hand side of the unit.

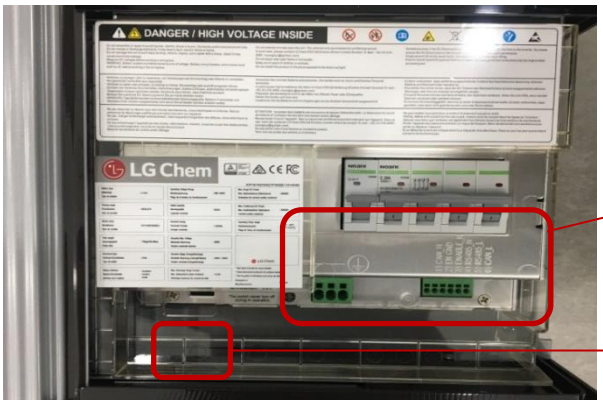




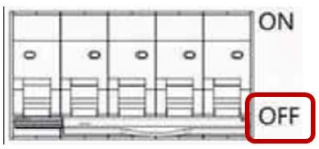
3) Open the wiring box cover (about 2~10 degress) and pull to remove it.



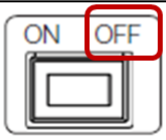
4) Turn off the Circuit Breaker (CB) first and then be sure AUX POWER switch off afterwards.



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