LUNA2000-(107-241) Series Commercial and Industrial Hybrid Cooling Grid Forming ESS Solution

User Manual (On-Grid, SmartLogger3000)

Issue 10

Date 2026-03-30

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About This Document

Purpose

This document describes the networking architecture, communication logic, and operation and maintenance (O&M) methods of the Commercial and Industrial Grid Forming ESS Solution (on-grid, SmartLogger3000), as well as the installation, cable connection, check and preparation before power-on, system power-on commissioning, power-off, and power-on operations.

The safety precautions, product introduction, site selection requirements, and maintenance information of the devices involved in the solution are described in the user manuals or maintenance manuals of the corresponding devices. For details, see **B Reference Documents**.

"Grid forming" refers to grid forming operation in off-grid mode. This document describes the networking application in on-grid mode.

Statement

In this document, LUNA only refers to a specific model of Huawei Smart String Grid Forming ESS.

In this document, MERC only refers to a specific model of Huawei Smart PV Optimizer.

Intended Audience

This document is intended for:

- Technical support engineers
- Hardware installation engineers
- Commissioning engineers

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
DANGER	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
NOTE	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Changes between document issues are cumulative. The latest document issue contains all the changes made in earlier issues.

Issue 10 (2026-03-30)

Updated **1.1.1 ESS-Only System**.

Updated **1.1.2 PV+ESS**.

Updated **1.3 Technical Specifications**.

Updated **2 O&M Methods**.

Updated **5.1 On-Grid ESS-Only System**.

Updated **5.2 On-Grid PV+ESS System**.

Updated **6.2 Preparations Before Deployment**.

Updated **6.3 Commissioning Using the Deployment Wizard**.

Updated **6.4.1 Working Mode**.

Updated **6.4.2 Scheduling Mode**.

Updated **7 System Commissioning (App)**.

Updated **A Meter Cable Connection and Parameter Settings**.

Updated **B Reference Documents**.

Issue 09 (2026-01-08)

Updated **1.1 Networking Architecture**.

Issue 08 (2025-11-30)

Updated **1.1 Networking Architecture**.

Updated **3 Installation and Cable Connection**.

Updated **6.3 Commissioning Using the Deployment Wizard**.

Issue 07 (2025-08-30)

Updated **B Reference Documents**.

Issue 06 (2025-06-30)

Updated **1.1 Networking Architecture**.

Updated **1.2 Communication Logic**.

Updated **2 O&M Methods**.

Updated **6.3 Commissioning Using the Deployment Wizard**.

Updated **A Meter Cable Connection and Parameter Settings**.

Issue 05 (2025-03-30)

Updated **1.1 Networking Architecture**.

Issue 04 (2025-02-08)

Updated **6.3 Commissioning Using the Deployment Wizard**.

Updated **6.4.1 Working Mode**.

Issue 03 (2025-01-23)

Added **1.3 Technical Specifications**.

Updated **1.1 Networking Architecture**.

Updated **1.2 Communication Logic**.

Updated **3 Installation and Cable Connection**.

Updated **6.2 Preparations Before Deployment**.

Updated **6.3 Commissioning Using the Deployment Wizard**.

Deleted section 5.4 "Checking the Phase Sequence".

Issue 02 (2024-09-30)

Updated **6.3 Commissioning Using the Deployment Wizard**.

Added section 5.4 "Checking the Phase Sequence".

Issue 01 (2024-08-12)

This issue is used for first office application (FOA).

Contents

1 Solution Introduction

1.1 Networking Architecture

This solution has two networking architectures: ESS-only on-grid system and PV +ESS on-grid system.

1.1.1 ESS-Only System

The ESS-only system is mainly used for peak staggering and peak shaving at the grid connection point through scheduled charge and discharge. Fixed-power charge and discharge without meters is supported. **Figure 1-1** shows the networking architecture of the ESS-only system. **Table 1-1** lists the components.

Figure 1-1 Networking architecture of the ESS-only system

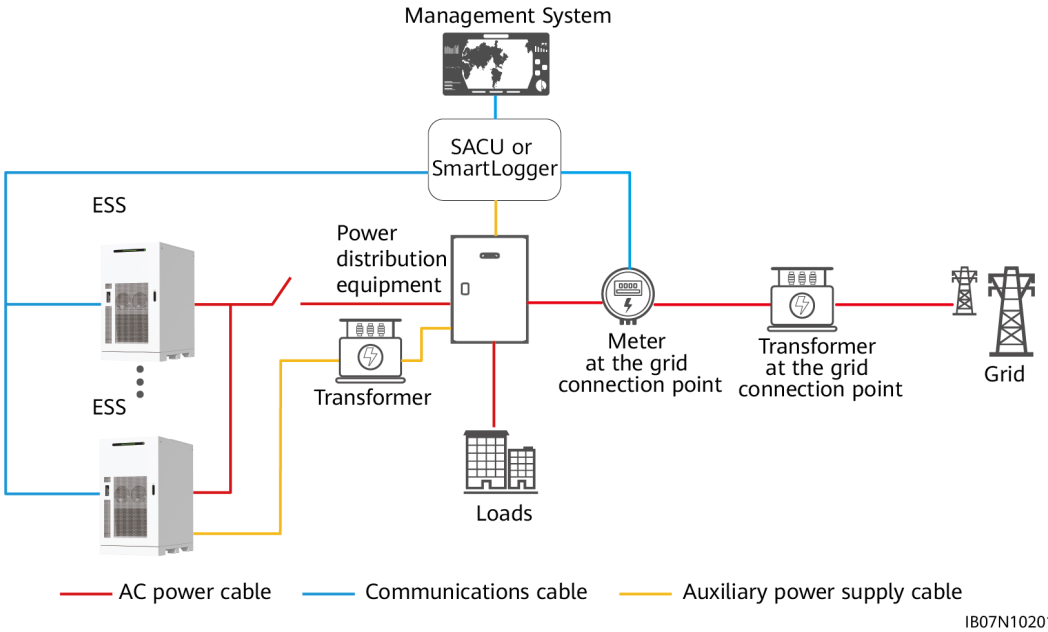


Table 1-1 Components of the ESS-only system

Name	Model/ Specifications	Quantity	Remarks
Smart String Grid Forming Energy Storage System (ESS)	• LUNA2000-241-2S1 • LUNA2000-215-2S10 • LUNA2000-215-2S11 • LUNA2000-161-2S11 • LUNA2000-107-1S11	≤ 50	Purchased from the Company. • One transformer supports a maximum of 50 ESSs running in parallel. In this scenario, at least three SmartLoggers are required. Multiple SmartLoggers are controlled by a third-party controller. • One SmartLogger can connect to a maximum of 20 ESSs.
SmartLogger3000 (SmartLogger)	SmartLogger3000	1	Purchased from the Company. Choose either SmartLogger or SACU.
Smart Array Controller (SACU)	SmartACU2000D-D-08	1	
SmartModule	SmartModule1000A01	Depending on the actual networking architecture	Purchased from the Company (optional). The SmartModule is used with the SmartLogger or SACU.
Meter at the grid connection point	• DTSU666-HW • YDS60-80 • DHSU1079-ZT • DTSU71C	1	Purchased from the Company (optional).
Management system	-	1	Purchased from the Company.

Name	Model/ Specifications	Quantity	Remarks
Power distribution equipment	Specifications of the circuit breaker connected to the ESS: three-phase AC switch, rated voltage ≥ 380 V AC (depending on the actual power grid voltage level), rated current 250 A	1	Prepared by the customer
Transformer	• Auxiliary transformer that converts the grid voltage to 220 V • Transformer capacity: 5 kVA x N (quantity of ESSs)	Depending on the actual networking architecture	Prepared by the customer (optional). If the AC output side adopts the IT earthing system or the rated grid voltage is 420 V, 440 V, or 480 V, an auxiliary transformer is required for the grid to convert the grid voltage to a 220 V single-phase power supply.
Transformer at the grid connection point	The voltage level depends on the actual grid voltage.	1	Prepared by the customer (optional).

1.1.2 PV+ESS

The PV+ESS system is mainly used for maximum PV self-consumption as well as peak staggering and peak shaving at the grid connection point. **Figure 1-2** shows the networking architecture of the PV+ESS system. **Table 1-2** lists the components.

Figure 1-2 Networking architecture of the PV+ESS system

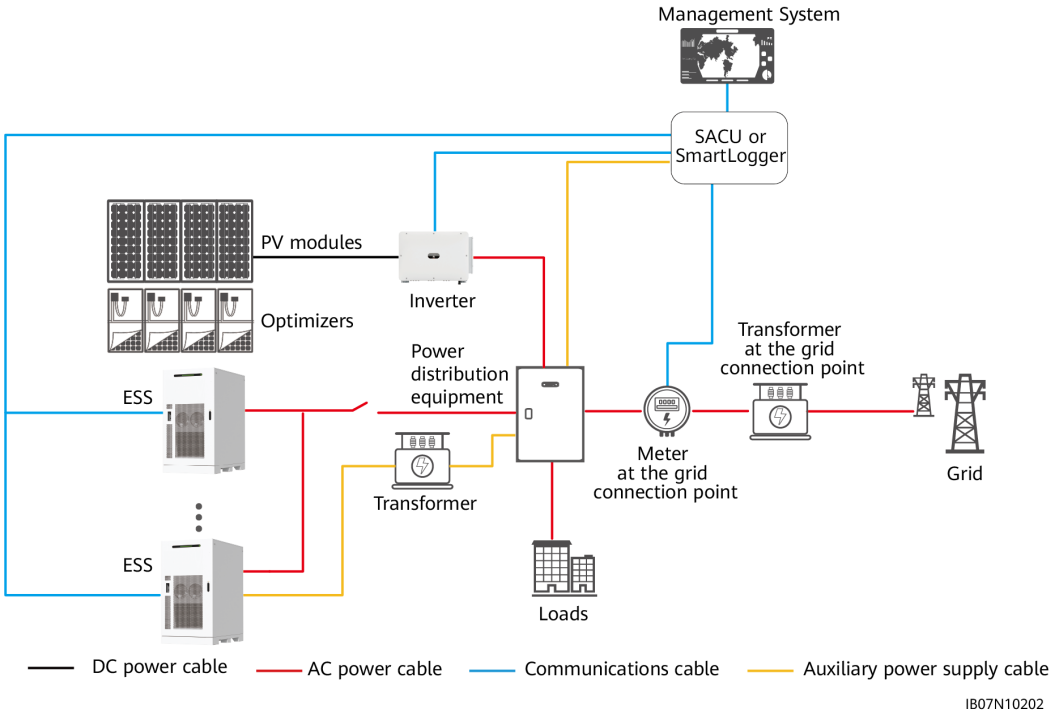


Table 1-2 Components of the PV+ESS system

Name	Model/ Specifications	Quantity	Remarks
Smart String Grid Forming Energy Storage System (ESS)	• LUNA2000-241-2S1 • LUNA2000-215-2S10 • LUNA2000-215-2S11 • LUNA2000-161-2S11 • LUNA2000-107-1S11	≤ 20	Purchased from the Company.

Name	Model/ Specifications	Quantity	Remarks
Smart PV inverter (inverter)	• SUN2000-29.9KTL-M3 • SUN2000-30KTL-M3 • SUN2000-36KTL-M3 • SUN2000-40KTL-M3 • SUN2000-33KTL-NH • SUN2000-40KTL-NH • SUN2000-50KTL-M3 • SUN2000-50KTL-ZHM3 • SUN2000-50KTL-NHM3 • SUN2000-50KTL-M0 • SUN2000-50KTL-JPM0 • SUN2000-60KTL-M0 • SUN2000-60KTL-JPM0 • SUN2000-75KTL-M1 • SUN2000-100KTL-M1 • SUN2000-100KTL-M2 • SUN2000-110KTL-M2 • SUN2000-110KTL-INM0 • SUN2000-111KTL-NHM0 • SUN2000-50K-MGL0-BR • SUN2000-50K-MGL0	≤ 30	Purchased from the Company.

Name	Model/ Specifications	Quantity	Remarks
	• SUN2000-75K-MGL0-BR • SUN2000-80K-MGL0 • SUN2000-115K TL-M2 • SUN2000-150K -MG0-ZH • SUN2000-150K -MG0 • SUN5000-150K -MG0-ZH • SUN5000-150K -MG0		
Smart PV Optimizer (SUN2000P)	• SUN2000-450 W-P2 • SUN2000-600 W-P • MERC-1300W-P • MERC-1100W-P	Depending on the actual quantity of PV modules	Purchased from the Company (optional). • SUN2000-29.9KTL-M3, SUN2000-30KTL-M3, SUN2000-33KTL-NH, SUN2000-36KTL-M3, SUN2000-40KTL-M3, and SUN2000-40KTL-NH support the SUN2000P. • SUN2000-50KTL-ZHM3/M3/NHM3 supports only MERC-1300W-P or MERC-1100W-P. • MERC-1300W-P or MERC-1100W-P is mandatory for SUN5000-150K-MG0/MG0-ZH.
SmartLogger3000 (SmartLogger)	SmartLogger3000	1	Purchased from the Company. Choose either SmartLogger or SACU.
Smart Array Controller (SACU)	SmartACU2000D-D-08	1	

Name	Model/ Specifications	Quantity	Remarks
SmartModule	SmartModule1000A01	Depending on the actual networking architecture	Purchased from the Company (optional). The SmartModule is used with the SmartLogger or SACU.
Meter at the grid connection point	• DTSU666-HW • YDS60-80 • DHSU1079-ZT • DTSU71C	1	Purchased from the Company (optional).
Management system	-	1	Purchased from the Company.
Power distribution equipment	Specifications of the circuit breaker connected to the ESS: three-phase AC switch, rated voltage ≥ 380 V AC (depending on the actual power grid voltage level), rated current 250 A	1	Prepared by the customer
Transformer	• Auxiliary transformer that converts the grid voltage to 220 V • Transformer capacity: 5 kVA x N (quantity of ESSs)	Depending on the actual networking architecture	Prepared by the customer (optional). If the AC output side adopts the IT earthing system or the rated grid voltage is 420 V, 440 V, or 480 V, an auxiliary transformer is required for the grid to convert the grid voltage to a 220 V single-phase power supply.
Transformer at the grid connection point	The voltage level depends on the actual grid voltage.	1	Prepared by the customer (optional).

1.2 Communication Logic

One SACU or SmartLogger manages multiple ESSs and inverters, and one meter to form an array. Intra-array:

- The inverters communicate with the SACU or SmartLogger over RS485 or MBUS.
- The meter communicates with the SACU or SmartLogger over RS485.
- The ESSs communicate with the SACU or SmartLogger over FE in star or ring topology.

Maximum communication distance of the SACU or SmartLogger:

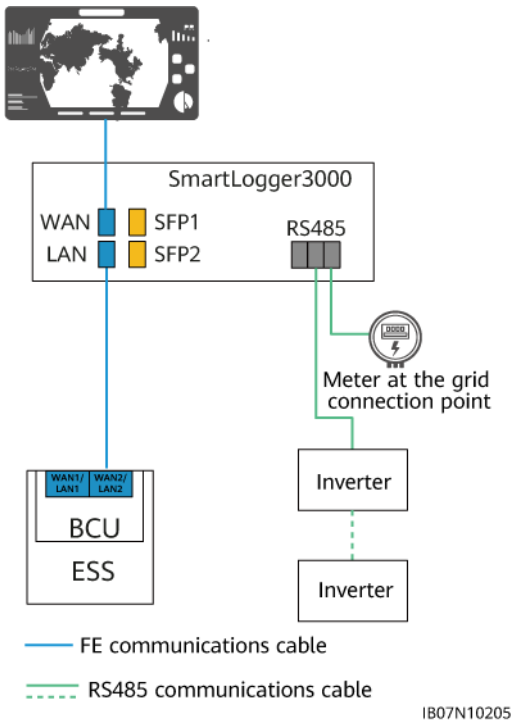
- RS485: 1000 m
- FE: 100 m

Select any of the following topologies based on the quantities of ESSs in the array and the deployment of optical fibers.

Typical Scenario 1: SmartLogger+ESS FE Star Topology (One ESS)

In this scenario, the SmartLogger3000 is configured. In the scenario with one ESS, the SmartLogger can be installed inside the ESS.

Figure 1-3 SmartLogger+ESS FE star topology



Typical Scenario 2: SmartLogger+ESS FE Ring Topology (2–20 ESSs)

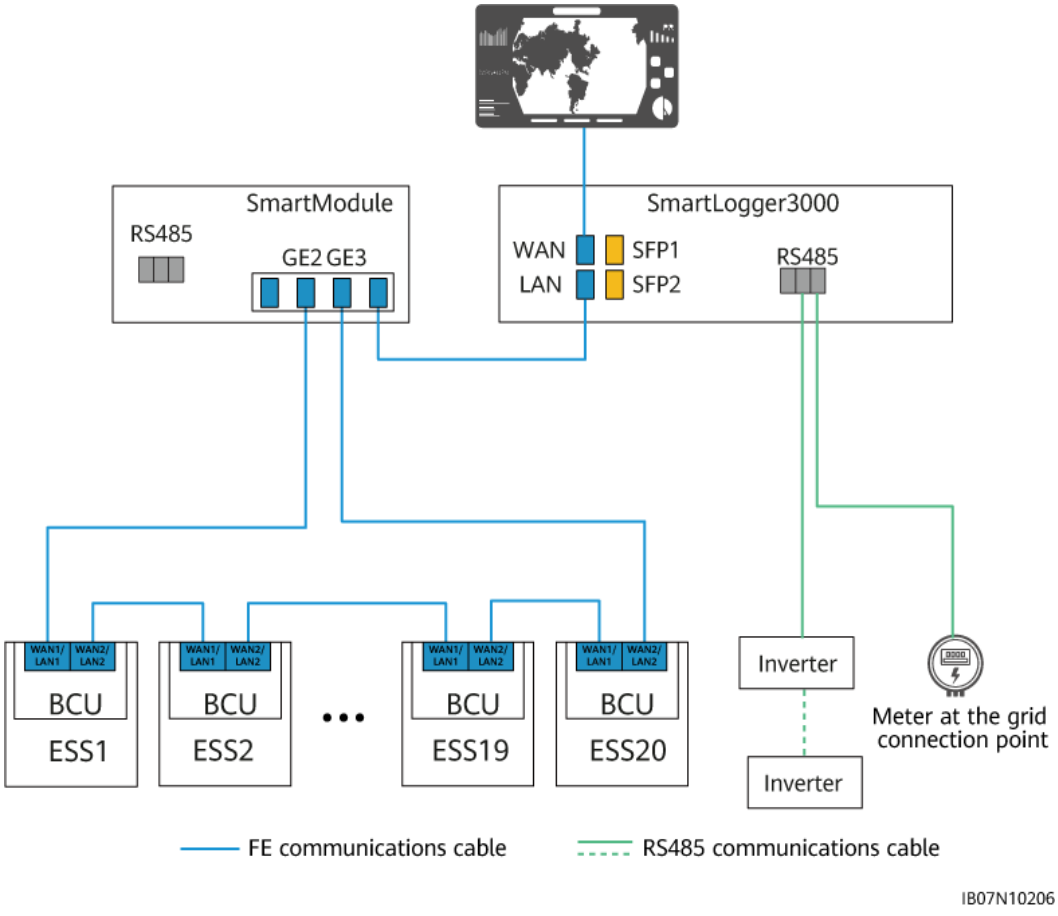
In this scenario, the SmartLogger3000 and SmartModule are configured.

- One FE ring network supports a maximum of 20 ESSs.
- One SmartLogger can connect to a maximum of 20 ESSs.
- If more than 20 ESSs are connected, multiple SmartLoggers are required. The ESSs are connected through FE communications ports (WAN1/LAN1 and WAN2/LAN2). The SmartLoggers are controlled by a third-party controller.

NOTICE

If the ESS FE ring topology is implemented through the SmartModule, the ESS must be connected to the GE2 and GE3 ports of the SmartModule. Otherwise, the SmartLogger cannot communicate with the ESS properly.

Figure 1-4 SmartLogger+ESS FE ring topology



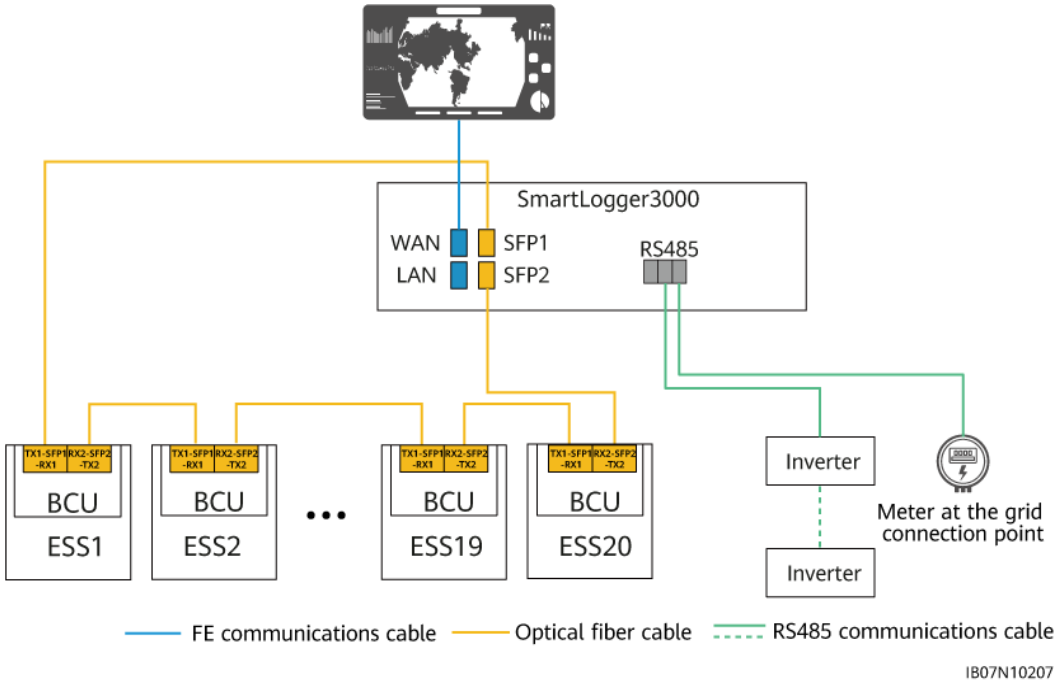
Typical Scenario 3: SmartLogger+ESS Fiber Ring Topology (2–20 ESSs)

In this scenario, the SmartLogger3000 is configured. Only the SmartLogger3000B supports the fiber ring network.

- One fiber ring network supports a maximum of 20 ESSs.
- One SmartLogger can connect to a maximum of 20 ESSs.

- If more than 20 ESSs are connected, multiple SmartLoggers are required. The ESSs are connected through optical ports (TX1-SFP1-RX1 and RX2-SFP1-TX2). The SmartLoggers are controlled by a third-party controller.

Figure 1-5 SmartLogger+ESS fiber ring topology



1.3 Technical Specifications

Function	Technical Specifications	Remarks
Parallel connection of multiple devices	One SmartLogger supports a maximum of 20 ESSs and 30 inverters connected in parallel.	-
PV+ESS low-voltage coupling	• Low-voltage coupling of the ESS and inverter is supported. • The cable length from the ESS and the inverter to the power distribution cabinet shall be greater than or equal to 5 m, respectively.	For details about the supported inverter models, see **Table 1-2**.
ESS health diagnosis	Supported	This feature needs to be used in the management system.
Design tool	Supported	-

Function		Technical Specifications	Remarks
ESS safety black box		Supported	-
On-grid scheduling feature	Maximum self-consumption	Supported	• Only one feature can be selected. • TOU (fixed power) applies only to ESS-only systems.
	TOU	Supported	
	TOU (fixed power)	Supported	
	Charge/ Discharge based on grid dispatch	Supported	
	Peak shaving	Supported	This feature can be used together with maximum self-consumption/TOU.
	Power boost limit	Supported	This feature can be used together with maximum self-consumption/TOU.
	Export limitation (including zero feed-in)	Supported	This feature can be used together with maximum self-consumption/TOU and capacity control.
	Phase-level power limit control	Supported	This feature can be enabled only in export limitation mode. This feature can be used together with maximum self-consumption/TOU and capacity control.

2 O&M Methods

Table 2-1 O&M methods

O&M Method	Description	Main Application Scenario	Reference Document
SmartLogger WebUI	A PC is connected to the SmartLogger to manage the ESSs, inverters, and the meter in the array.	Deployment and commissioning	**SmartLogger3000 User Manual**
Management system	The management system is deployed on a public network. It displays the current and historical running status of power plants and supports intelligent alarm reporting, analysis, diagnosis, and O&M.	Viewing plant information and managing devices at a site after deployment and commissioning	-

3 Installation and Cable Connection

This section describes the process, precautions, and connection relationships for installing devices and connecting cables in the solution. For details, see the user manuals or quick guides of the corresponding devices. To obtain the documents, see **B Reference Documents**.

NOTICE

- For the TN-S, TN-C, TN-C-S, and TT systems, the neutral wires of the ESS and inverter must be connected to the power grid, and the neutral wire of the power grid must be grounded.
- For the three-phase three-wire (including the IT system) system or when the grid voltage level does not match the ESS, the ESS is connected to the isolation transformer in three-phase four-wire mode, and then the isolation transformer is connected to the power grid. The neutral point of the isolation transformer (on the ESS side) must be grounded.
- If the neutral wire of the system is not grounded, the **PCS Grounding Abnormal** alarm will be triggered during on/off-grid switching or off-grid black start, causing the ESS to shut down for protection.
- The power distribution and electrical connections of the PV+ESS system must comply with the installation regulations of the devices and the country or region where the devices are located.

Table 3-1 Device installation and cable connection process

Step	Task	Precaution
1	Installing the ESS	Ensure that the foundation levelness meets the requirements (height difference ≤ 3 mm). For details about the site selection requirements, see **HUAWEI LUNA2000-(107-215) Series Commercial and Industrial Hybrid Cooling Grid Forming ESS User Manual**.

Step	Task	Precaution
2	Installing PE cables	• The ground point outside the ESS must be connected. • To enhance the corrosion resistance of a ground terminal, you are advised to apply silicone grease or paint on it after connecting the ground cables.
3	Installing AC power cables	AC power cables must be connected in the correct phase sequence. Ensure that the phase sequence of the AC power cables of the ESS is consistent with that of the isolation transformer and power grid. Otherwise, the system may fail to run properly.
4	Installing communications cables	For details about the cable connections, see **1.2 Communication Logic**.
5	Installing the inverter and SUN2000P	Optional
6	Installing the power meter	N/A
7	Installing the SACU or SmartLogger	N/A

4 Check and Preparation Before Power-On

Step 1 Perform the check before power-on by referring to section "Check Before Power-On" in the user manual of each device.

Step 2 Check whether the phase sequence of the AC power cables between the ESS and the power distribution equipment is consistent. If not, adjust the wiring sequence of the AC power cables.

Step 3 Check the switch status.

1. Ensure that the switches on both sides of the power distribution equipment are turned off.
2. Ensure that the switch between the ESS AC side and the power distribution equipment is turned off, and the switch between the inverter AC side and the power distribution equipment is turned off.

Step 4 Perform acceptance tests for the ESS thermal runaway suppression system.

⚠ CAUTION

You can perform system power-on and commissioning only after the acceptance tests for the ESS thermal runaway suppression system are passed.

1. Remove foreign objects from the ESS, collect auxiliary materials, and take away flammable objects such as cardboards.
2. Log in to the SACU or SmartLogger WebUI. The following alarms shall not be generated. If any of the following alarms is generated, clear the alarm according to the alarm handling suggestions:
   - 3884 Smoke Detector Alarm
   - 3890 Heat Detector Alarm
   - 3885 High Concentration of Combustible Gas
   - 3886 Combustible Gas Detector Communication Failed
   - 3887 Combustible Gas Detector Faulty
   - 3888 Temperature and Humidity Sensor Communication Failed
   - 3889 Temperature and Humidity Sensor Faulty

- 3893 Fire Alarm
- 3931 Fire Suppression System Alarm

----End

5 System Power-On

DANGER

Wear insulated gloves and use insulated tools to prevent electric shocks or short circuits.

CAUTION

During the power-on procedure, monitor the system for faults. If you detect any faults, power off the ESS, rectify the faults, and then continue with the procedure.

5.1 On-Grid ESS-Only System

Figure 5-1 Power-on process of the on-grid ESS-only system

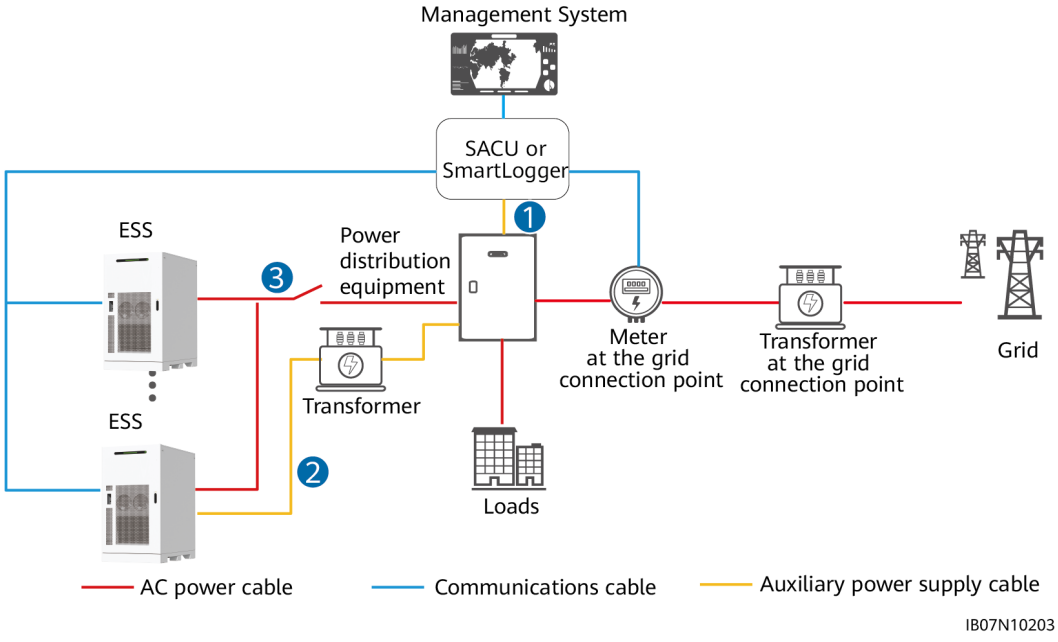


Table 5-1 Power-on process description of the on-grid ESS-only system

Step	Task	Power-On Operation
1	Powering on the SACU or SmartLogger auxiliary power supply	1. Turn on the SACU or SmartLogger power switch on the power distribution equipment side. 2. Turn on the switch on the SACU or SmartLogger side.
2	Powering on the ESS auxiliary power supply (for LTMS and other devices)	For details, see **Power-On Operations**.
3	Powering on the ESS AC side	
Note: For details about the switch layout and operations of the devices prepared by the customer, see the documents provided by the vendors.		

5.2 On-Grid PV+ESS System

Figure 5-2 Power-on process of the on-grid PV+ESS system

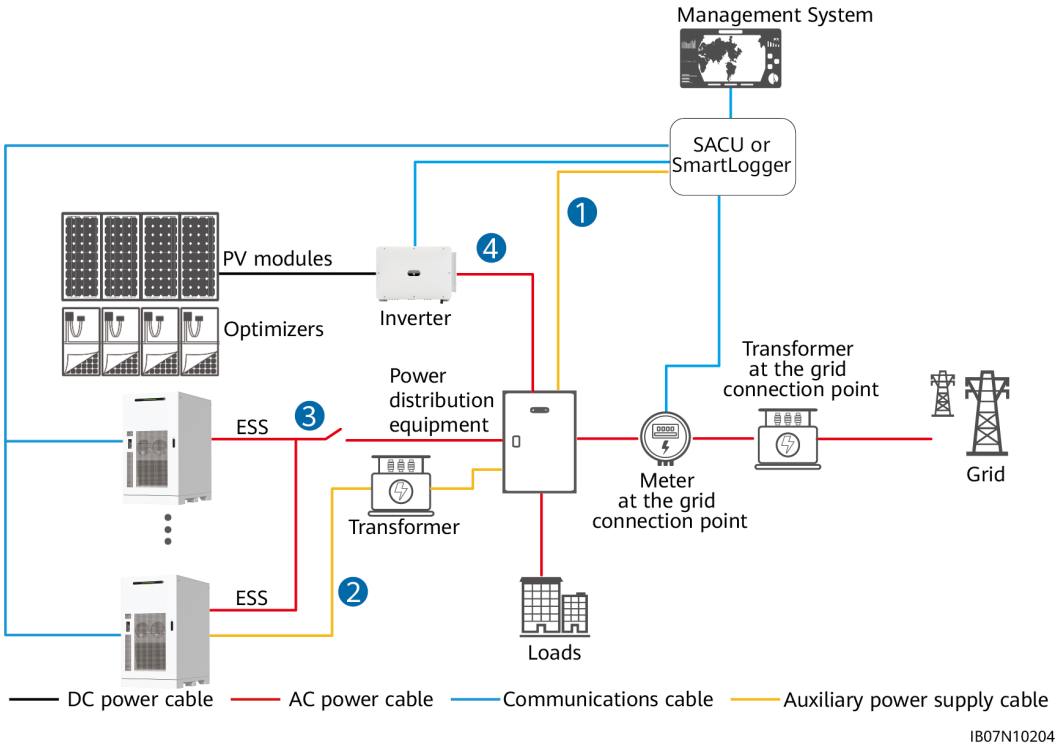


Table 5-2 Power-on process description of the on-grid PV+ESS system

Step	Task	Power-On Operation
1	Powering on the SACU or SmartLogger auxiliary power supply	1. Turn on the SACU or SmartLogger power switch on the power distribution equipment side. 2. Turn on the switch on the SACU or SmartLogger side.
2	Powering on the ESS auxiliary power supply (for LTMS and other devices)	For details, see **Power-On Operations**.
3	Powering on the ESS AC side	
4	Powering on the inverter	**Select a power-on method based on the inverter model.** **Method 1:** 1. Set the DC SWITCH to ON. When you hear a click, the switch is completely turned on. 2. Check that the indicators are not steady red. **Method 2:** 1. Set the DC SWITCH 1 (MAIN SWITCH) to ON. When you hear a click, the switch is completely turned on. 2. Check the status of the PV connection indicator. If it is steady green, set DC SWITCH 2 and DC SWITCH 3 to ON. 3. Check that other indicators are not steady red.
Note: For details about the switch layout and operations of the devices prepared by the customer, see the documents provided by the vendors.		

6 System Commissioning (Web)

CAUTION

During the power-on procedure, monitor the system for faults. If you detect any faults, power off the ESS, rectify the faults, and then continue with the procedure.

6.1 Preparations and WebUI Login

The SmartLogger WebUI is used for power-on and commissioning. For details about the preparations and WebUI login, see the **SmartLogger3000 User Manual**.

NOTE

If the ESS cannot be found, check that the SmartLogger has been upgraded to V300R024 or later versions.

6.2 Preparations Before Deployment

Step 1 Set **Startup authorization code** of the ESS. Otherwise, the ESS cannot be started.

1. Use **Startup authorization verification code** to apply for **Startup authorization code**.

   NOTE

   - Contact the device vendor or its authorized supervision service provider to apply for a startup authorization code through the Power Partner app.
   - Install devices and connect cables according to the site selection requirements and cable installation sections in the ESS user manual. If these requirements are not met, the startup authorization code may not be issued. As a result, the ESS cannot be started.

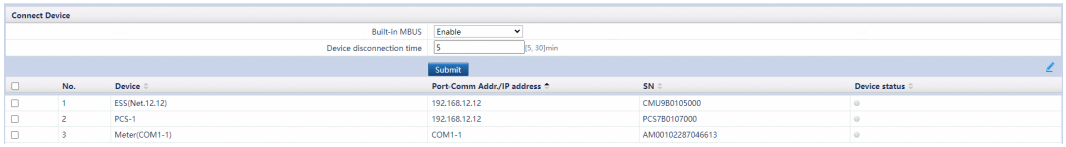
   - Method 1: Choose **Monitoring** > **ESS** > **Running Info.** > **Basic Information** to view **Startup authorization verification code**.
   - Method 2: Choose **Deployment Wizard** > **Connect Device** to view **Startup authorization verification code**.

2. Set **Startup authorization code** of the ESS.

- Method 1: Choose **Deployment Wizard** > **Connect Device**, and set **Startup authorization code**.
- Method 2: Choose **Monitoring** > **ESS** > **Running Param.** > **Basic Parameters**, and set **Startup authorization code**.

Step 2 Click **Maintenance**, choose **Device Mgmt.** > **Connect Device**, and check that the devices are connected.

Figure 6-1 Checking device connection



1. Check whether the quantity of devices connected to the SmartLogger is correct.

   If not all devices are connected, check and ensure that the cascading cables between devices, the connection positions of the communications cables between devices and the SmartLogger, and the indicator status are normal. Then click **Auto. Search**.
2. Check whether **Device status** of each device is normal. During initial connection, **Device status** of the ESS is green.

Step 3 Upgrade the software version.

1. Log in to the Support-E website and search for the latest software versions of the SmartLogger, ESS, and inverter in **FusionSolar Software Download**.
2. Choose **Maintenance** > **Software Upgrade** to check the software versions of the SmartLogger, ESS, and inverter. If the software version of each device is the latest version on the Support-E website, go to **Step 4**. Otherwise, go to the next step.
3. Click **Choose File**, select the target software package, and click **Upload**. After the upload is complete, click **Software Upgrade**.

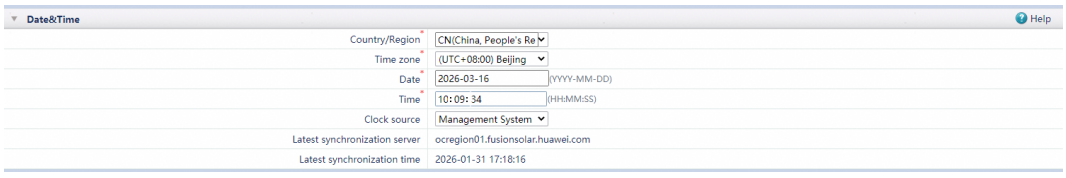
Step 4 Clear alarms.

----End

6.3 Commissioning Using the Deployment Wizard

Step 1 Set basic parameters.

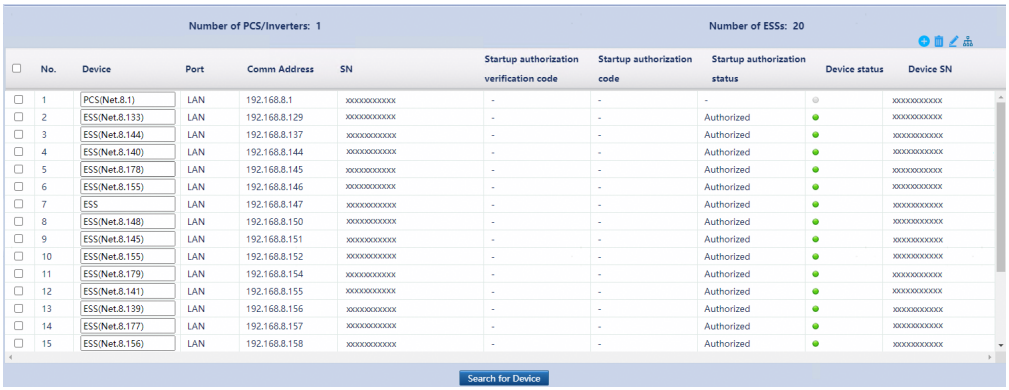
Figure 6-2 Setting basic parameters



Step 2 Connect to devices.

1. Click **Search for Device** to check the cable connections and allocate addresses.

Figure 6-3 Searching for devices



NOTE

- During the process of **Search for Device**, do not perform upgrade operations (such as upgrading through the app, management system, or WebUI).
- When you click **Search for Device**, cable connections (DC and AC) will be checked before device search (not applicable to third-party devices), and device addresses will be automatically allocated.
- After the cable connection check and device search are complete, if a cable connection alarm is generated, you can click the alarm icon to view the corresponding alarm information.
- If an alarm is generated when the cable connection check fails, click the alarm icon to view the alarm cause and handling suggestions. After the fault is rectified, click **Search for Device** again to check the cable connections. If the quantity of inverters or ESSs connected to the SmartLogger in the array changes, click **Search for Device** again.

2. Click **Next** and click **Confirm** in the dialog box **Do you want to instruct the inverter to start optimizer search?** based on the actual scenario.
3. Set array parameters.

Parameter	Description
Scenario under **Arrays Operation Scenario**	Set this parameter to **On-grid**.

4. Set the hot standby mode of an array.

Parameter	Description
Standby mode under **The subarray hot standby mode**	Set as required. – **Seamless hot standby**: When there is no scheduling, the PCS enters the hot standby mode to reduce system loss. – **Zero-power operation**: no hot standby

5. Set inverter parameters.

Parameter	Description
Grid Code	Set the inverter grid code of the country or region where the devices are used.
Working mode	Set this parameter to **PQ**.
Microgrid compatibility	Set this parameter to **Disable**.

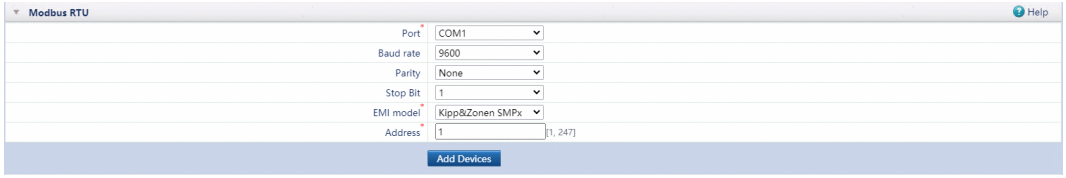
6. Set battery parameters.

Parameter	Description
Grid Code	Set the ESS grid code of the country or region where the devices are used.
Working mode	Set this parameter to **PQ**. Otherwise, a failure message is returned.
Microgrid compatibility	Set this parameter to **Disable**.
Automatic switching of the working mode	Set this parameter to **Disable**.

Step 3 (Optional) Connect to the meter. For details about how to connect cables to the meter at the grid connection point and set parameters, see **A Meter Cable Connection and Parameter Settings**.

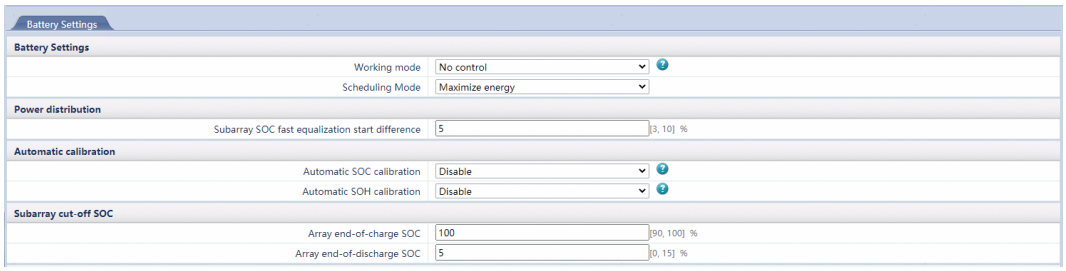
Step 4 (Optional) Connect to environment monitoring instruments (EMIs).

Figure 6-4 Connecting to EMIs



Step 5 Set parameters for battery settings.

Figure 6-5 Setting battery control parameters



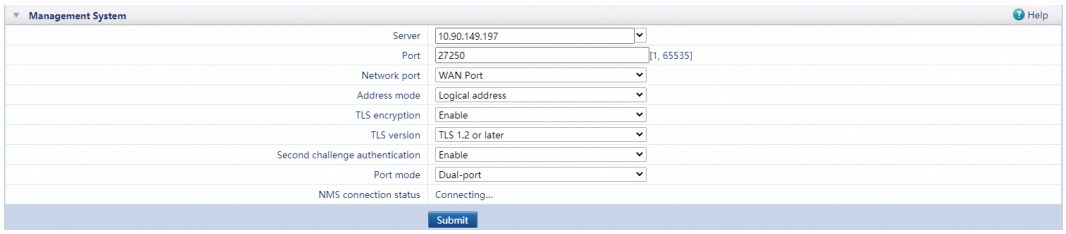
Parameter	Description
Working mode	Set this parameter to maximum self-consumption, TOU, charge/discharge based on grid dispatch, or TOU (fixed power). For details, see **6.4.1 Working Mode**.
Scheduling Mode	The default value is **Maximize energy**. • **Maximize energy**: If ESSs with different C-rates are used together in C&I scenarios, the power is allocated based on the minimum C-rate of all ESSs in the array. • **Maximize power**: If ESSs with different C-rates are used together in C&I scenarios, the power is allocated based on the C-rate of each ESS.
Automatic SOC calibration	• If this parameter is set to **Disable**, automatic charge and discharge calibration is disabled for battery racks. • If this parameter is set to **Enable**, automatic charge and discharge calibration is enabled for battery racks. The ESS periodically calibrates the SOC rack by rack. During calibration, the end-of-charge SOC and end-of-discharge SOC settings will be ineffective and the response of the charge and discharge power may be impacted temporarily. – On-grid scenario: Automatic charge calibration is allowed for battery racks. – Off-grid scenario: Automatic discharge calibration is allowed for battery racks.
Automatic SOC calibration interval	Set this parameter to **30**. This parameter is displayed when **Automatic SOC calibration** is set to **Enable**.
Automatic SOH calibration	• If this parameter is set to **Enable**, the ESS periodically calibrates the SOH rack by rack. During the calibration, the end-of-charge SOC and end-of-discharge SOC settings will be overridden. • If this parameter is set to **Disable**, automatic SOH calibration is disabled for battery racks.

Parameter	Description
Array end-of-charge SOC	The default value is 100%. The default value is recommended. Set this parameter as required. This parameter indicates the end-of-charge SOC for the battery pack with the highest SOC of an ESS in the array.
Array end-of-discharge SOC	The default value is 5%. The default value is recommended. Set this parameter as required. This parameter indicates the end-of-discharge SOC for the battery pack with the lowest SOC of an ESS in the array.

Step 6 Connect to the management system.

Set related parameters by referring to "**Setting Parameters for Connecting to the Management System**" (content related to the management system) in the *SmartLogger3000 User Manual*.

Figure 6-6 Connecting to the management system

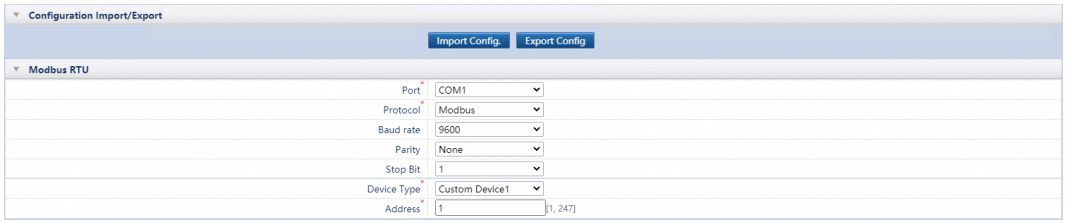


Step 7 Connect to a third-party network management system (NMS).

1. Select **IEC104** or **Modbus TCP** based on the protocol used by the SmartLogger to connect to the third-party NMS.
2. Set related parameters by referring to "**Setting Parameters for Connecting to the Management System**" (content related to a third-party NMS) in the *SmartLogger3000 User Manual*.
3. Send a command on the third-party NMS and check whether the SmartLogger can respond properly.

Step 8 Connect to third-party devices. Skip this step if third-party devices are not involved.

Figure 6-7 Connecting to third-party devices



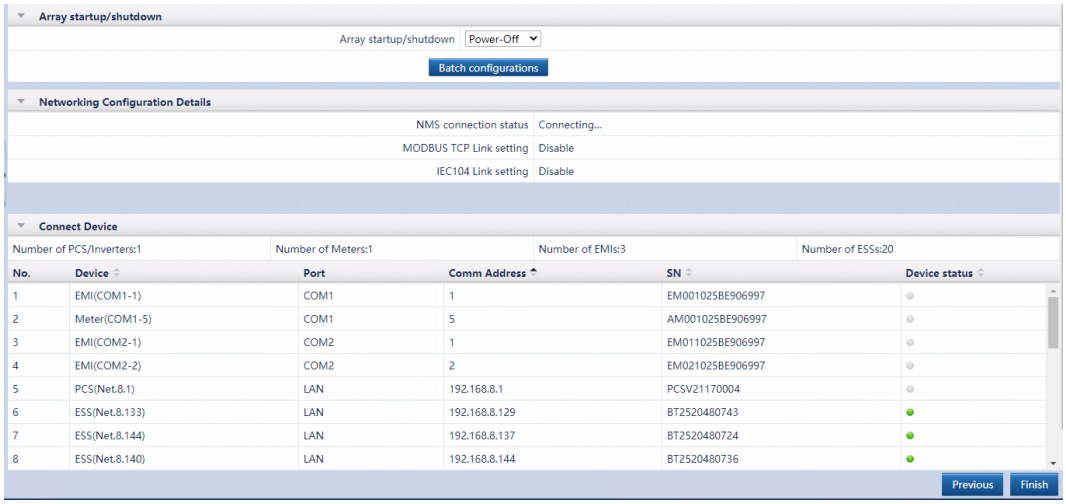
Step 9 Set microgrid parameters. Skip this step if microgrid parameters are not involved.

Step 10 Click **Finish**.

NOTICE

Do not click **Batch configurations** shown in the following figure to send the array startup/shutdown command, because this will affect the wire sequence detection.

Figure 6-8 Completing the configuration



Step 11 (Optional) Detect the wire sequence. This function applies only to the C&I liquid-cooled ESS in the scenario with multiple ESSs. Wire sequence detection is required only in the zero feed-in scenario with phase-level power control for three-phase imbalance. Click **Starting up** to detect the wire sequence.

Parameter	Description
Wire sequence detection status	Check the status of wire sequence detection. • Not detected • Testing • Detection failed: The wire sequence detection has failed. In this case, check the **Abnormal Wire Sequence** alarm and rectify the fault based on the handling suggestions. • If the wire sequence is consistent, no action is required. • If the wire sequence is inconsistent, rectify the cable connection. 1. Check the phase sequence detection result. The phase sequences of multiple ESSs shall be **Positive**. If not, rectify the cable connection. 2. If the phase sequences of multiple ESSs are **Positive**, check the phase again. If the phase difference between ESSs is greater than 60°, rectify the cable connection.
Wire sequence detection time	Check the time when the wire sequence detection is complete.

Parameter	Description
Wire sequence check progress	Check the wire sequence detection progress.
Phase Sequence	Check the phase sequence detection result. The detection result can be **Positive** or **Negative**.
Phase	Check the phase detection result. The detection result range is [0, 360]°.

Step 12 Set **Output mode** for the inverter and ESS.

- For the inverter: Choose **Monitoring** > **Inverter > Running Param.** > **Grid Parameters**, and set **Output mode** for the inverter based on the actual inverter cable connection mode.
- For the ESS: Choose **Monitoring** > **ESS > Running Param.** > **Grid Parameters**, and set **Output mode** for the ESS to **Three-phase four-wire**.

Step 13 Check whether **Grid Code** and **Working mode** of the ESS are correctly set. If not, correct the settings.

- Choose **Monitoring** > **ESS > Running Param.** > **Grid Parameters**, and check the setting of **Grid Code**.
- Choose **Monitoring** > **ESS > Running Param.** > **Feature Parameters**, and check the setting of **Working mode**.

----End

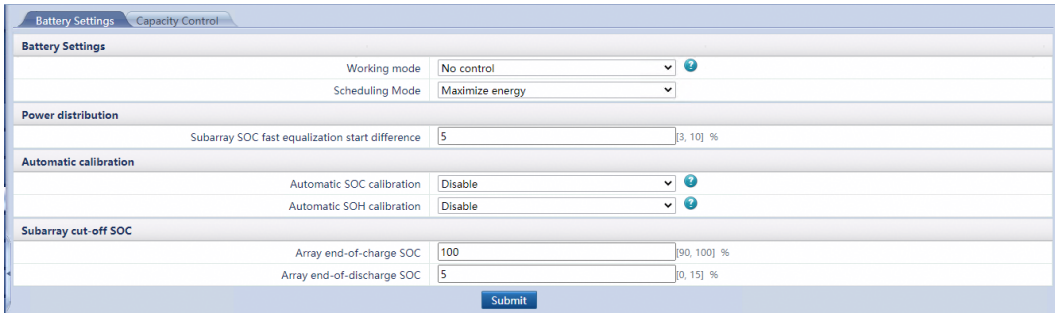
6.4 Battery Commissioning

6.4.1 Working Mode

The on-grid ESS has the following battery control working modes: no control, maximum self-consumption, TOU, TOU (fixed power), and charge/discharge based on grid dispatch.

Choose **Settings** > **Battery Settings** > **Battery Settings** and set parameters such as the working mode.

Figure 6-9 Working mode



No Control

The SmartLogger directly delivers the external scheduling power limit. No other power scheduling control is performed. The power is automatically controlled by the device. The no control mode is used only for commissioning.

Maximum Self-Consumption

- This mode applies to PV+ESS systems in scenarios where the PV-to-ESS ratio is high, the PV power generated is adequate for loads, the electricity price is high, and the feed-in-tariff (FIT) subsidy is low or unavailable.
- PV power is preferentially supplied to loads, and the surplus PV power is used to charge the ESS. If the ESS is fully charged or being charged at full power, the surplus PV power is fed to the power grid. The grid cannot charge the ESS but can supply power to loads.
  - PV energy supply priority: load > ESS > power grid
  - Load power consumption priority: PV > ESS > power grid
- Example of maximum self-consumption (ESS capacity: 800 kWh/400 kW)

Figure 6-10 Example of maximum self-consumption

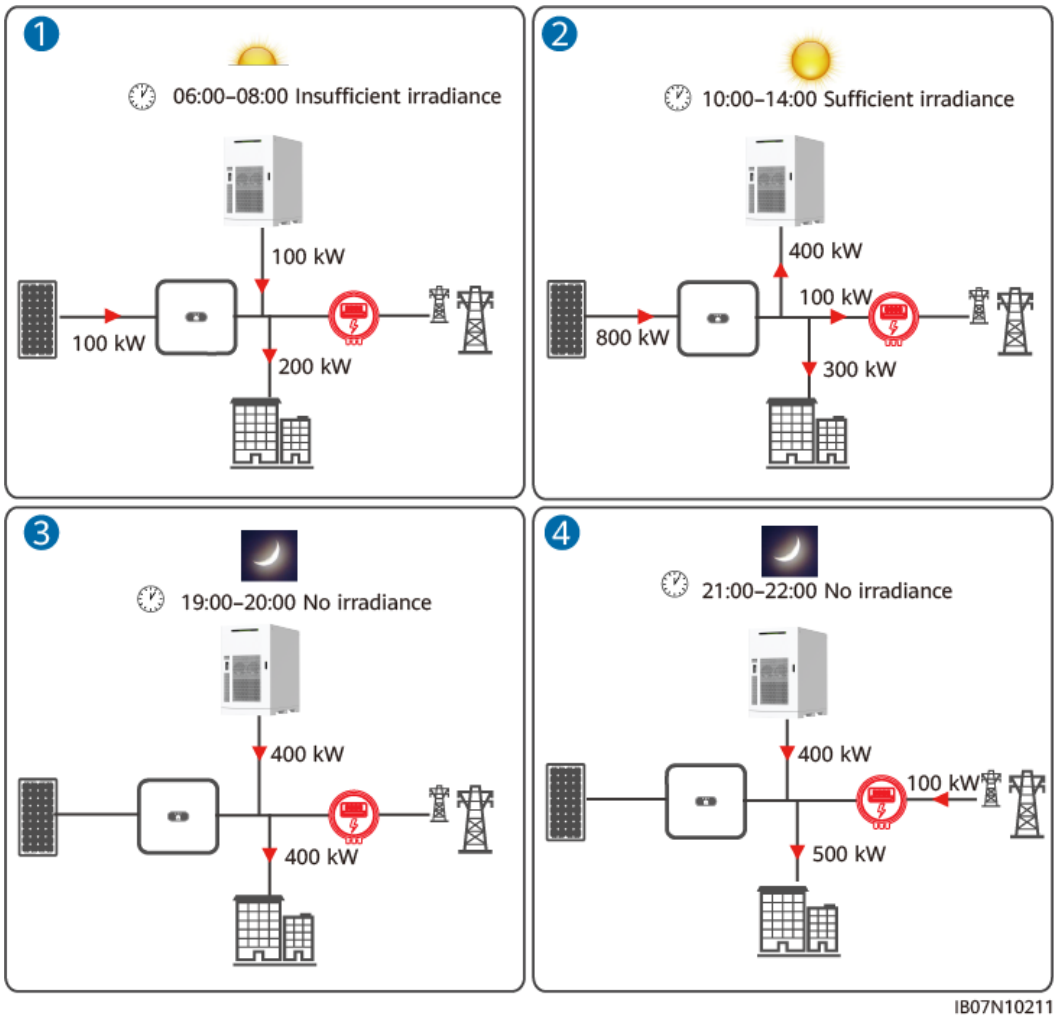


Table 6-1 Running parameters for maximum self-consumption

Parameter	Description
Working mode	Set this parameter to **Maximum self-consumption**.
Active power threshold of grid during battery discharge	Set the grid power threshold at the grid connection point for loads when the load power is greater than the PV power. When the power purchased from the grid exceeds the preset threshold, the ESS starts discharging. The default value is 0. For example, if this parameter is set to 50 W and the load power is 40 W, 40 W power is purchased from the grid and the ESS does not discharge. If the load power is 100 W, 50 W power is purchased from the grid, and the ESS discharge power is 50 W.
Adjustment deadband	Set the precision of the grid power at the grid connection point. This parameter affects the power value range at the grid connection point. If the actual grid power threshold at the grid connection point is within this range, i.e. [Active power threshold of grid during battery discharge – Adjustment deadband, Active power threshold of grid during battery discharge + Adjustment deadband], the grid power requirement at the grid connection point is met.

TOU

- This mode applies to PV+ESS or ESS-only systems in scenarios where the price difference is large between peak and off-peak hours and power meters are used. During off-peak hours, the grid supplies power to charge the ESS. During peak hours, the ESS discharges to supply power to loads.
- In this mode, at least one charge or discharge period for the ESS needs to be set. For example, if you set the low electricity price period at night as the charge period, the system charges the ESS at the maximum power during this period. If you set the high electricity price period as the discharge period, the ESS can discharge energy only during the discharge period based on the actual load power, reducing electricity costs.
- In some countries, the grid is not allowed to charge the ESS. In this case, this mode cannot be used.
- Example of TOU (ESS capacity: 800 kWh/400 kW; **Preferred use of surplus PV power** is set to **Charge**)

Figure 6-11 Example of TOU

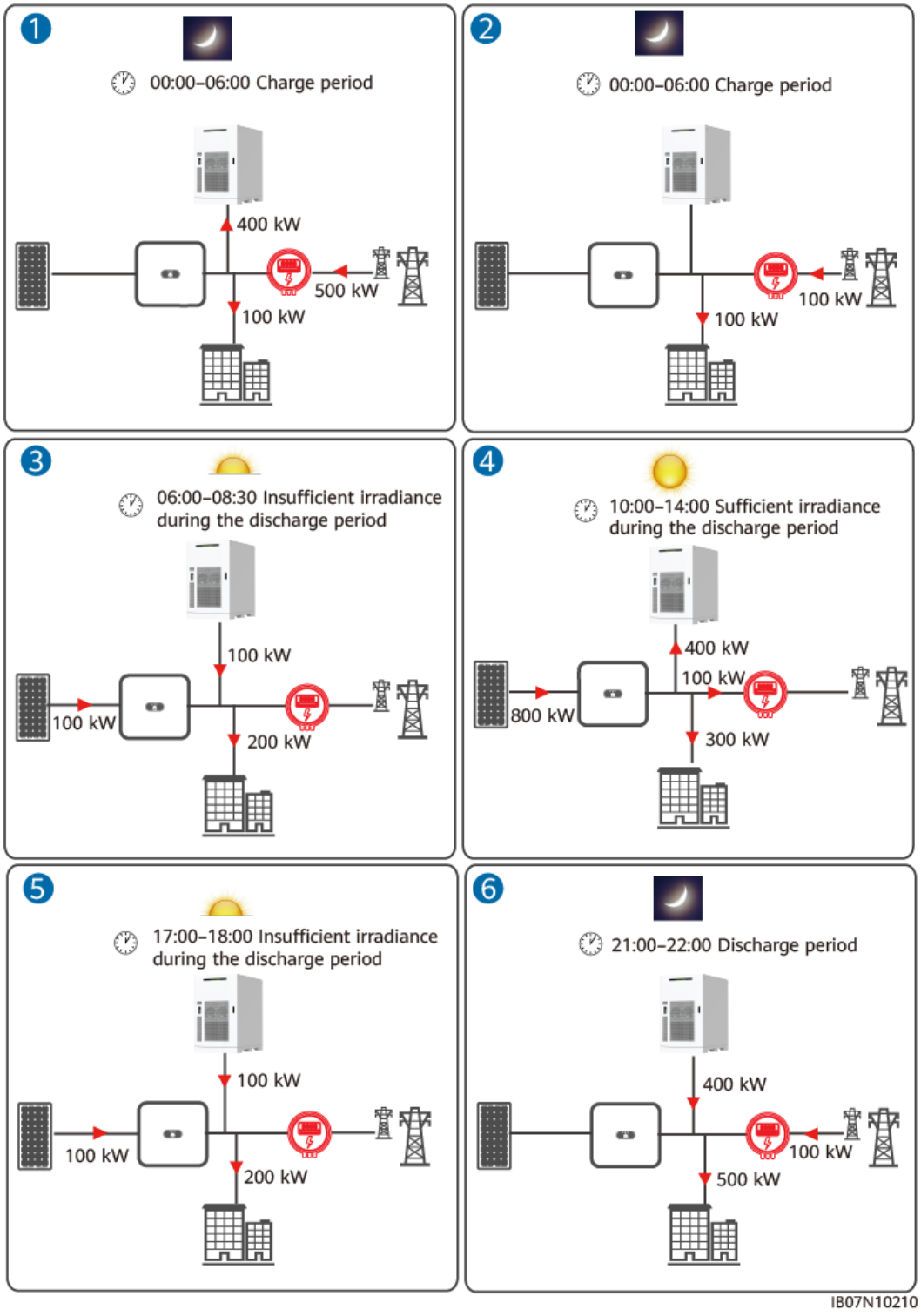


Table 6-2 Running parameters for TOU

Parameter	Description
Working mode	Set this parameter to **TOU**.

Parameter	Description
Preferred use of surplus PV power	• **Charge**: When the PV power is greater than the load power, the surplus PV power is preferentially used to charge the ESS. If the ESS is fully charged or being charged at full power, the surplus PV power is fed to the power grid. This mode is a combination of TOU and maximum self-consumption. • **Fed to grid**: When the PV power is greater than the load power, the surplus PV power is preferentially fed to the power grid. If the surplus PV power reaches the maximum power for charging batteries from the grid, the surplus PV power is used to charge the ESS. This setting is applicable to the scenario where the FIT is higher than the electricity purchase price and the grid cannot charge the ESS.
Maximum power for charging batteries from grid	Maximum charge power allowed by the grid. The value is determined by the local grid company. If there is no requirement, the value is the maximum charge power of the ESS by default.
Active power threshold of grid during battery discharge	Set the grid power threshold at the grid connection point for loads when the load power is greater than the PV power. When the power purchased from the grid exceeds the preset threshold, the ESS starts discharging. The default value is 0. For example, if this parameter is set to 50 W and the load power is 40 W, 40 W power is purchased from the grid and the ESS does not discharge. If the load power is 100 W, 50 W power is purchased from the grid, and the ESS discharge power is 50 W.
Adjustment deadband	Set the precision of the grid power at the grid connection point. This parameter affects the power value range at the grid connection point. If the actual grid power threshold at the grid connection point is within this range, i.e. [Active power threshold of grid during battery discharge – Adjustment deadband, Active power threshold of grid during battery discharge + Adjustment deadband], the grid power requirement at the grid connection point is met.
Start time	Set the start time and end time of charge and discharge. A maximum of 14 time segments can be set. You can set a weekly cycle by clicking the buttons corresponding to **Mon.** through **Sun.** in the **Repeat** box. The buttons are blue by default, indicating being selected. After you click it, the button turns gray.
End time	
Charge/Discharge	
Repeat	

Table 6-3 Charge/Discharge time window

Charge/ Discharge Time Window	Charge Preference	Fed to Grid
Discharge time window	The ESS can discharge power. When the PV power is greater than the load power, the ESS can be charged with the PV power but cannot be charged from the power grid. When the PV power is lower than the load power, the ESS can discharge power to loads but cannot feed power to the power grid. ● PV energy supply priority: load > ESS > power grid ● Load power consumption priority: PV > ESS > power grid	The ESS can discharge power. When the PV power is greater than the load power, the surplus PV power is fed to the power grid. If the surplus PV power cannot be fully fed to the power grid due to feed-in power limit, the ESS can be charged with the surplus PV power but cannot be charged from the power grid. When the PV power is lower than the load power, the ESS can discharge power to loads but cannot feed power to the power grid. ● PV energy supply priority: load > power grid > ESS ● Load power consumption priority: PV > ESS > power grid
Charge time window	The ESS can be charged but cannot discharge. The PV power is preferentially charged to the ESS. If the PV power is insufficient, the ESS is charged from the power grid. ● PV energy supply priority: ESS > load > power grid ● Load power consumption priority: PV > power grid	The ESS can be charged but cannot discharge. The PV power is preferentially charged to the ESS. If the PV power is insufficient, the ESS is charged from the power grid. ● PV energy supply priority: ESS > load > power grid ● Load power consumption priority: PV > power grid
Non-charge/ discharge time window	The ESS cannot discharge or be charged from the power grid. However, when the PV power is greater than the load power, the surplus PV power can be charged to the ESS. ● PV energy supply priority: load > ESS > power grid ● Load power consumption priority: PV > power grid	The ESS cannot discharge or be charged from the power grid. However, when the PV power is greater than the load power, the surplus PV power can be charged to the ESS. ● PV energy supply priority: load > power grid > ESS ● Load power consumption priority: PV > power grid

TOU (Fixed Power)

- This mode applies to ESS-only systems in scenarios where the price difference is large between peak and off-peak hours and no power meters are used. During off-peak hours, the grid supplies power to charge the ESS. During peak hours, the ESS discharges to supply power to loads.
- In this mode, at least one charge or discharge period for the ESS needs to be set. For example, if you set the low electricity price period at night as the charge period, the system charges the ESS at the fixed power during this period. If you set the high electricity price period as the discharge period, the ESS can discharge energy only during the discharge period at the fixed power, reducing electricity costs.
- In some countries, the grid is not allowed to charge the ESS. In this case, this mode cannot be used.

Table 6-4 Running parameters for TOU (fixed power)

Parameter	Description
Working mode	Set this parameter to **TOU (fixed power)**.
Start time	Set the start time and end time of charge and discharge. A maximum of 14 time segments can be set. You can set a weekly cycle by clicking the buttons corresponding to **Mon.** through **Sun.** in the **Repeat** box. The buttons are blue by default, indicating being selected. After you click it, the button turns gray. • Discharge time window: The ESS is discharged at the fixed power. • Charge time window: The ESS is charged at the fixed power. • Non-charge/discharge time window: The ESS cannot be charged or discharge power.
End time	
Charge/ Discharge	
Repeat	

Charge/Discharge Based on Grid Dispatch

- This mode applies to scenarios where the northbound controller delivers active power scheduling instructions.
- The purpose of scheduled discharge is to meet the active power scheduling target value at the grid connection point. PV energy is preferred. If the generated PV energy is insufficient, the ESS discharges energy and the energy is fed to the grid based on the active power scheduling target value. If the generated PV energy is sufficient, the energy is fed to the grid based on the active power scheduling target value, and the surplus PV energy is used to charge the ESS.
- The purpose of scheduled charge is to meet the active power scheduling target value at the grid connection point. If the ESS charge power is insufficient or the Smart PCS limits the power, the grid charges the ESS with the maximum capability. If the ESS is not fully charged when the scheduling target value is met, the PV energy is used to charge the ESS.

Table 6-5 Running parameters in each battery control working mode

Parameter	Description
Working mode	Set this parameter to **Charge/Discharge based on grid dispatch**.
Control charge/ discharge time window	The default value is **Disable**. The default value is recommended. Set this parameter as required. You can set the time segment for charge forbidden, discharge forbidden, charge, and discharge only after **Control charge/discharge time window** is set to **Enable**.
Start time	Set the start time, end time, and power of charge forbidden, discharge forbidden, charge, and discharge. A maximum of 14 time segments can be set. You can set a weekly cycle by clicking the buttons corresponding to **Mon.** through **Sun.** in the **Repeat** box. The buttons are blue by default, indicating being selected. After you click it, the button turns gray.
End time	
Charge/Discharge	
Charge/Discharge power (kW)	
Repeat	

6.4.2 Scheduling Mode

Context

To meet the requirements for mixed use of ESSs with different rates in C&I scenarios, power needs to be allocated based on different scheduling modes.

Procedure

Choose **Settings** > **Battery Settings** > **Battery Settings** and set parameters such as the scheduling mode.

Figure 6-12 Scheduling mode

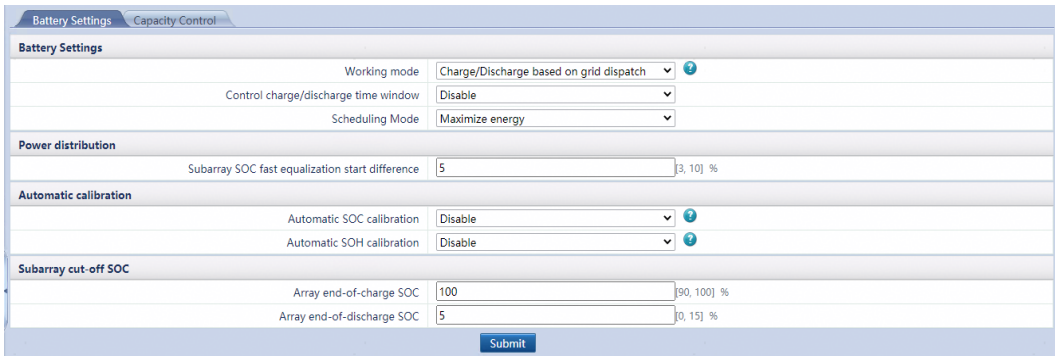


Table 6-6 Scheduling mode parameters

Parameter	Description
Scheduling Mode	The default value is **Maximize energy**. • **Maximize energy**: If ESSs with different C-rates are used together in C&I scenarios, the power is allocated based on the minimum C-rate of all ESSs in the array. If LUNA2000-107-1S11 (C-rate: 1C) and LUNA2000-215-2S10 (C-rate: 0.5C) are used together, the charge/discharge power of the array does not exceed 162 kW. • **Maximize power**: If ESSs with different C-rates are used together in C&I scenarios, the power is allocated based on the C-rate of each ESS. If LUNA2000-107-1S11 (C-rate: 1C) and LUNA2000-215-2S10 (C-rate: 0.5C) are used together, the charge/discharge power of the array does not exceed 216 kW, the power of LUNA2000-107KWH-1H1 may be completely discharged first, and the charge/discharge power of the array may decrease. In addition, the system might collapse in off-grid operation.

6.4.3 Capacity Control

Context

- **Peak shaving** limits the maximum peak power at the grid connection point. In some areas, electricity fees consist of both volumetric charge and demand charge. The **Peak shaving** function allows you to lower the peak demand purchased from the grid during peak hours, reducing electricity fees. **Peak shaving** applies to areas where demand charges are collected. The peak shaving function allows you to lower the peak power purchased from the grid in **Maximum self-consumption** or **TOU** mode during peak hours, reducing electricity fees.
- **Power boost limit** is designed to limit the maximum peak current at the grid connection point. By doing so, it ensures that the electric current purchased from or sold to the grid does not exceed the maximum peak current at the grid connection point. This control is essential because if the electric current exceeds the maximum peak current, it may trigger the system's overcurrent protection mechanism, potentially causing the transformer to trip.

NOTICE

The **Power boost limit** function is unavailable during the SmartLogger and ESS upgrade. After the upgrade is complete, this function will be automatically restored.

Procedure

Choose **Settings** > **Battery Settings** > **Capacity Control** and set related parameters.

Table 6-7 Capacity control parameters

Parameter	Description
Peak shaving	• **No control**: The peak shaving function is disabled. • **Active power limit**: The active power purchased from the grid cannot exceed the preset capacity limit. • **Apparent power limit**: The apparent power purchased from the grid cannot exceed the preset capacity limit.
Power boost limit	• **No control**: The power boost limit function is disabled. • **Current Limit**: The current of electricity purchased from or sold to the grid cannot exceed the preset current limit.
Maximum Peak Current	This parameter is displayed when **Power boost limit** is set to **Current Limit**. It specifies the maximum peak current at the grid connection point. The default value is 30000 A. Set this parameter based on the maximum peak current for power purchase or sales at the grid connection point.
Backup power SOC for capacity control	Specifies the backup power SOC for capacity control. The value of this parameter affects the peak shaving capability. A larger value indicates stronger peak shaving capability.
PV power limit when power meter fails	Specifies the active power limit of the inverter when the export+import meter communication is abnormal. You can manually change the active power percentage of the inverter as required.
PCS power limit when power meter fails	Specifies the active power limit of the PCS when the export+import meter communication is abnormal. You can manually change the active power percentage of the PCS as required.
Start time	• Set the peak power range based on the start time and end time. The peak power is configured based on electricity prices in different time segments. You are advised to set the peak power to a low value when the electricity price is high. • A maximum of 14 time segments can be set.
End time	
Maximum Power	

6.4.4 Multi-mode Overlay

Multi-mode overlay is a combination of multiple on-grid scheduling policies.

Combination 1: Maximum Self-Consumption + Capacity Control

Step 1 Choose **Settings** > **Battery Control** > **Battery Control** and set **Working mode** to **Maximum self-consumption**. For details about how to set other parameters, see **Maximum Self-Consumption**.

Step 2 Choose **Settings** > **Battery Control** > **Capacity Control** and set the parameters by referring to **6.4.3 Capacity Control**.

----End

Combination 2: TOU + Maximum Self-Consumption

Step 1 Choose **Settings** > **Battery Control** > **Battery Control** and set **Working mode** to **TOU**.

Step 2 Set **Preferred use of surplus PV power** to **Charge**. For details about how to set other parameters, see **TOU**.

----End

Combination 3: TOU + Maximum Self-Consumption + Capacity Control

Step 1 Choose **Settings** > **Battery Control** > **Battery Control** and set **Working mode** to **TOU**.

Step 2 Set **Preferred use of surplus PV power** to **Charge**. For details about how to set other parameters, see **TOU**.

Step 3 Choose **Settings** > **Battery Control** > **Capacity Control** and set the parameters by referring to **6.4.3 Capacity Control**.

----End

Combination 4: TOU + Capacity Control

Step 1 Choose **Settings** > **Battery Control** > **Battery Control** and set **Working mode** to **TOU**.

Step 2 Set **Preferred use of surplus PV power** to **Fed to grid**. For details about how to set other parameters, see **TOU**.

Step 3 Choose **Settings** > **Battery Control** > **Capacity Control** and set the parameters by referring to **6.4.3 Capacity Control**.

----End

7 System Commissioning (App)

For details about system commissioning (app), see the app quick guide.

8 System Power-Off

If you need to power off the system during maintenance, use the SmartLogger to power off the system.

Step 1 Send a shutdown command.

1. Log in to the SmartLogger WebUI and send a shutdown command to the inverter and ESS.

   Method 1 (array-level): Choose **Maintenance** > **Connect Device**, and click  .

   Method 2 (bus-level): Choose **Overview** > **Plant Running Info.**, and click  .
2. Choose **Monitoring** > **Inverter** > **Running Info.** Check **Device status** to verify that the shutdown is successful.
3. Choose **Monitoring** > **ESS** > **Running Info.** Check **Device status** to verify that the shutdown is successful.

Step 2 Power off the devices: Turn off the main power switches and then the auxiliary power switches of the devices by referring to the operations of **5 System Power-On** in the reverse order.

DANGER

Wear insulated gloves and use insulated tools to prevent electric shocks or short circuits.

NOTE

To prevent local operations on switches during subsequent power-on, you are advised not to turn off the auxiliary power switches.

----End

A Meter Cable Connection and Parameter Settings

Meter Cable Connection Position

The meter at the grid connection point must be connected to the metering point where the customer purchases electricity.

Figure A-1 Example of the correct cable connection position

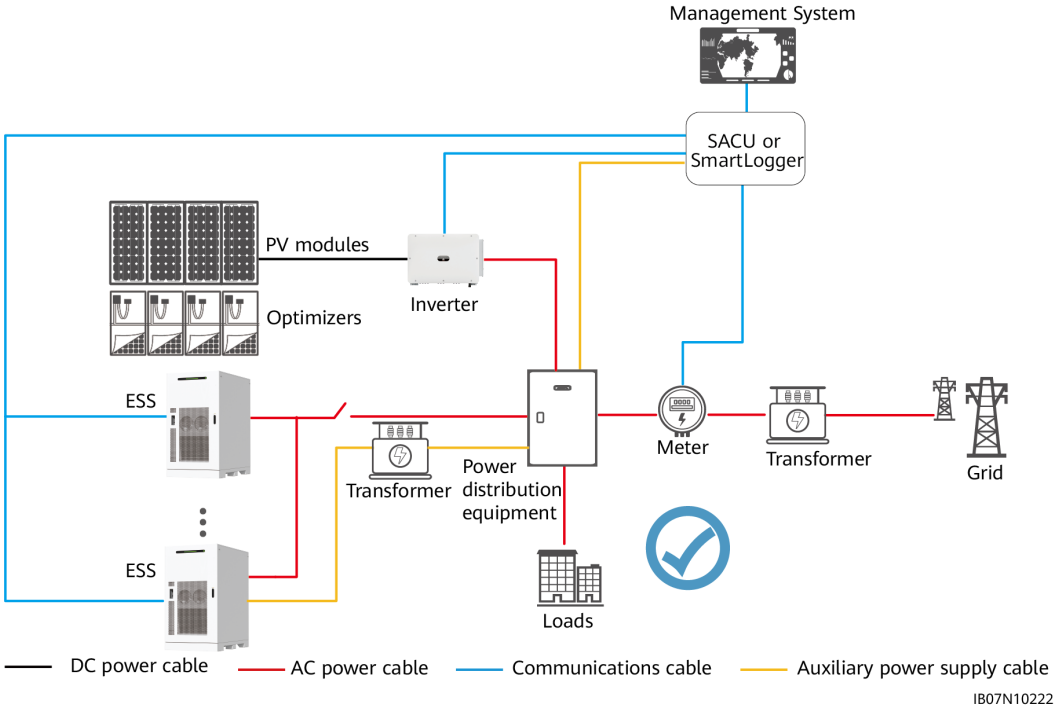
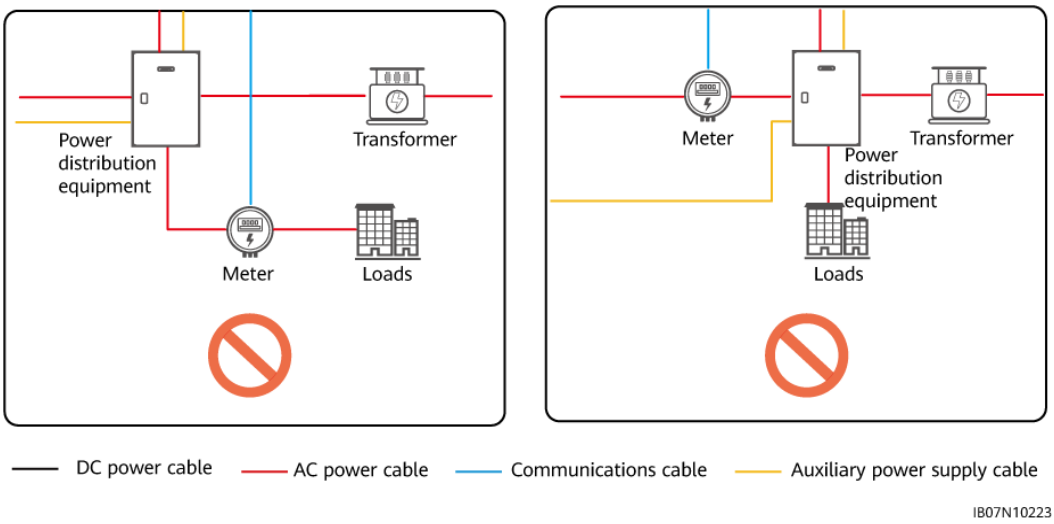


Figure A-2 Examples of incorrect cable connection positions



Meter Cable Connection Description

NOTICE

Cables must be connected to the meter in correct polarities. If the cables are reversely connected, power off the meter, rectify the physical cable connection, and then set **Meter access direction** to **Positive**.

When the meter is connected correctly, the power flows from the grid to the load. For details about correct meter connection, see **Figure A-3** and **Figure A-4**.

Figure A-3 Example 1 of correct meter connection

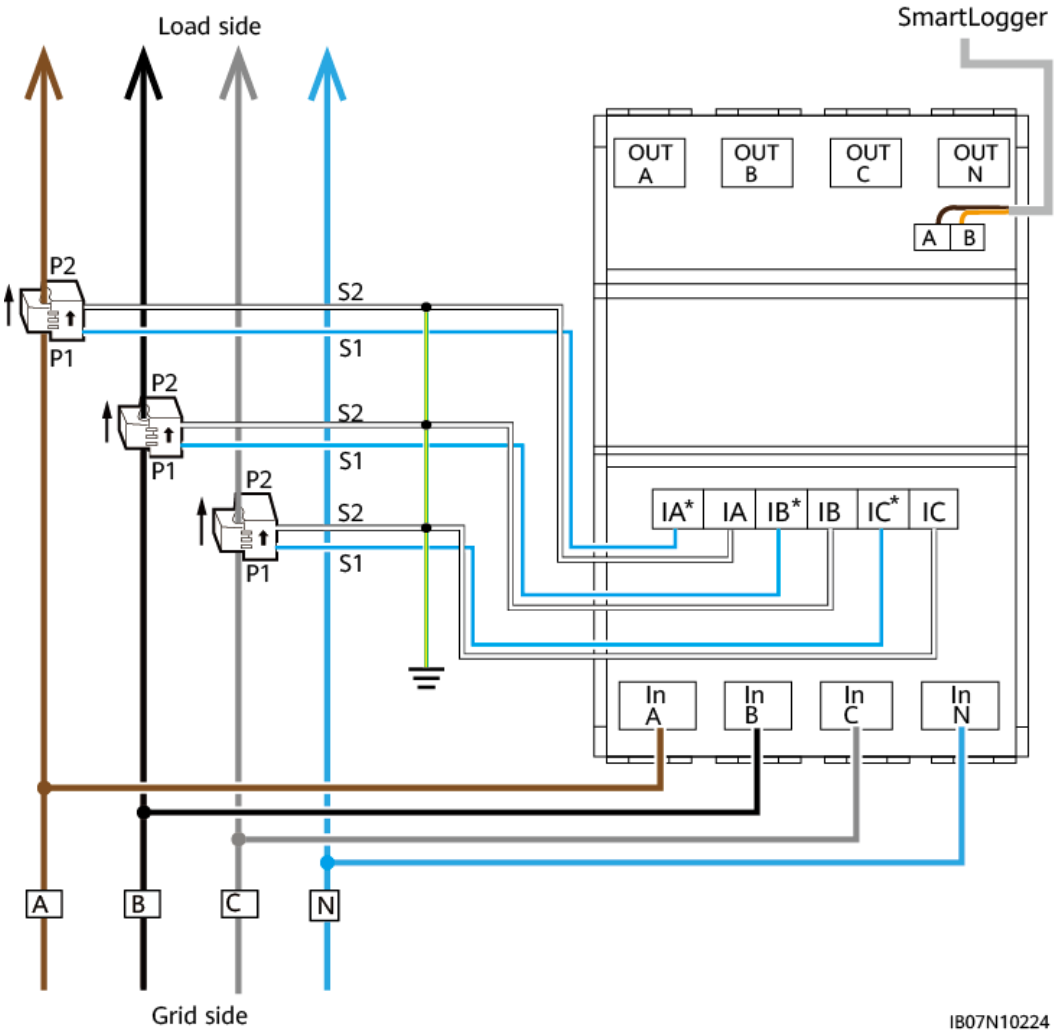
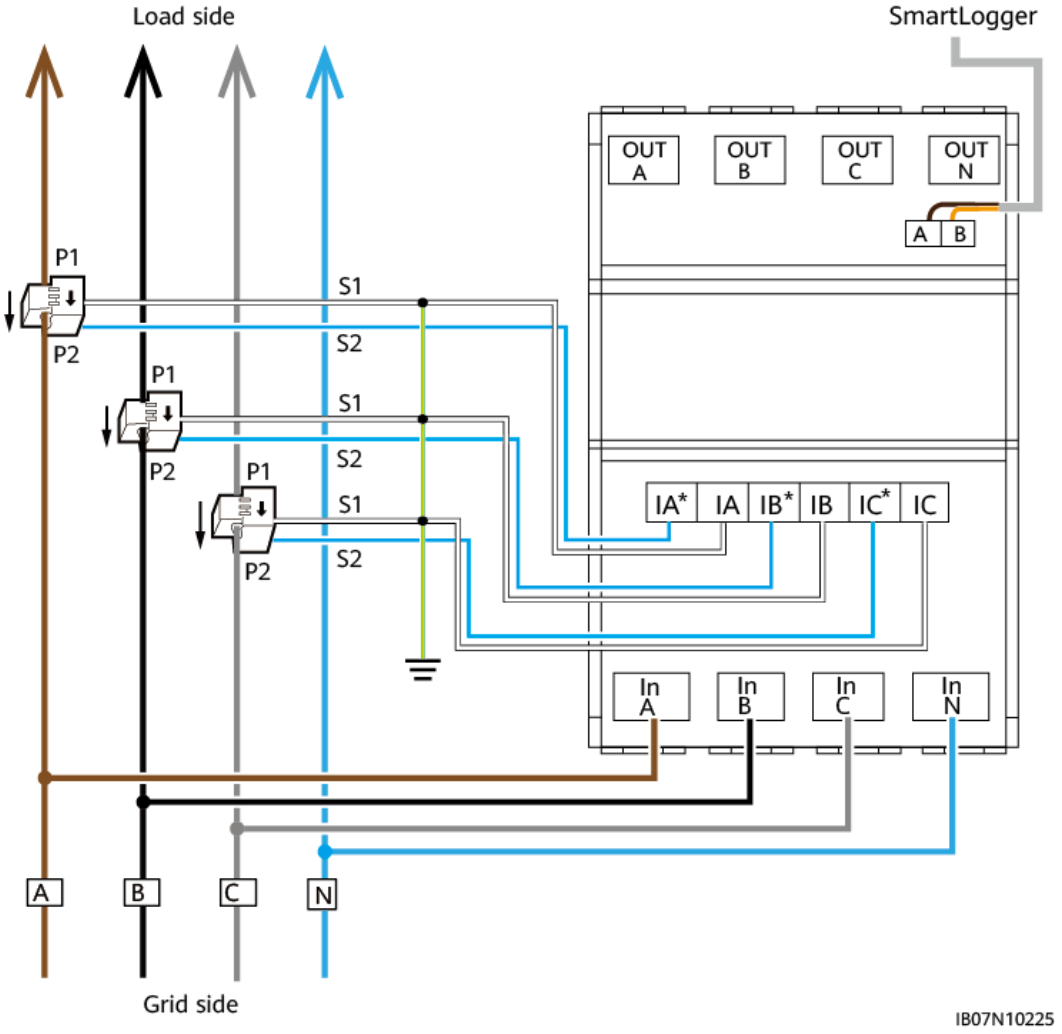
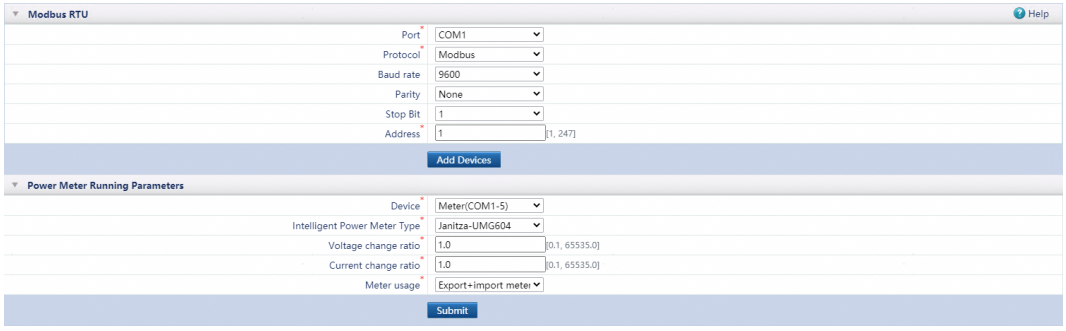


Figure A-4 Example 2 of correct meter connection



Meter Parameter Settings

Step 1 Connect to the meter. Choose **Deployment Wizard** > **Power Meter**.



1. After setting meter access parameters, click **Add Devices**.

Parameter	Description
Port	Set this parameter based on the COM port connected to the meter.

Parameter	Description
Protocol	Set this parameter to **Modbus-RTU**.

2. Set meter running parameters and click **Submit**.

Parameter	Description
Device	**Meter**
Intelligent Power Meter Type	– If the power meter model is DTSU666-HW, select **DTSU666-HW**. – If the power meter model is YDS60-80, select **YADA-YDS60-80**. – If the power meter model is DHSU1079-ZT, select **DHSU1079-ZT**. – If the power meter model is DTSU71C, select **DTSU71C**.

Parameter	Description
Voltage change ratio Current change ratio	– If both the power meter and the SmartLogger support the settings of the PT ratio and CT ratio, you can only set them either on the power meter or the SmartLogger. You are advised to set these parameters on the power meter. – Examples: ▪ Scenario 1: When the voltage of the grid connection point is 400 V, the power meter must be connected to a current transformer (CT), and the CT ratio is 400:5. ○ Set **Voltage change ratio** of the power meter to 1. ○ Set **Current change ratio** of the power meter to 80. ▪ Scenario 2: When the voltage of the grid connection point is 10 kV, the power meter must be connected to both the CT and potential transformer (PT). The CT ratio is 400:5, and the PT ratio is 10000:100. ○ Set **Voltage change ratio** of the power meter to 100. ○ Set **Current change ratio** of the power meter to 80. **NOTE** – The DTSU666-HW and YDS60-80 support a CT ratio range of 1–6553 and a PT ratio range of 0.1–999.9. – If the power meter connects to a transformer, set **SPEC** of the power meter to **0**, indicating that the power meter connects to the system through a transformer. – If **Export Limitation(kW)** is set to **Single-phase power** or **Feed-in at limited current** is used, the power meter must collect the current and voltage of each phase independently.
Meter usage	**Export+import meter**: used for grid connection point control.

Step 2 Choose **Monitoring > Meter > Running Param.**, set **Meter access direction**, and click **Submit**.

Parameter	Description
Meter access direction	Set this parameter to **Positive**. **NOTICE** Cables must be connected to the meter in correct polarities. If the cables are reversely connected, power off the meter, rectify the physical cable connection, and then set **Meter access direction** to **Positive**.

Step 3 (Optional) Set **Electric meter power direction** only when **Active Power Control** uses export limitation.

1. Choose **Settings** > **Power Adjustment** > **Active Power Control**.
2. Set **Active power control mode** to **Export Limitation(kW)**.
3. Set **Electric meter power direction** to **Positive**.

Step 4 (Optional) Set **Electric meter power direction** only when **Reactive Power Control** uses **Power factor closed-loop control**.

1. Choose **Settings** > **Power Adjustment** > **Reactive Power Control**.
2. Set **Reactive power control mode** to **Power factor closed-loop control**.
3. Set **Electric meter power direction** to **Positive**.

----End

B Reference Documents

Device	Document
ESS	• HUAWEI LUNA2000-(107-241) Series Commercial and Industrial Hybrid Cooling Grid Forming ESS User Manual • HUAWEI LUNA2000-(107-241) Series Commercial and Industrial Hybrid Cooling Grid Forming ESS Quick Guide
Inverter	• SUN2000-(20KTL, 29.9KTL, 30KTL, 36KTL, 40KTL)-M3 Series User Manual • SUN2000-(20KTL, 29.9KTL, 30KTL, 36KTL, 40KTL)-M3 Series Quick Guide • SUN2000-(50KTL-ZHM3, 50KTL-M3, 50KTL-BRM3) User Manual • SUN2000-(50KTL-ZHM3, 50KTL-M3, 50KTL-BRM3) Quick Guide • SUN2000-(50KTL, 60KTL, 65KTL)-M0 User Manual • SUN2000-(50KTL, 60KTL, 65KTL)-M0 Quick Guide • SUN2000-(75KTL, 100KTL, 110KTL, 125KTL) Series User Manual • SUN2000-(75KTL, 100KTL, 110KTL, 125KTL) Series Quick Guide • SUN2000-(75KTL-M1, 100KTL-M2, 110KTL-M2, 115KTL-M2) User Manual • SUN2000-(100KTL, 110KTL)-M2 Quick Guide (STAUBLI) • SUN2000-(75KTL-M1, 100KTL-M2, 110KTL-M2, 115KTL-M2) Quick Guide (Amphenol) • SUN2000-(50K, 75K, 80K, 150K)-MG Series User Manual • SUN2000-(50K, 75K, 80K, 150K)-MG Series Quick Guide • SUN5000-(150K-MG0-ZH,150K-MG0) User Manual • SUN5000-(150K-MG0-ZH, 150K-MG0) Quick Guide

Device	Document
SUN2000P	• **HUAWEI MERC-(1300W, 1100W)-P Smart PV Optimizer User Manual** • **HUAWEI MERC-(1300W, 1100W)-P Smart PV Optimizer Quick Guide** • **SUN2000 Smart PV Optimizer User Manual** • **SUN2000-(600W-P, 450W-P2) Smart PV Optimizer Quick Guide** • **SUN2000-450W-P Smart PV Optimizer Quick Guide**
SACU	• **SmartACU2000D-D-(08-11) Series Smart Array Controller User Manual** • **SmartACU2000D-D-(08-11) Quick Guide**
SmartLogger	• **SmartLogger3000 User Manual** • **SmartLogger3000 Quick Guide**
Power meter	• **DTSU666-HW Smart Power Sensor Quick Guide** • **YDS60-80 Smart Power Sensor Quick Guide**

C Digital Power Customer Service

https://digitalpower.huawei.com/robotchat/

D Contact Information

If you have any questions about this product, please contact us.

https://digitalpower.huawei.com

Path: **About Us** > **Contact Us** > **Service Hotlines**

To ensure faster and better services, we kindly request your assistance in providing the following information:

- Model
- Serial number (SN)
- Software version
- Alarm ID or name
- Brief description of the fault symptom

NOTE

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E Acronyms and Abbreviations

E	
ESS	energy storage system
F	
FE	fast Ethernet
S	
SACU	Smart Array Controller
SOC	state of charge
SOH	state of health
U	
UPS	uninterruptible power supply

