

HUAWEI SUN2000 Smart PV Solution Owner's Manual

Home » Huawei » HUAWEI SUN2000 Smart PV Solution Owner's Manual

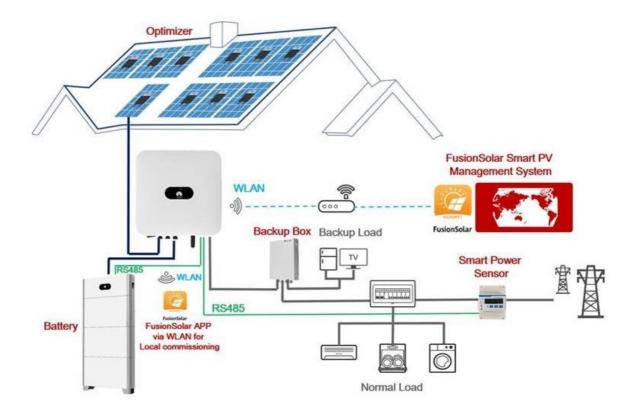


Contents

- 1 HUAWEI SUN2000 Smart PV Solution
- 2 Product Information
- **3 Product Usage Instructions**
- 4 Networking
- **5 Product Overview**
- 6 Cable Connections (Single-Phase Inverter L1 + ESS S0 + Backup Box **B0**)
- 7 System Commissioning
- **8 Installer Registration**
- 9 Off-Grid/Grid-tied Control Parameters
- 10 Physical Layout of Smart PV Optimizers
- 11 Generating a Physical Layout on the App Automatically
- 12 Documents / Resources
 - 12.1 References
- **13 Related Posts**



HUAWEI SUN2000 Smart PV Solution



Product Information

Specifications

- Component: Inverter (master and slave)
- Model: SUN2000-(2KTL-6KTL) -L1, SUN2000-(8K, 10K)-LC0, SUN2000-(8K, 10K)-LC0-ZH
- Energy storage system (ESS): LUNA2000-(5-30)-S0, LUNA2000-(7, 14, 21)-S1
- Backup Box: Backup Box-B0
- Smart Power Sensor: Single-Phase: DDSU666-H YDS70-C16 DDSU71 DDSU1079-CT, Three-Phase: DTSU666-H DTSU666-HW YDS60-80 DTSU71 DHSU1079-CT
- Smart Dongle: SDongleA-03(4G), SDongleB-06(4G), SDongleA-05(WLAN-FE)
- Smart PV Optimizer: SUN2000-450W-P2, SUN2000-600W-P

Product Usage Instructions

Networking

Ensure proper networking setup according to the Smart Dongle Networking scenario. A maximum of three inverters and six ESSs can be connected in this configuration.

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

- Before connecting cables, ensure all switches are OFF to prevent electric shocks.
- Use outdoor shielded twisted pair cables for signal cables.
- Ensure the wiring sequence of the Backup Box matches that of the inverter AC terminals.
- Connect other cables to slave inverters based on the connection method for the master inverter.

Component Connections

- Follow the cable connections as specified in the user manual for each component.
- Ensure correct polarity and secure connections for all cables.

• Q: Can I connect the ESS LUNA2000-(7, 14, 21)-S1 to different inverters?

 A: No, the ESS LUNA2000-(7, 14, 21)-S1 cannot connect to different inverters. It should be connected to the specified Backup Box.

• Q: How many inverters and ESSs can be connected in the Smart Dongle networking scenario?

 A: In the Smart Dongle networking scenario, a maximum of three inverters and six ESSs can be connected.

· Q: What type of cables should be used for signal connections?

 A: Signal cables must be outdoor shielded twisted pair cables for proper connectivity and signal transmission.

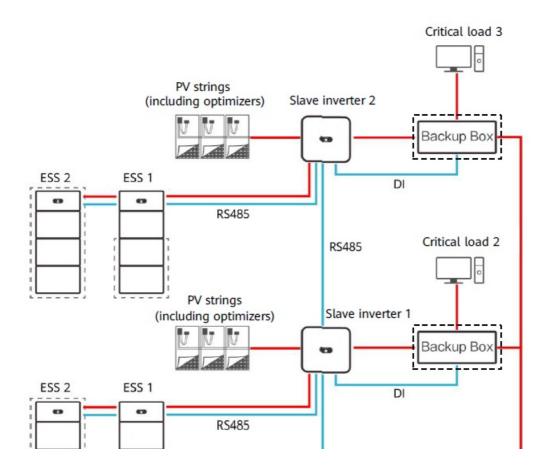
Residential Smart PV Solution Quick Guide

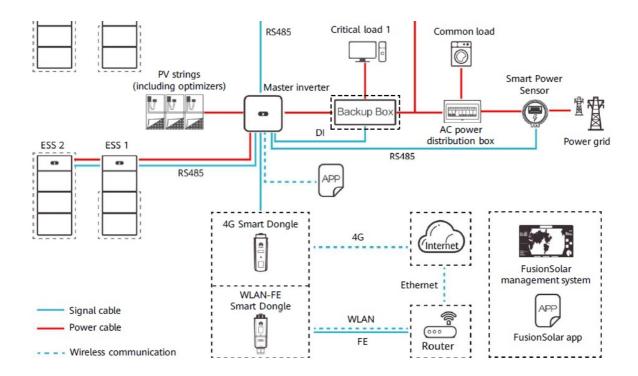
(Single-Phase PV+ESS Scenario + Smart Dongle Networking)

Issue: 06

Date: 2024-07-15

Networking

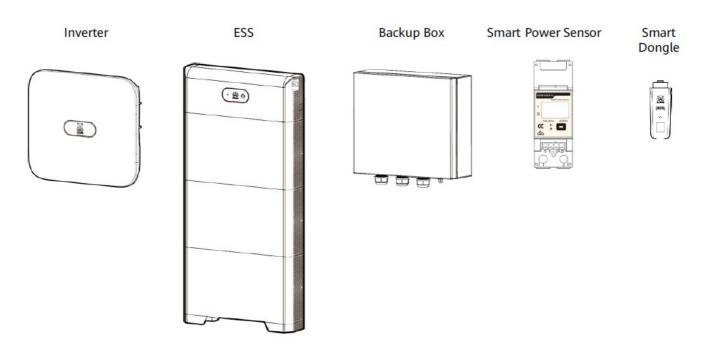




Note

- 1. The information in this document is subject to change without notice. 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.
- 2. For details about the solution components, installation, and cable connections, see the corresponding user manuals and quick guides.
- 3. The cable colors involved in this document are for reference only. Select cables in accordance with local cable specifications.

Product Overview



Component	Model		Description	
Inverter (master a nd slave)	SUN2000-(2KTL- 00-(8K, 10K)-LC0 0K)-LC0-ZH	6KTL) -L1 SUN20 SUN2000-(8K, 1	 A maximum of three inverters can be cascaded. L1/LC0 inverters can be cascaded. 	
Energy storage s ystem (ESS)	LUNA2000-(5-30)-S0 LUNA2000-(7, 14, 21)-S1		 If there is only one ESS, it must be connected to the e master inverter. Each inverter can connect to a maximum of two ES Ss, each L1 can connect to a maximum of one ES S. The LUNA2000-(5-30)-S0 and LUNA2000-(7, 14, 2 1)-S1 cannot connect to the same inverter in a par allel system. If inverters are cascaded, the LUNA2000-(5-30)-S0 and LUNA2000-(7, 14, 21)-S1 cannot connect to different inverters. 	
Backup Box	Backup Box-B0		 AC input voltage range: 198–253 V If there is only one Backup Box, it must be connect ed to the master inverter. The SUN2000-(8K, 10K)-LC0, SUN2000-(8K, 10K) -LC0-ZH cannot be connected to the Backup Box. 	
Smart Power Sen sor	Single-Phase: DDSU666-H YD S70-C16 DDSU 71 DDSU1079- CT Three-Phase: DTSU666-H DT SU666-HW YD S60-80 DTSU71 DHSU1079-CT		 The Smart Power Sensor must be connected to the emaster inverter. It connects to the inverter over RS485 for output power management and power limiting. Only L1 supports the three-phase smart power sensor. 	
Smart Dongle	SDongleA-03(4G) SDongleB-06(4 G) SDongleA-05(WLAN-FE)		 The Smart Dongle must be connected to the maste r inverter. It connects to the management system and perfor ms power scheduling. The SDongleA-03 (4G) is compatible only with the SUN2000-(2KTL- 6KTL)-L1. 	
Optimizer	SUN2000-450W- W-P	P2 SUN2000-600	For details about the optimizer supported by the invert er, see SUN2000 Smart PV Optimizer User Manual	

In the Smart Dongle networking scenario, a maximum of three inverters and six ESSs can be connected.

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

Danger

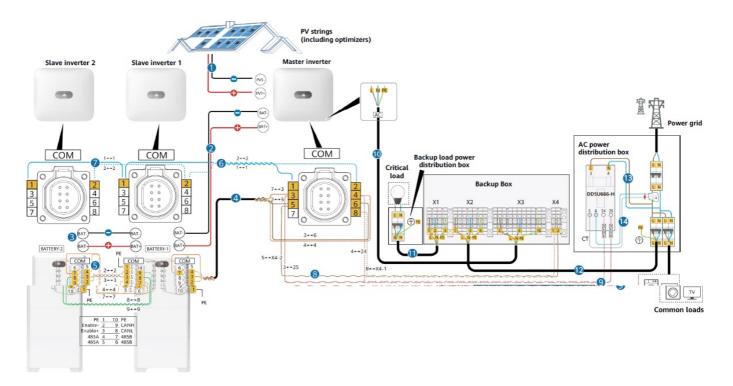
Before connecting cables, ensure that all switches are OFF. Otherwise, electric shocks may occur.

Note

Signal cables must be outdoor shielded twisted pair cables.

Note

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



Note

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

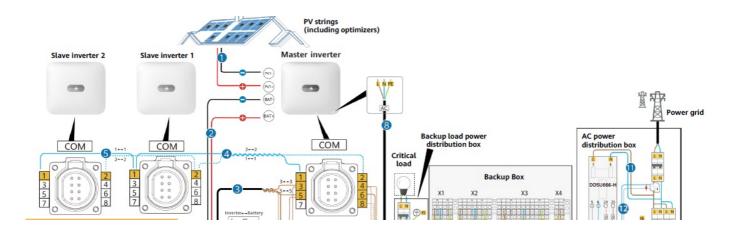
Cable Type	No.	One End		The Other End	
Cable Type	NO.	Component	Port	Port	Component
DC power c	1	Master inverter	PV1+	Positive terminal	PV strings
	•	Master inverter	PV1-	Negative terminal	— FV Stilligs
	2	Master inverter	BAT+	BAT+	ESS 1
able		iviastei iiiveitei	BAT-	BAT-	
	3	ESS1	BAT+	BAT+	ESS 2
	3	2001	BAT-	BAT-	
			COM-3	COM-7 (right)	
	4	Master inverter	COM-4	COM-4 (right)	ESS 1
			COM-5	COM-2 (right)	
			COM-6	COM-3 (right)	
			COM-2 (left)	COM-2 (right)	
			COM-3 (left)	COM-3 (right)	
	5	ESS 1	COM-4 (left)	COM-4 (right)	ESS 2
Signal cable			COM-7 (left)	COM-7 (right)	
			COM-8 (left)	COM-8 (right)	
			COM-9 (left)	COM-9 (right)	
	6	Master inverter	COM-1	COM-1	Slave inverter 1
		Master inverter	COM-2	COM-2	Siave inverter i
		Slave	COM-1	COM-1	
	7 inverte	inverter 1	COM-2	COM-2	Slave inverter 2

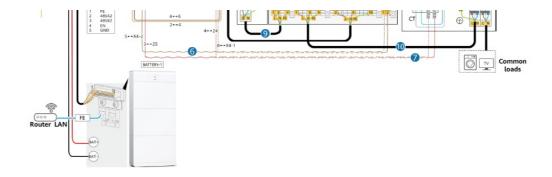
Cable Ty		One End		The Other End	
pe	No.	Component	Port	Port	Component
	8	Master inverter	COM-8	X4-1	Backup Box
Signal ca	8	iviastei irivertei	COM-5	X4-2	Баскир вох
ble	9	Master inverter	COM-3	25	DDSU666-H
	9	Master inverter	COM-4	24	рр20000-н
			AC-L	X3-2 (L)	
	10	Master inverter	AC-N	X3-6 (N)	Backup Box
			AC-PE	X3-10 (PE)	
	11	Backup load power di stribution box	L	X1-1	
			N	X1-2	Backup Box
AC			PE	X1-4	
power	12		L	X2-1	
cable		AC power distribution box	N	X2-4	Backup Box
			PE	X2-6	
	13	AC power distribution	L	3	DDSU666-H
	13	box	N	4	
		AC nower distribution		5	
	14	AC power distribution box	L	6	DDSU666-H CT

Cable Connections (Single-Phase Inverter L1 + ESS S1 + Backup Box B0)

Note

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





Danger

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

Note

Signal cables must be outdoor shielded twisted pair cables.

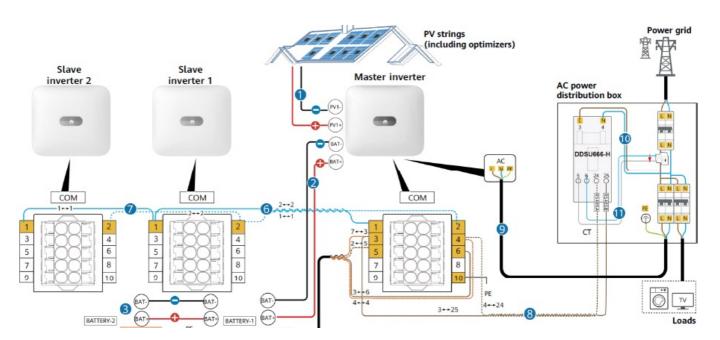
Note

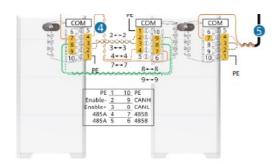
Connect other cables to slave inverters by referring to the connection method for the master inverter.

Cable Tyre	No.	One End		The Other End	
Cable Type	NO.	Component	Port	Port	Component
		Master	PV1+	Positive terminal	
	1	inverter		Negative	PV strings
DC power c able		inverter	PV1-	terminal	
	2	Master inverter	BAT+	BAT+	ESS
	2	Master Inverter	BAT-	BAT-	
	3		COM-3	COM-3	
		Master inverter	COM-4	COM-2	ESS
			COM-5	COM-5	
			COM-6	COM-4	
		Master	COM-1	COM-1	Slave
Signal cable	4	inverter	COM-2	COM-2	inverter 1
3	5	Slave inverter 1	COM-1	COM-1	Slave inverter 2
	5	Slave inverter i	COM-2	COM-2	Slave inverter 2
	6		COM-8	X4-1	Pookus Pov
	6	Master inverter	COM-5	X4-2	Backup Box
	7	Magter inverter	COM-3	25	DDGHeee H
	7	7 Master inverter	COM-4	24	DDSU666-H

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

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





Danger

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

Note

Signal cables must be outdoor shielded twisted pair cables.

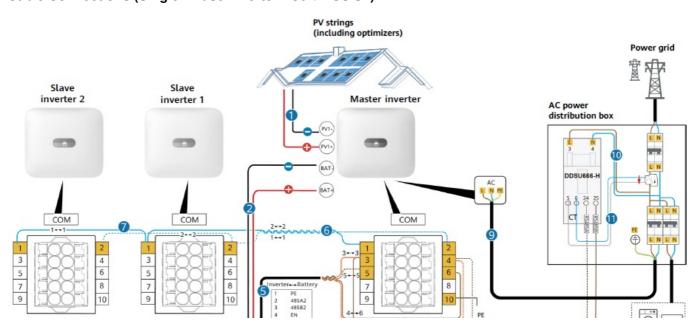
Note

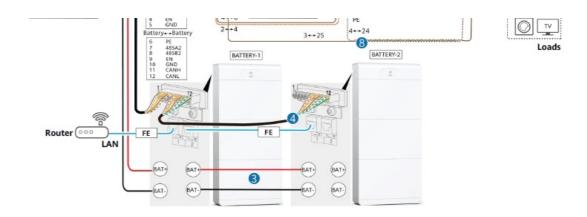
Connect other cables to slave inverters by referring to the connection method for the master inverter.

		One End		The Other End		
Cable Type	No.	Component	Port	Port	Component	
			PV1+	Positive terminal		
DC savas	1	Master inverter	PV1-	Negative terminal	PV strings	
DC power ca ble	2	Master inverter	BAT+	BAT+	_ ESS 1	
	2	Master Inverter	BAT-	BAT-	E33 I	
	3	B ESS 1	BAT+	BAT+	ESS 2	
			BAT-	BAT-	- LOO Z	
	4 ESS		COM-2 (left)	COM-2 (right)		
			COM-3 (left)	COM-3 (right)		
			COM-4 (left)	COM-4 (right)	ESS 2	
		L33 1	COM-7 (left)	COM-7 (right)		
			COM-8 (left)	COM-8 (right)		
			COM-9 (left)	COM-9 (right)		
Signal			COM-3	COM-7 (right)		
cable	5	Master	COM-4	COM-4 (right)		
	3	inverter	COM-5	COM-2 (right)	ESS 1	
			COM-6	COM-3 (right)		

Cable Ty		One End		The Other End	i	
pe	No.	Component	Port	Port	Component	
			COM-1	COM-1		
	6	Slave inverter 1	COM-2	COM-2	Slave inverter 2	
Signal	7	Master inverter	COM-1	COM-1	Slave inverter 1	
cable	'	iviaster inverter	COM-2	COM-2	Slave inverter i	
	8	Master inverter	COM-3	25	DDSU666-H	
	8		COM-4	24	ррзооо-н	
Cable Ty	One End			The Other End	1	
pe	No.	Component	Port	Port	Component	
	9			AC-L	L	
		9 Master inverter	AC-N	N	AC power Power distribution box	
			AC-PE	PE		
		AC power distribution	L	3		
AC power	10	box	N	4	DDSU666-H	
cable		AC nower distribution		5		
	11	AC power distribution box	L	6	DDSU666-H CT	

Cable Connections (Single-Phase Inverter LC0 + ESS S1)





Danger

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

Note

Signal cables must be outdoor shielded twisted pair cables.

	One End			The Other End	
Cable Type	No.	Component	Port	Port	Component
			PV1+	Positive terminal	
	1	Master	PV1-	Negative terminal	PV strings
			BAT+	BAT+	
DC power	2	Master inverter	BAT- BAT-	BAT-	ESS 1
cable			BAT+	BAT+	
	3	ESS 1	BAT-	BAT-	ESS 2
			COM-7	COM-7	
			COM-8	COM-8	
	4		COM-9	COM-9	
			COM-10	COM-10	
		ESS 1	COM-11	COM-11	ESS 2
			COM-12	COM-12	
Signal			COM-3	COM-3	
cable	5	Master	COM-4	COM-2	7
		inverter	COM-5	COM-5	ESS 1
			COM-6	COM-4	

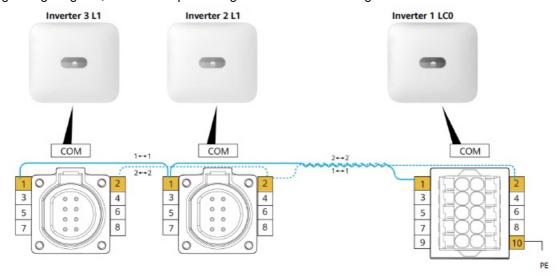
Cable Ty	No.	One End		The Other End	
pe		Component	Port	Port	Component
			COM-1	COM-1	
	6	Slave inverter 1	COM-2	COM-2	Slave inverter 2
			COM-1	COM-1	
Signal	7	Master inverter	COM-2	COM-2	Slave inverter 1
	8	Master inverter	COM-3	25	DDSU666-H
		IVIGOROT ITVOITO	COM-4	24	3 D D D D D D D D D D D D D D D D D D D

Cable Ty		One End	One End		
pe	No.	Component	Port	Port	Component
			AC-L	L	AC power Power
	9 Master inverter	AC-N	N	distribution	
			AC-PE	PE	box
	AC power distribution	L	3		
AC	10	box	N	4	DDSU666-H
power ca ble		AC nower distribution		5	
	11	AC power distribution box	L	6	DDSU666-H CT

Cable Connections (Single-Phase Inverter LC0/L1 Cascading)

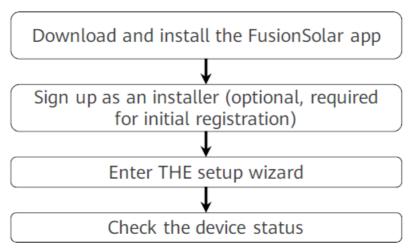
Note

The following figure shows the signal cable cascading of LC0/L1 single-phase inverters. For the complete networking wiring diagram, refer to the preceding cable connection diagrams.



System Commissioning

App-based Deployment Procedure



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.

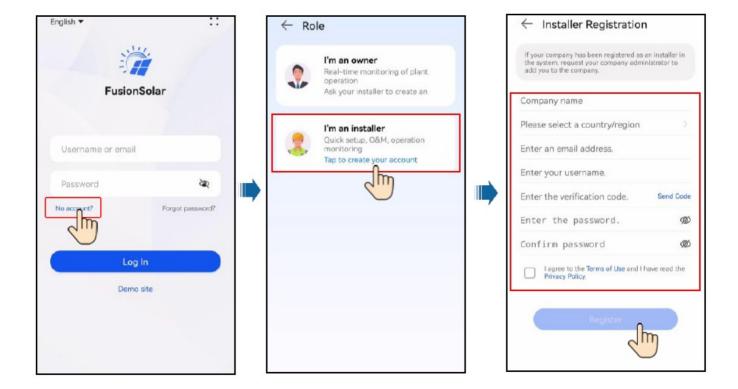


FusionSolar

Installer Registration

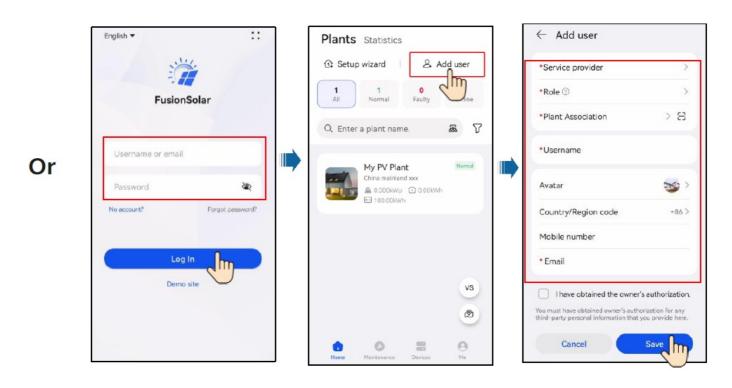
Initial registration

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

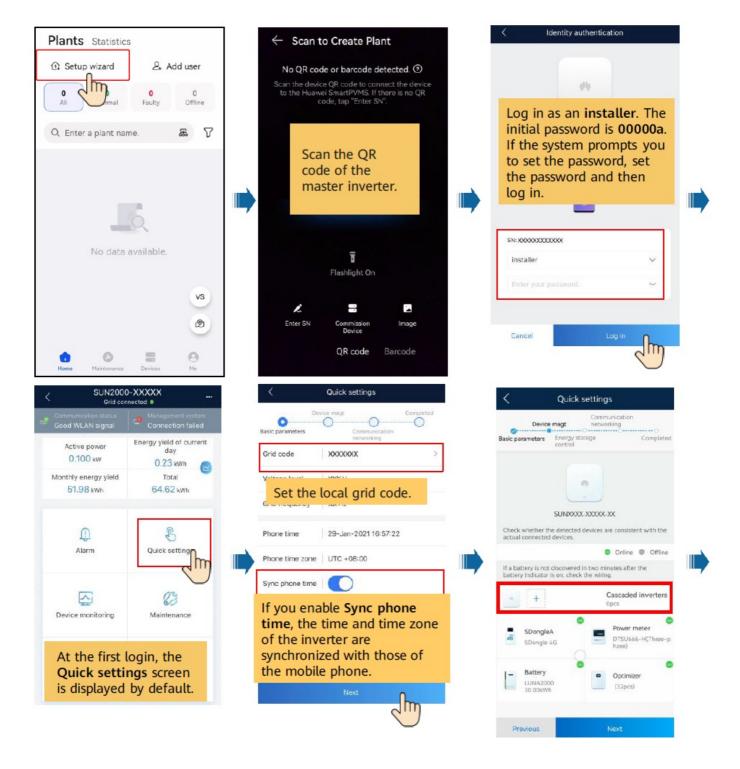


Non-initial registration

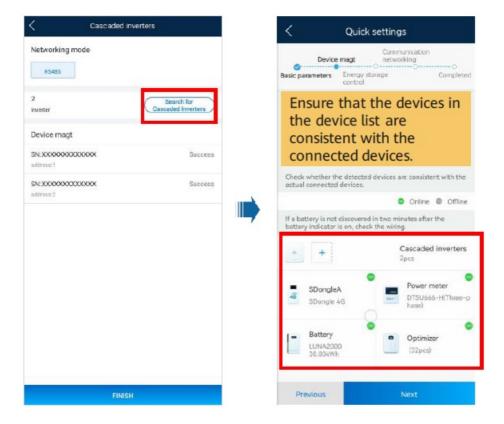
If the company requires multiple installer accounts, log in to the FusionSolar app and tap Add user to create another installer account.



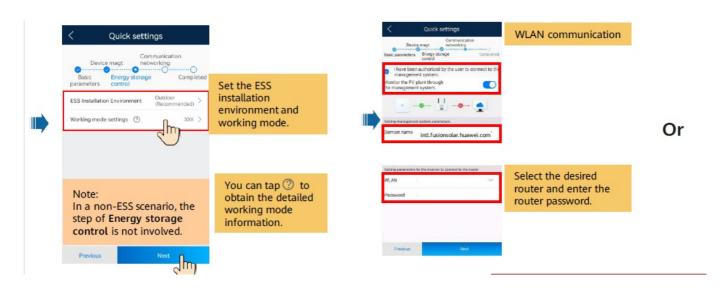
Setup Wizard (Connecting to the Inverter WLAN for Commissioning)



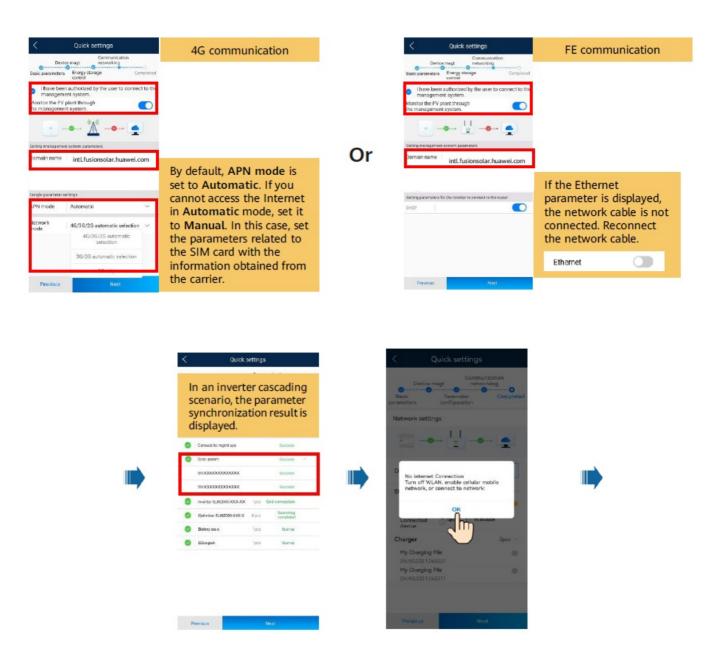
(Optional) Cascade inverters.



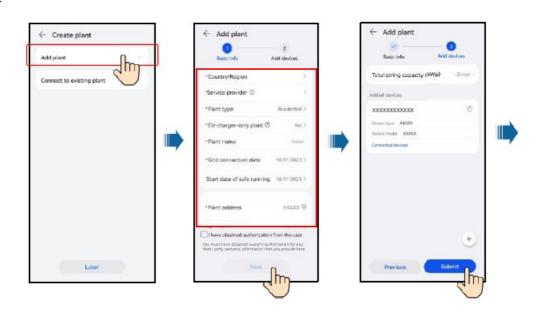
Set the ESS parameters.



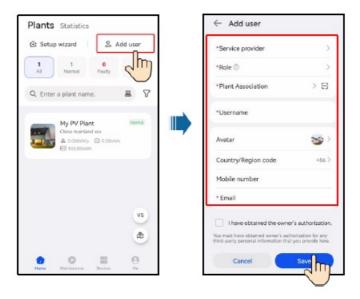
Set the communication networking.



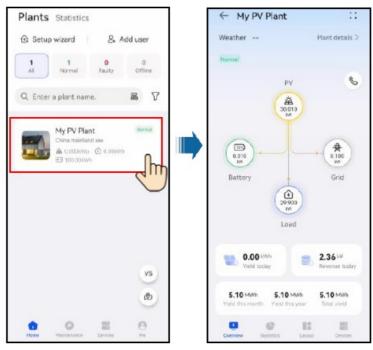
Add a plant



Checking the Plant Status

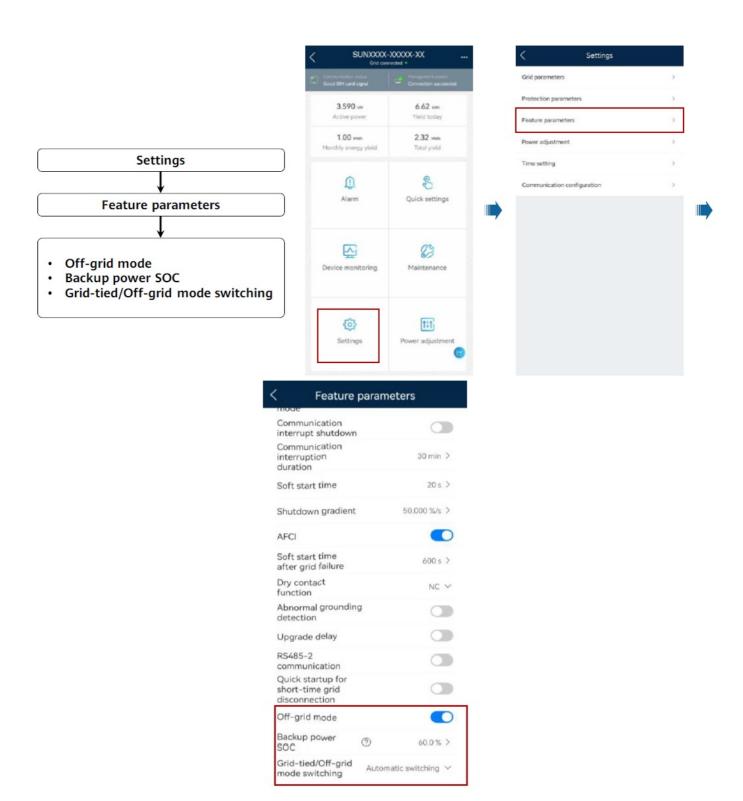


Checking the Plant Status

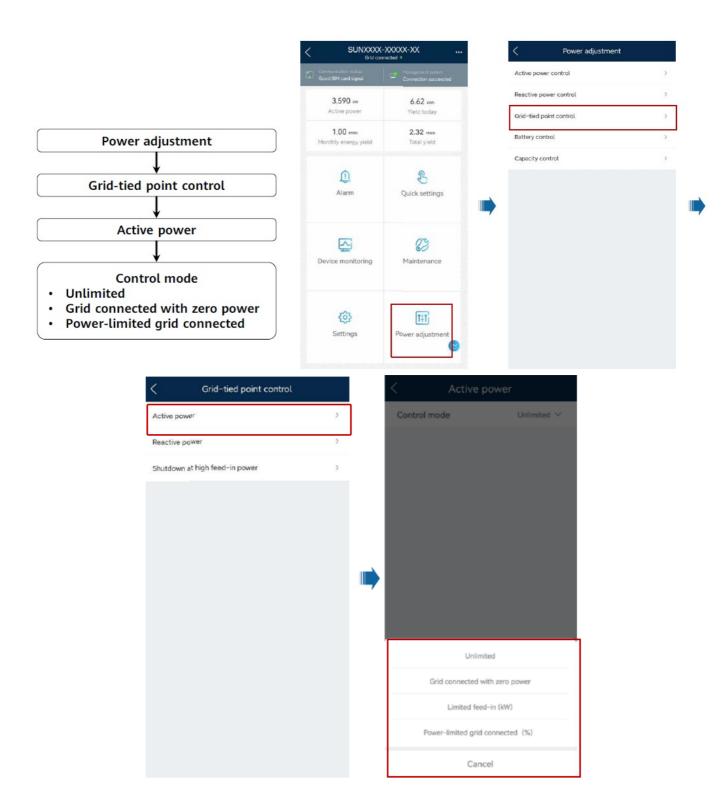


Off-Grid/Grid-tied Control Parameters

Enabling Off-Grid Mode



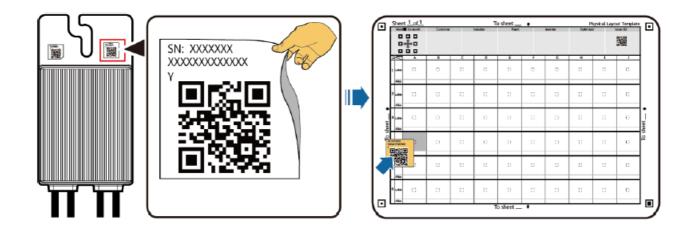
Setting Grid-tied Point Control



Physical Layout of Smart PV Optimizers

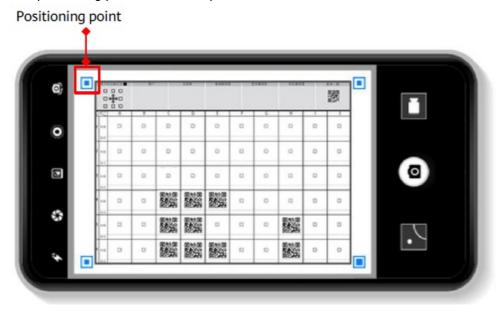
Attaching SN Labels

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.



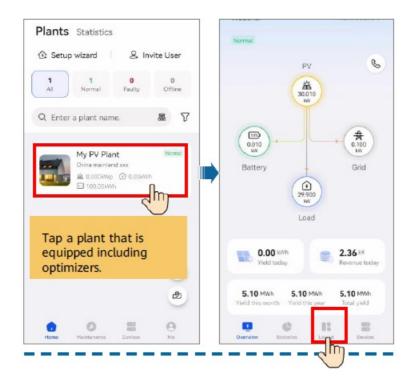
Taking a Photo of the Physical Layout Template

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



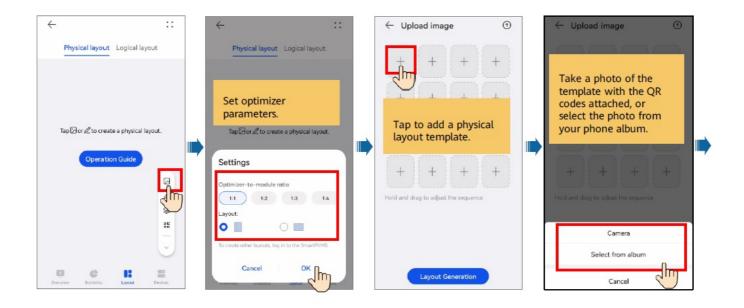
Generating a Physical Layout on the App

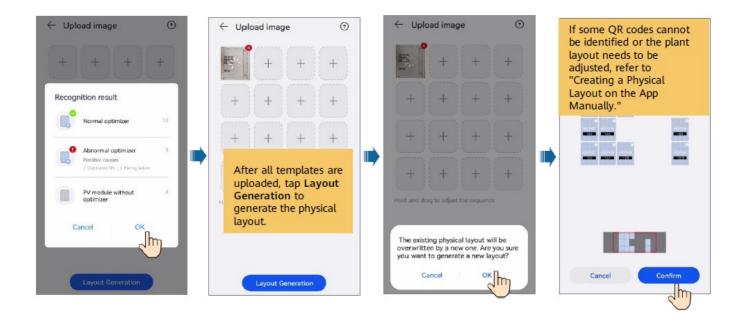
Enter the Layout screen



Generating a Physical Layout on the App Automatically

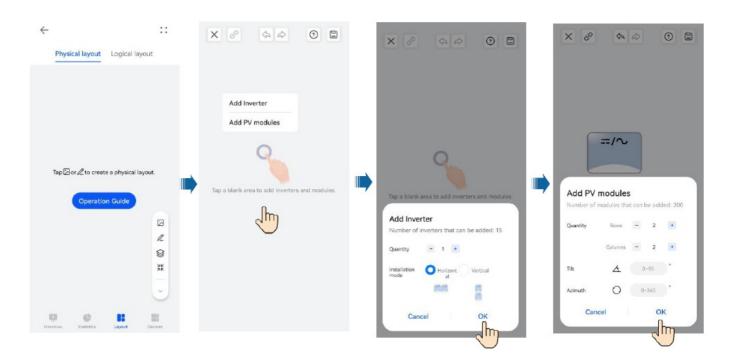
Upload the template and generate a layout



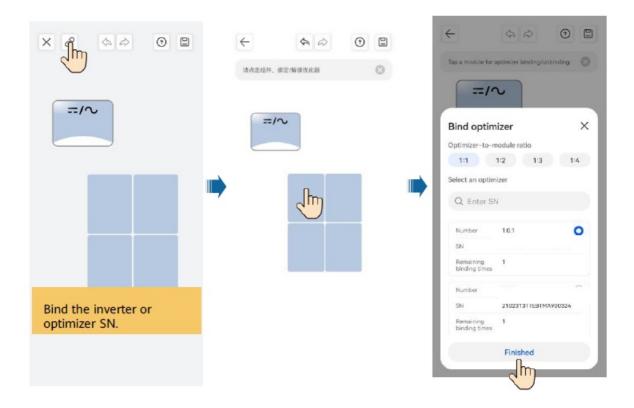


Creating a Physical Layout on the App Manually

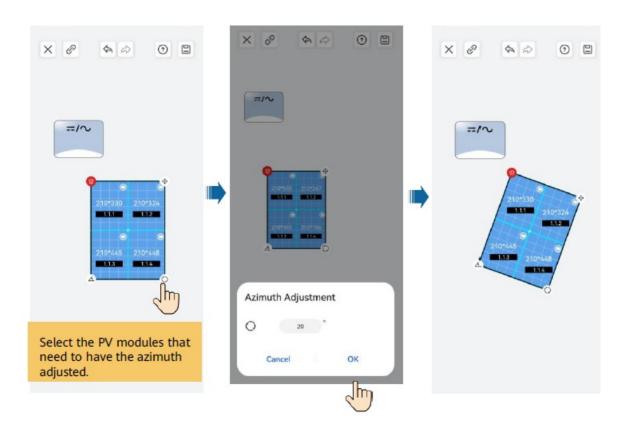
Edit the physical layout and specify the quantity of inverters and PV modules as required.



Bind the inverter or optimizer SN



Adjust the physical layout



Documents / Resources



References

- <u>support.huawei.com/enterprise/en/doc/EDOC1100222020/a0053780</u>
- User Manual

Manuals+, Privacy Policy

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