The LG RESU16H Prime Battery

Residential Energy Storage Unit

January 2021

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What Are We Going to Talk About?

- Whole solution offering
- Product overview and availability
- Technical point of view
- Troubleshooting

In the EDGE Academy:

- Recording of the webinar
- Addendum
- FAQs

A single unit which manages PV, household consumption, and battery power

Optimized installation with Wave-HD technology

SolarEdge Storage Solution Offerings

or

+

or

StorEdge Single Phase Inverters with HD-Wave Technology

- 2kW – 6kW
- Single and multi-inverter
- AC coupling to SE and non-SE inverter
- Supported FW 4.13
- Support for 2 batteries per inverter
  *e/o June - 21

HD-Wave with external SESTI

LG Energy Solutions Batteries

- Gen 2 - RESU
- Gen 3 - RESU Prime

SolarEdge Energy Bank
*e/o August - 21

- High efficiency
- Power scale-up
- Wireless installation
- Floor/Wall mount
- NMC 10kWh, 5kW

Adhere to the LG's Manual Instructions

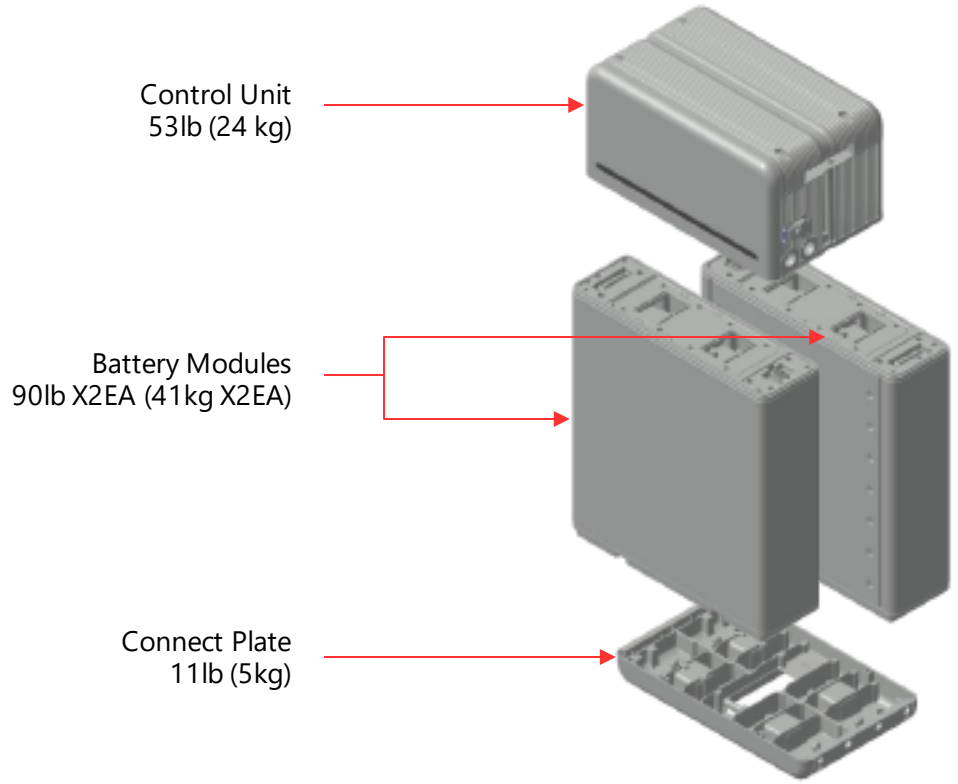
RESU10H AND RESU16H Prime Battery

RESU 10H Prime - Specifications

Dimensions

Weight

351lb (159 kg)

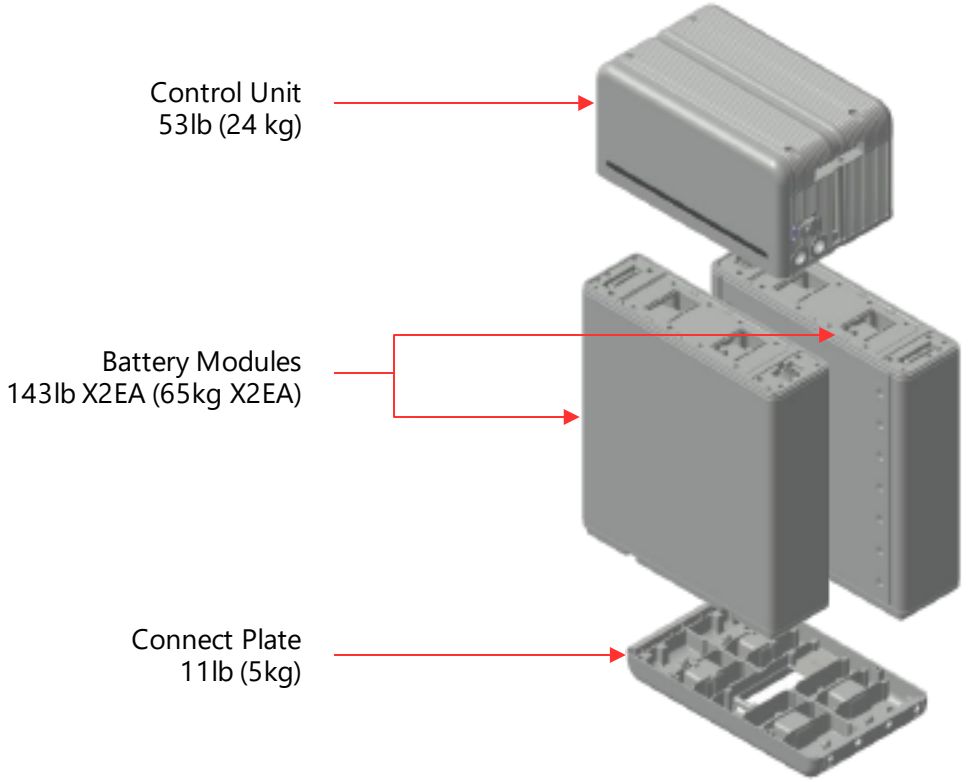


RESU 16H Prime - Specifications

Dimensions

Weight

351lb (159 kg)



Technical Point of View

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RESU10H Prime

Electrical Characteristics	
Usable Energy [1)]	9.6 kWh @77F (25 C)
Usable Energy (including min.SoE) [1)]	9.12 kWh @77F (25 C)
Voltage Range - Charge	420 ~ 450 VDC
Voltage Range - Discharge	350 ~ 410 VDC
Max. Charge/Discharge Current	14.3A@350V
Max. Charge/Discharge Power	5kW
Peak Current (only discharging)	20A for 10 sec.
Communication Interface	RS485/CAN
DC Protection	Circuit Breaker, Fuse, DCDC converter
Connection Method	Spring Type Connector
User interface	LEDs for Normal and Fault operation
Protection Features	Over Voltage / Over Current / Short circuit / Reverse Polarity
Scalability (Total Energy, Max. Charge/Discharge Power)	Max. 2 in parallel (19.2 kWh @77 F (25 C),

1) DOD 100%. DC/DC converter one way efficiency 97.5%. Ambient 77 F (25 C)
2) Peak Current excludes repeated short duration (less than 10 sec. of current pattern)

RESU16H Prime

Electrical Characteristics	
Usable Energy [1)]	16 kWh @77F (25 C)
Usable Energy (including min.SoE) [1)]	15.2 kWh @77F (25 C)
Voltage Range - Charge	420 ~ 450 VDC
Voltage Range - Discharge	350 ~ 410 VDC
Max. Charge/Discharge Current	20A@350V
Max. Charge/Discharge Power	5kW
Peak Current (only discharging)	32.8A for 10 sec.
Communication Interface	RS485/CAN
DC Protection	Circuit Breaker, Fuse, DCDC converter
Connection Method	Spring Type Connector
User interface	LEDs for Normal and Fault operation
Protection Features	Over Voltage / Over Current / Short circuit / Reverse Polarity
Scalability (Total Energy, Max. Charge/Discharge Power)	Max. 2 in parallel (32.0 kWh @77 F (25 C)

1) DOD 100%. DC/DC converter one way efficiency 97.5%. Ambient 77 F (25 C)
2) Peak Current excludes repeated short duration (less than 10 sec. of current pattern)

Operating Conditions

Operating Conditions	RESU10	RESU16
Installation Location	Indoor/Outdoor, Floor standing, Wall mounted	Indoor / Outdoor, Stand only
Operating Temperature - Charge	14 to 122°F (-10 to 50°C)	
Operating Temperature - Discharge	-4 ~ 122 F (20 ~ 50 C)	
Operating Temperature (Recommended)	59 to 86°F (15 to 30°C)	
Storage Temperature	▮ -22 to 140°F (-30 to 60°C), acceptable for 7 days in total ▮ -4 to 113°F (-20 to 45°C), acceptable for the first 6 months ▮ -4 to 86°F (-20 to 30°C), acceptable for 7 to 12 months	
Humidity	5% to 95%	
Altitude	Max. 6,562ft (2,000m)	
Cooling Strategy	Natural Convection	

LG ES Warranty

- LG Chem RESU Prime warranty
  70% capacity retention
  (vs. 60% for Gen-2)
  - After 10 years or 50MWh energy throughput (vs. 27.4MWh for Gen-2)

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

Safety

- Vast experience based on know how from RESU7H and RESU10H
- Safety features
  - Under voltage, over voltage, over current protection
  - Enhanced temperature sensing
  - Advanced over charge protection mechanism
  - Enhanced internal monitoring in all battery operation modes
- Certified to all required safety standards
  - Ready for UL9540A certification

Installing the RESU10H / RESU16H Prime Battery

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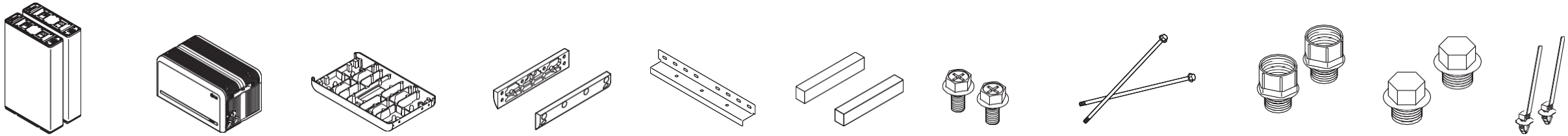
Installation Video for RESU Prime

What's in the Box?



Battery Module A&B

Battery Control Unit

Module Connect Plate Module

Support BRKT (x2)

Standing Bracket 1 & 2

Spacer (x2)

M6 Flange Bolt (x18)

M5 × L200 Long Flange Bolt (x6)

3/4"-1" Adapter (x2)

Cap (x2)

Cable ties

Manual

Drill template

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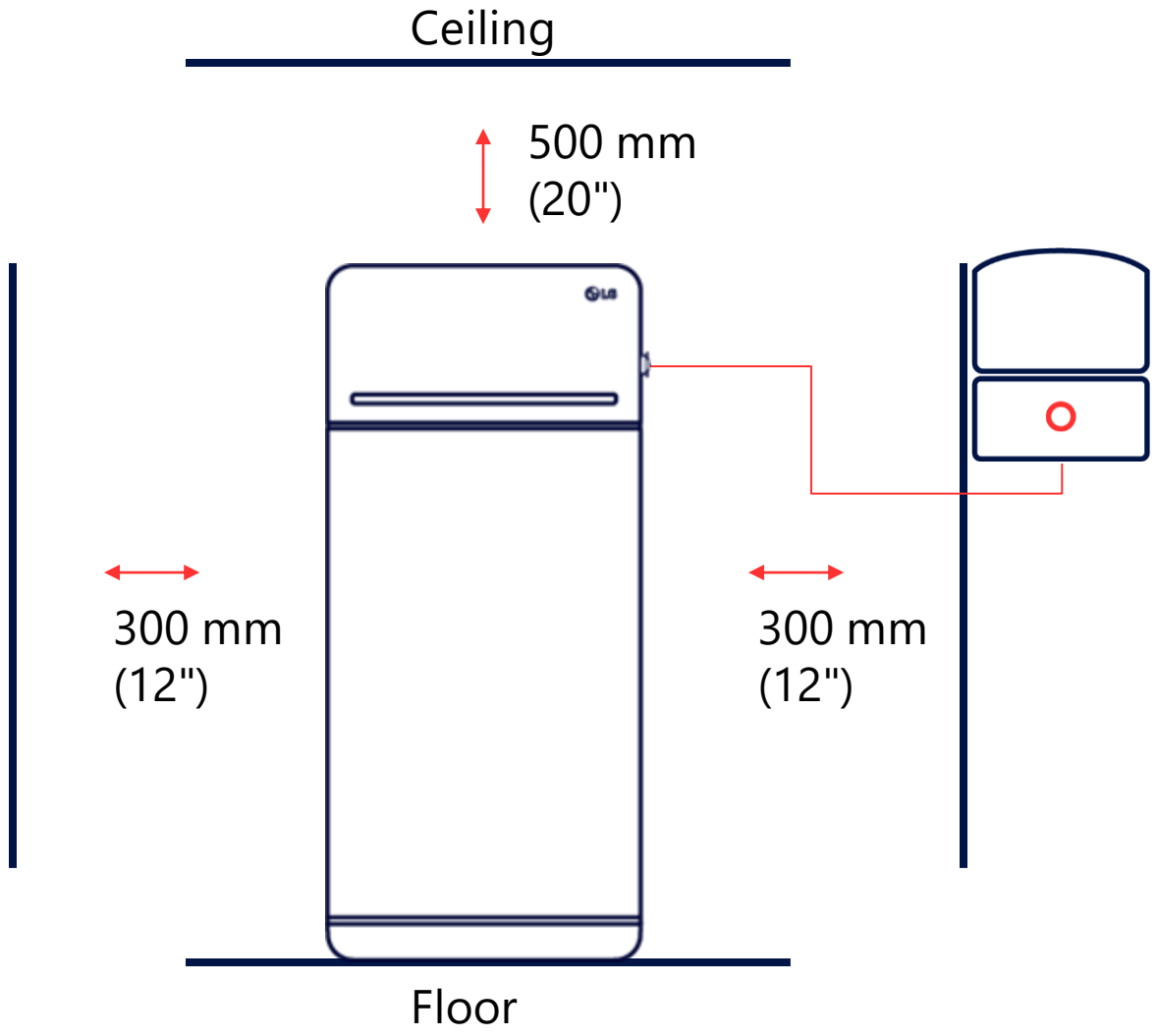
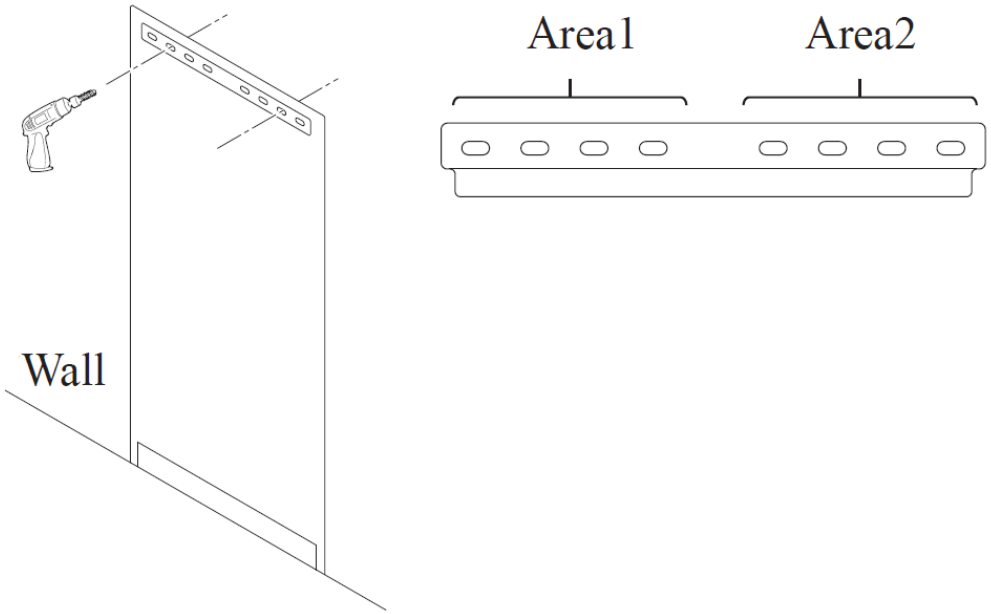
Clearance



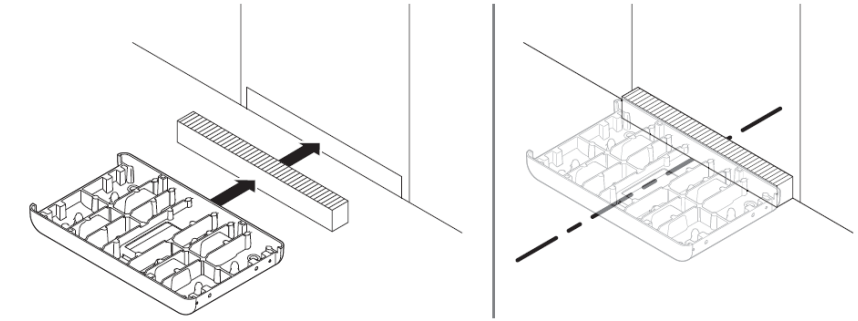
Note
An external DC isolator may be installed within the clearance zone. Minimum clearances may be greater according to local regulations.

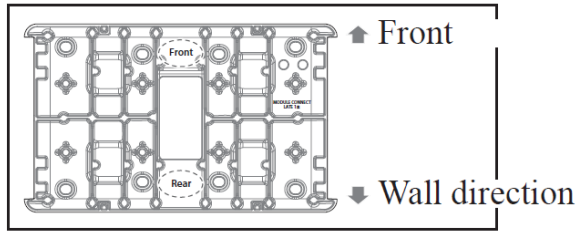
Installation of the Battery

1. Mark the locations for drilling holes



2. Mark the locations for drilling holes

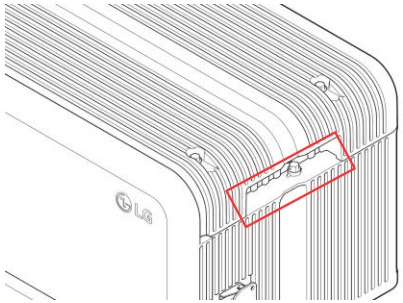


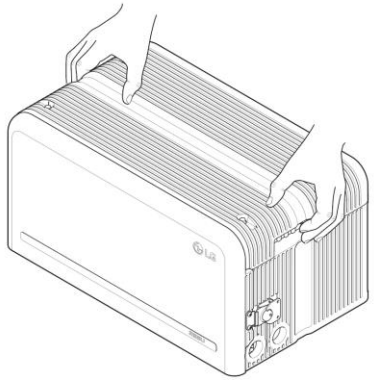


Be careful not to damage the aluminum foil attached on the bottom of Module connect plate during handling or by anchoring (DO NOT anchor).

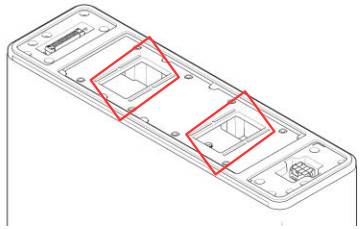
Lifting the Battery - Handling Position

Control Unit

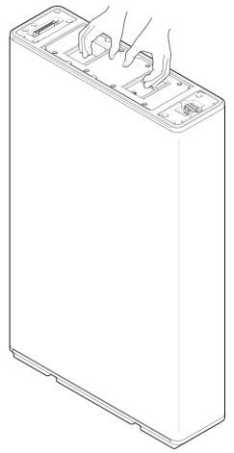




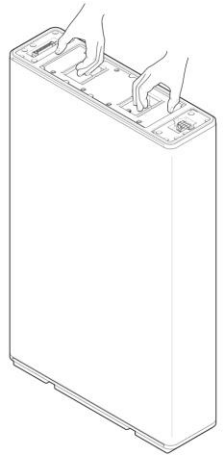
Battery Modules



Battery Module
(1 installer)

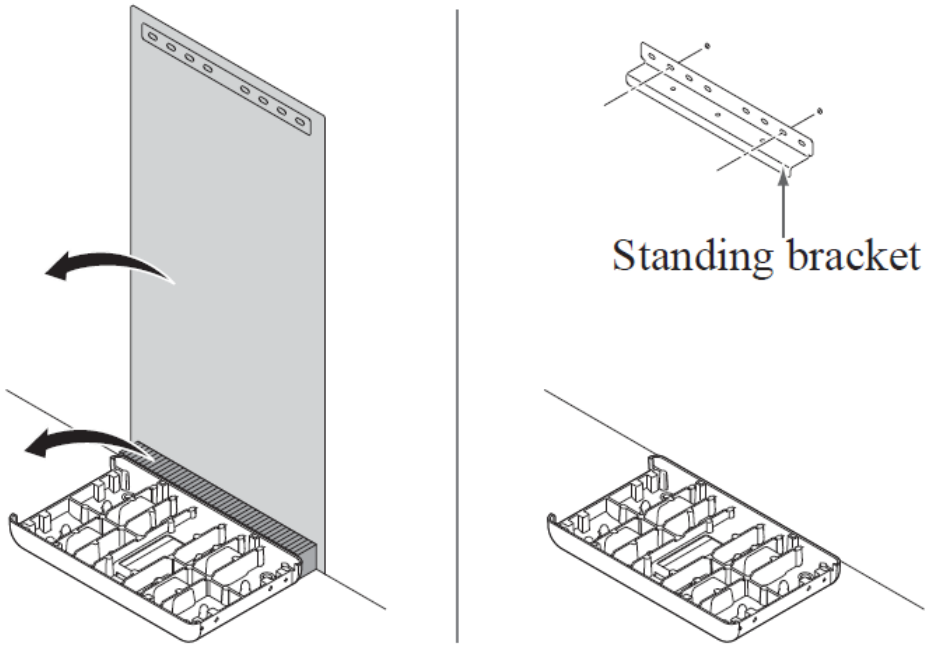


Battery Module
(2 installers)



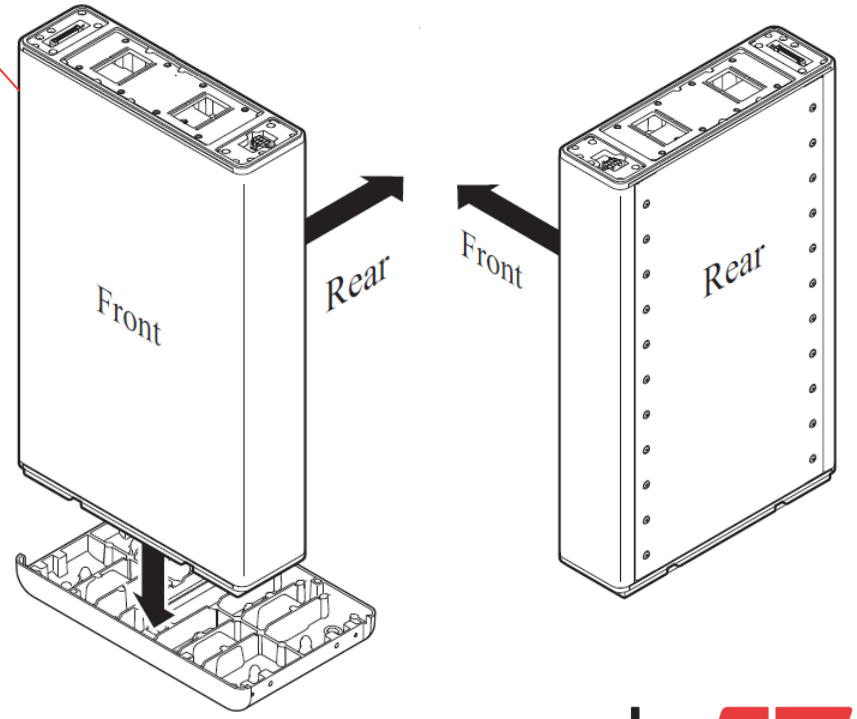
Installation of the Battery

3. Fix the Standing bracket 1 on the wall



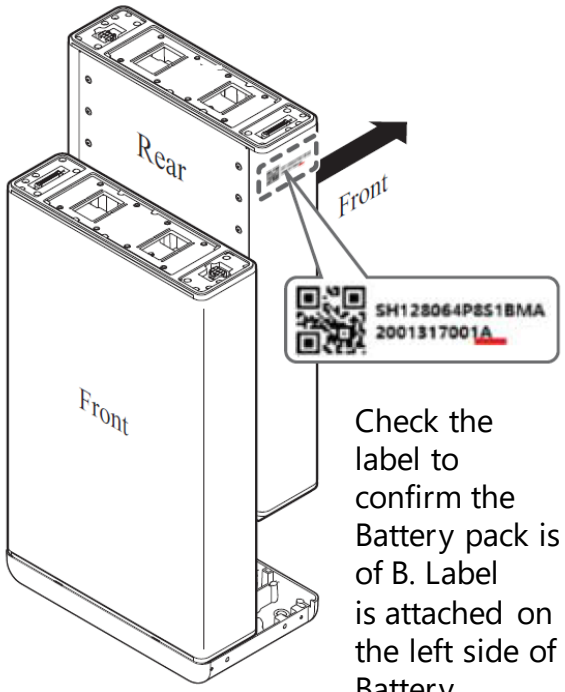
4. Place Battery Module A on the front side of the Module Connect plate

Check the label to confirm the Battery pack is of A. Label is attached on the left side of Battery Module



Installation of the Battery

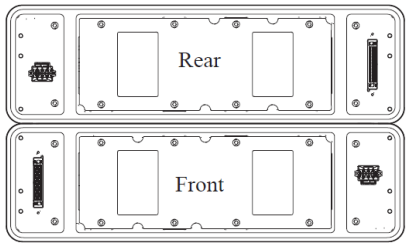
5. Place Battery Module B on the rear side of the Module Connect plate



Check the label to confirm the Battery pack is of B. Label is attached on the left side of Battery Module

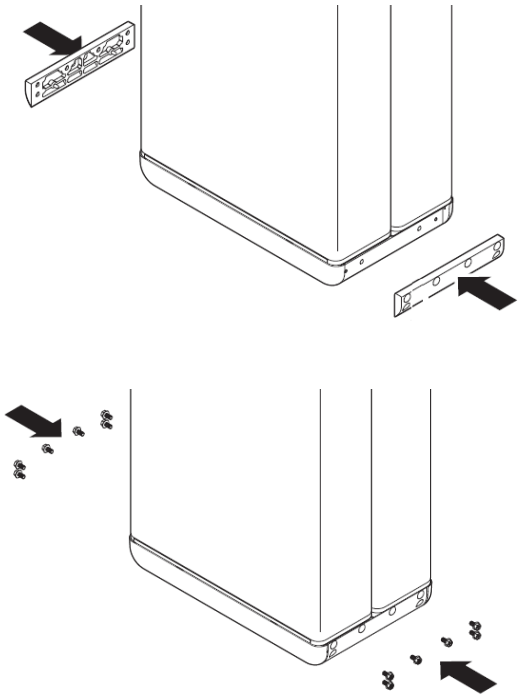
Top View

Battery Module A



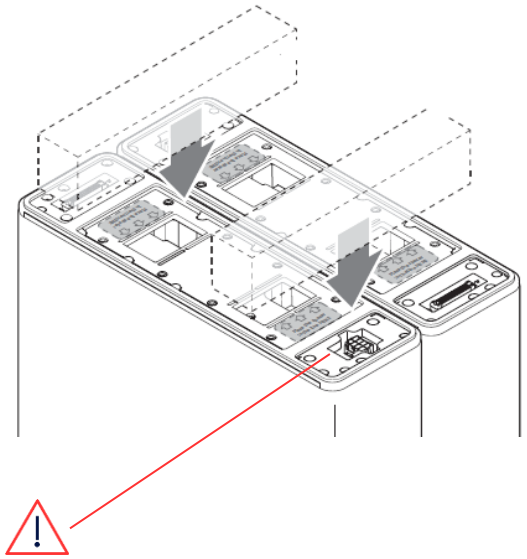
Battery Module B

6. Assemble Module Support BRKTs using 6 bolts each



Installation of the Battery

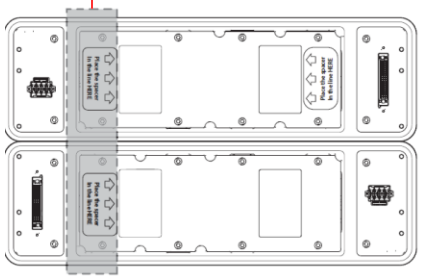
7. Place the spacers on the position marked with label on Battery Modules



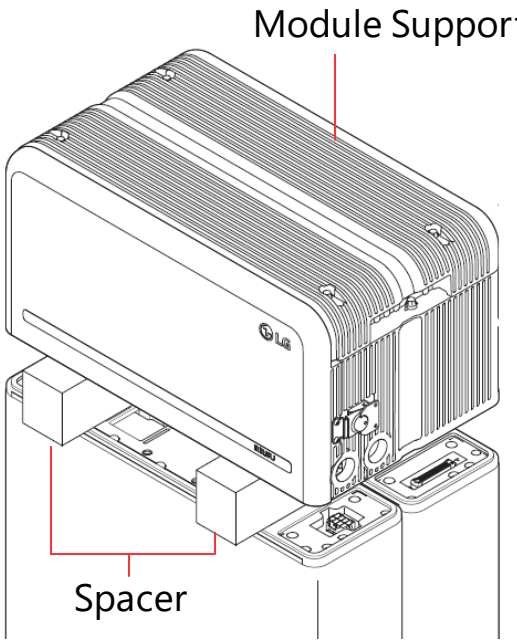
Do not remove this label before the wiring

Top View

Spacer

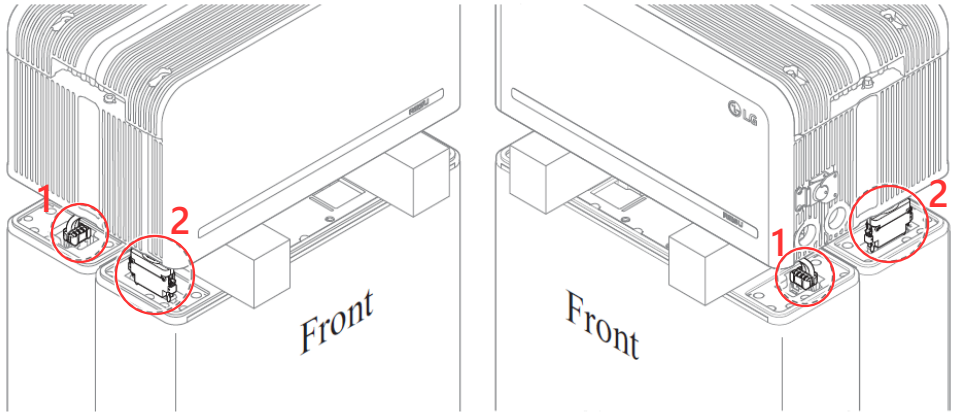


8. Place the Battery Control Unit on top of the spacers, and align with the Battery Module

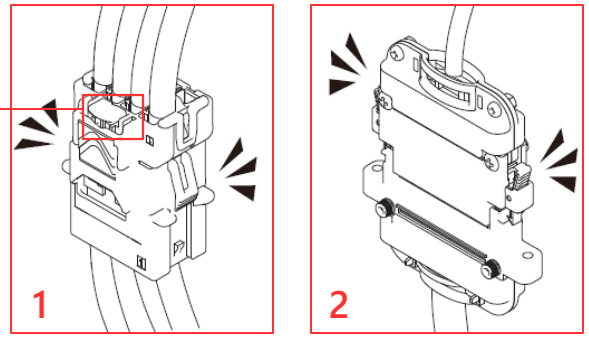


Installation of the Battery

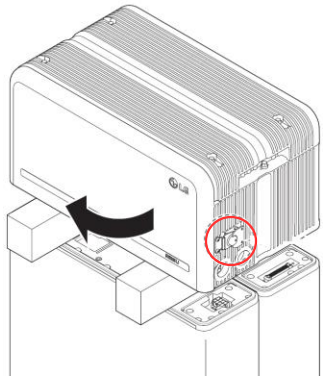
9. Connect the power and sensor connectors on the right and left sides (2 each)



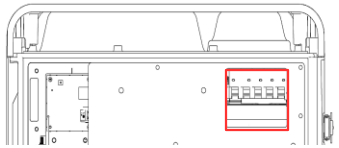
TPA
(Terminal Position Assurance)



10. Check the operation of the battery pack



Hold and turn the handle counterclockwise to open the front cover

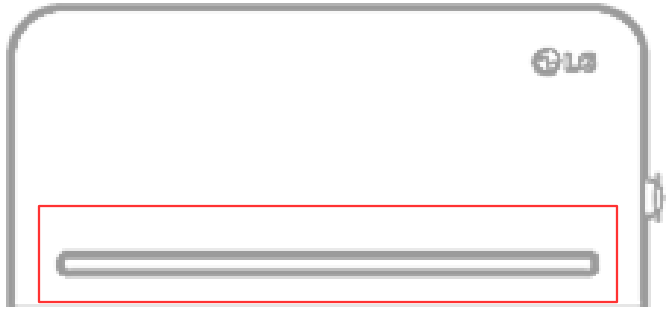


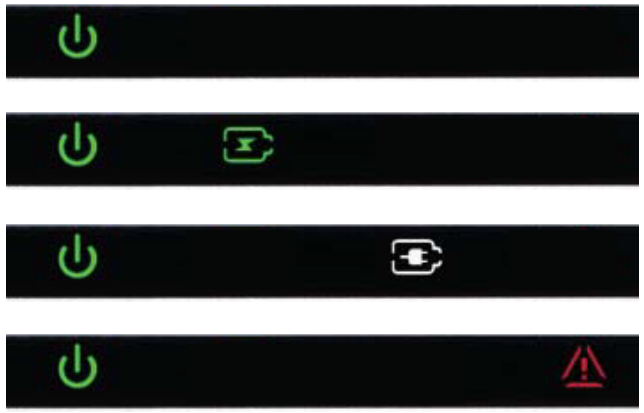
Turn on the circuit breaker switch and close the front cover

- OK - LED power indicator will turn on
- Fault - LED indicator will blink (60 seconds later)

Turn off the Circuit Breaker switch

LED Indicators





Power on - This LED indicator stays on while the battery pack is on

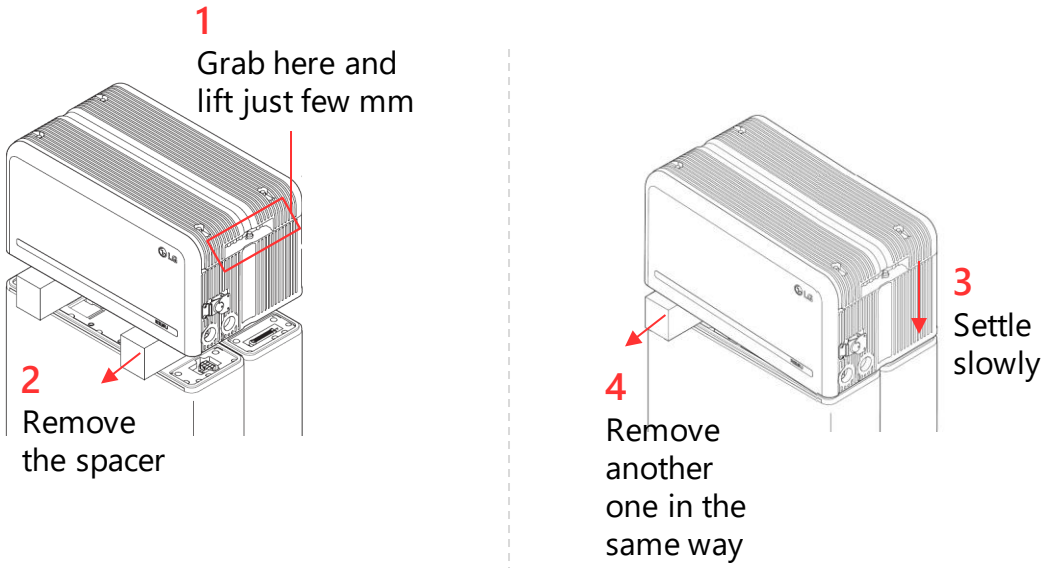
Charging - This LED indicator stays on while the battery pack is charging

Discharging - This LED indicator stays on while the battery pack is discharging

Fault - This LED indicator stays on when the battery pack is in a warning state

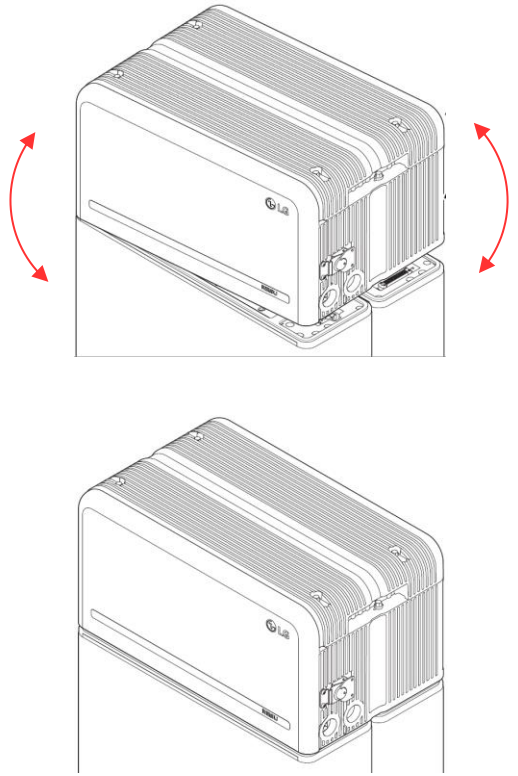
Installation of the Battery

11. Remove the spacers one by one, by lifting each side of the Battery Control Unit



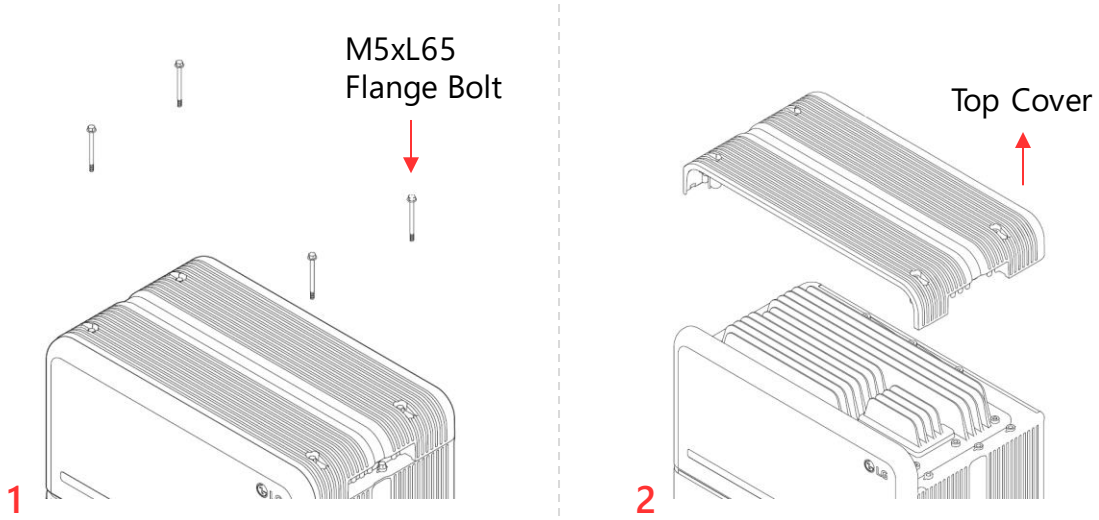
Be careful not to pull on the cables by lifting the Battery Control Unit too high. Doing so may cause damage to the cables or cause the unit to disconnect.

12. Realign the Battery Control Unit

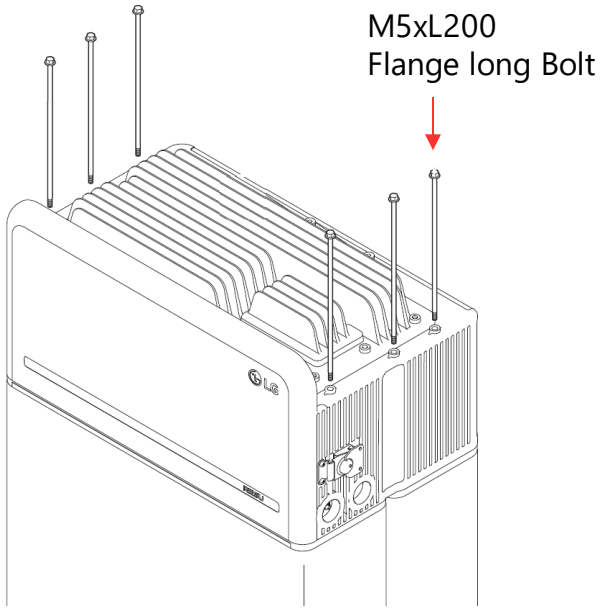


Installation of the Battery

13. Loosen 4 bolts and remove the Top Cover



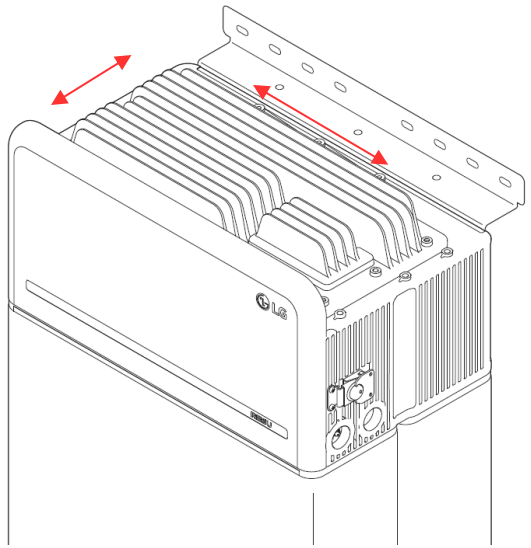
14. Tighten six (6) long flange bolts with a torque of 5N.m



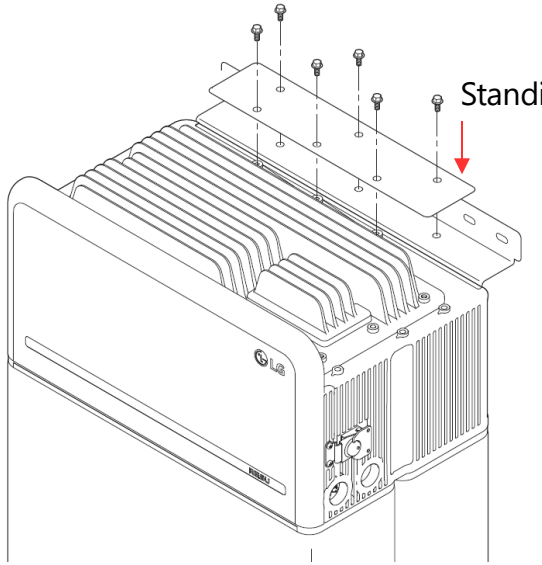
After assembly, check again that all 6 bolts are tightened.

Installation of the Battery

15. Move the battery pack to set the right position for assembly of the Standing bracket

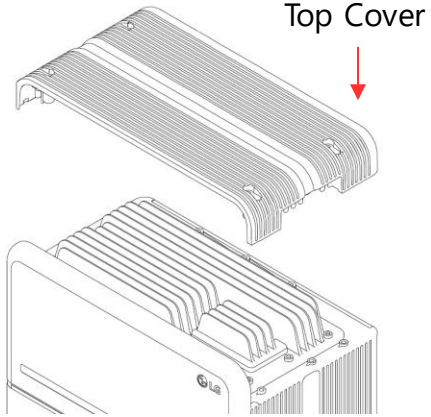


16. Assemble Standing Bracket #2 (flat) using six (6) M6 bolts to fix the pack onto the wall

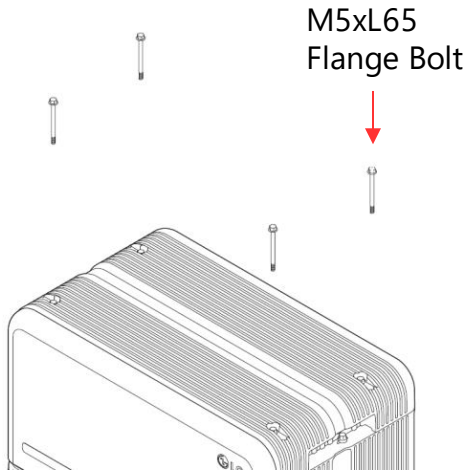


Installation of the Battery

17. Re-attach the top cover

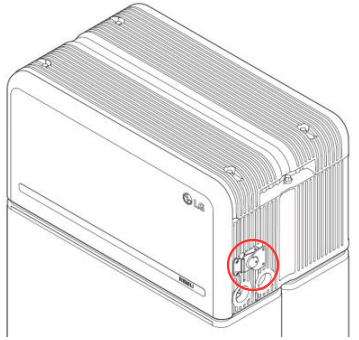


1

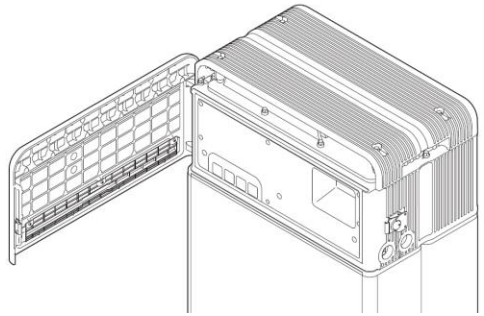


2

18. Open the front cover

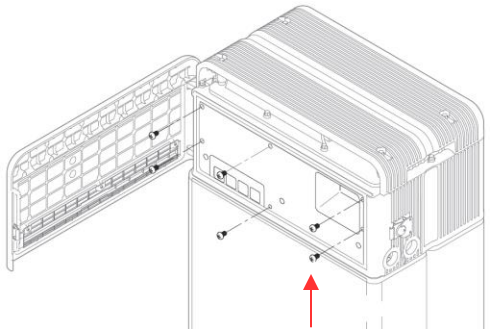


Hold and turn the handle counterclockwise to open the front cover

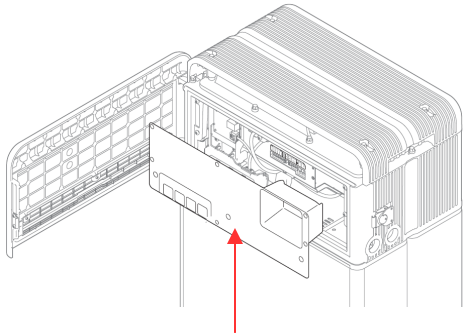


Installation of the Battery

19. Loosen 6 bolts and remove the Front Protection Cover



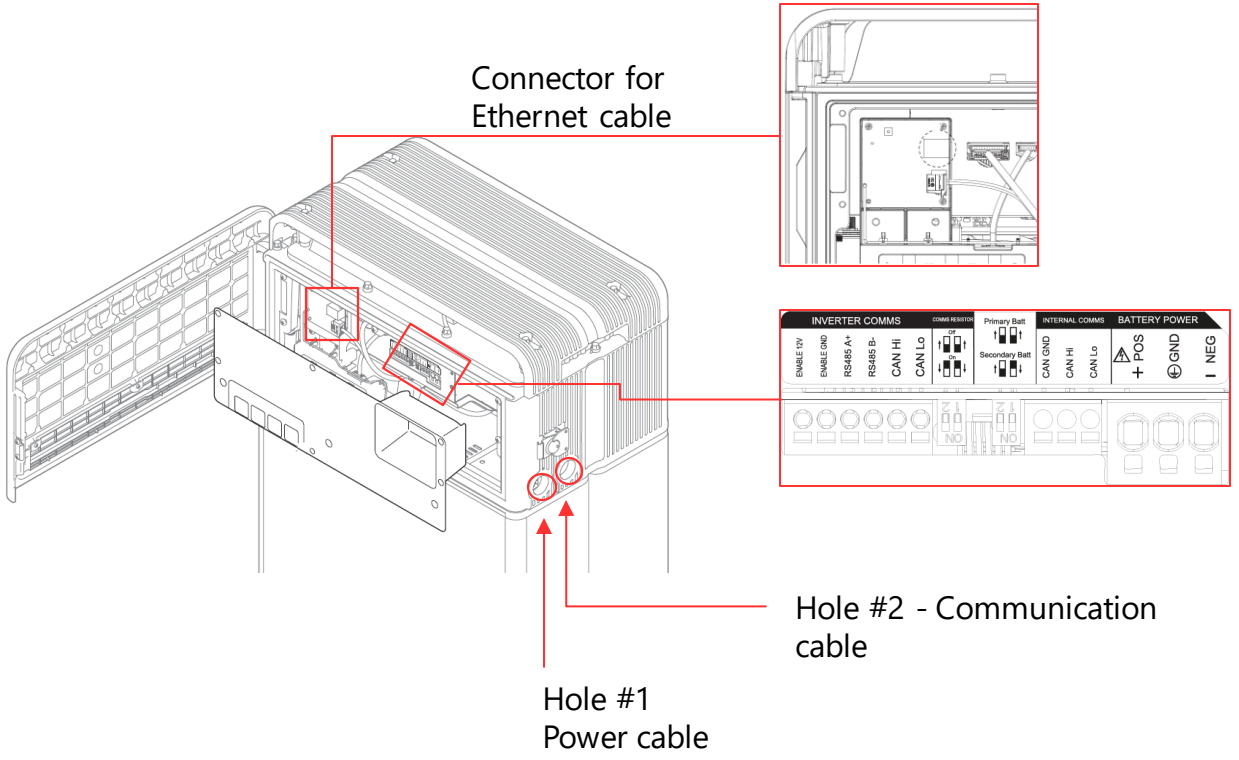
1 M5 PH Bolt 6ea



2 Front Protection Cover

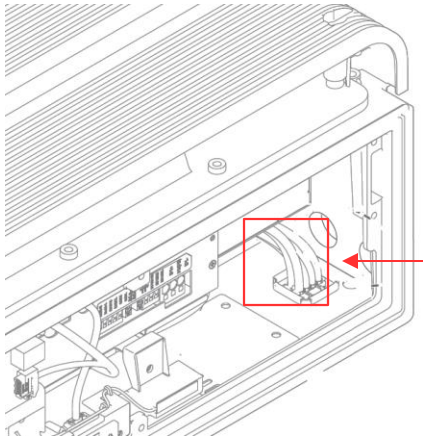
Be careful not to drop the bolts into the pack at this stage

20. Insert the Remote Monitoring Device (RMD) ethernet cable through Hole #2 and connect the cable



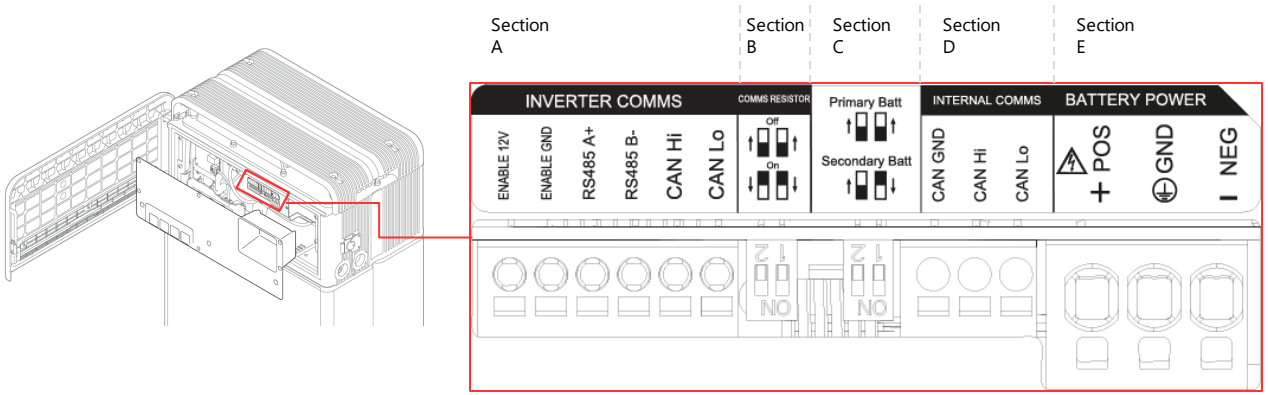
Installation of the Battery

21. Assemble the adapter or cap according to regional regulations. Then insert the power and communication cables through the holes from outside of the pack



Arrange the internal cable as required to avoid blocking the holes for external cables

22. Connect the cables according to their application



Section A: Inverter communication ports including CAN/RS485 and enable lines

Section B: DIP switch for setting communication termination resistor

Section C: DIP switch for setting primary/secondary packs

Section D: Do not connect the internal communication ports

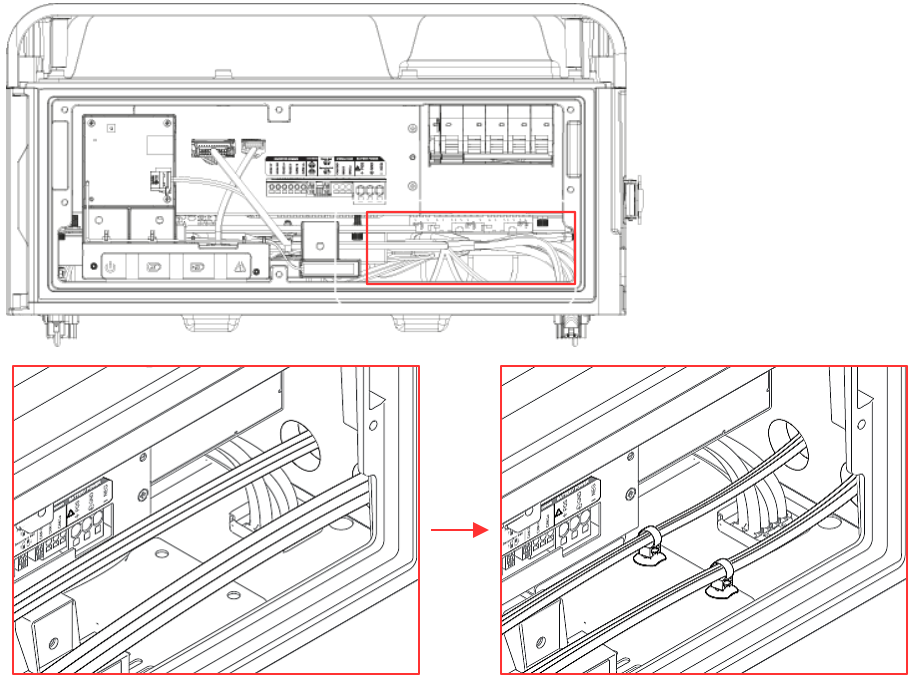
Section E: Battery power ports including positive/negative pole and ground (POS: power terminal plus, NEG: power terminal minus, GND: ground)

Common connection

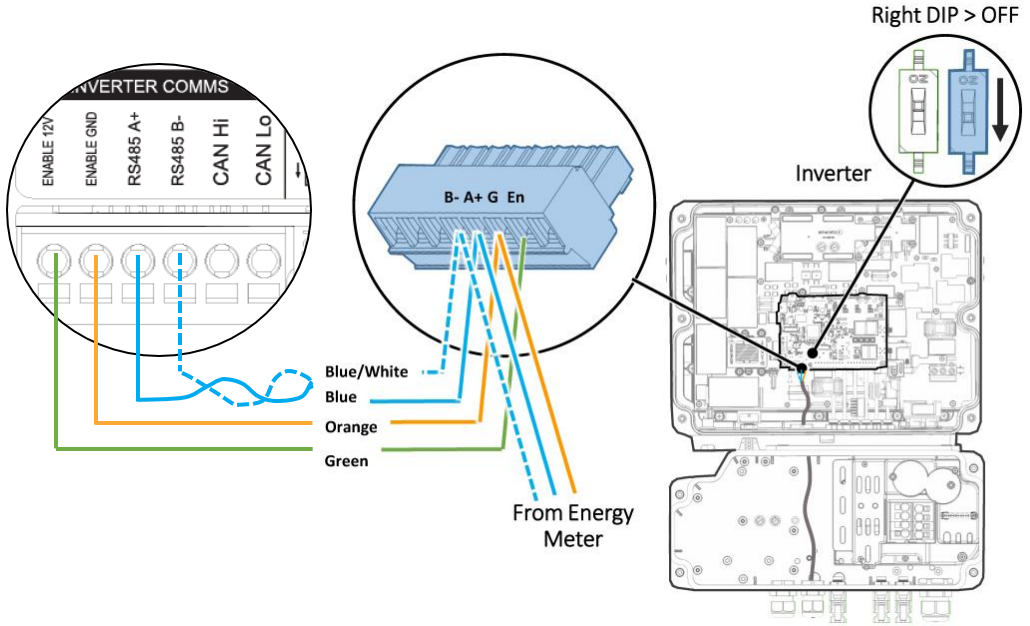
LG Prime	SESTI-S4 Battery Control	StorEdge HD-Wave RS485 Terminal Board
Enable 12V	En	EN+ (pin 7)
ENABLE GND	G	RS485-2 G
RS485 A+	A+	RS485-2 A
RS485 B-	B-	RS485-2 B

Installation of the Battery

23. Arrange the power cables and communication cables separately using cable ties

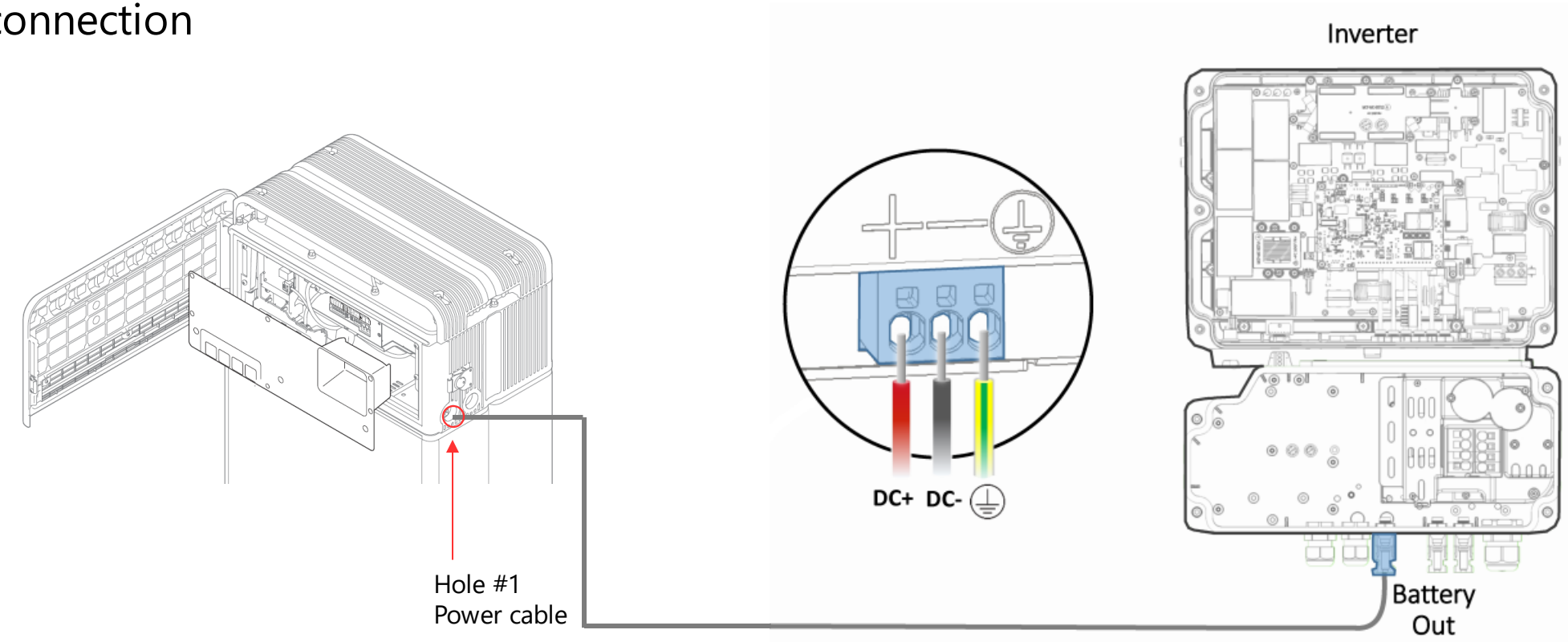


24. Connect the power conductors
Connect the RS485+En communication conductors



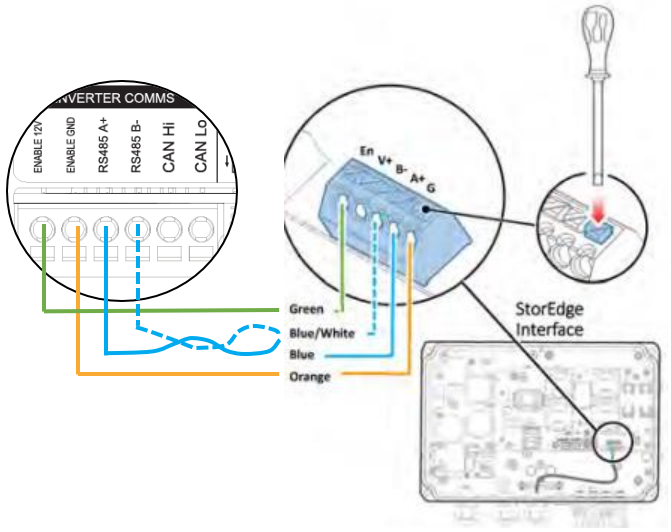
Connecting the Battery

DC cable connection

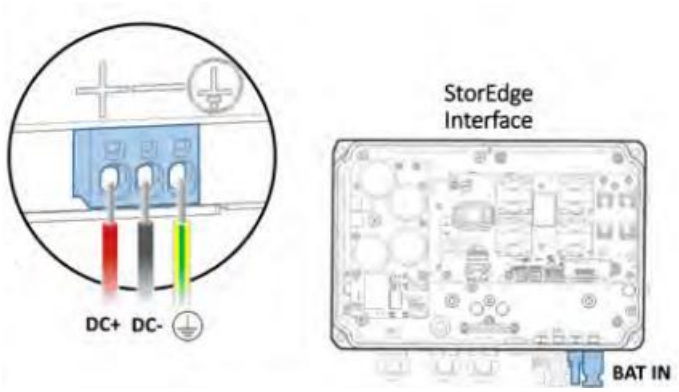


Connecting the battery and the StorEdge Interface

Communication cable

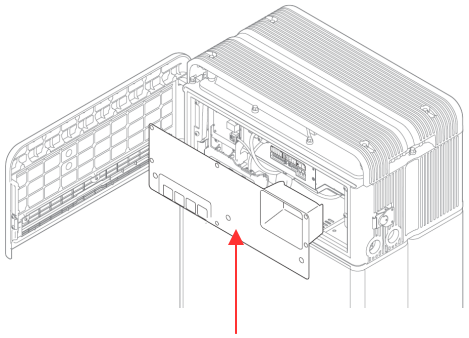


DC cable connection

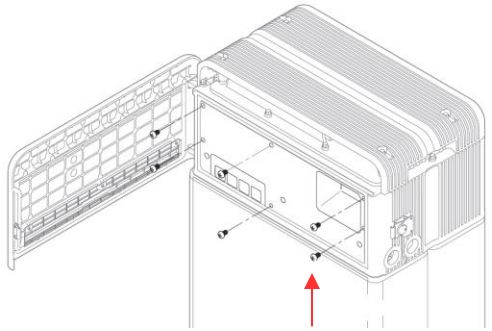


Installation of the Battery

25. Re-attach the Front Protection Cover with M5 PH bolt 6ea

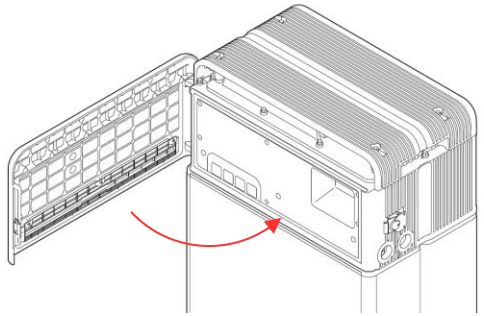


1 Front Protection Cover

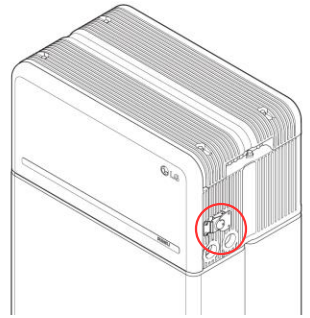


2 M5 PH Bolt 6ea

26. Close the front cover



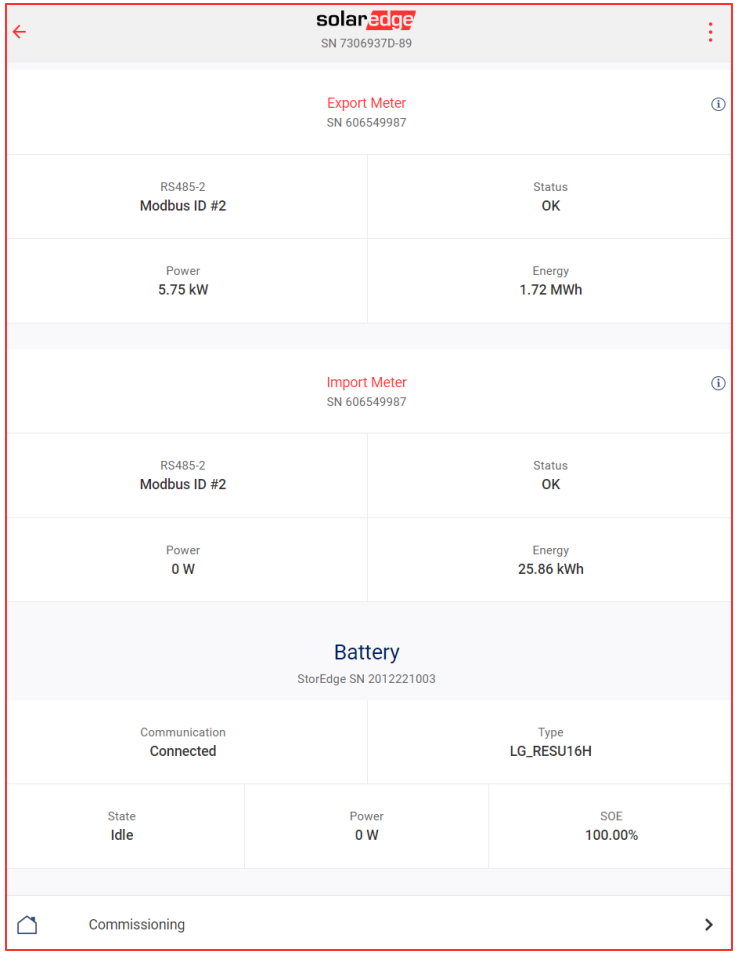
1



2 Hold the handle and turn it clockwise

Commissioning the Battery

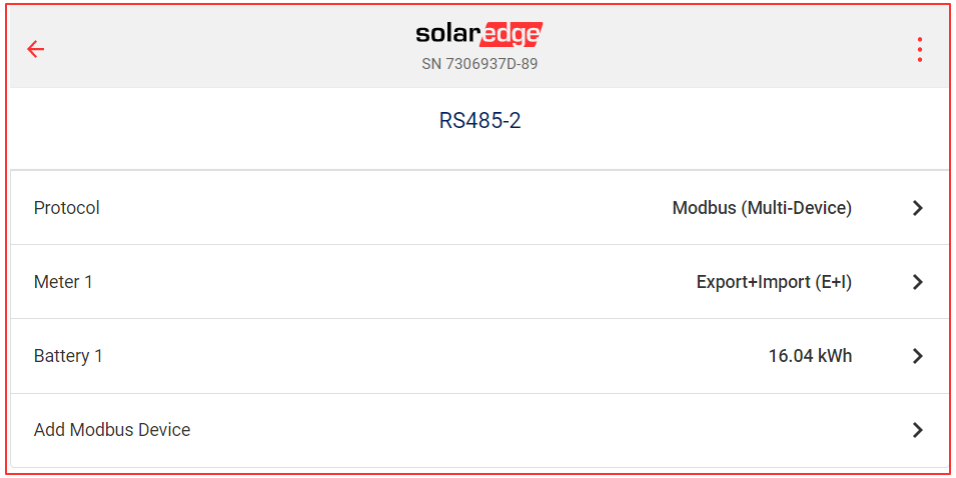
- The LG Prime batteries are expected to be automatically detected
- Turn on the system
  - Turn on the AC to the inverter
  - Turn on the battery by turning on the battery CB
- Connect to the inverter via SetApp and verify the battery appears on the status screen



Commissioning the Battery

- If the automatic detection of the LG Battery fails
  - Perform AC cycle to the inverter
  - Connect to the Inverter via SetApp again
  - Verify the battery appears in the RS485 menu.

    To access the menu:
    Commissioning > Site Communication > RS485-1/2 > Protocol > Modbus (Multi-Device)



Commissioning the Battery

- **Conduct battery self test**
  Commissioning > Maintenance > Diagnostics > Self-Test > Battery Self-Test > Run Test
- **Chose StorEdge application**
  Power Control > Energy Manager > Energy Control > MSC

Rollout Schedule

Rollout Schedule

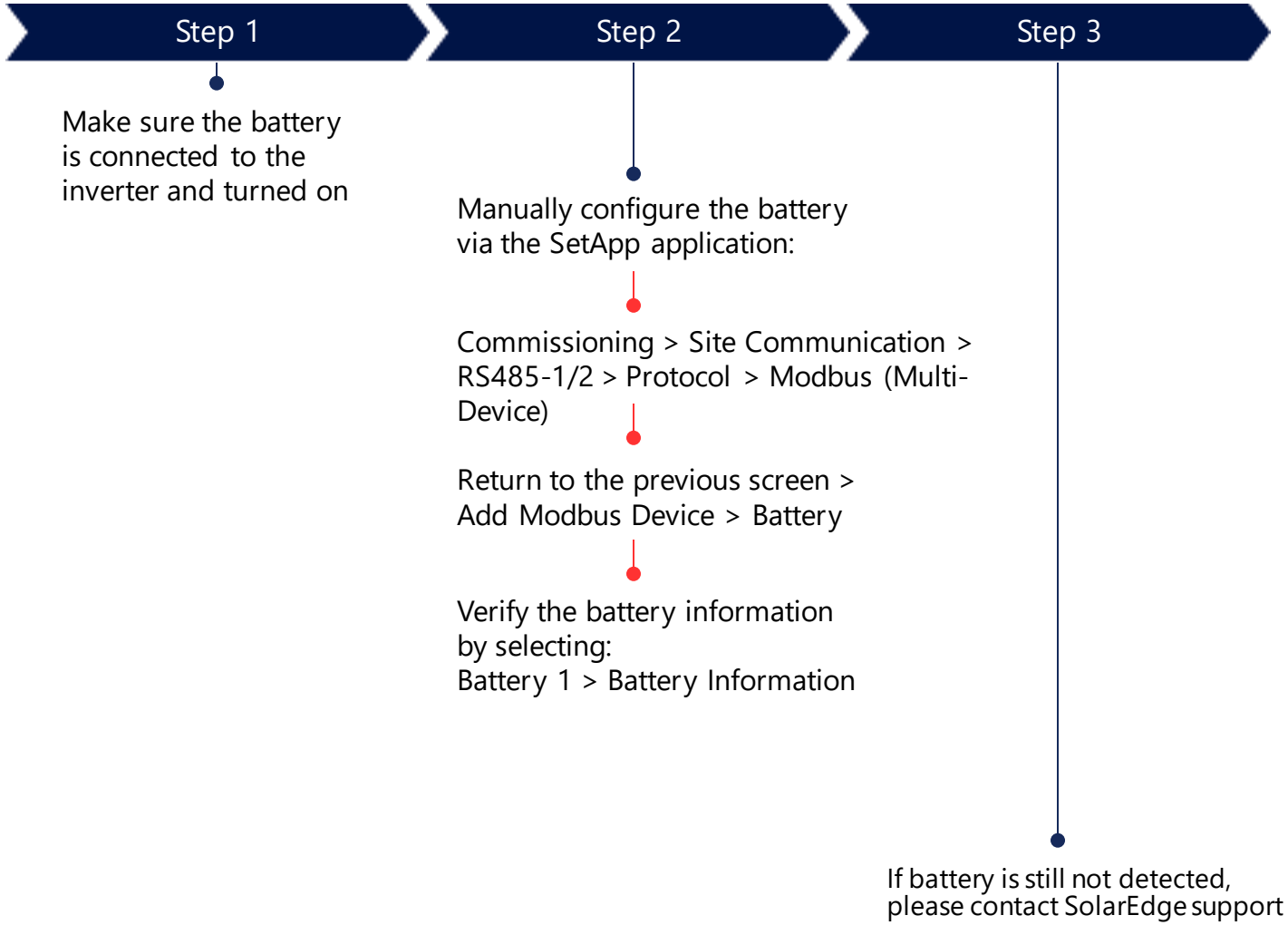
- Minimum Firmware Version needed: **4.13.xx**

- 4.13.xx to be in SetApp, available to any installer by
  - StorEdge Single Phase Inverter with HD-Wave Technology → **Now!**

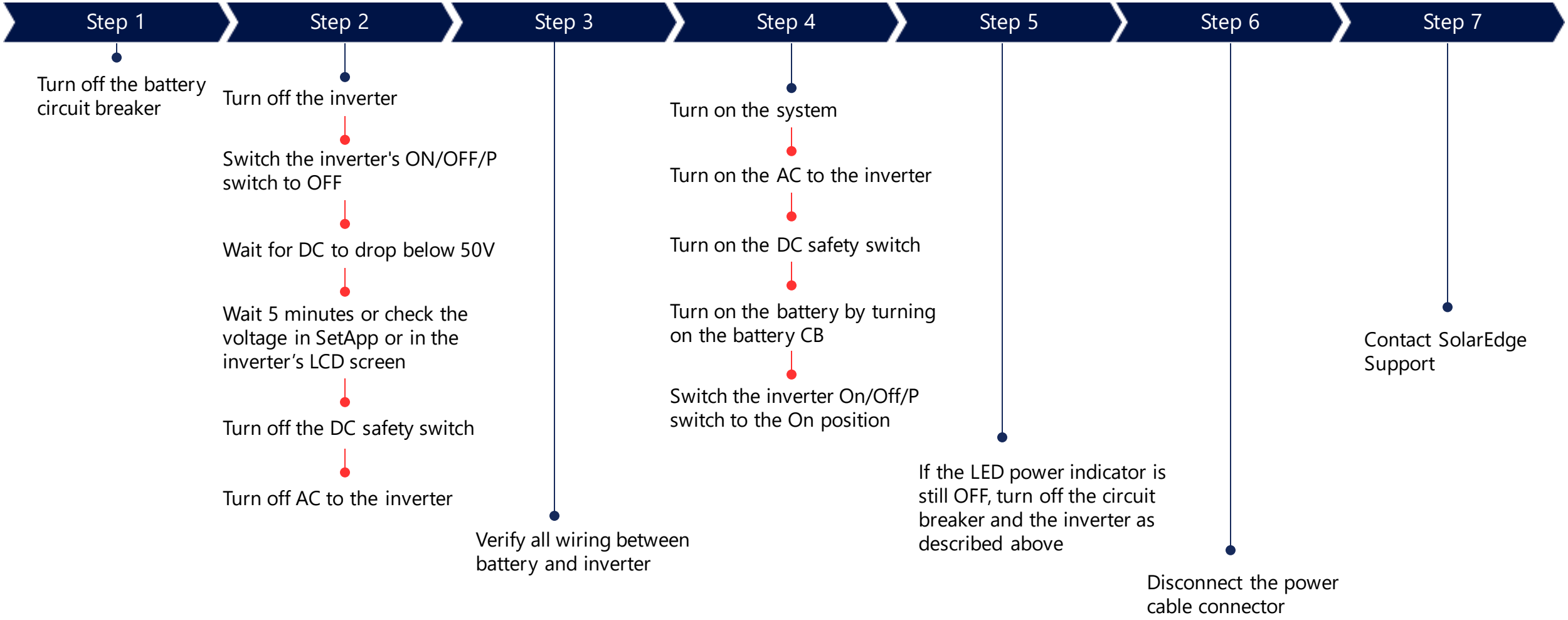
  - Single Phase Inverters with HD-Wave Technology and external StorEdge Interface → **end of June**

Troubleshooting

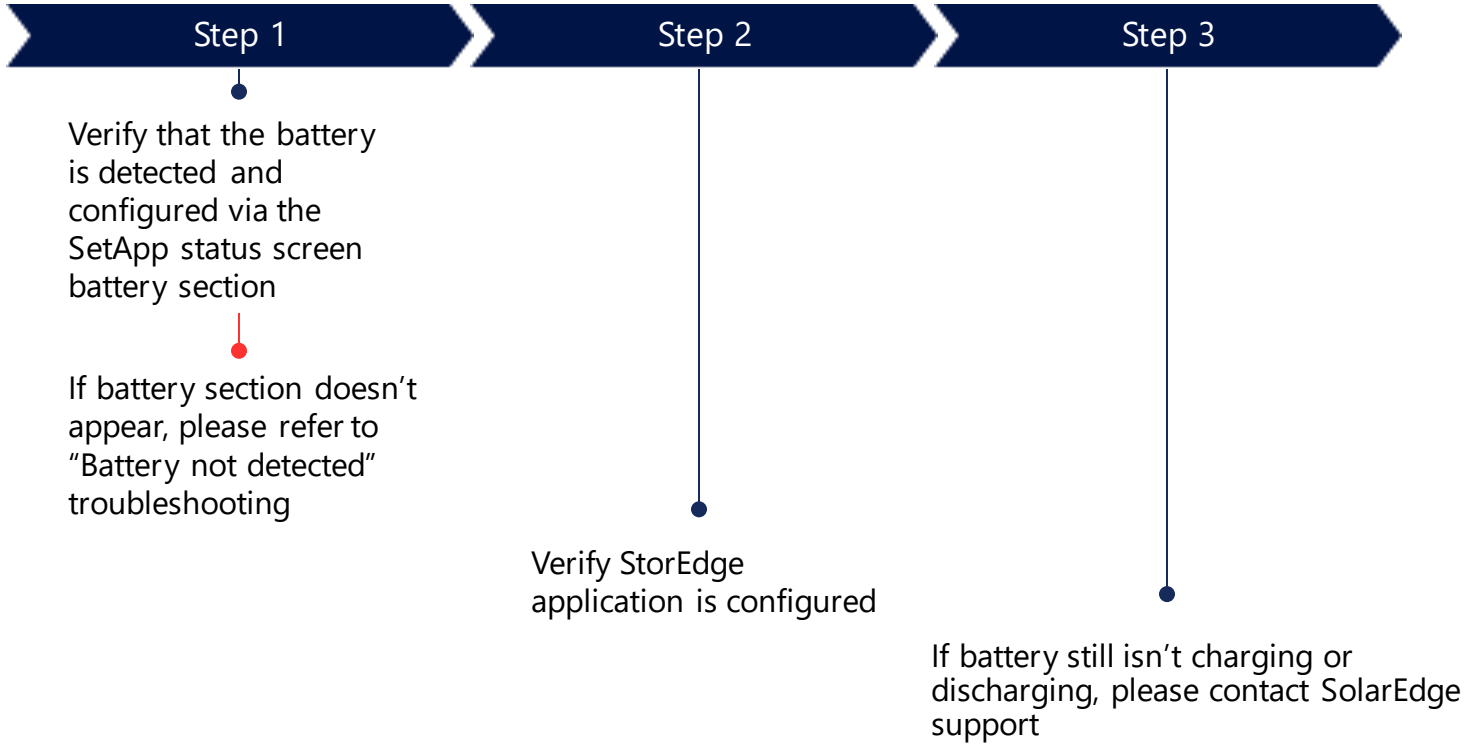
Battery Not Auto Detected



If the Battery LED Power Indicator is OFF



If the LED Power Indicator is ON, but the Battery isn't Charging or Discharging



Thank You!

Cautionary Note Regarding Market Data & Industry Forecasts

This power point presentation contains market data and industry forecasts from certain third-party sources. This information is based on industry surveys and the preparer's expertise in the industry and there can be no assurance that any such market data is accurate or that any such industry forecasts will be achieved. Although we have not independently verified the accuracy of such market data and industry forecasts, we believe that the market data is reliable and that the industry forecasts are reasonable.

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