

# Quick Installation Guide

## for Hybrid Inverter

**SHH-G1 Series**

SHH-G1-050-GL | SHH-G1-060-GL



LG Energy Solution strongly advises users to exercise due care in following LG Energy Solution's product installation manual. Warranty claims are invalid if damage is caused by human error in a manner inconsistent with the installation manual's instructions.

Version 1.0

# Safety Precautions

## General Disclaimer

- The information in this quick installation guide is subject to change due to product updates or other reasons. This guide cannot replace the product labels or the safety precautions in the user manual unless otherwise specified. All descriptions here are for guidance only.
- Before installations, read through the quick installation guide. For additional information, please see the user manual.
- All installations should be performed by trained and knowledgeable technicians who are familiar with local standards and safety regulations.
- Check the deliverables for correct model, complete contents, and intact appearance. Contact the manufacturer if any damage is found or any component is missing.
- Use insulating tools and wear personal protective equipment when operating the equipment to ensure personal safety. Wear anti-static gloves, clothes, and wrist strip when touching electronic components to protect the inverter from damage. The manufacturer shall not be liable for any damage caused by static electricity.
- Strictly follow the installation, operation, and configuration instructions in this guide and user manual. The manufacturer shall not be liable for equipment damage or personal injury if you do not follow the instructions.

## Safety Disclaimer

### WARNING

#### DC Side:

1. Ensure the component frames and the bracket system are securely grounded.
2. Connect the DC cables using the delivered PV connectors. The manufacturer shall not be liable for equipment damage if other connectors are used.
3. Ensure the DC cables are connected tightly, securely, and correctly. Inappropriate wiring may cause poor contacts or high impedances, and damage the inverter.
4. Measure the DC cable using the multimeter to avoid reverse polarity connection. Also, the voltage should be under the max DC input voltage. The manufacturer shall not be liable for the damage caused by reverse connection and extremely high voltage.
5. Ensure the minimum isolation resistance of the PV

string to the ground exceeds 19.33kΩ to avoid shock hazards.




6. Keep the battery off, and the inverter disconnects with PV panels and other AC power before connecting the battery and the inverter. The rated voltage of the battery should meet specifications of the inverter.
7. The PV modules used with the inverter must have an IEC61730 class A rating.






#### AC Side:

1. The voltage and frequency at the connecting point should meet the on-grid requirements.
2. Additional protective devices like circuit breakers or fuses are recommended on the AC side. Specification of the protective device should be at least 1.25 times the rated AC output rated current.
3. PE cable of the inverter must be connected firmly.
4. You are recommended to use copper cables as AC output cables. If you prefer aluminum cables, remember to use copper to aluminum adapter terminals.

#### Product Enclosure:

1. Do not apply mechanical load to the terminals, otherwise the terminals can be damaged.
2. All labels and warning marks should be visible after the installation. Do not scrawl, damage, or cover any label on the device.
3. Do not touch the running equipment to avoid being hurt as its temperature may exceed 60°C. Do not install the equipment at a place within children's reach.
4. Unauthorized dismantling or modification may damage the equipment, the damage is not covered under the warranty.
5. Do not start the BACK-UP function if the inverter is not connected to the battery.
6. Warning labels on the inverter are as follows.

	HIGH VOLTAGE HAZARD. Disconnect all incoming power and turn off the product before working on it.
	Delayed discharge. Wait 5 minutes after power off until the components are completely discharged.
	Read through the guide before working on this device.

	Potential risks exist. Wear proper PPE before any operations.
	High-temperature hazard. Do not touch the product under operation to avoid being burnt.
	CE marking
	Grounding point. Indicates the position for connecting the PE cable.
	Do not dispose of the inverter as household waste. Discard the product in compliance with local laws and regulations, or send it back to the manufacturer.





































## Check Before Power On

No.	Check Item
1	The product is firmly installed at a clean place that is well-ventilated and easy-to-operate.
2	The PE, DC input, AC output, and communication cables are connected correctly and securely.
3	Cable ties are intact, routed properly and evenly.
4	Unused ports and terminals are sealed.
5	The voltage and frequency at the connection point meet the inverter grid connection requirements.

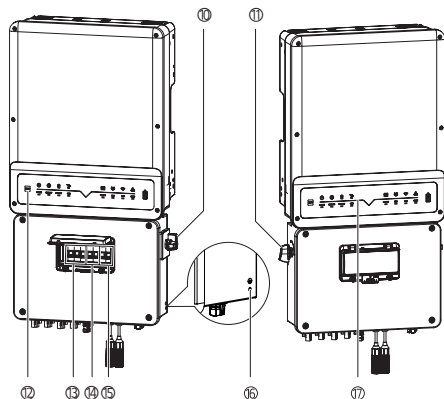
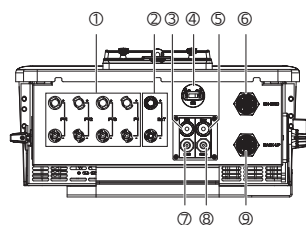
## EU Declaration of Conformity

The inverters sold in the European market meets the following directives and requirements:

- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Electrical Apparatus Low Voltage Directive 2014/35/EU (LVD)
- Radio Equipment Directive 2014/53/EU (RED)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)
- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

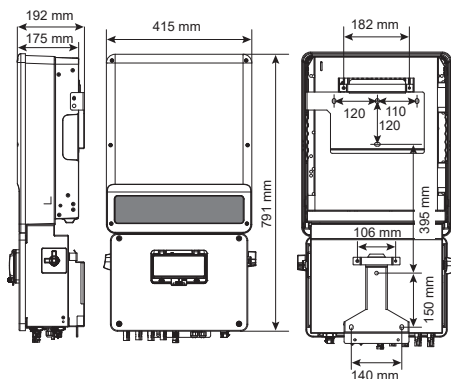
Indicator	Status	Explanation
 SYSTEM		ON = System is ready
		BLINK = System is starting up
		OFF = System is not operating
 BACK-UP		ON = Back-up is ready / power available
		OFF = Back-up is off / on power available
 BATTERY		ON = Battery is charging
		BLINK 1 = Battery is discharging
		BLINK 2 = Battery SOC is low
		OFF = Battery is disconnected / not active
 GRID		ON = Grid is active and connected
		BLINK = Grid is active but not connected
		OFF = Grid is not active
 ENERGY		ON = Consuming energy from grid / Buying
		BLINK 1 = Supplying energy to grid / Zeroing
		BLINK 2 = Supplying energy to grid / Selling
		OFF = Grid not connected or system not operating
 COM		ON = BMS and Meter communication ok
		BLINK 1 = Meter communication Ok, BMS communication fail
		BLINK 2 = BMS communication Ok, Meter communication fail
		OFF = BMS and Meter communication fail
 WiFi		ON = WiFi connected / active
		BLINK 1 = WiFi system resetting
		BLINK 2 = WiFi not connected to router
		BLINK 4 = WiFi server problem
 FAULT		ON = Fault has been detected
		BLINK1 = Overload of back-up Output / reduce load
		BLINK4 = CT wiring fault
		OFF = No fault

## Parts



No.	Part
1	PV Input Terminal (PV+/PV-)
2	Battery Terminal (BAT+/-)
3	BMS Communication Port
4	Communication Module Port (WiFi or LAN)
5	METER Communication Port
6	ON-GRID Terminal
7	DRED or Remote Shutdown Communication Port
8	RS485 Communication Port
9	Back-up Terminal
10	Bypass Switch
11	DC Switch
12	WiFi Reset Button
13	Battery Switch
14	Back-up Switch
15	On-Grid Switch
16	PE Terminal
17	Indicators

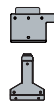
## Dimension



### 3. Inverter Installation



x1



x1



x 1



x2

 $\times N$ 

x1



x7



x1



x1



x 1



x 2



x 1



x 4



x1



x 1

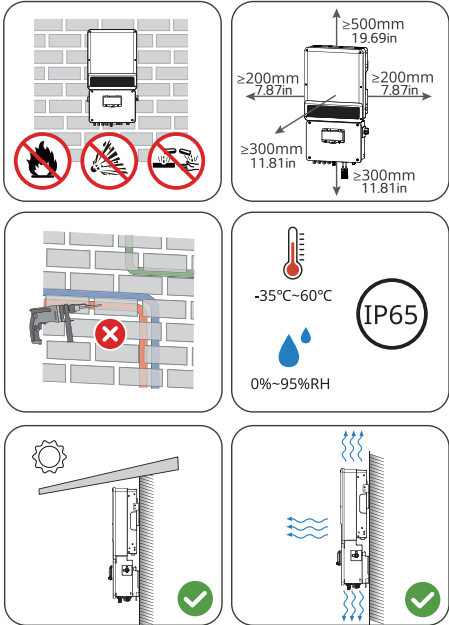


x1

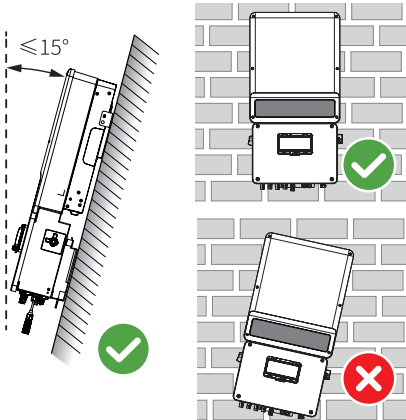
N = Quantity depends on the inverter model.



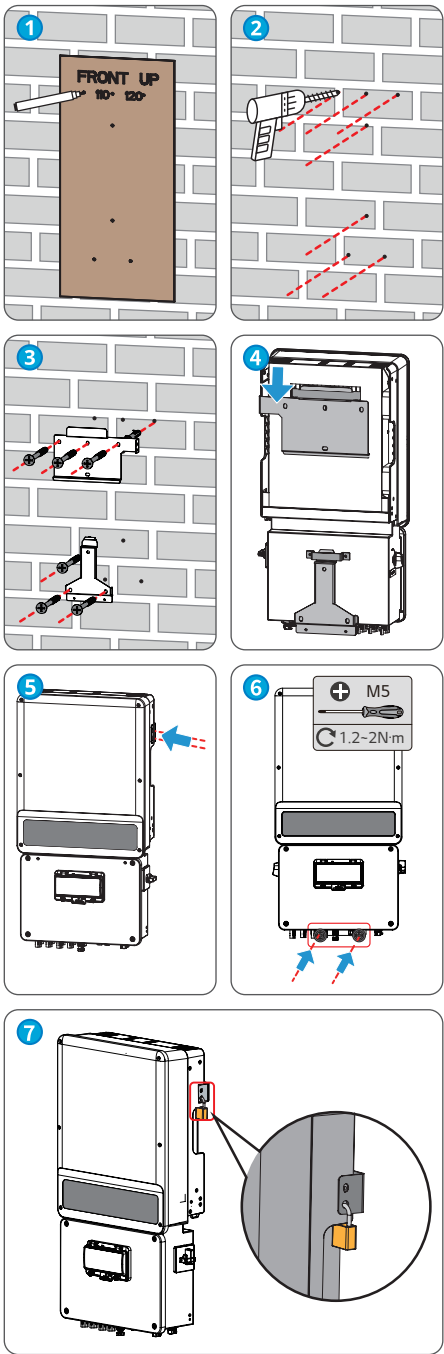
Space Requirements



Angle Requirements

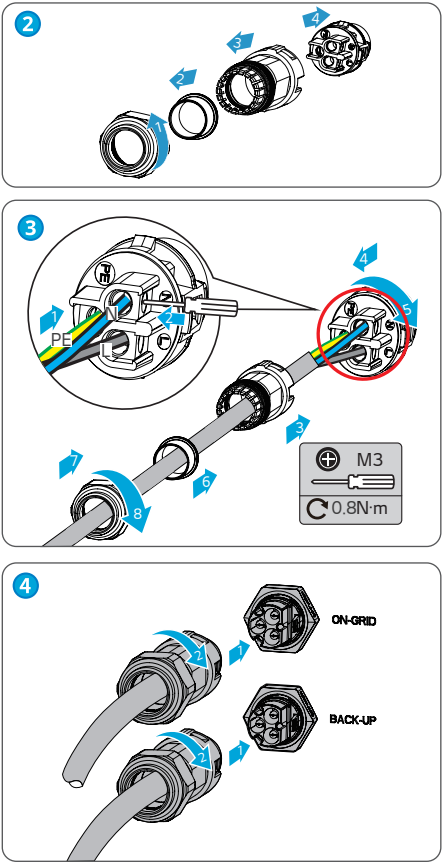
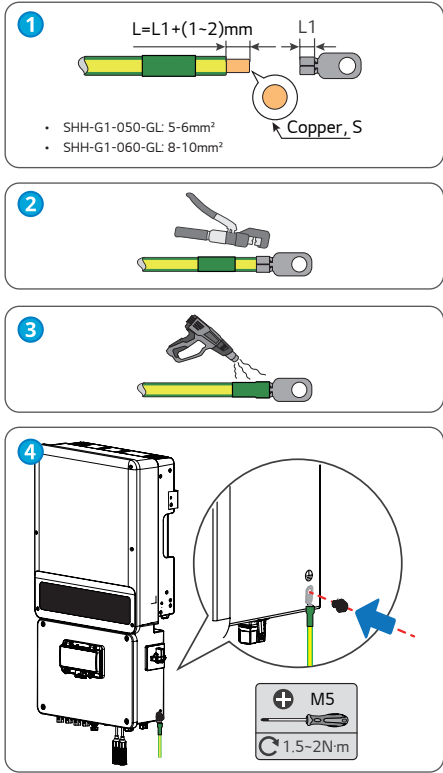


Installing the Inverter

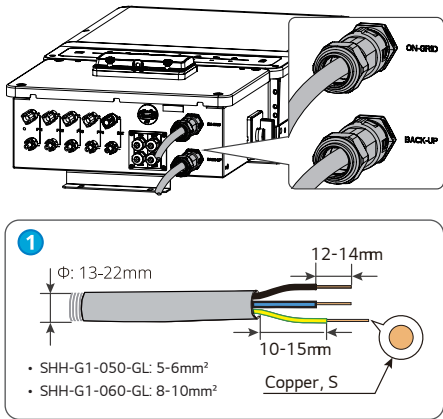


# 4. Electrical Connection

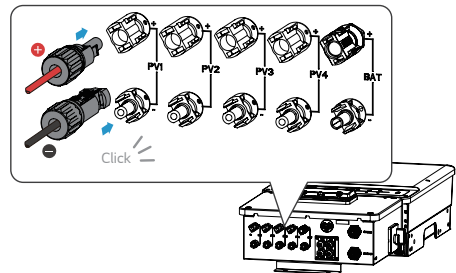
## PE Cable



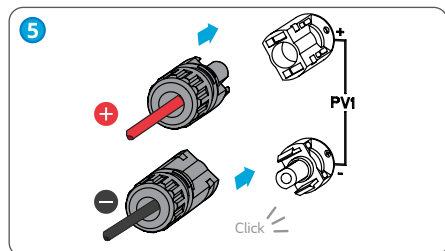
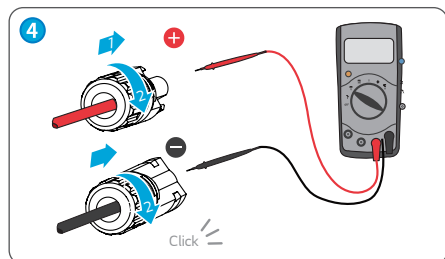
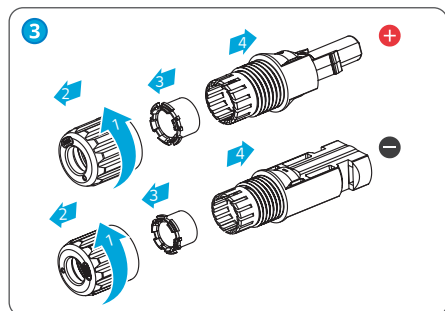
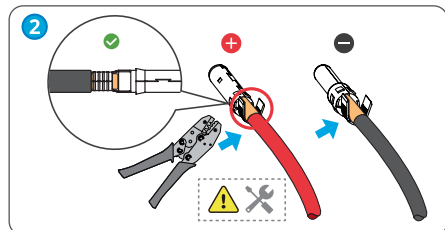
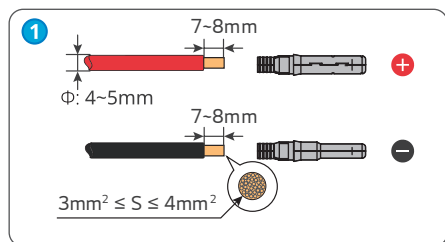
## AC Cable (ON-GRID&BACKUP)



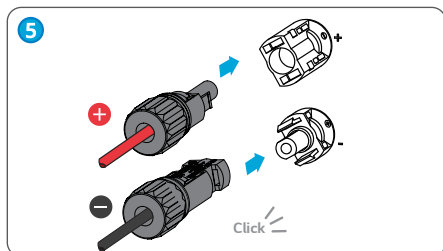
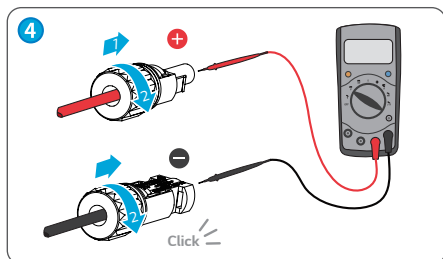
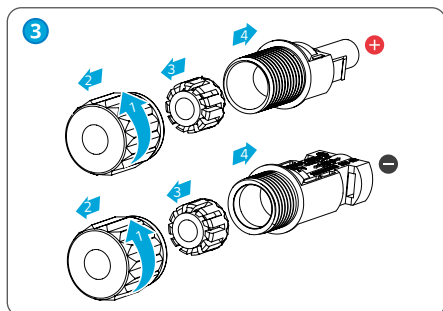
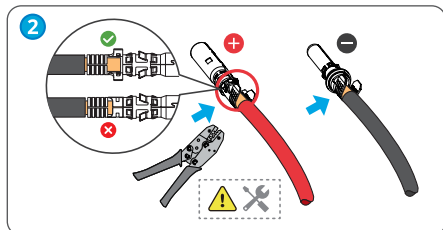
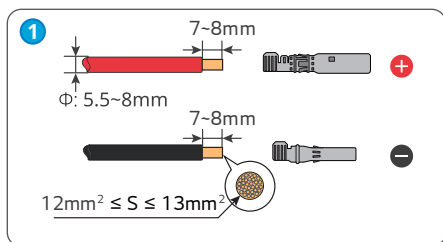
## DC Cable (PV and BAT)



## Staubli MC4 (PV)



## Vaconn (BAT)

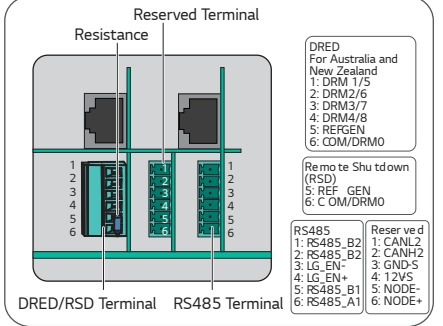
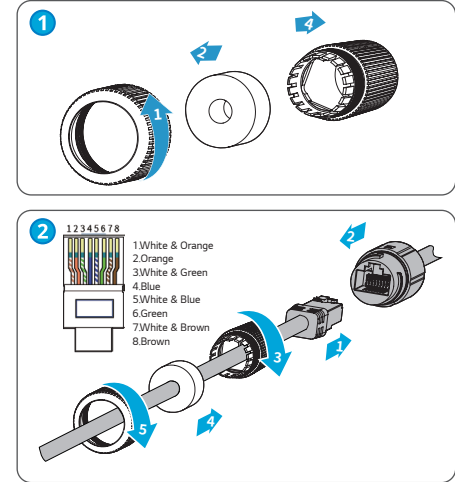
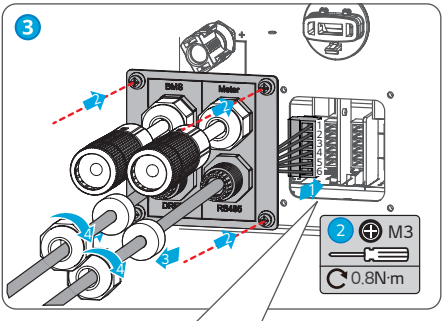
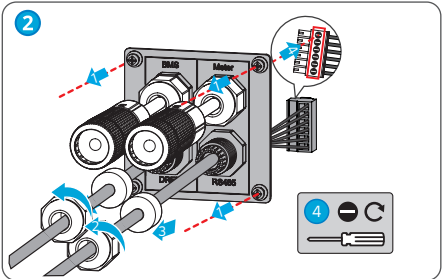
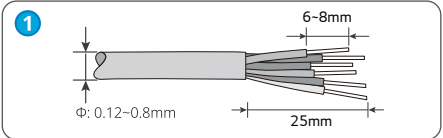
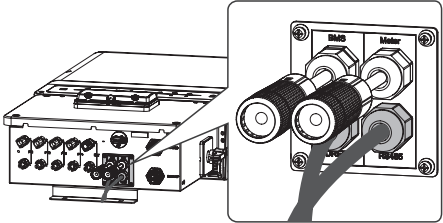


5. Communication Connection

DRED, Remote Shutdown, RS485

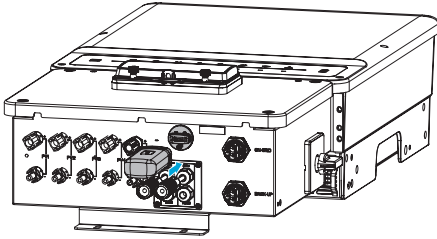
BMS or Smart Meter

No.	Color	Smart Meter	BMS
1	Orange & White	N/A	485_A2
2	Orange	N/A	N/A
3	Green & White	485_B1	485_B2
4	Blue	N/A	CAN_H
5	Blue & White	N/A	CAN_L
6	Green	485_A1	N/A
7	Brown & White	485_B1	N/A
8	Brown	485_A1	N/A

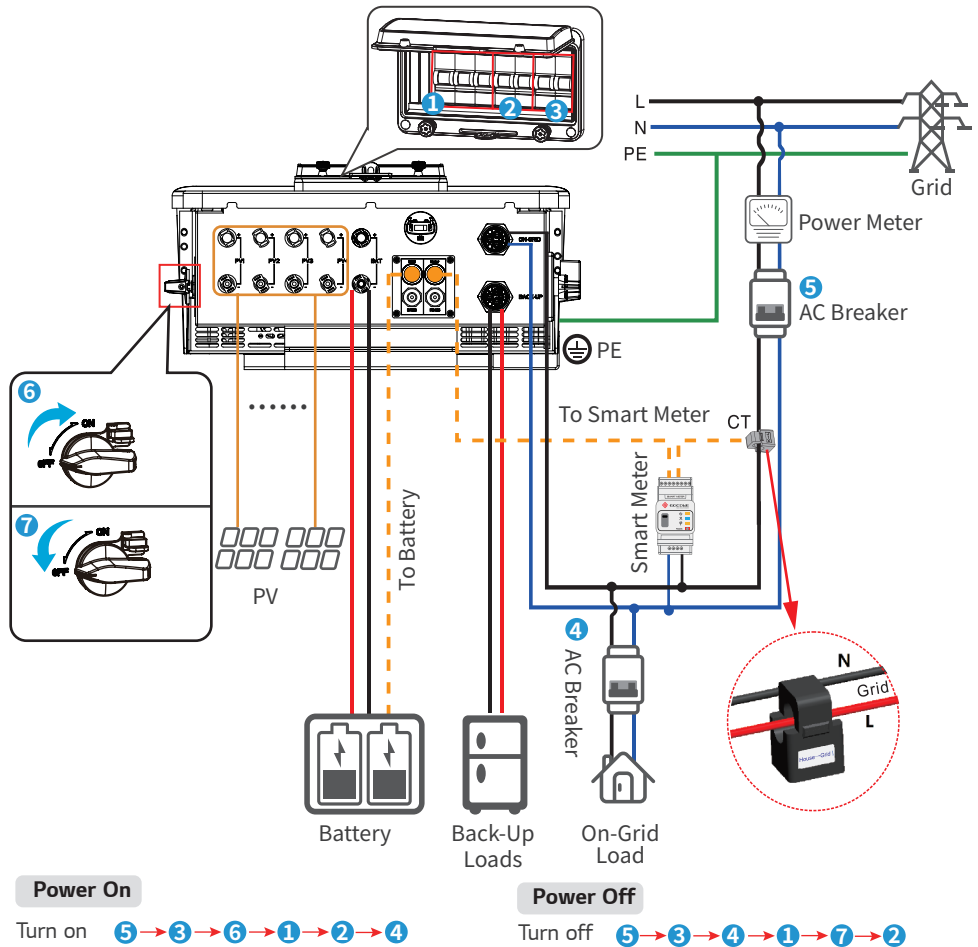


# Communication Module

WiFi Kit, LAN Kit, GPRS, Wi-Fi/LAN Kit module: optional

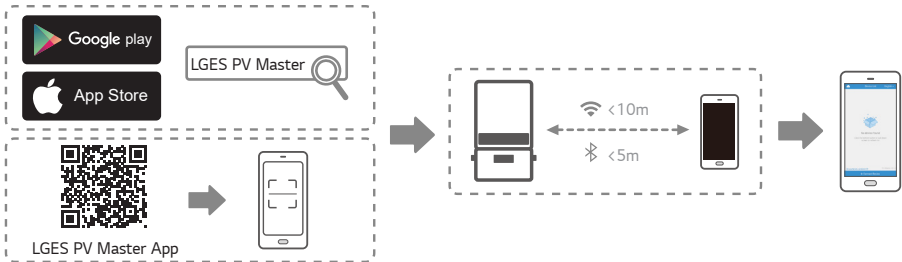


## 6. Power On and Off



# 7. Commissioning and Monitoring

## Commissioning via LGES PV Master APP



## Monitoring via LG RESU HOME App

