

Residential Smart PV Solution Quick Guide

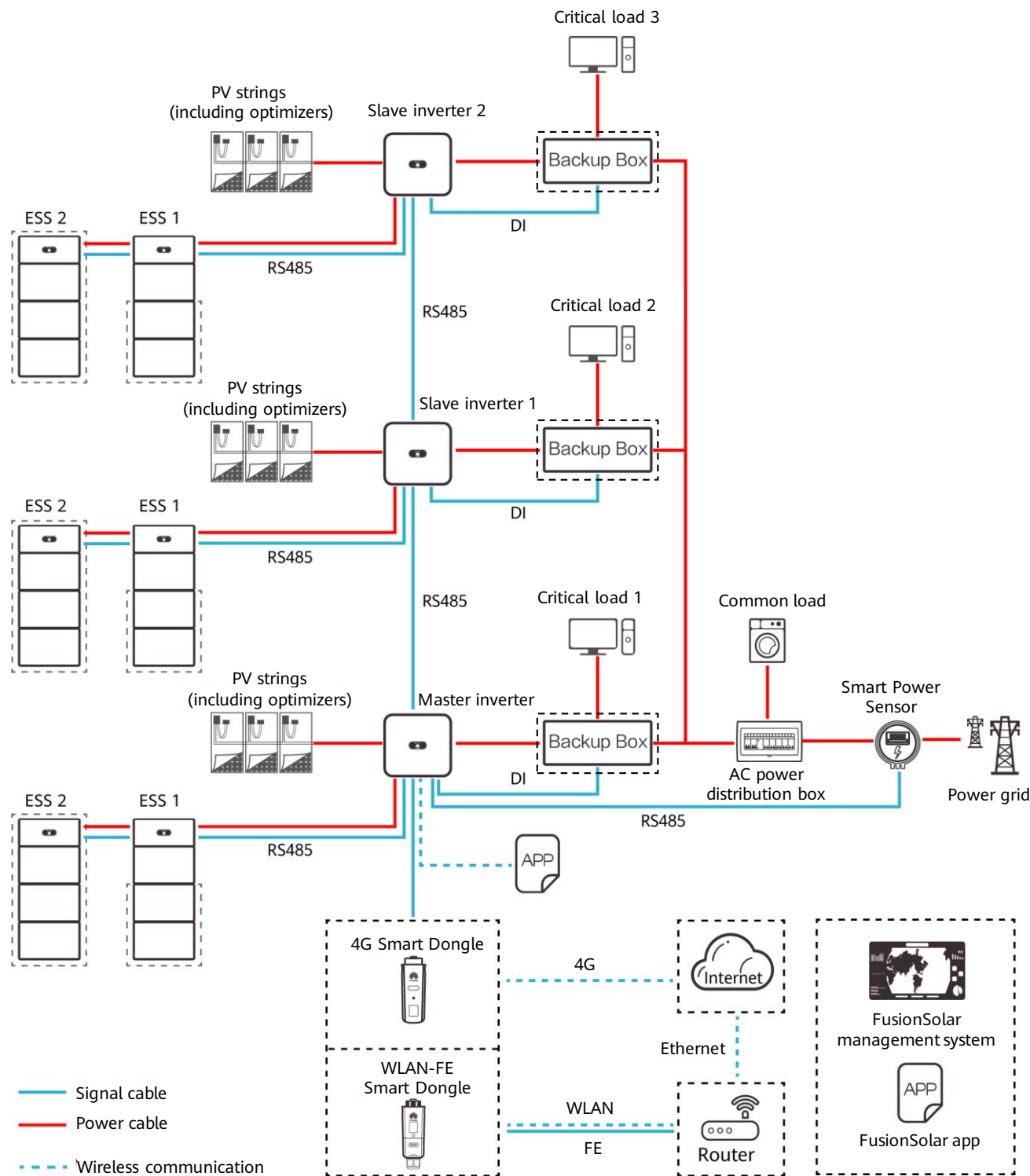
(Single-Phase PV+ESS Scenario + Smart Dongle Networking)

Issue: 05
Date: 2024-01-31



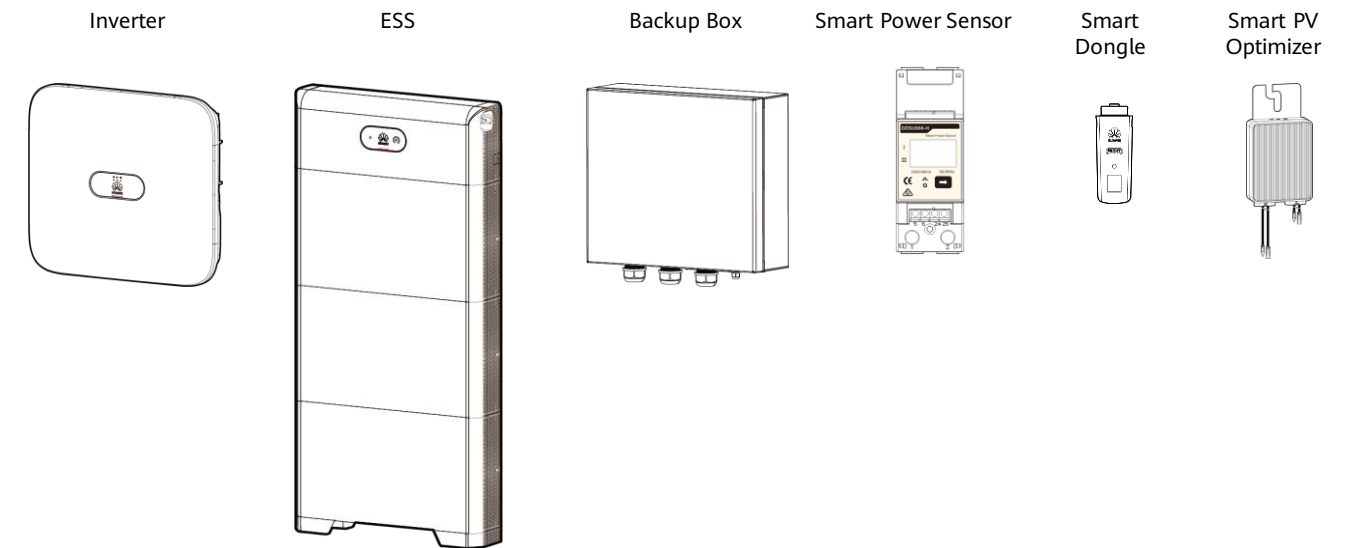
1

Networking



2

Product Overview



Component	Model	Description
Inverter (master and slave)	SUN2000-(2KTL-6KTL) -L1 SUN2000-(8K, 10K)-LC0 SUN2000-(8K, 10K)-LC0-ZH	A maximum of three inverters can be cascaded.
Energy storage system (ESS)	LUNA2000-(5-30)-S0	<ul style="list-style-type: none"> The capacity of a battery module is 5 kWh. A maximum of two ESSs can be cascaded and the maximum capacity is 30 kWh. If there is only one ESS, it must be connected to the master inverter.
Backup Box	Backup Box-B0	<ul style="list-style-type: none"> AC input voltage range: 198–253 V If there is only one Backup Box, it must be connected to the master inverter. SUN2000-(8K, 10K)-LC0 and SUN2000-(8K, 10K)-LC0-ZH cannot be connected to the Backup Box.
Smart Power Sensor	DDSU666-H YDS70-C16	<ul style="list-style-type: none"> The Smart Power Sensor must be connected to the master inverter. It connects to the inverter over RS485 for output power management and power limiting.
Smart Dongle	SDongleA-03 (4G) SDongleB-06 (4G) SDongleA-05 (WLAN-FE)	<ul style="list-style-type: none"> The Smart Dongle must be connected to the master inverter. It connects to the management system and performs power scheduling. The SDongleA-03 (4G) is compatible only with the SUN2000-(2KTL-6KTL)-L1.
Smart PV Optimizer	SUN2000-450W-P SUN2000-450W-P2 SUN2000-600W-P	SUN2000-600W-P: Long and short input cables are available to connect to PV modules with different cable lengths.

NOTE

- SUN2000-(2KTL-6KTL)-L1/ SUN2000-(8K, 10K)-LC0 can be cascaded and each SUN2000-(2KTL-6KTL)-L1/ SUN2000-(8K, 10K)-LC0 can connect to a maximum of two energy storage systems (ESSs). In the Smart Dongle networking scenario, a maximum of three inverters and six ESSs can be connected.
- The information in this document is subject to change due to version upgrade or other reasons. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.
- For details about the solution components, installation, and cable connections, see the corresponding user manuals and quick guides.
- The cable colors involved in this document are for reference only. Select cables in accordance with local cable specifications.

Residential Smart PV Solution Quick Guide

(Single-Phase PV+ESS Scenario + Smart Dongle Networking)

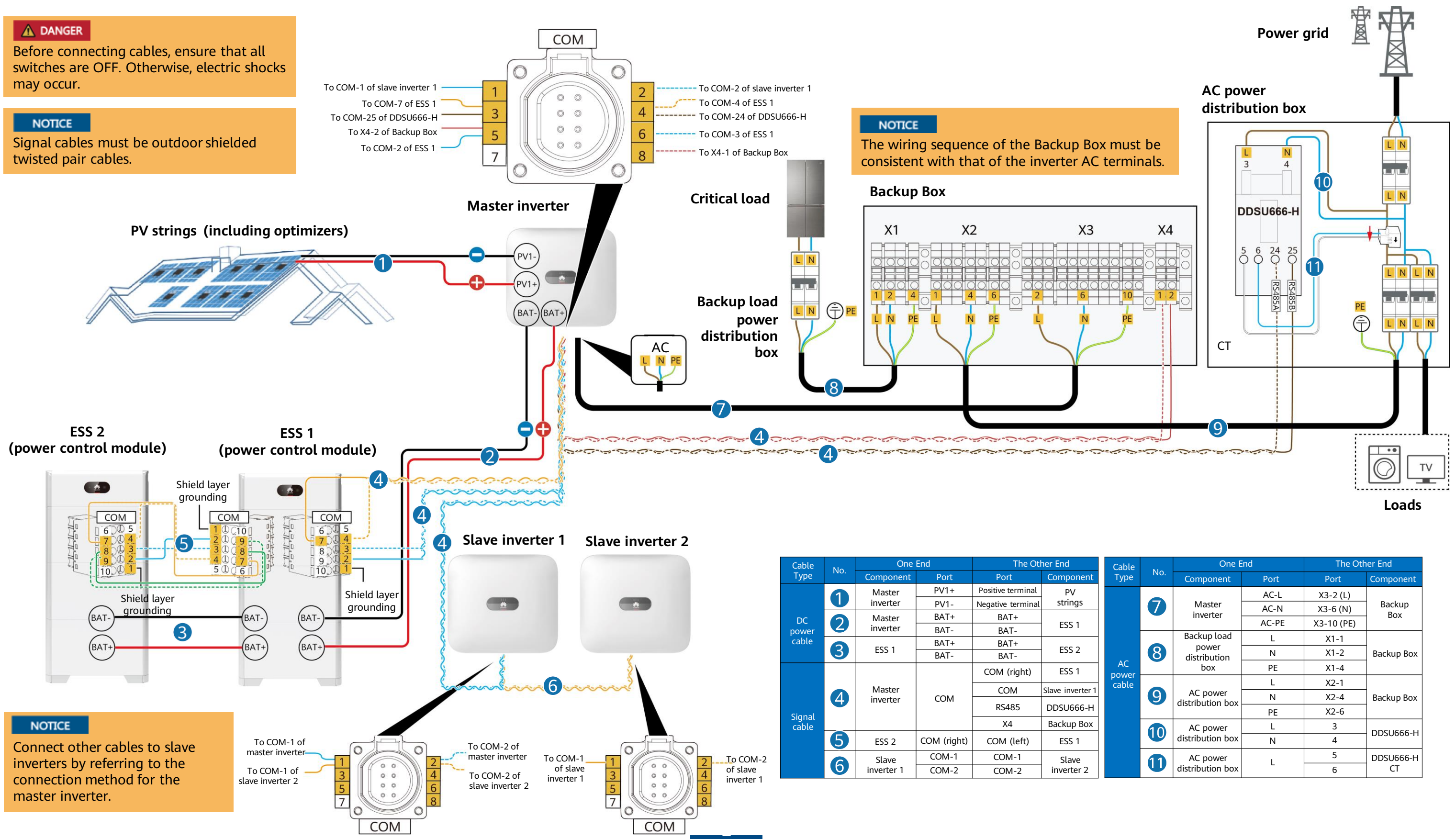


3 Cable Connections (Single-Phase Inverter L1 + ESS S0 + Backup Box B0)

DANGER
Before connecting cables, ensure that all switches are OFF. Otherwise, electric shocks may occur.

NOTICE
Signal cables must be outdoor shielded twisted pair cables.

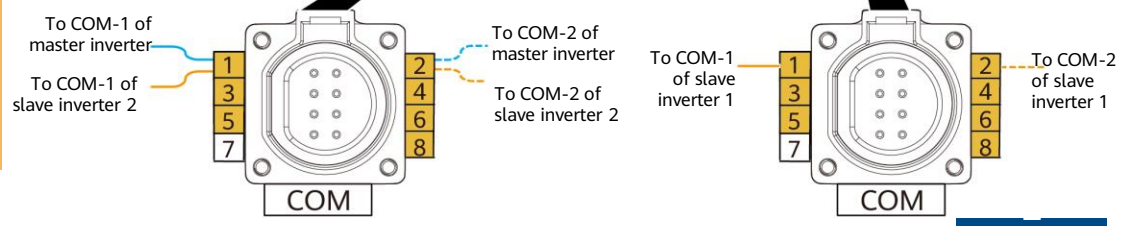
NOTICE
The wiring sequence of the Backup Box must be consistent with that of the inverter AC terminals.



NOTICE
Connect other cables to slave inverters by referring to the connection method for the master inverter.

Cable Type	No.	One End		The Other End	
		Component	Port	Port	Component
DC power cable	1	Master inverter	PV1+ PV1-	Positive terminal Negative terminal	PV strings
	2	Master inverter	BAT+ BAT-	BAT+ BAT-	ESS 1
	3	ESS 1	BAT+ BAT-	BAT+ BAT-	ESS 2
Signal cable	4	Master inverter	COM	COM (right) COM RS485 X4	ESS 1 Slave inverter 1 DDSU666-H Backup Box
	5	ESS 2	COM (right)	COM (left)	ESS 1
	6	Slave inverter 1	COM-1 COM-2	COM-1 COM-2	Slave inverter 2

Cable Type	No.	One End		The Other End	
		Component	Port	Port	Component
AC power cable	7	Master inverter	AC-L	X3-2 (L)	Backup Box
			AC-N	X3-6 (N)	
			AC-PE	X3-10 (PE)	
	8	Backup load power distribution box	L	X1-1	Backup Box
			N	X1-2	
PE			X1-4		
9	AC power distribution box	L	X2-1	Backup Box	
		N	X2-4		
		PE	X2-6		
10	AC power distribution box	L	3	DDSU666-H	
		N	4		
11	AC power distribution box	L	5	DDSU666-H CT	
			6		



Residential Smart PV Solution Quick Guide

(Single-Phase PV+ESS Scenario + Smart Dongle Networking)



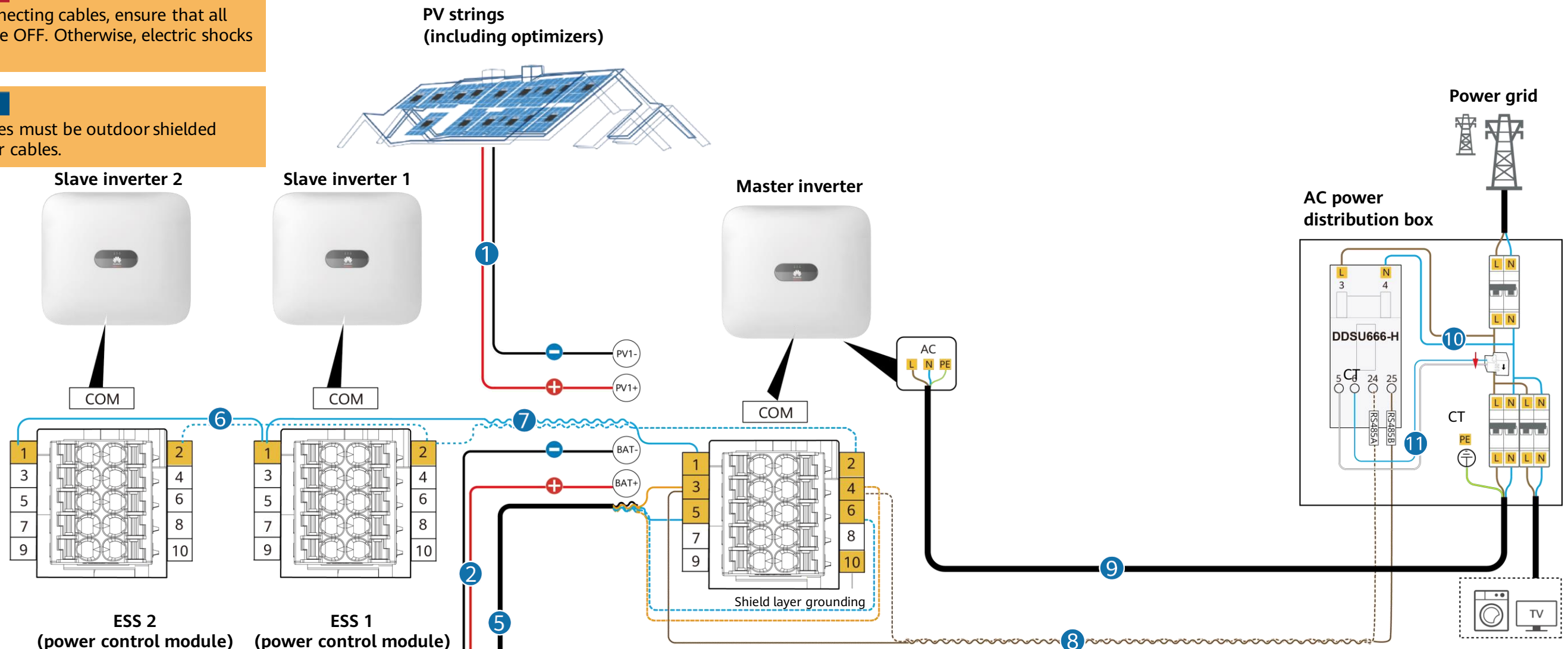
3 Cable Connections (Single-Phase Inverter LC0 + ESS S0)

DANGER

Before connecting cables, ensure that all switches are OFF. Otherwise, electric shocks may occur.

NOTICE

Signal cables must be outdoor shielded twisted pair cables.



Cable Type	No.	Component	Port	Port	Component
DC power cable	1	Master inverter	PV1+	Positive terminal	PV strings
	2	Master inverter	BAT+	BAT+	ESS 1
	3	ESS 1	BAT+	BAT+	ESS 2
Signal cable	4	ESS 1	COM-2 (left)	COM-2 (right)	ESS 2
			COM-3 (left)	COM-3 (right)	
			COM-4 (left)	COM-4 (right)	
			COM-7 (left)	COM-7 (right)	
	5	Master inverter	COM-8 (left)	COM-8 (right)	ESS 1
			COM-9 (left)	COM-9 (right)	
			COM-5	COM-2 (right)	
			COM-6	COM-3 (right)	
			COM-4	COM-4 (right)	
			COM-3	COM-7 (right)	

Cable Type	No.	One End		The Other End	
		Component	Port	Port	Component
Signal cable	6	Slave inverter 1	COM-1	COM-1	Slave inverter 2
			COM-2	COM-2	
	7	Master inverter	COM-1	COM-1	Slave inverter 1
			COM-2	COM-2	
8	Master inverter	COM-3	25	DTSU666-H	
		COM-4	24		

Cable Type	No.	One End		The Other End	
		Component	Port	Port	Component
AC power cable	9	Master inverter	AC-L	L	AC power distribution box
			AC-N	N	
			AC-PE	PE	
10	AC power distribution box	L	3	DDSU666-H	
		N	4		
11	AC power distribution box	L	5	DDSU666-H CT	
			6		

Residential Smart PV Solution Quick Guide

(Single-Phase PV+ESS Scenario + Smart Dongle Networking)



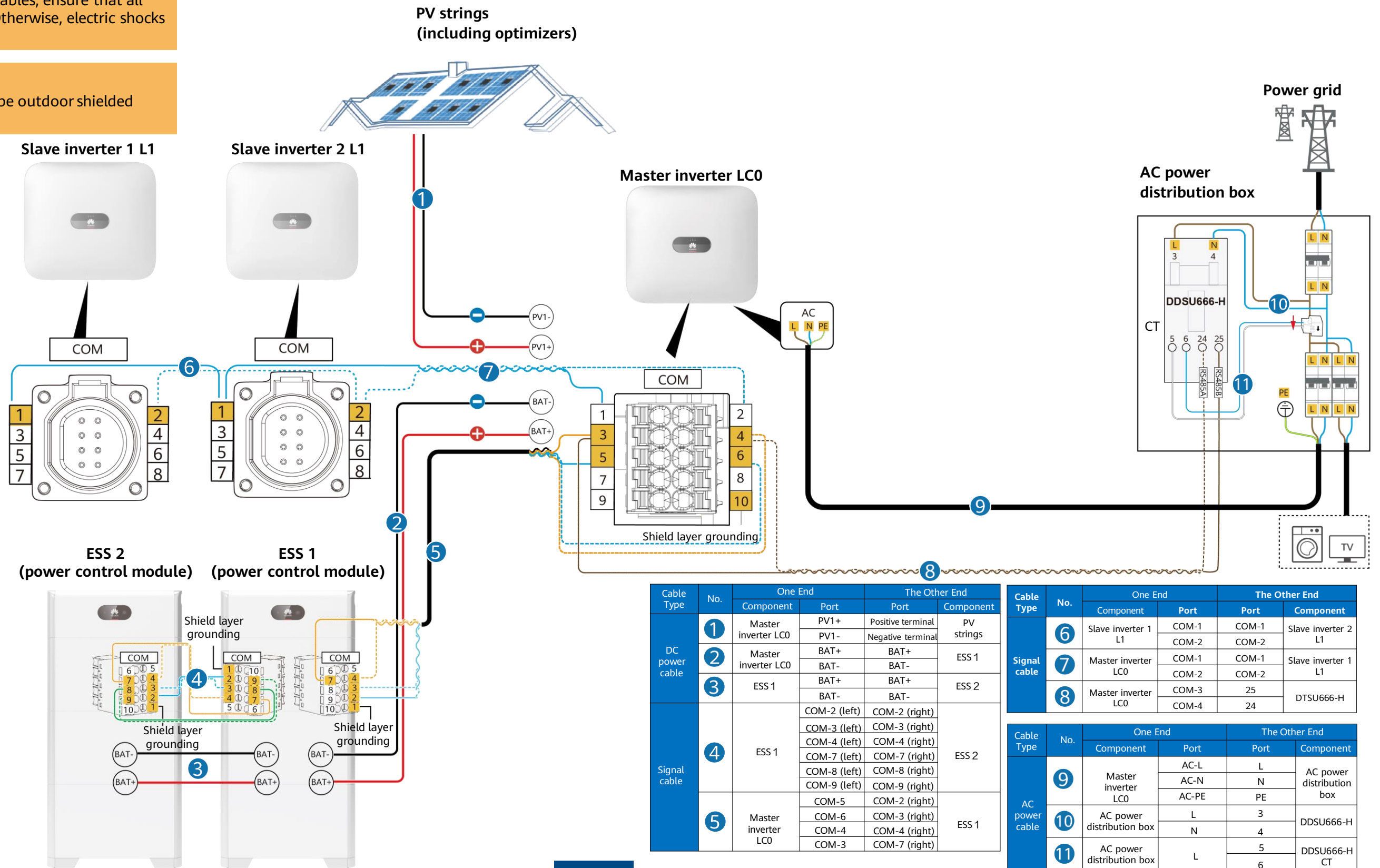
3 Cable Connections (Single-Phase Inverter LC0/L1 cascading + ESS S0)

DANGER

Before connecting cables, ensure that all switches are OFF. Otherwise, electric shocks may occur.

NOTICE

Signal cables must be outdoor shielded twisted pair cables.



Cable Type	No.	One End		The Other End	
		Component	Port	Port	Component
DC power cable	1	Master inverter LC0	PV1+ PV1-	Positive terminal Negative terminal	PV strings
	2	Master inverter LC0	BAT+ BAT-	BAT+ BAT-	ESS 1
	3	ESS 1	BAT+ BAT-	BAT+ BAT-	ESS 2
Signal cable	4	ESS 1	COM-2 (left)	COM-2 (right)	ESS 2
			COM-3 (left)	COM-3 (right)	
			COM-4 (left)	COM-4 (right)	
			COM-7 (left)	COM-7 (right)	
	5	Master inverter LC0	COM-8 (left)	COM-8 (right)	ESS 1
COM-9 (left)			COM-9 (right)		
COM-5			COM-2 (right)		
5	Master inverter LC0	COM-6	COM-3 (right)	ESS 1	
		COM-4	COM-4 (right)		
		COM-3	COM-7 (right)		

Cable Type	No.	One End		The Other End	
		Component	Port	Port	Component
Signal cable	6	Slave inverter 1 L1	COM-1	COM-1	Slave inverter 2 L1
	7	Master inverter LC0	COM-1	COM-1	Slave inverter 1 L1
	8	Master inverter LC0	COM-3	25	DTSU666-H
8	Master inverter LC0	COM-4	24	DTSU666-H	
			25		
			24		

Cable Type	No.	One End		The Other End	
		Component	Port	Port	Component
AC power cable	9	Master inverter LC0	AC-L AC-N AC-PE	L N PE	AC power distribution box
	10	AC power distribution box	L N	3 4	DDSU666-H
	11	AC power distribution box	L	5 6	DDSU666-H CT

Residential Smart PV Solution Quick Guide

(Single-Phase PV+ESS Scenario + Smart Dongle Networking)



4 System Commissioning

App-based Deployment Procedure

- Download and install the FusionSolar app
- Sign up as an installer (optional, required for initial registration)
- Enter setup wizard
- Check the device status

Downloading and Installing the FusionSolar App

- Search for FusionSolar in the app store to download the app.
- Scan the QR code below to download the app.

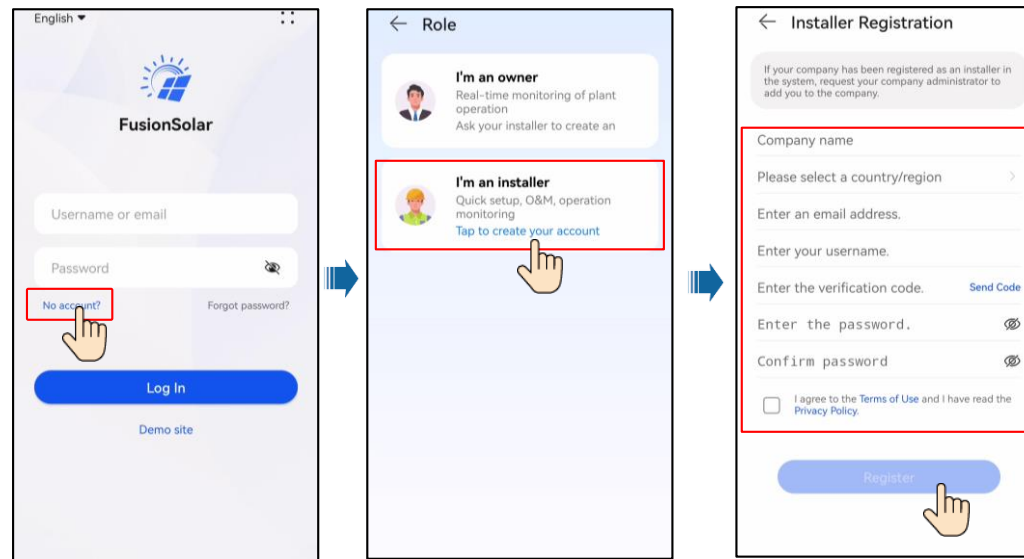


FusionSolar

Installer Registration

Initial registration

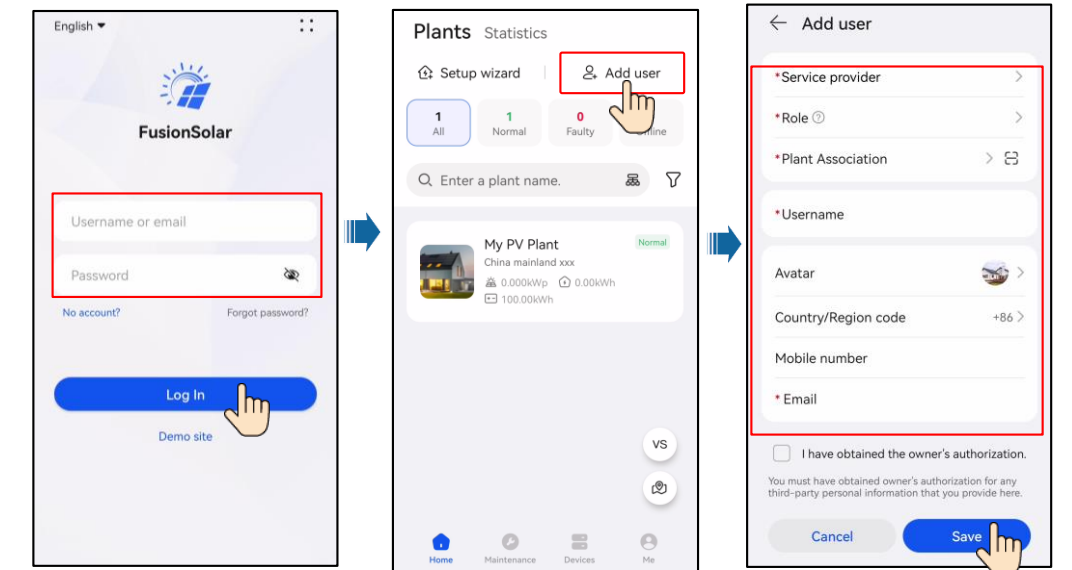
Create the first installer account, and generate a domain named after the company.



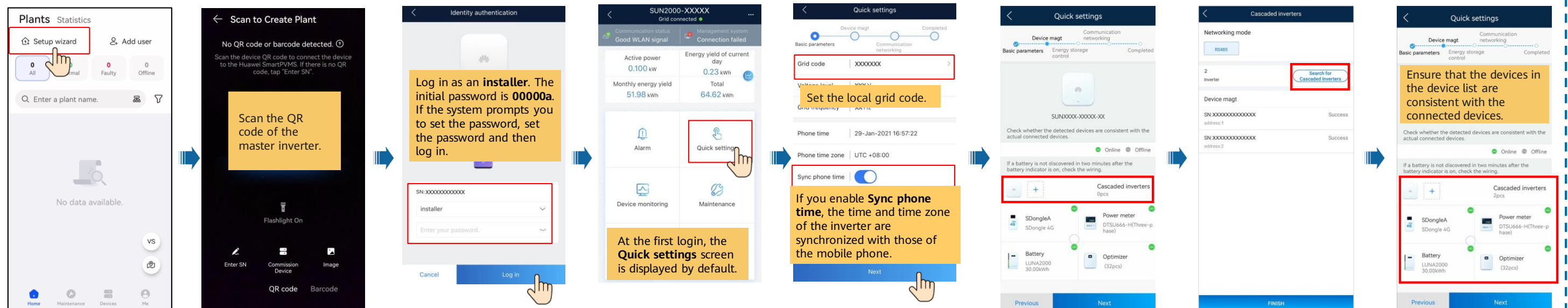
Or

Non-initial registration

If the company requires multiple installer accounts, log in to the FusionSolar app and tap **Add user** to create another installer account.



Setup Wizard (Connecting to the Inverter WLAN for Commissioning)



Residential Smart PV Solution Quick Guide

(Single-Phase PV+ESS Scenario + Smart Dongle Networking)



Set the energy storage working mode.

Select the **ESS Installation Environment** and **working mode settings** of the battery

Note: In a non-Battery scenario, the step of **Energy storage control** is not involved.

You can tap to obtain the detailed working mode information.

Set the communication networking.

WLAN communication

I have been authorized by the user to connect to the management system. Monitor the PV plant through the management system.

Setting management system parameters
Domain name: intl.fusionsolar.huawei.com

Select the desired router and enter the router password.

Or

4G communication

I have been authorized by the user to connect to the management system. Monitor the PV plant through the management system.

Setting management system parameters
Domain name: intl.fusionsolar.huawei.com

Google parameter settings
APN mode: Automatic
Network mode: 4G/3G/2G automatic selection

By default, **APN mode** is set to **Automatic**. If you cannot access the Internet in **Automatic** mode, set it to **Manual**. In this case, set the parameters related to the SIM card with the information obtained from the carrier.

Or

FE communication

I have been authorized by the user to connect to the management system. Monitor the PV plant through the management system.

Setting management system parameters
Domain name: intl.fusionsolar.huawei.com

Setting parameters for the inverter to connect to the router
DHCP: On

If the Ethernet parameter is displayed, the network cable is not connected. Reconnect the network cable.

Ethernet:

Add a plant.

Create an owner account.

Checking the Plant Status

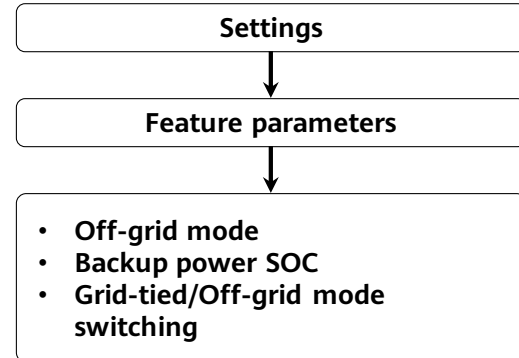
Residential Smart PV Solution Quick Guide

(Single-Phase PV+ESS Scenario + Smart Dongle Networking)



5 Off-Grid/Grid-tied Control Parameters

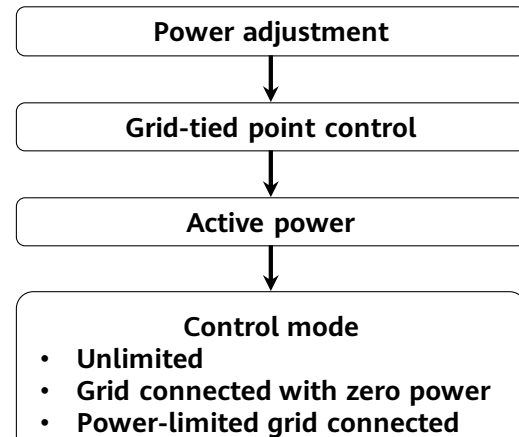
Enabling Off-Grid Mode



The screenshots show the following steps:

- Home Screen:** The 'Settings' icon at the bottom is highlighted with a red box.
- Settings Menu:** The 'Feature parameters' option is highlighted with a red box.
- Feature parameters screen:** The 'Off-grid mode' toggle is turned on (blue), and the 'Backup power SOC' is set to 60.0% and 'Grid-tied/Off-grid mode switching' is set to 'Automatic switching'. These three items are highlighted with a red box.

Setting Grid-tied Point Control



The screenshots show the following steps:

- Home Screen:** The 'Power adjustment' icon at the bottom is highlighted with a red box.
- Power adjustment menu:** The 'Grid-tied point control' option is highlighted with a red box.
- Grid-tied point control screen:** The 'Active power' option is highlighted with a red box.

Residential Smart PV Solution Quick Guide

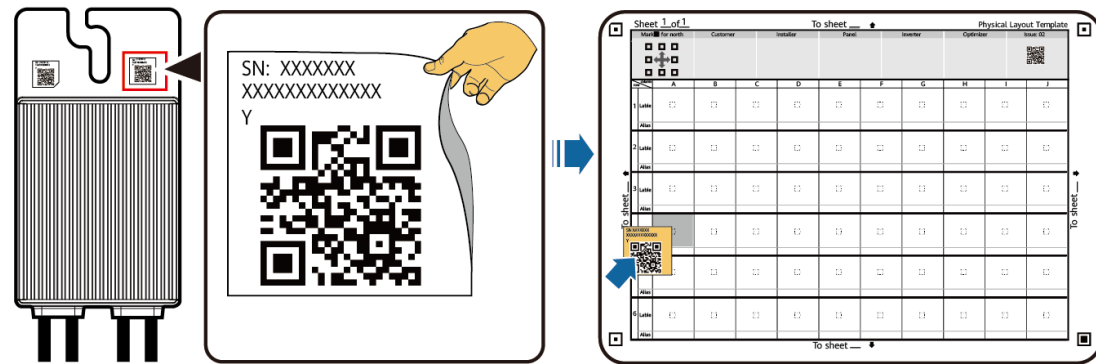
(Single-Phase PV+ESS Scenario + Smart Dongle Networking)



6 Physical Layout of Smart PV Optimizers

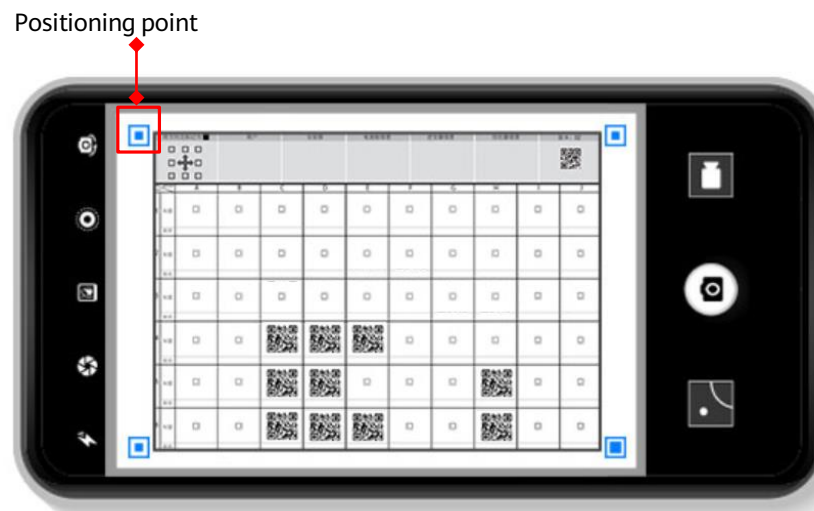
Attaching SN Labels

Remove the SN labels from optimizers and attach them to the physical layout template based on the actual positions of the optimizers in the plant.



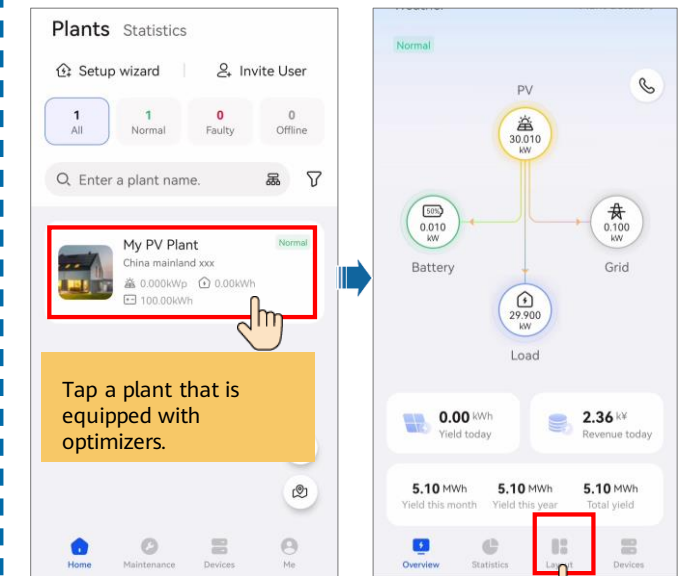
Taking a Photo of the Physical Layout Template

Ensure that the four positioning points on the template are within the frame.



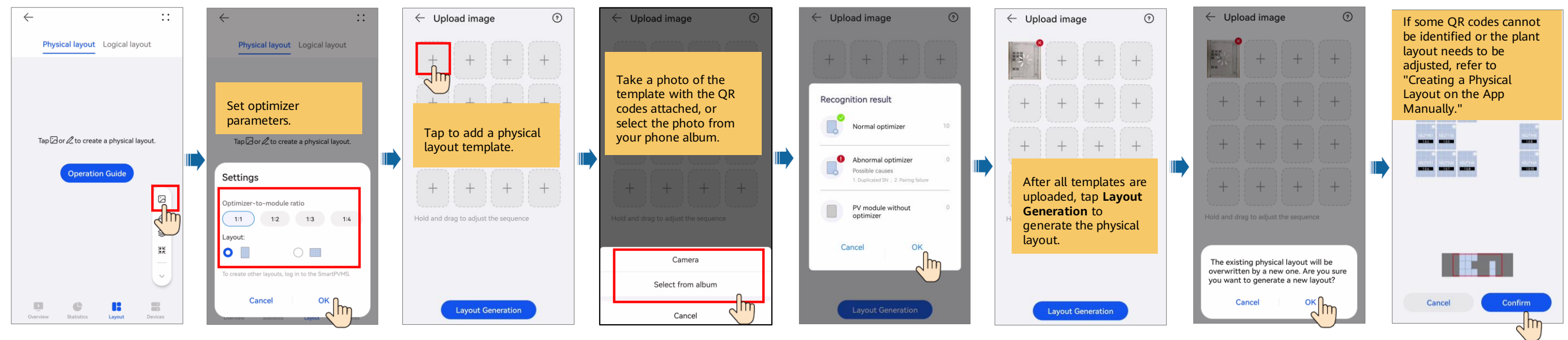
Generating a Physical Layout on the App

Enter the Layout screen.



Generating a Physical Layout on the App

Upload the template and generate a layout.



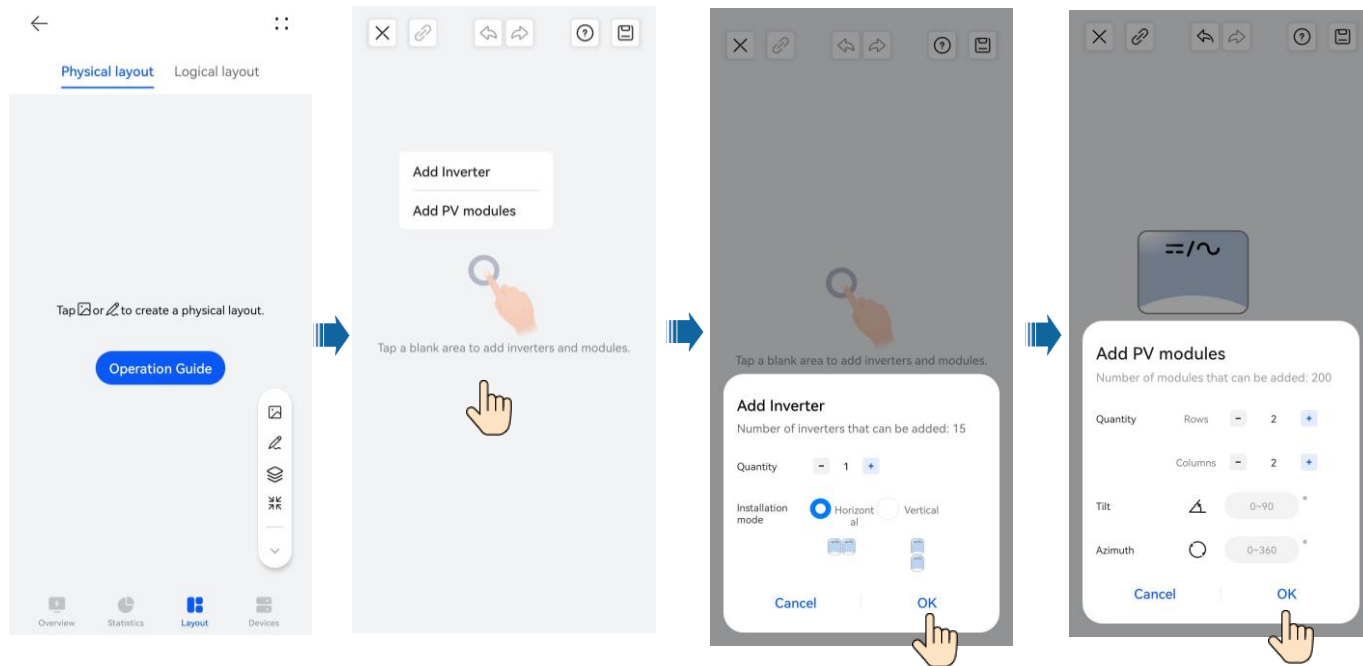
Residential Smart PV Solution Quick Guide

(Single-Phase PV+ESS Scenario + Smart Dongle Networking)



Creating a Physical Layout on the App Manually

Edit the physical layout and specify the quantity of inverters and PV modules as required.



Bind the inverter or optimizer SN.

Adjust the physical layout.

