

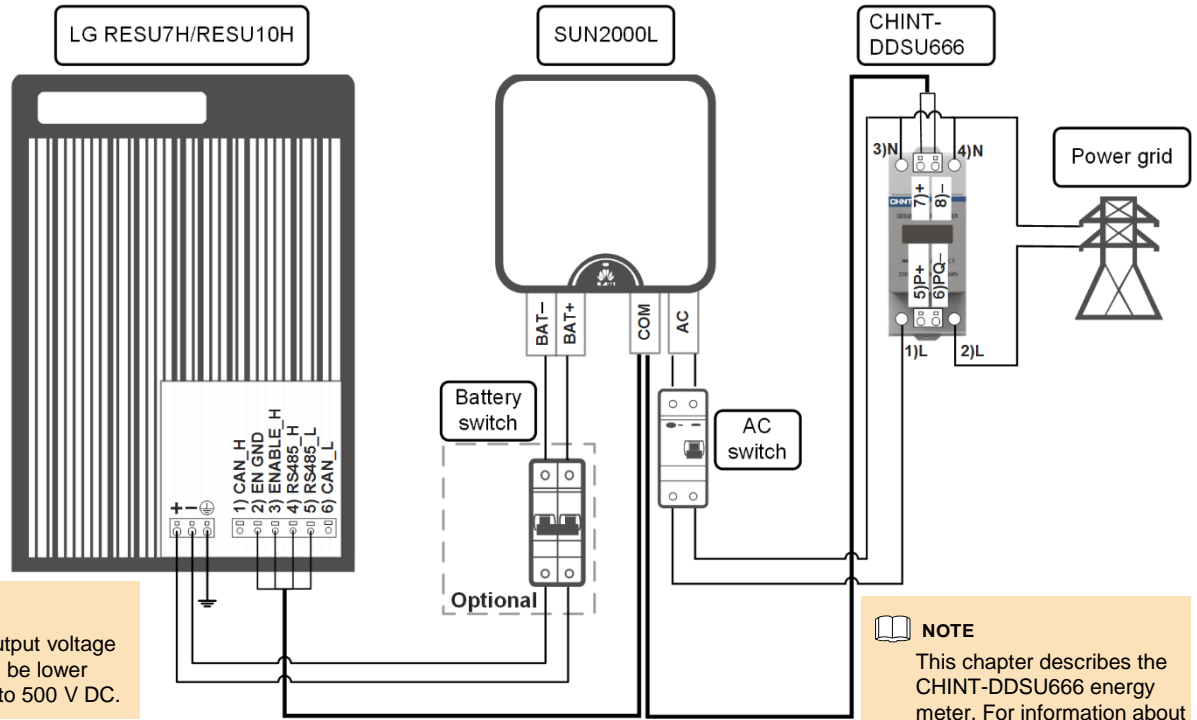
Battery & Energy Meter Quick Guide

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1 Preparing Cables



NOTICE
The battery output voltage should always be lower than or equal to 500 V DC.

NOTE
The CAN_H and CAN_L ports of the battery are not used in this document.

NOTE
This chapter describes the CHINT-DDSU666 energy meter. For information about more energy meters, see Chapter 3 Energy Meter Cables Connection.

1.1 Preparing the Battery Cables

1. Prepare the battery switch between the LG RESU7H/LG RESU10H and the SUN2000L.

Component	Description	Source
Battery switch	Recommended: a DC circuit breaker with a rated voltage greater than or equal to 600 V DC and a rated current of 20 A	Prepared by the customer

2. Prepare the power cable between the LG RESU7H/LG RESU10H and the SUN2000L.

Cable	LG RESU7H/LG RESU10H	SUN2000L	Type	Conductor Cross-sectional Area Range	Outer Diameter	Source
Ground wire		N/A	Single-core outdoor copper cable	4–6 mm ²	N/A	Prepared by the customer
Negative line of the power cable	-	BAT-	Standard PV cable in the industry (recommended model: PV1-F)	4–6 mm ²	4.5–7.8 mm	Prepared by the customer
Positive line of the power cable	+	BAT+				

3. Prepare the battery communications cable between the LG RESU7H/LG RESU10H and the SUN2000L.

Cable	LG RESU7H/LG RESU10H	(COM) SUN2000L	Type	Conductor Cross-sectional Area Range	Outer Diameter	Source
Communications cable	2) EN_GND	5) EN-	Four-core outdoor shielded twisted pair	0.25–1 mm ²	4–11 mm	Prepared by the customer
	3) ENABLE_H	6) EN+				
	4) RS485_H	4) 485A2				
	5) RS485_L	3) 485B2				

1.2 Preparing the Energy Meter Cables

1. Prepare the AC switch between the energy meter and the SUN2000L.

Component	Description	Source
AC switch	Recommended: a single-phase AC circuit breaker with a rated voltage greater than or equal to 250 V AC and a rated current of <ul style="list-style-type: none"> • 16 A (SUN2000L-2KTL) • 25 A (SUN2000L-3KTL and SUN2000L-3.68KTL) • 32 A (SUN2000L-4KTL, SUN2000L-4.6KTL, and SUN2000L-5KTL) 	Prepared by the customer

2. Prepare cables between the energy meter and the SUN2000L.

CHINT-DDSU666

Cable	CHINT-DDSU666	(AC) SUN2000L	Type	Conductor Cross-sectional Area Range	Outer Diameter	Source
AC output power cable between the energy meter and the SUN2000L	1) L	L	Two-core (L and N) outdoor copper cable	4–6 mm ²	10–21 mm	Prepared by the customer
	3) N	N				

Cable	CHINT-DDSU666	(COM) SUN2000L	Type	Conductor Cross-sectional Area Range	Outer Diameter	Source
Communications cable	RS485A(+)	2) 485A1	Four-core outdoor shielded twisted pair	0.25–1 mm ²	4–11 mm	Prepared by the customer
	RS485B(-)	1) 485B1				

EM111DINAV81XS1X

Cable	EM111DINAV81XS1X	(AC) SUN2000L	Type	Conductor Cross-sectional Area Range	Outer Diameter	Source
AC output power cable between the energy meter and the SUN2000L	2) L	L	Two-core (L and N) outdoor copper cable	4–6 mm ²	10–21 mm	Prepared by the customer
	N	N				

Cable	EM111DINAV81XS1X	(COM) SUN2000L	Type	Conductor Cross-sectional Area Range	Outer Diameter	Source
Communications cable	6) B+	2) 485A1	Four-core outdoor shielded twisted pair	0.25–1 mm ²	4–11 mm	Prepared by the customer
	8) A-	1) 485B1				

EM340DINAV23XS1X

Cable	EM340DINAV23XS1X	(AC) SUN2000L	Type	Conductor Cross-sectional Area Range	Outer Diameter	Source
AC output power cable between the energy meter and the SUN2000L	4) L	L	Two-core (L and N) outdoor copper cable	4–6 mm ²	10–21 mm	Prepared by the customer
	N	N				

Cable	EM340DINAV23XS1X	(COM) SUN2000L	Type	Conductor Cross-sectional Area Range	Outer Diameter	Source
Communications cable	8) B+	2) 485A1	Four-core outdoor shielded twisted pair	0.25–1 mm ²	4–11 mm	Prepared by the customer
	9) A-	1) 485B1				



NOTICE

If a connector needs to connect to two signal cables, ensure that the cables have the same outer diameter.

2 Battery Cables Connection

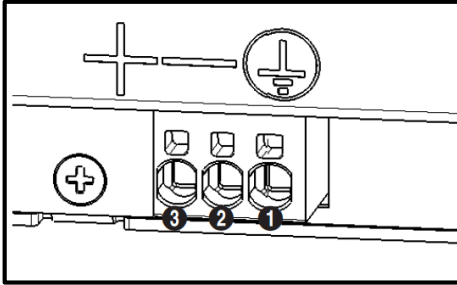
2.1 Connecting the Battery Cables to the Battery Pack

⚠ NOTICE

- Make sure that the Auxiliary Power ON/OFF switch and the Circuit Breaker switch of the battery pack are turned off before connecting the power cable to the battery pack.
- Make sure that the inverter AC and DC disconnections are turned off before connecting the power cable to the battery pack.

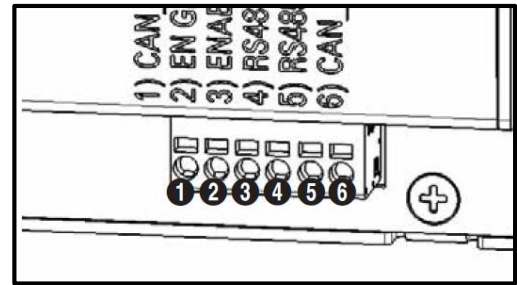
1. Connect the power cable.

- a) Connect the ground wire to terminal 1.
- b) Connect the negative line of the power cable to terminal 2.
- c) Connect the positive line of the power cable to terminal 3.



2. Connect the Communications Cable.

At first, connect the wire to terminal 2. Then, make connections to the 3, 4, and 5 terminals one after another.



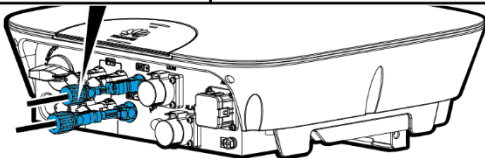
2.2 Connecting the Battery Cables to the SUN2000L

⚠ DANGER

- Do not connect or disconnect battery cables when the SUN2000L is running. Failing to do so may cause electric shocks.
- Before connecting battery cables, ensure that the DC switch on the SUN2000L and all the switches connecting to the SUN2000L are OFF, and the SUN2000L has no residual electricity. Otherwise, the high voltage of the SUN2000L and battery may result in electric shocks.
- If no battery connects to the SUN2000L, do not remove the watertight cap from the battery terminal. Otherwise, the SUN2000L will not comply with its Ingress Protection Rating. If a battery connects to the SUN2000L, set aside the watertight cap. Reinstall the watertight cap immediately after removing the connector. The high voltage of the battery terminal may result in electric shocks.

1. Assemble the blue positive and negative connectors, and then connect the power cable.

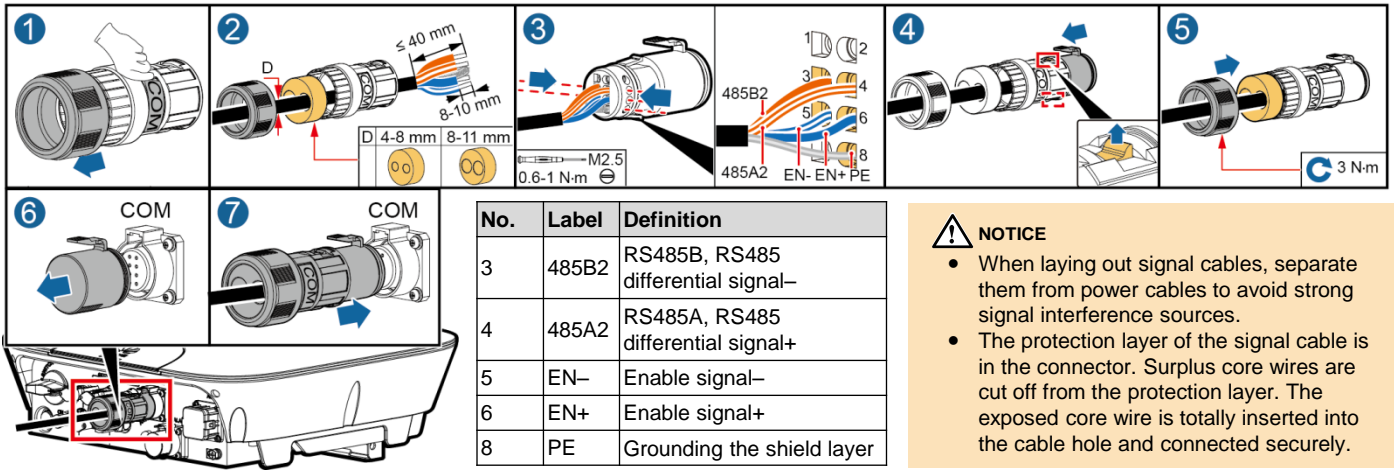
<p>1 Positive metal terminal 8-10 mm Negative metal terminal 8-10 mm</p>	<p>2 H4TC001 (AMPHENOL) Ensure that the cable will not be extracted after crimped.</p>	<p>3 Positive connector Negative connector Pull the power cable back to ensure that it is connected securely.</p>	<p>4 Ensure that the locking nut is secured. H4TW001 (AMPHENOL)</p>
<p>5 BAT+ BAT- Save the watertight caps for later use.</p>	<p>6 BAT+ BAT- Click Pull the battery cable back to ensure that it is connected securely.</p>		



⚠ WARNING

- Do not connect any load between the SUN2000L and the battery.
- Ensure that the following conditions are met. Otherwise, the SUN2000L will be damaged, or even become a fire hazard.
The battery cable is connected correctly. That is, the positive and negative terminals of the battery connect to the positive battery terminal and negative battery terminal on the SUN2000L respectively.
- The cable between the battery and the SUN2000L should be less than or equal to 10 meters, and within 5 meters is recommended.
- The battery voltage can result in fatal injury. Use dedicated insulation tools to terminate cables.
- Ensure that the battery cable is correctly connected. Avoid reverse polarity.

2. Connect the communications cable.



No.	Label	Definition
3	485B2	RS485B, RS485 differential signal-
4	485A2	RS485A, RS485 differential signal+
5	EN-	Enable signal-
6	EN+	Enable signal+
8	PE	Grounding the shield layer

NOTICE

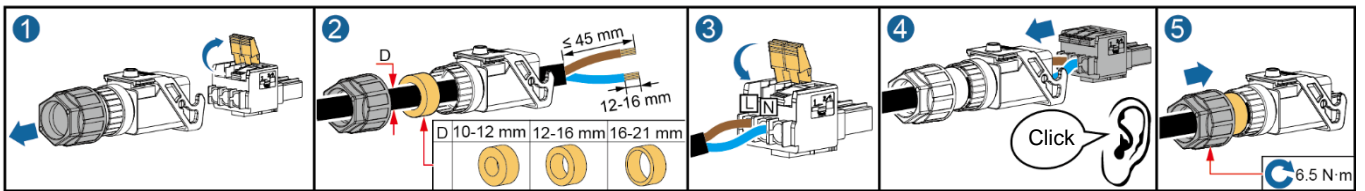
- When laying out signal cables, separate them from power cables to avoid strong signal interference sources.
- The protection layer of the signal cable is in the connector. Surplus core wires are cut off from the protection layer. The exposed core wire is totally inserted into the cable hole and connected securely.

3 Energy Meter Cables Connection

3.1 Connecting the Energy Meter Cables to the SUN2000L

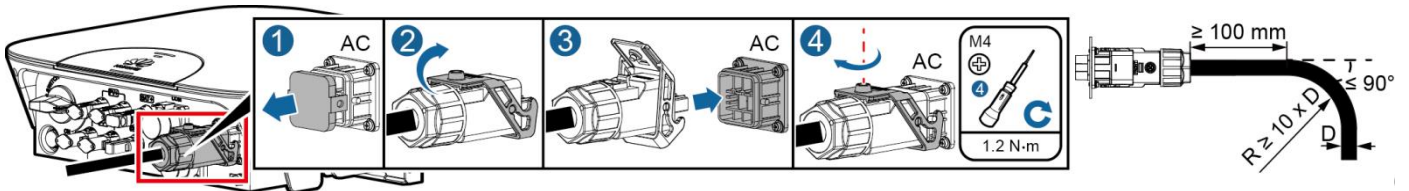
1. Connect the AC output power cable to the SUN2000L.

a) Connect the AC output power cable to the AC connector.

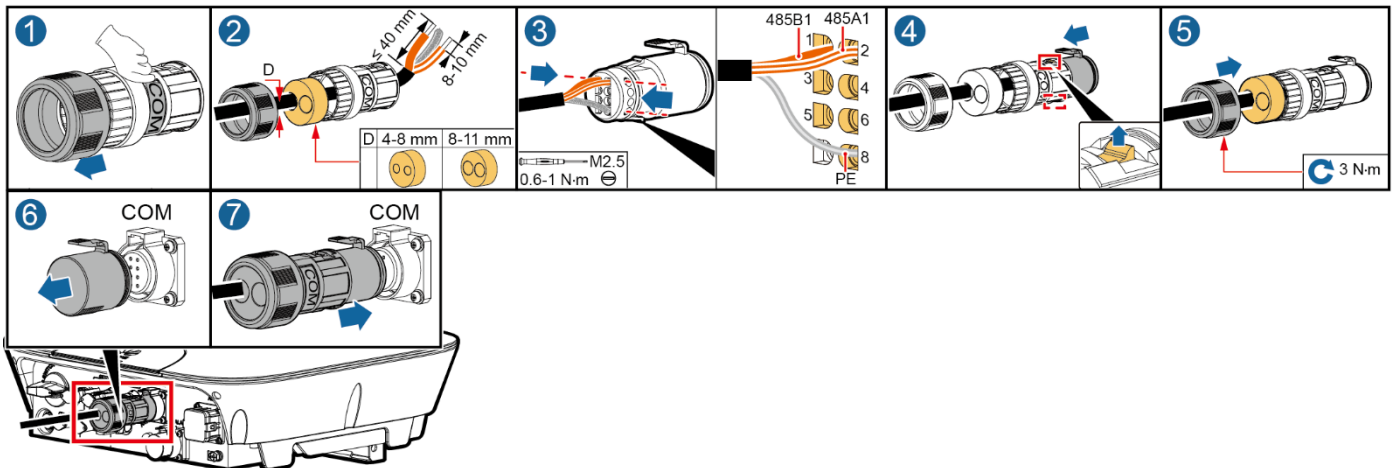


b) Connect the AC connector to the AC output port.

c) Check the route of the AC output power cable.



2. Connect the communications cable to the SUN2000L.



No.	Label	Definition
3	485B1	RS485B, RS485 differential signal-
4	485A1	RS485A, RS485 differential signal+
5	EN-	Enable signal-
6	EN+	Enable signal+
8	PE	Grounding the shield layer

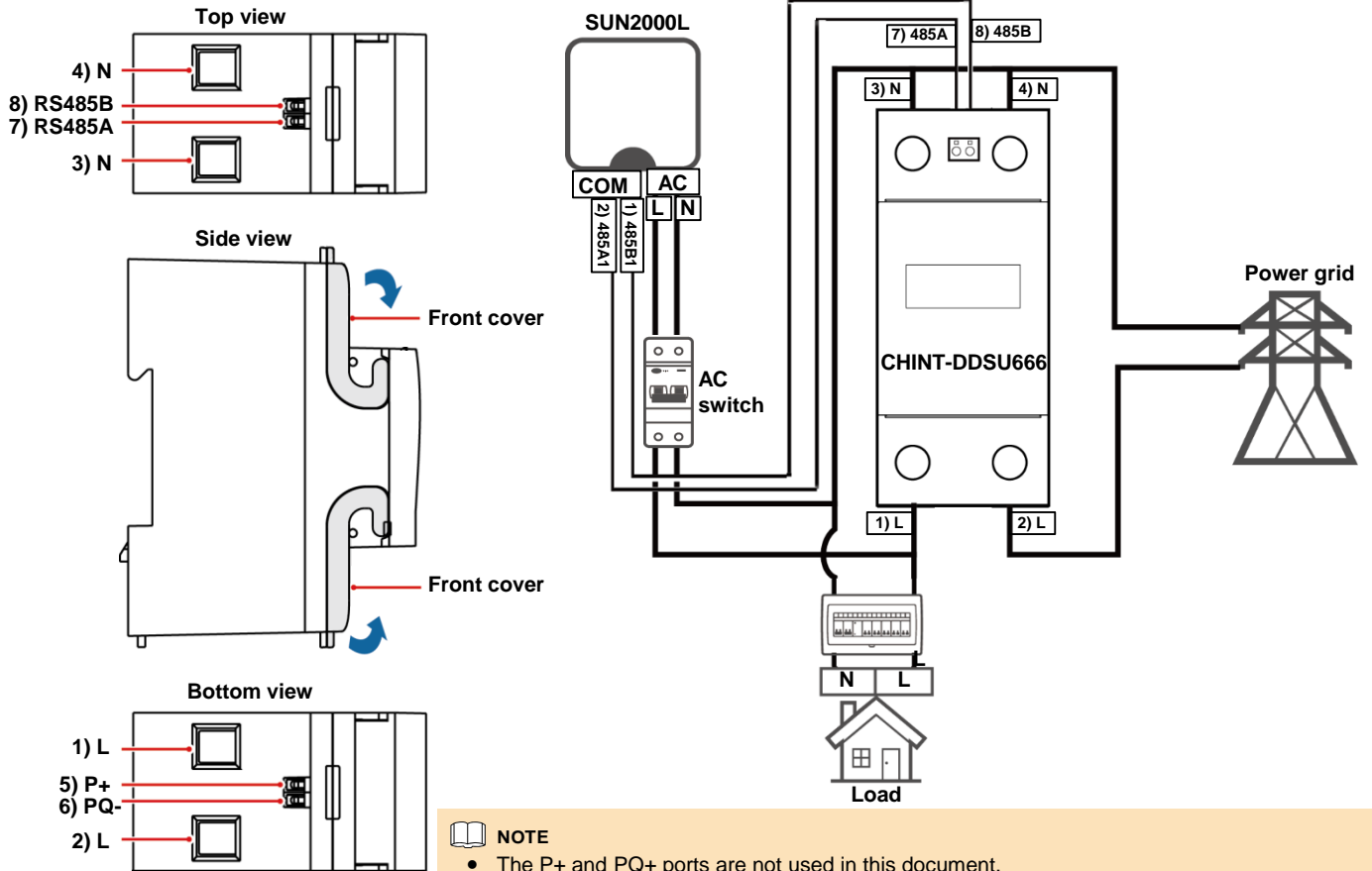
NOTICE

- When laying out signal cables, separate them from power cables to avoid strong signal interference sources.
- The protection layer of the signal cable is in the connector. Surplus core wires are cut off from the protection layer. The exposed core wire is totally inserted into the cable hole and connected securely.

3.2 Connecting the Energy Meter Cables to the Energy Meter

CHINT-DDSU666

Open the front cover, and then connect the cable to the CHINT-DDSU666.

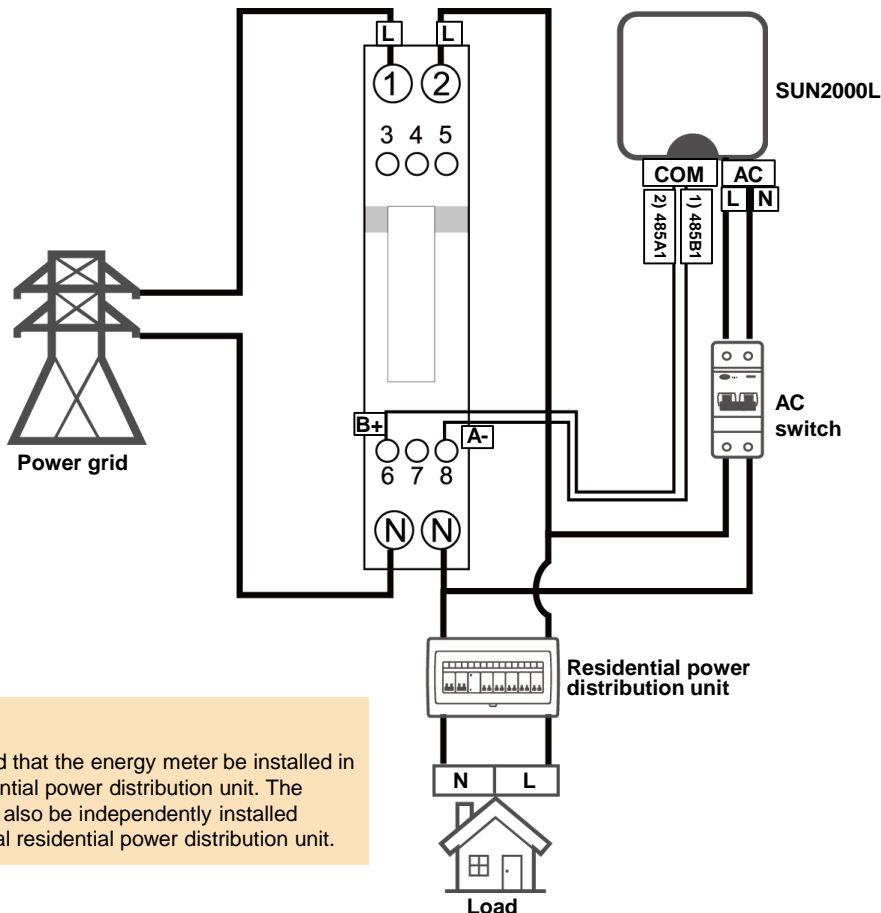


NOTE

- The P+ and PQ+ ports are not used in this document.
- It is recommended that the energy meter be installed in the original residential power distribution unit. The energy meter can also be independently installed outside the original residential power distribution unit.

EM111DINAV81XS1X

Open the front cover, and then connect the cable to the EM111DINAV81XS1X.

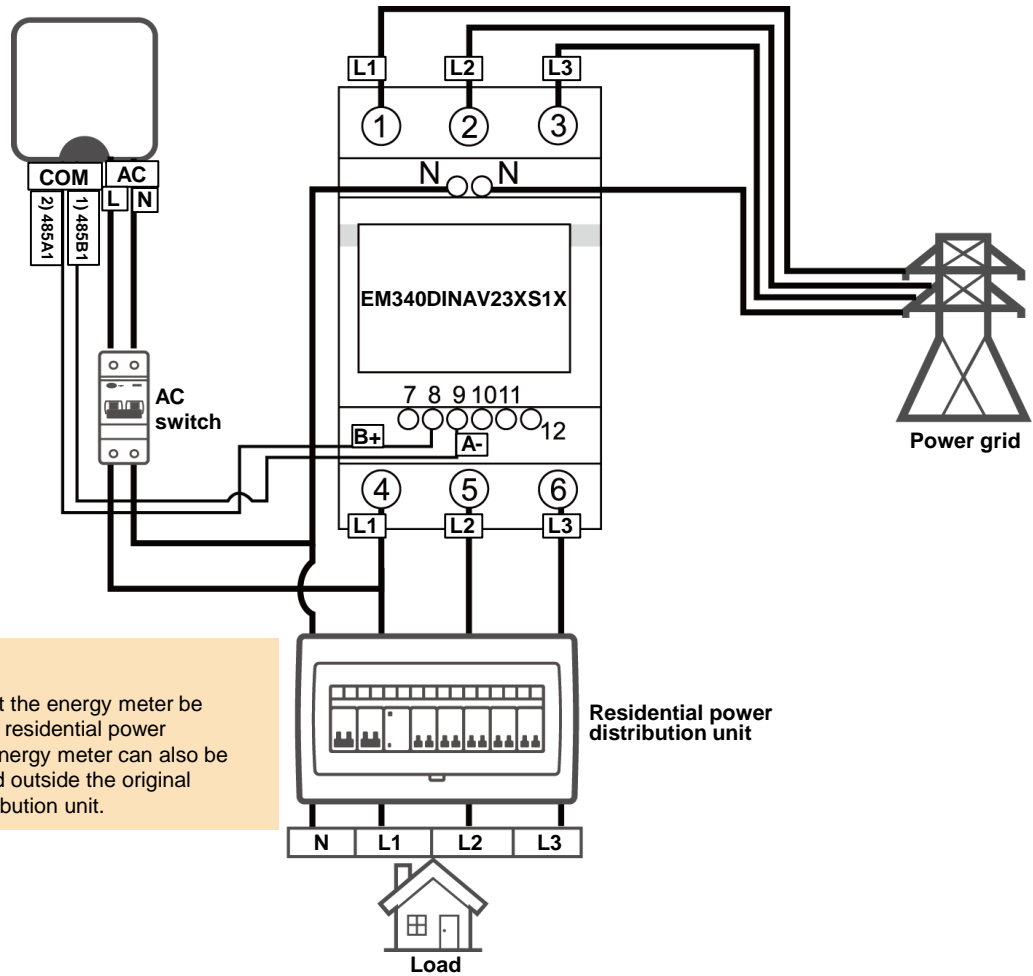


NOTE

- It is recommended that the energy meter be installed in the original residential power distribution unit. The energy meter can also be independently installed outside the original residential power distribution unit.

EM340DINAV23XS1X

Open the front cover, and then connect the cable to the EM340DINAV23XS1X.



NOTE

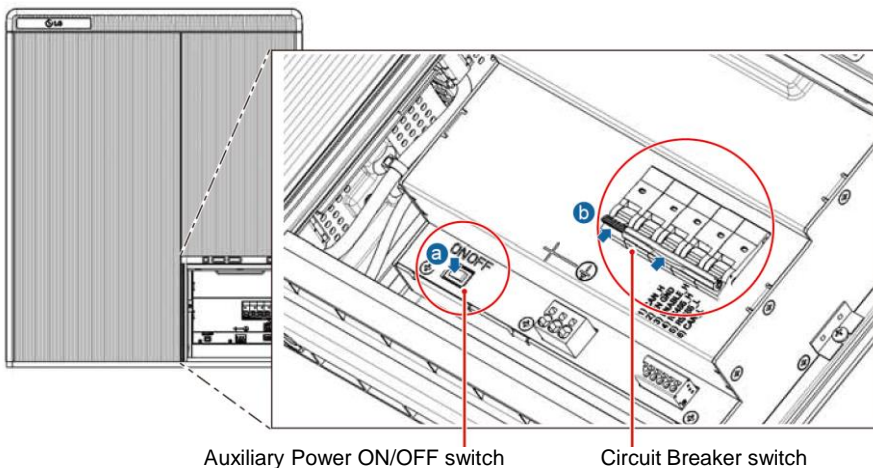
It is recommended that the energy meter be installed in the original residential power distribution unit. The energy meter can also be independently installed outside the original residential power distribution unit.

3 Commissioning

3.1 Powering On the System

1. Put the battery pack in operation by taking the following steps:

- Turn on the Auxiliary Power ON/OFF switch after installing the battery pack. Make sure that the Circuit Breaker switch is in the OFF position (including the Trip position).
- Set the Circuit Breaker switch to the ON position.



Auxiliary Power ON/OFF switch

Circuit Breaker switch

- Several seconds after the Circuit Breaker switch is set to ON, 4 LEDs will be lit.
- Make sure that ON indicator is on and see if the battery pack is successfully initialized. The power-on indicator on the front should turn on in green.

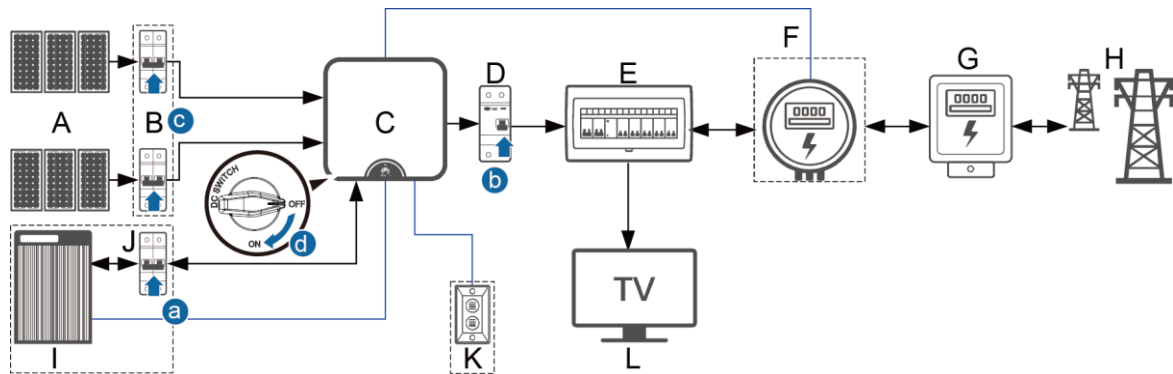


- Close the wiring box cover.

2. Power on the SUN2000L:

NOTICE

- Before turning on the AC switch between the SUN2000L and the power grid, check that the AC voltage on the power grid side of the AC switch is within the specified range.
- If the DC is on and the AC is off, the SUN2000L reports a **Grid Failure** alarm. The SUN2000L starts normally only after the fault is rectified.
- If the AC is on and the battery is off, the SUN2000L reports a **Battery Abnormal** alarm.



- | | | |
|-----------------------------|---|----------------------|
| (A) PV string | (B) DC switch | (C) SUN2000L |
| (D) AC switch | (E) Residential power distribution unit | (F) Energy meter |
| (G) Residential power meter | (H) Power grid | (I) Battery |
| (J) Battery switch | (K) Alarm beacon | (L) Residential load |

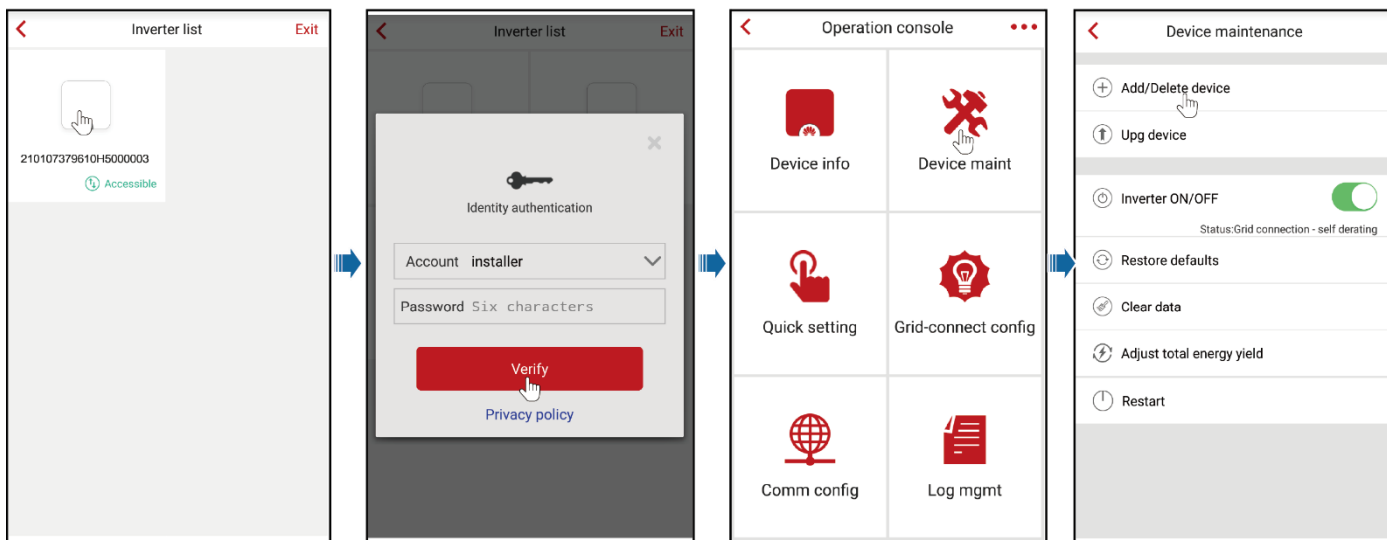
- Turn on the battery switch between the battery pack and the SUN2000L.
- Turn on the AC switch between the SUN2000L and the power grid.

NOTICE

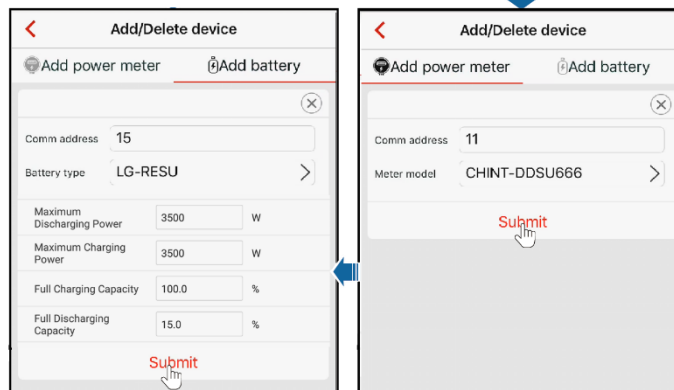
If the SUN2000L is connected to the battery, after turning on the AC switch:

- If the DC switch is turned on within 1 minute, the SUN2000L will run properly in grid-tied mode.
- If the DC switch is not turned on within 1 minute, the SUN2000L will enter the nighttime grid-tied mode. Then, after the DC switch is turned on, the SUN2000L will shut down and then restart to run in grid-tied mode.

- Turn on the DC switch between the PV string and the SUN2000L if there is any.
- Turn on the DC switch at the bottom of the SUN2000L.
- Perform quick setting over the FusionHome app. There are two methods to add the device. Method 1: tap **Go to set** after quick setting is complete, and then configure parameters on the **Add/Delete device** screen. Method 2: on the **Operation console** screen, choose **Device maintenance > Add/Delete device**, and add the device according to actual conditions.



Model	Comm address
CHINT-DDSU666	11
Gavazzi-EM111DINAV81XS1X	1
Gavazzi-EM340DINAV23XS1X	1
LG-RESU	15



Energy Meter Parameter	Description	Value Range
Comm address	Specifies the RS485 address for the connected energy meter. The address should be the same as the actual address for the energy meter.	[1, 247]
Meter model	Specifies the model of the connected energy meter. No energy meters of other models can be connected.	<ul style="list-style-type: none"> CHINT-DDSU666 Gavazzi-EM111DINAV81XS1X Gavazzi-EM340DINAV23XS1X

Battery Parameter	Description	Value Range
Comm address	Specifies the RS485 address for the connected battery. The address should be the same as the actual address for the battery.	[1, 247]
Battery type	Specifies the type of the connected battery. No batteries of other types can be connected.	LG-RESU
Maximum Discharging Power	Specifies the maximum battery charging power. The maximum charging power is limited by the maximum output power of the SUN2000L and whether the charge/discharge power function is enabled.	[0, 3500]
Maximum Charging Power	Specifies the maximum battery discharging power. The maximum discharging power is limited by the maximum output power of the SUN2000L and whether the charge/discharge power function is enabled.	[0, 3500]
Full Charging Capacity	Specifies the battery charging cutoff capacity.	[90, 100]
Full Discharging Capacity	Specifies the battery discharging cutoff capacity.	[12, 20]

f) (Optional) Measure the temperatures at the joints between the DC terminals and the connectors using a point-test thermometer.



NOTE

Under normal operation conditions of the SUN2000L, the temperature rise at DC connectors should remain below 30°C at all time.

g) Observe the LEDs to check the SUN2000L operating status.

3.2 Checking the Match between the SUN2000L and the Battery Protocol

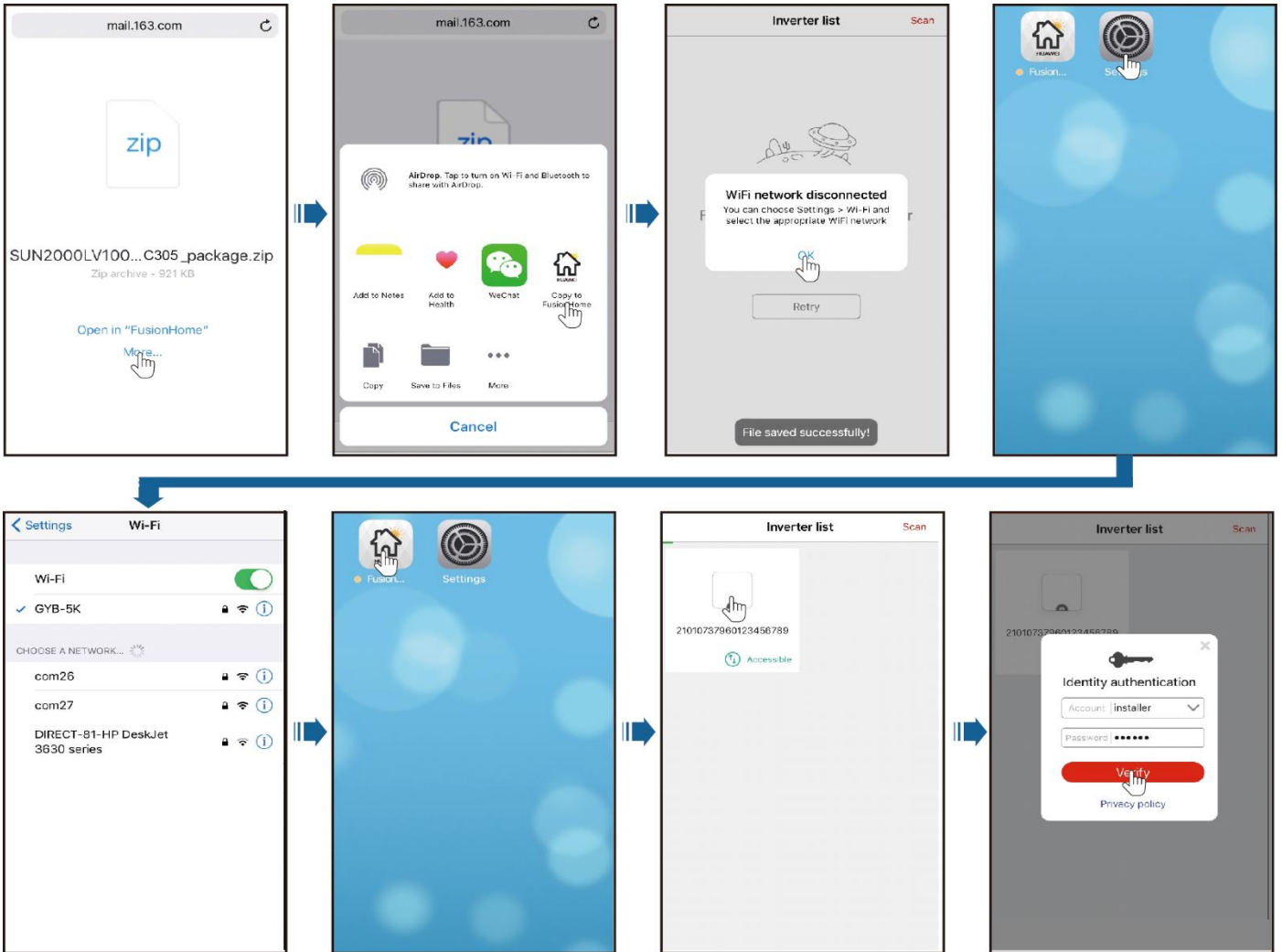
NOTICE

The following text describes the operations on iOS screens. The operations on Android screens are the same as those on iOS screens, except that the screens are somewhat different. The actual screens prevail.

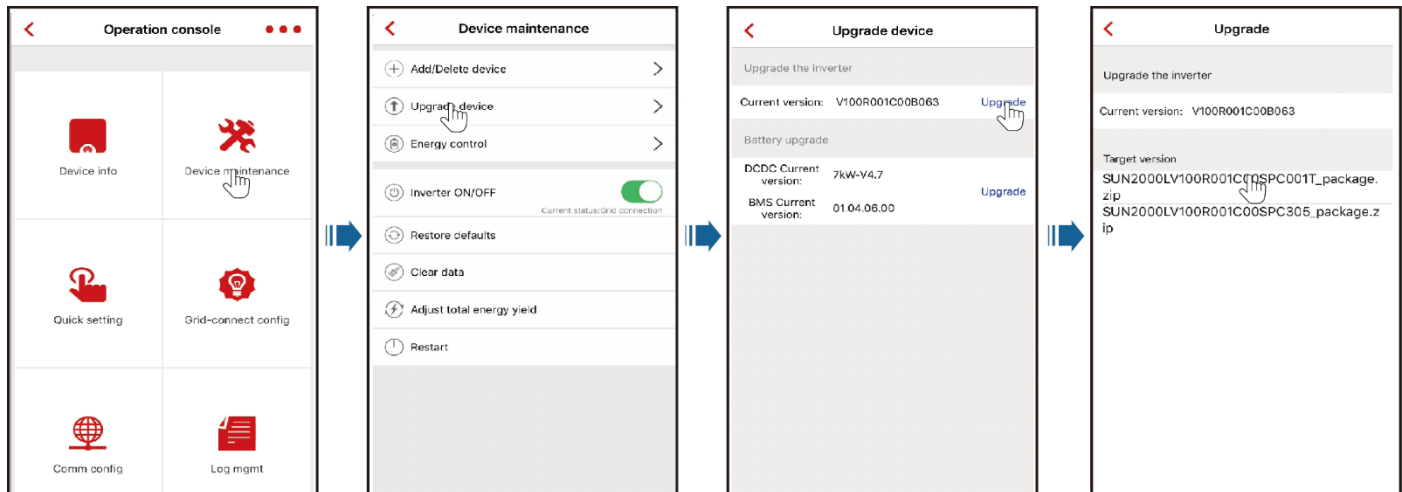
- In the iOS system, the upgrade file can be imported to the mobile phone over your mailbox. The upgrade file name extension must be .zip. **Manually select** is unavailable.
- In the Android system, the upgrade file can be copied to the mobile phone. The upgrade file name extension must be .zip and the file can be stored in your required directory. **Manually select** is available.

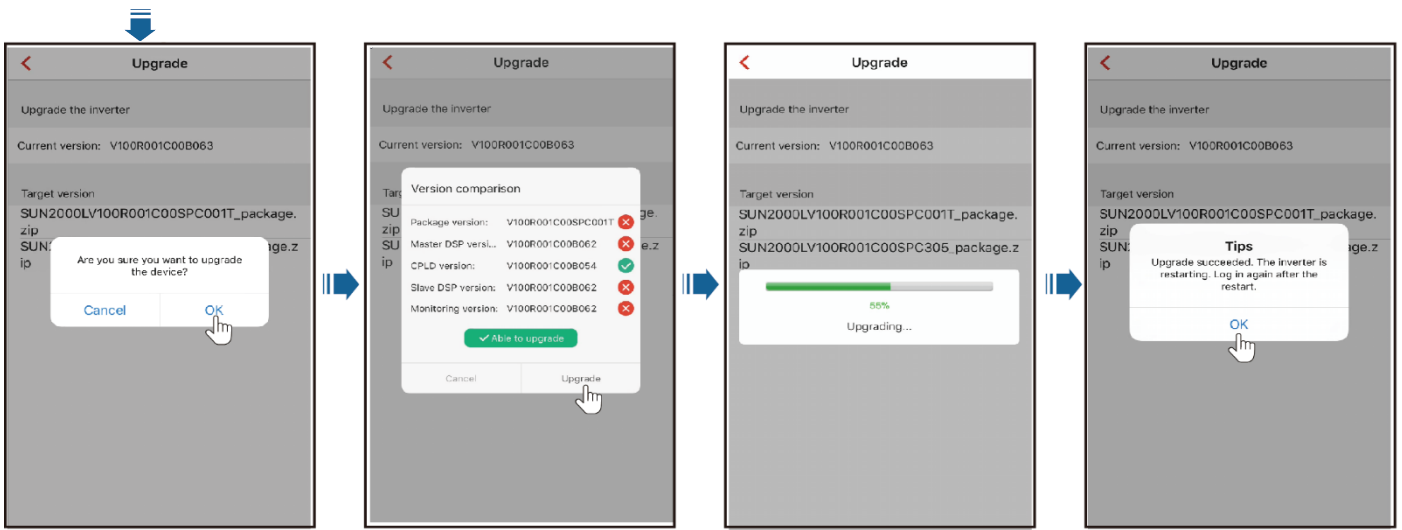
1. On the FusionHome app, and choose **Device maintenance > Upgrade device** to view the SUN2000L version. Upgrade the SUN2000L if its version is earlier than V100R001C00SPC305.

a) Import the SUN2000L upgrade package to the mobile phone over your mailbox, and then log in to the FusionHome app as installer.



b) Upgrade the SUN2000L. The SUN2000L upgrade takes about 5 minutes. When the SUN2000L is upgraded successfully, the SUN2000L will restart. Log in again after the restart.





2. Ensure that the battery cable connection and parameter settings (Comm addr: 15, Battery type: LG-RGSU) are correct. Then in either of the three following cases, upgrade the battery.

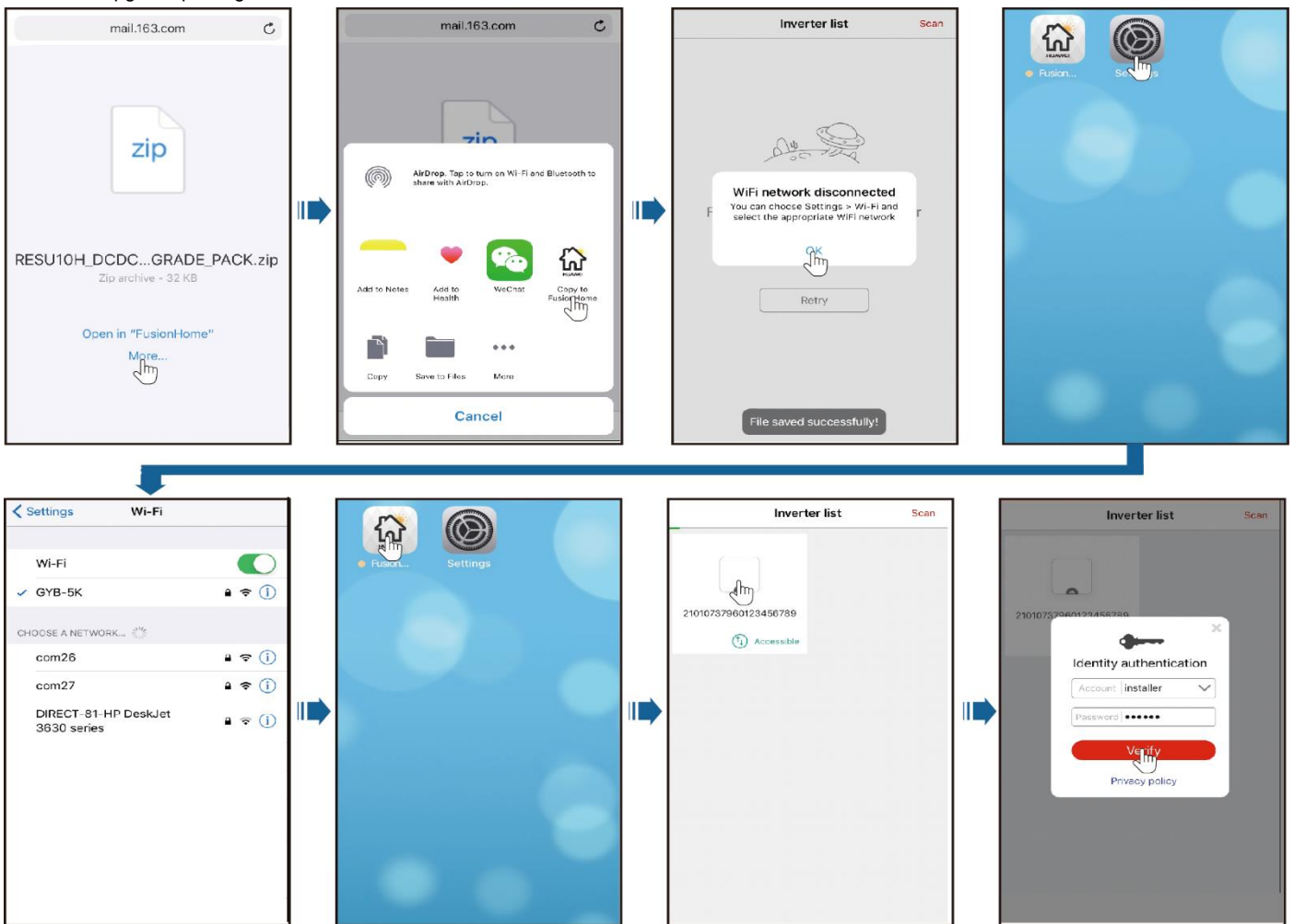
No.	Mismatch Case	Remarks
1	<p>On the FusionHome app, choose Device maintenance > Upgrade device to view the battery version.</p> <ul style="list-style-type: none"> Upgrade the LG RESU10H if DCDC Current version is not 7kW-V4.7. Upgrade the LG RESU7H if DCDC Current version is not 5kW-V4.7. 	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;"> <p>LG RESU10H:</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>LG RESU7H:</p> </div> </div>
2	<p>The battery is Offline and not working properly. View the battery status by choosing Device info > Device status on the FusionHome app.</p>	
3	<p>The battery status is displayed on the Device status screen. The battery auxiliary power indicator is on but the battery charging and discharging indicators are off.</p>	



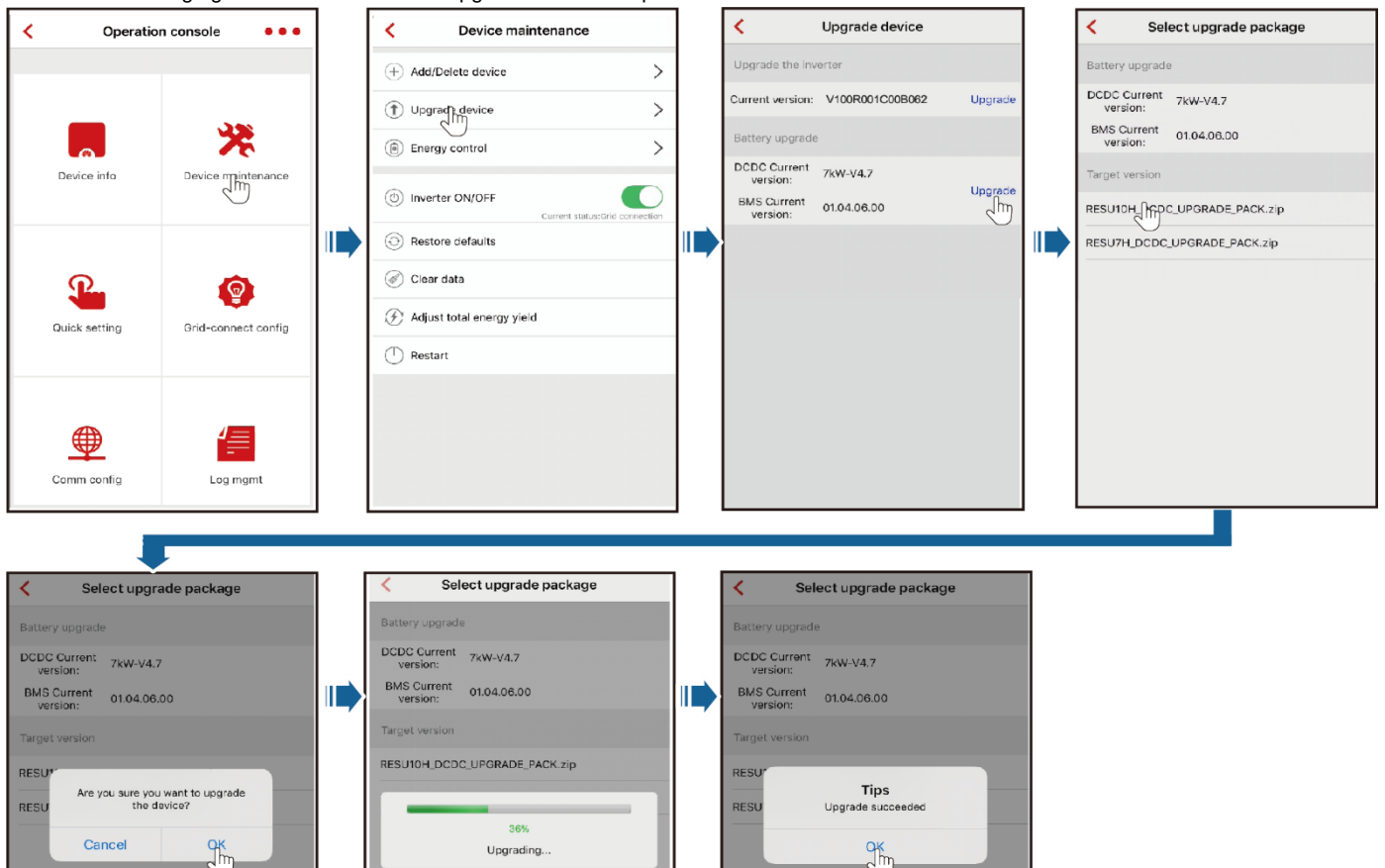
NOTE

In the iOS system, the upgrade file can be imported to the mobile phone over your mailbox. The upgrade file name extension must be **.zip**. **Manually select** is unavailable.

- a) Import the battery upgrade package to the mobile phone over your mailbox, and then log in to the FusionHome app as installer.
- The upgrade package for the LG RESU10H is **RESU10H_DCDC_UPGRADE_PACK.ZIP**.
 - The upgrade package for the LG RESU7H is **RESU7H_DCDC_UPGRADE_PACK.ZIP**.



- b) Select the upgrade package to upgrade the battery from V2.0 to V4.7. The upgrade takes about 5 minutes.
- The upgrade package for the LG RESU10H is **RESU10H_DCDC_UPGRADE_PACK.ZIP**.
 - The upgrade package for the LG RESU7H is **RESU7H_DCDC_UPGRADE_PACK.ZIP**.
- The following figure uses LG RESU10H upgrade as an example.



3. After completing the upgrade, check that the battery is working properly.

3.3 Powering Off the System

1. Power off the SUN2000L:

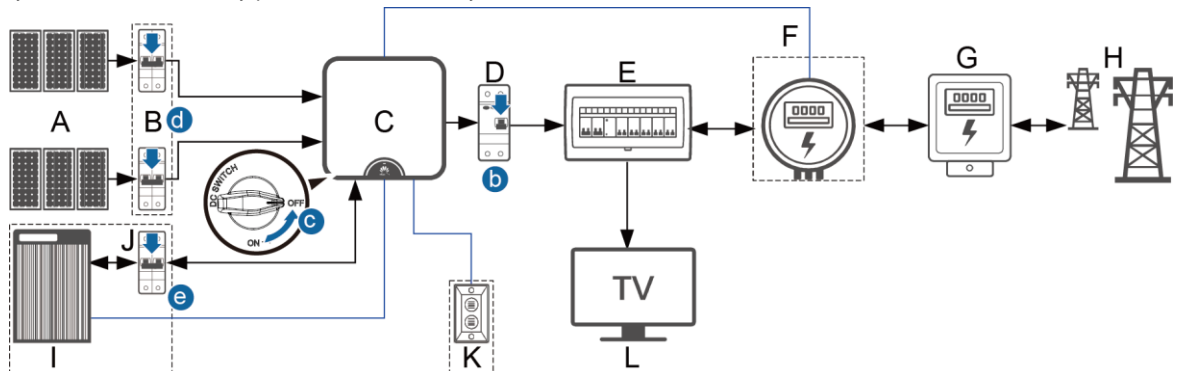
⚠ WARNING

- After the SUN2000L powers off, the remaining electricity and heat may still cause electric shocks and body burns. Therefore, put on protective gloves and begin servicing the SUN2000L 5 minutes after the power-off.
- If the SUN2000L is connected to the battery, ensure that a shutdown command is sent from the app. Power off the system after the SUN2000L has shut down. If no shutdown command is sent from the app, the SUN2000L will shut down after the power grid is powered off. Then, the SUN2000L will wait for 1 minute and restart (not grid-tied) to charge the battery, which poses the risk of turning off the DC switch with power.

a) Send a shutdown command from the app. If you log in as installer, on the **Operation console** screen, choose **Device maintenance > Inverter ON/OFF**, and perform operations as required; if you log in as user, on the main screen, choose **☰ > Set maint > Inverter ON/OFF**, and perform operations as required.



- b) Turn off the AC switch between the SUN2000L and the power grid.
 c) Turn off the DC switch at the bottom of the SUN2000L.
 d) Turn off the DC switch between the PV string and the SUN2000L if there is any.
 e) If a battery connects to the battery port, turn off the battery switch.



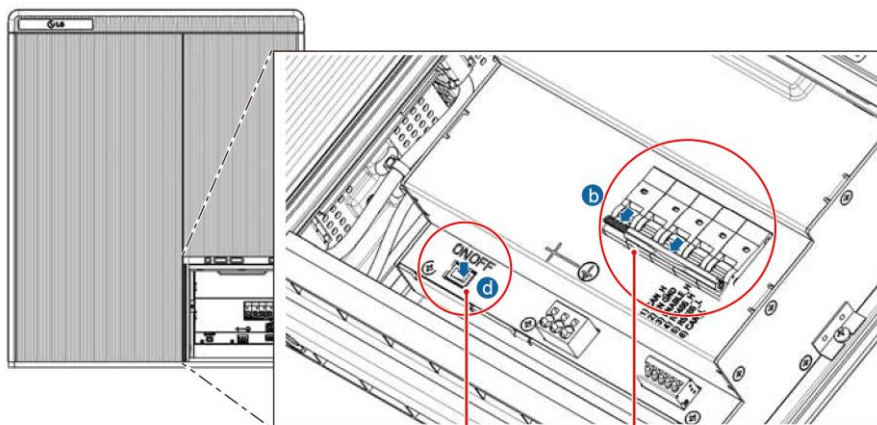
- | | | |
|-----------------------------|---|----------------------|
| (A) PV string | (B) DC switch | (C) SUN2000L |
| (D) AC switch | (E) Residential power distribution unit | (F) Energy meter |
| (G) Residential power meter | (H) Power grid | (I) Battery |
| (J) Battery switch | (K) Alarm beacon | (L) Residential load |

2. Power off the battery pack:

⚠ WARNING

- Do not turn off the Auxiliary Power ON/OFF switch in normal operation mode such as charge and discharge mode.
- If not using the battery pack for a long time or there is any fault on the battery pack, turn off the Circuit Breaker switch, and then turn off the Auxiliary Power ON/OFF switch.

- a) Remove the wiring box cover.
 b) Turn off the battery pack by setting the Circuit Breaker switch to the OFF position.
 c) Make sure that every indicator on the battery pack is off. It should take 60 seconds at most for the indicators to turn off.
 d) Turn off the Auxiliary Power ON/OFF switch.
 e) Close the wiring box cover.



Auxiliary Power ON/OFF switch

Circuit Breaker switch

4 Troubleshooting

Alarm ID	Alarm Name	Alarm Severity	Possible Cause	Suggestion
2067	Faulty Power Collector	Major	Cause ID = 1 <ul style="list-style-type: none"> In Grid Connection with Zero Power mode, the power collector communication is interrupted. In Maximum Use of Self-Produced Power mode, the power collector communication is interrupted. 	<ol style="list-style-type: none"> Check that the preset power collector model is the same as the actual model. Check that the preset communications parameters for the power collector are the same as the actual configurations. Check that the power collector is powered on and the RS485 communications cable is correctly connected.
2068	Abnormal Battery	Minor	Cause ID = 1 <ul style="list-style-type: none"> The battery is faulty. The battery communication is interrupted. The battery switch trips when the SUN2000L is running. 	<ol style="list-style-type: none"> Check that the communications cable and power cable between the SUN2000L and the battery are properly connected. Check that the battery switch is turned on properly. Turn off the AC output switch, DC input switch, and battery switch, and then turn them on after 5 minutes. If the fault persists, contact your dealer.

Customer Service Contact Information		
Region	Country	Service Support Mailbox
Europe	All countries	eu_inverter_support@huawei.com
Asia Pacific	Australia	au_inverter_support@huawei.com
	Other countries	MYEnterprise_TAC@huawei.com
Japan and Korea	Japan and Korea	E-Support.JP@ms.huawei.com
China	China	solarservice@huawei.com
India	India	in_inverter_support@huawei.com
North America	The United States and Canada	na_inverter_support@huawei.com
Latin America	All countries	la_inverter_support@huawei.com
The Middle East and Africa	All countries	mea_inverter_support@huawei.com