# Residential Smart PV Solution Quick Guide
## (Three-Phase PV+ESS Scenario + Smart Dongle Networking)

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# 1 Networking



Critical load 3

PV strings (including optimizers)

Slave inverter 2

Backup Box

DI

ESS 2    ESS 1

RS485

RS485

Critical load 2

PV strings (including optimizers)

Slave inverter 1

Backup Box

DI

ESS 2    ESS 1

RS485

RS485

Critical load 1    Common load

PV strings (including optimizers)

Master inverter

Backup Box

DI

AC power distribution box

Smart Power Sensor

Power grid

RS485

ESS 2    ESS 1

RS485

APP

4G Smart Dongle

4G

Internet

FusionSolar SmartPVMS

WLAN-FE Smart Dongle

Ethernet

WLAN

FE

Router

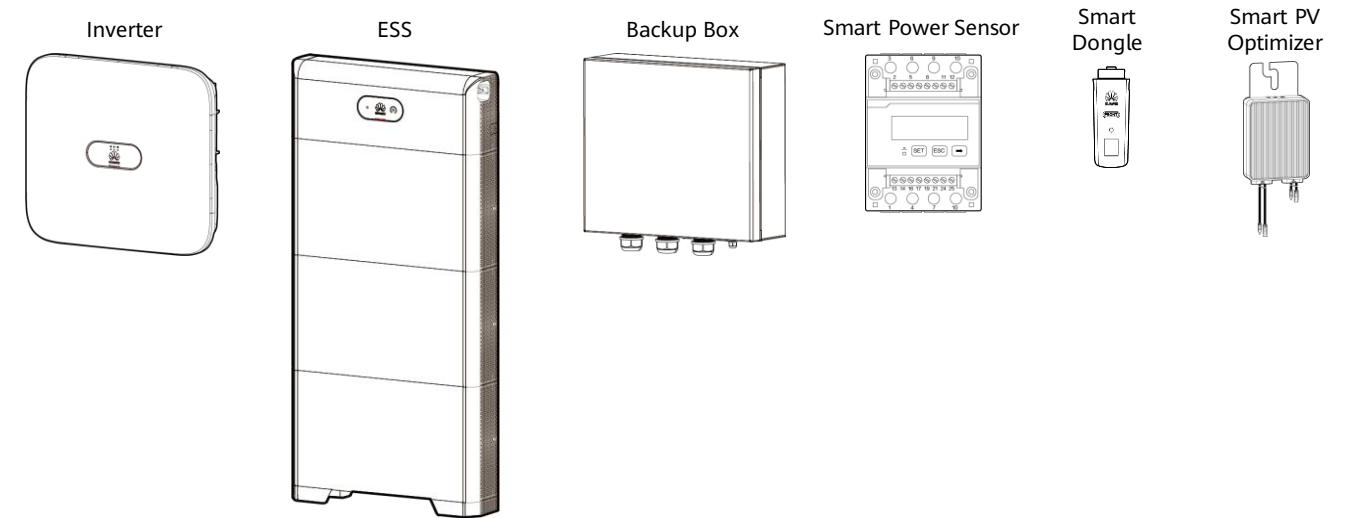FusionSolar app

— Signal cable
— Power cable
--- Wireless communication

📖 **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.

# 2 Product Overview



Inverter    ESS    Backup Box    Smart Power Sensor    Smart Dongle    Smart PV Optimizer

| Component | Model | | Description |
|---|---|---|---|
| Inverter (master and slave) | SUN2000-(5KTL-12KTL)-M1 SUN2000-(12K-25K)-MB0 series SUN2000-(8KTL-20KTL)-M2 SUN2000-(12KTL-25KTL)-M5 series SUN2000-(5K-12K)-MAP0 series | SUN5000-(8KTL, 12KTL)-MAP0 series SUN5000-(17K, 25K)-MB0 series | • A maximum of three inverters can be cascaded. • M1/M2/M5/MB0 inverters can be cascaded. • The SUN2000-(5K-12K)-MAP0 cannot be cascaded with other inverters. • SUN5000 inverters cannot be cascaded with SUN2000 inverters. • Optimizers must be configured for all PV modules connected to a SUN5000 inverter. Otherwise, the inverter cannot be started. • In the Smart Dongle networking scenario, a maximum of three inverters and six ESSs can be connected. |
| Energy storage system (ESS) | LUNA2000-(5-30)-S0 LUNA2000-(7, 14, 21)-S1 | | • If there is only one ESS, it must be connected to the master inverter. • Each M1/MAP0 can connect to a maximum of two ESSs, and each MB0 can connect to a maximum of four ESSs (each battery terminal can connect to a maximum of two batteries). • The LUNA2000-(5-30)-S0 and LUNA2000-(7, 14, 21)-S1 cannot connect to the same inverter in a parallel 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-B1 | | • AC input voltage range: grid-tied (three-phase) 342–440 V; off-grid (single-phase) 220/230 V • If there is only one Backup Box, it must be connected to the master inverter. • Only M1 can be connected to the Backup Box-B1. |
| Smart Power Sensor | DTSU666-H DTSU666-HW YDS60-80 YDS60-C24 DTSU71 DHSU1079-CT | | • 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 | SDongleB-06 (4G) SDongleA-05 (WLAN-FE) | | • The Smart Dongle must be connected to the master inverter. • It connects to the management system and performs power scheduling. |
| Smart PV Optimizer | SUN2000-450W-P2 SUN2000-600W-P MERC-600W-PA0 | | • SUN2000-600W-P: Long and short input cables are available to connect to PV modules with different cable lengths. • The SUN2000-(600W-P, 450W-P2) and MERC-600W-PA0 cannot be used together for the same inverter. |

**NOTICE**

When MB0 functions as the master inverter and needs to connect to both a power meter and ESS, if more than two ESSs are connected, select one of the following meter models: DTSU666-HW, YDS60-80, YDS60-C24, DTSU71, and DHSU1079-CT. The DTSU666-H is not supported. Ensure that the baud rate for RS485-2 is negotiated to 115200 bit/s. For details about baud rate negotiation, see Baud Rate Negotiation.

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# 3 Cable Connections (Three-Phase Inverter M1 + ESS S0 + Backup Box B1 + Smart Dongle)

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

**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.

**NOTICE**
Signal cables must be outdoor shielded twisted pair cables.

PV strings (with optimizers)

Slave inverter 2

Slave inverter 1

Master inverter

Backup load power distribution box

Backup Box

AC power distribution box

Power grid



| PE | 1 | 10 | PE |
| Enable- | 2 | 9 | CANH |
| Enable+ | 3 | 8 | CANL |
| 485A | 4 | 7 | 485B |
| 485A | 5 | 6 | 485B |

| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| DC power cable | ① | Master inverter | PV1+ | Positive terminal | PV strings |
| | | | PV1- | Negative terminal | |
| | ② | Master inverter | BAT+ | BAT+ | ESS 1 |
| | | | BAT- | BAT- | |
| | ③ | ESS 1 | BAT+ | BAT+ | ESS 2 |
| | | | BAT- | BAT- | |
| Signal cable | ④ | Master inverter | COM-13 | COM-2(right) | ESS 1 |
| | | | COM-11 | COM-3(right) | |
| | | | COM-7 | COM-4(right) | |
| | | | COM-9 | COM-7(right) | |
| | | | COM-1 | COM-2 | Slave inverter 1 |
| | | | COM-3 | COM-4 | |
| | | | COM-8 | X4-1 | Backup Box |
| | | | COM-16 | X4-2 | |
| | | | COM-9 | 25 | DTSU666-H |
| | | | COM-7 | 24 | |
| | ⑤ | 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) | |
| | | | COM-8(left) | COM-8(right) | |
| | | | COM-9(left) | COM-9(right) | |
| | ⑥ | Slave inverter 1 | COM-1 | COM-2 | Slave inverter 2 |
| | | | COM-3 | COM-4 | |

| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| | ⑦ | Master inverter | AC-L1 | X3-1 (L1) | Backup Box |
| | | | AC-L2 | X3-3 (L2) | |
| | | | AC-L3 | X3-5 (L3) | |
| | | | AC-N | X3-8 (N) | |
| | | | AC-PE | X3-12 (PE) | |
| | ⑧ | Backup load power distribution box | L | X1-1 | Backup Box |
| | | | N | X1-2 | |
| | | | PE | X1-4 | |
| AC power cable | ⑨ | AC power distribution box | L1 | X2-1 | Backup Box |
| | | | L2 | X2-2 | |
| | | | L3 | X2-3 | |
| | | | N | X2-4 | |
| | | | PE | X2-6 | |
| | ⑩ | AC power distribution box | L1 | 3 | DTSU666-H |
| | | | L2 | 6 | |
| | | | L3 | 9 | |
| | | | N | 10 | |
| | ⑪ | AC power distribution box | L1 | 13 | DTSU666-H CT |
| | | | | 14 | |
| | | | L2 | 16 | |
| | | | | 17 | |
| | | | L3 | 19 | |
| | | | | 21 | |

DTSU666-H

BATTERY-2  BATTERY-1

## 3 Cable Connections (Three-Phase Inverter M1 + ESS S1 + Backup Box B1 + Smart Dongle)

**DANGER**

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

**NOTICE**

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

PV strings (with optimizers)

Power grid

Backup load power distribution box

Backup Box

AC power distribution box

Slave inverter 2

Slave inverter 1

Master inverter

DTSU666-H

**NOTICE**

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

**NOTICE**

Signal cables must be outdoor shielded twisted pair cables.

Inverter←→Battery
1  PE
2  485A2
3  485B2
4  EN
5  GND

Battery←→Battery
6  PE
7  485A2
8  485B2
9  EN
10  GND
11  CANH
12  CANL

BATTERY-1  BATTERY-2

| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| DC power cable | ❶ | Master inverter | PV1+ | Positive terminal | PV strings |
| | | | PV1- | Negative terminal | |
| | ❷ | Master inverter | BAT+ | BAT+ | ESS 1 |
| | | | BAT- | BAT- | |
| | ❸ | ESS 1 | BAT+ | BAT+ | ESS 2 |
| | | | BAT- | BAT- | |
| Signal cable | ❹ | Master inverter | COM-13 | COM-5 | ESS 1 |
| | | | COM-11 | COM-4 | |
| | | | COM-7 | COM-2 | |
| | | | COM-9 | COM-3 | |
| | | | COM-8 | X4-1 | Backup Box |
| | | | COM-16 | X4-2 | |
| | | | COM-9 | 25 | DTSU666-H |
| | | | COM-7 | 24 | |
| | ❺ | ESS 1 | COM-7 | COM-7 | ESS 2 |
| | | | COM-8 | COM-8 | |
| | | | COM-9 | COM-9 | |
| | | | COM-10 | COM-10 | |
| | | | COM-11 | COM-11 | |
| | | | COM-12 | COM-12 | |
| | ❻ | Slave inverter 1 | COM-1 | COM-2 | Slave inverter 2 |
| | | | COM-3 | COM-4 | |

| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| | ❼ | Master inverter | AC-L1 | X3-1 (L1) | Backup Box |
| | | | AC-L2 | X3-3 (L2) | |
| | | | AC-L3 | X3-5 (L3) | |
| | | | AC-N | X3-8 (N) | |
| | | | AC-PE | X3-12 (PE) | |
| | ❽ | Backup load power distribution box | L | X1-1 | Backup Box |
| | | | N | X1-2 | |
| | | | PE | X1-4 | |
| AC power cable | ❾ | AC power distribution box | L1 | X2-1 | Backup Box |
| | | | L2 | X2-2 | |
| | | | L3 | X2-3 | |
| | | | N | X2-4 | |
| | | | PE | X2-6 | |
| | ❿ | AC power distribution box | L1 | 3 | DTSU666-H |
| | | | L2 | 6 | |
| | | | L3 | 9 | |
| | | | N | 10 | |
| | ⓫ | AC power distribution box | L1 | 13 | DTSU666-H CT |
| | | | | 14 | |
| | | | L2 | 16 | |
| | | | | 17 | |
| | | | L3 | 19 | |
| | | | | 21 | |

## 3 Cable Connections (Three-Phase Inverter MB0 + ESS S0 + Smart Dongle)
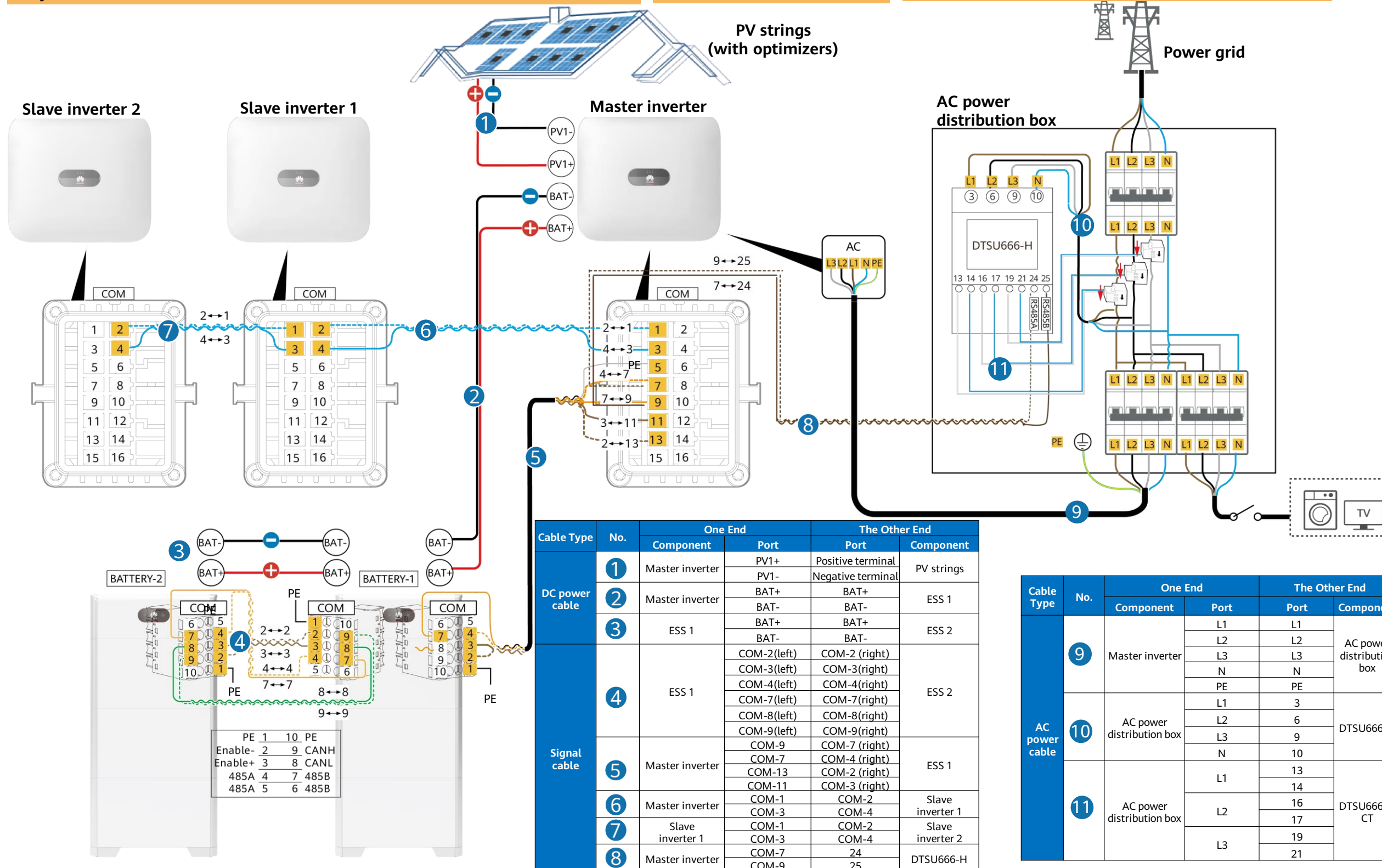
⚠ **DANGER**

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**

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



PV strings (with optimizers)

Power grid

Slave inverter 2   Slave inverter 1   Master inverter

AC power distribution box

DTSU666-H

BATTERY-2   BATTERY-1

| PE | 1 | 10 | PE |
| Enable- | 2 | 9 | CANH |
| Enable+ | 3 | 8 | CANL |
| 485A | 4 | 7 | 485B |
| 485A | 5 | 6 | 485B |

| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| DC power cable | ① | Master inverter | PV1+ | Positive terminal | PV strings |
| | | | PV1- | Negative terminal | |
| | ② | Master inverter | BAT+ | BAT+ | ESS 1 |
| | | | BAT- | BAT- | |
| | ③ | ESS 1 | BAT+ | BAT+ | ESS 2 |
| | | | BAT- | BAT- | |
| 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) | |
| | | | COM-8(left) | COM-8(right) | |
| | | | COM-9(left) | COM-9(right) | |
| | ⑤ | Master inverter | COM-9 | COM-7 (right) | ESS 1 |
| | | | COM-7 | COM-4 (right) | |
| | | | COM-13 | COM-2 (right) | |
| | | | COM-11 | COM-3 (right) | |
| | ⑥ | Master inverter | COM-1 | COM-2 | Slave inverter 1 |
| | | | COM-3 | COM-4 | |
| | ⑦ | Slave inverter 1 | COM-1 | COM-2 | Slave inverter 2 |
| | | | COM-3 | COM-4 | |
| | ⑧ | Master inverter | COM-7 | 24 | DTSU666-H |
| | | | COM-9 | 25 | |

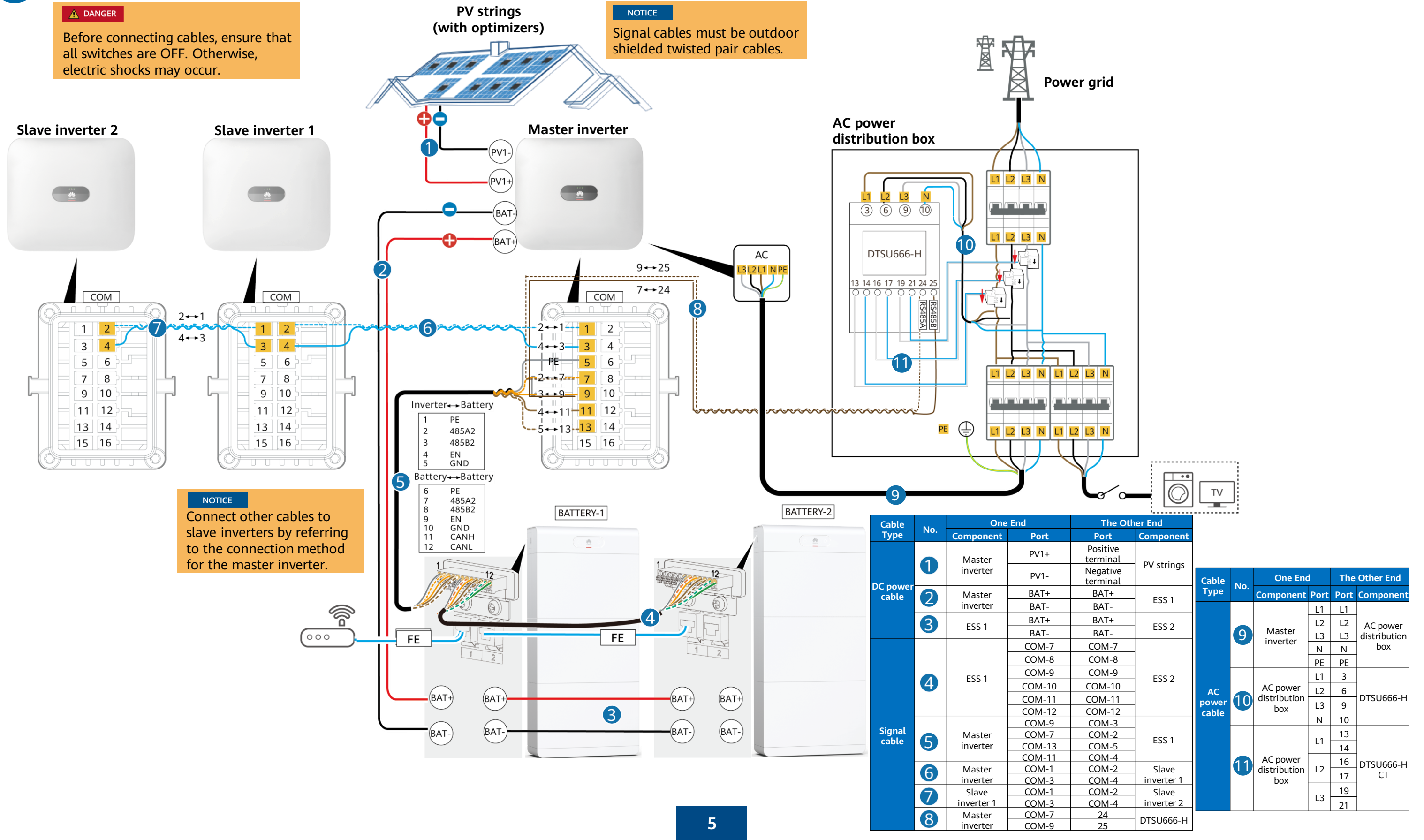| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| AC power cable | ⑨ | Master inverter | L1 | L1 | AC power distribution box |
| | | | L2 | L2 | |
| | | | L3 | L3 | |
| | | | N | N | |
| | | | PE | PE | |
| | ⑩ | AC power distribution box | L1 | 3 | DTSU666-H |
| | | | L2 | 6 | |
| | | | L3 | 9 | |
| | | | N | 10 | |
| | ⑪ | AC power distribution box | L1 | 13 | DTSU666-H CT |
| | | | | 14 | |
| | | | L2 | 16 | |
| | | | | 17 | |
| | | | L3 | 19 | |
| | | | | 21 | |

## 3  Cable Connections (Three-Phase Inverter MB0 + ESS S1 + Smart Dongle)

**⚠ DANGER**

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

**PV strings (with optimizers)**

**NOTICE**

Signal cables must be outdoor shielded twisted pair cables.

**Power grid**

**AC power distribution box**

Slave inverter 2

Slave inverter 1

Master inverter

**NOTICE**

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

Inverter↔Battery
1 PE
2 485A2
3 485B2
4 EN
5 GND

Battery↔Battery
6 PE
7 485A2
8 485B2
9 EN
10 GND
11 CANH
12 CANL

DTSU666-H

BATTERY-1

BATTERY-2



| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| DC power cable | ① | Master inverter | PV1+ | Positive terminal | PV strings |
| | | | PV1- | Negative terminal | |
| | ② | Master inverter | BAT+ | BAT+ | ESS 1 |
| | | | BAT- | BAT- | |
| | ③ | ESS 1 | BAT+ | BAT+ | ESS 2 |
| | | | BAT- | BAT- | |
| Signal cable | ④ | ESS 1 | COM-7 | COM-7 | ESS 2 |
| | | | COM-8 | COM-8 | |
| | | | COM-9 | COM-9 | |
| | | | COM-10 | COM-10 | |
| | | | COM-11 | COM-11 | |
| | | | COM-12 | COM-12 | |
| | ⑤ | Master inverter | COM-9 | COM-3 | ESS 1 |
| | | | COM-7 | COM-2 | |
| | | | COM-13 | COM-5 | |
| | | | COM-11 | COM-4 | |
| | ⑥ | Master inverter | COM-1 | COM-2 | Slave inverter 1 |
| | | | COM-3 | COM-4 | |
| | ⑦ | Slave inverter 1 | COM-1 | COM-2 | Slave inverter 2 |
| | | | COM-3 | COM-4 | |
| | ⑧ | Master inverter | COM-7 | 24 | DTSU666-H |
| | | | COM-9 | 25 | |

| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| AC power cable | ⑨ | Master inverter | L1 | L1 | AC power distribution box |
| | | | L2 | L2 | |
| | | | L3 | L3 | |
| | | | N | N | |
| | | | PE | PE | |
| | ⑩ | AC power distribution box | L1 | 3 | DTSU666-H |
| | | | L2 | 6 | |
| | | | L3 | 9 | |
| | | | N | 10 | |
| | ⑪ | AC power distribution box | L1 | 13 | DTSU666-H CT |
| | | | | 14 | |
| | | | L2 | 16 | |
| | | | | 17 | |
| | | | L3 | 19 | |
| | | | | 21 | |

## 3 Cable Connections (Three-Phase Inverter MAP0 + ESS S0 + Smart Dongle)
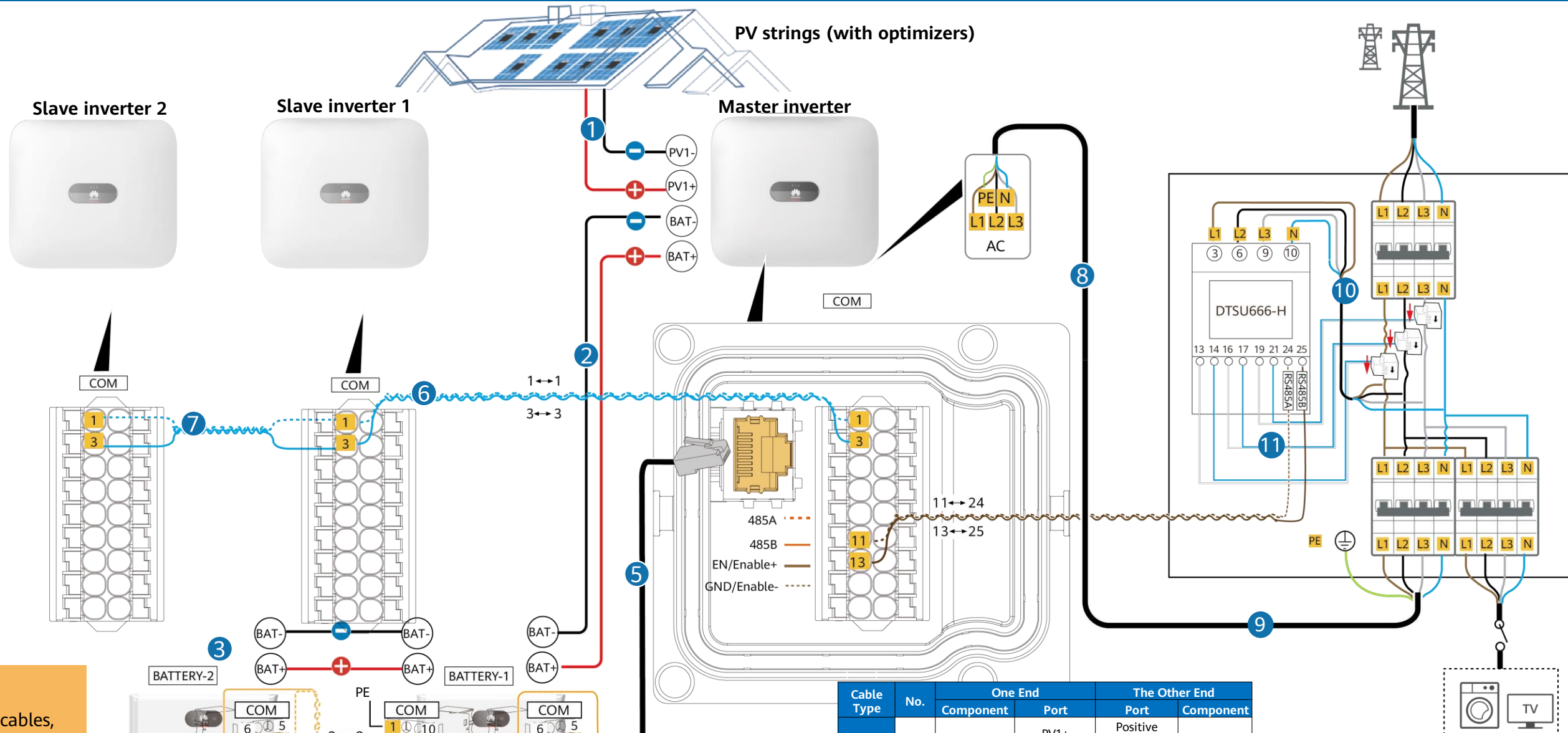


PV strings (with optimizers)

Slave inverter 2

Slave inverter 1

Master inverter

**⚠ DANGER**

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

**NOTICE**

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

**NOTICE**

Signal cables must be outdoor shielded twisted pair cables.

| PE | 1 | 10 | PE |
|---|---|---|---|
| Enable- | 2 | 9 | CANH |
| Enable+ | 3 | 8 | CANL |
| 485A | 4 | 7 | 485B |
| 485A | 5 | 6 | 485B |

485A
485B
EN/Enable+
GND/Enable-

| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| DC power cable | ① | Master inverter | PV1+ | Positive terminal | PV strings |
| | | | PV1- | Negative terminal | |
| | ② | Master inverter | BAT+ | BAT+ | ESS 1 |
| | | | BAT- | BAT- | |
| | ③ | ESS 1 | BAT+ | BAT+ | ESS 2 |
| | | | BAT- | BAT- | |
| 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) | |
| | | | COM-8 (left) | COM-8 (right) | |
| | | | COM-9 (left) | COM-9 (right) | |
| | ⑤ | Inverter 1 | COM: RJ45 network port | COM-2 | ESS 1 |
| | | | | COM-3 | |
| | | | | COM-4 | |
| | | | | COM-7 | |
| | ⑥ | Master inverter | COM-1 | COM-1 | Slave inverter 1 |
| | | | COM-3 | COM-3 | |
| | ⑦ | Slave inverter 1 | COM-1 | COM-1 | Slave inverter 2 |
| | | | COM-3 | COM-3 | |
| | ⑧ | Master inverter | COM-7 | 24 | DTSU666-H |
| | | | COM-9 | 25 | |

| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| AC power cable | ⑨ | Master inverter | L1 | L1 | AC power distribution box |
| | | | L2 | L2 | |
| | | | L3 | L3 | |
| | | | N | N | |
| | | | PE | PE | |
| | ⑩ | AC power distribution box | L1 | 3 | DTSU666-H |
| | | | L2 | 6 | |
| | | | L3 | 9 | |
| | | | N | 10 | |
| | ⑪ | AC power distribution box | L1 | 13 | DTSU666-H CT |
| | | | | 14 | |
| | | | L2 | 16 | |
| | | | | 17 | |
| | | | L3 | 19 | |
| | | | | 21 | |

## 3 Cable Connections (Three-Phase Inverter MAP0 + ESS S1 + Smart Dongle)
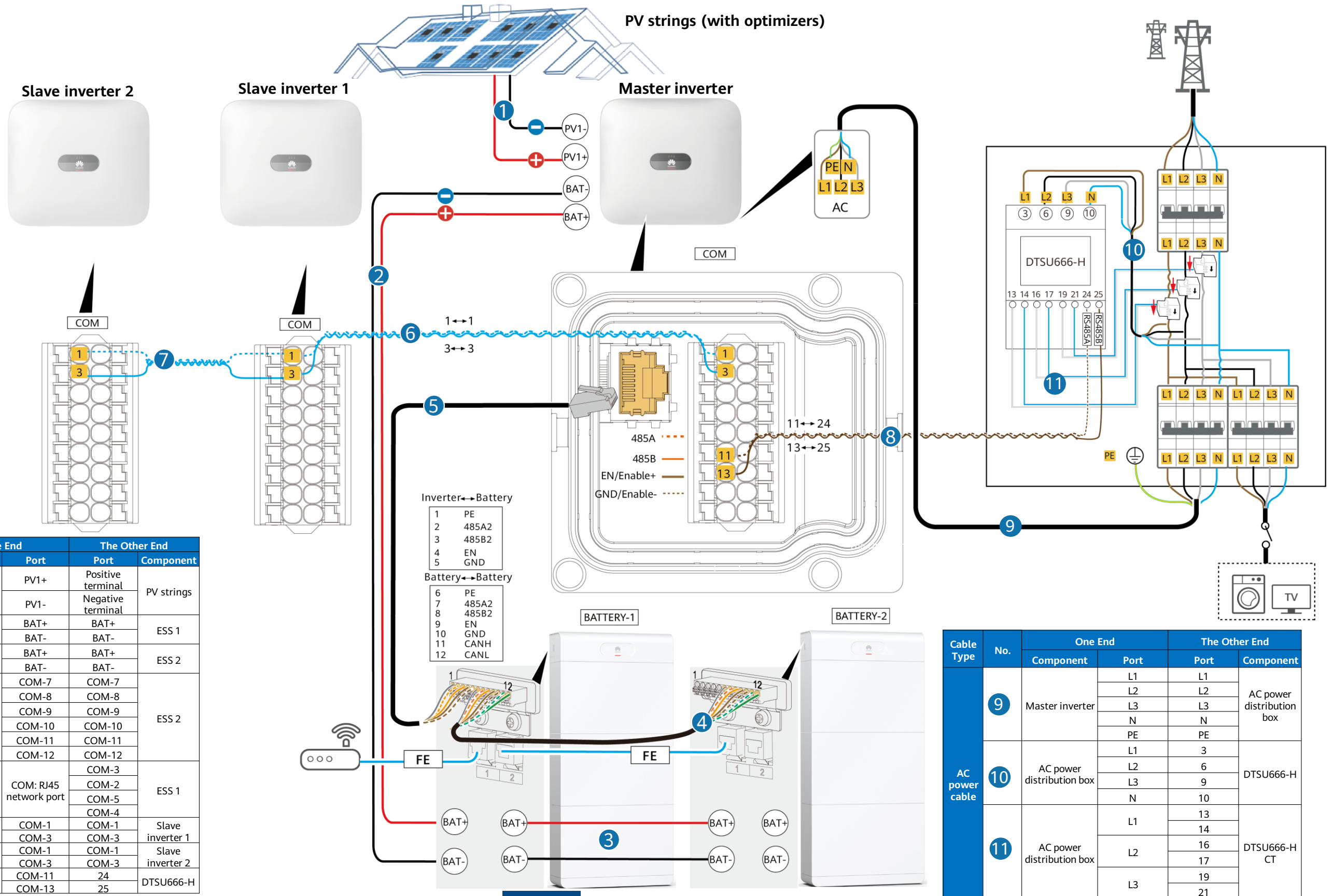
**⚠ DANGER**

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

**NOTICE**

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

**NOTICE**

Signal cables must be outdoor shielded twisted pair cables.



PV strings (with optimizers)

Slave inverter 2 · Slave inverter 1 · Master inverter

AC — PE N L1 L2 L3

COM

DTSU666-H

PV1- / PV1+ / BAT- / BAT+

485A / 485B / EN/Enable+ / GND/Enable-

Inverter ↔ Battery
| 1 | PE |
| 2 | 485A2 |
| 3 | 485B2 |
| 4 | EN |
| 5 | GND |

Battery ↔ Battery
| 6 | PE |
| 7 | 485A2 |
| 8 | 485B2 |
| 9 | EN |
| 10 | GND |
| 11 | CANH |
| 12 | CANL |

BATTERY-1 · BATTERY-2

FE · FE

BAT+ / BAT-

| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| DC power cable | ① | Master inverter | PV1+ | Positive terminal | PV strings |
| | | | PV1- | Negative terminal | |
| | ② | Master inverter | BAT+ | BAT+ | ESS 1 |
| | | | BAT- | BAT- | |
| | ③ | ESS 1 | BAT+ | BAT+ | ESS 2 |
| | | | BAT- | BAT- | |
| Signal cable | ④ | ESS 1 | COM-7 | COM-7 | ESS 2 |
| | | | COM-8 | COM-8 | |
| | | | COM-9 | COM-9 | |
| | | | COM-10 | COM-10 | |
| | | | COM-11 | COM-11 | |
| | | | COM-12 | COM-12 | |
| | ⑤ | Inverter 1 | COM: RJ45 network port | COM-3 | ESS 1 |
| | | | | COM-2 | |
| | | | | COM-5 | |
| | | | | COM-4 | |
| | ⑥ | Master inverter | COM-1 | COM-1 | Slave inverter 1 |
| | | | COM-3 | COM-3 | |
| | ⑦ | Slave inverter 1 | COM-1 | COM-1 | Slave inverter 2 |
| | | | COM-3 | COM-3 | |
| | ⑧ | Master inverter | COM-11 | 24 | DTSU666-H |
| | | | COM-13 | 25 | |

| Cable Type | No. | One End | | The Other End | |
|---|---|---|---|---|---|
| | | Component | Port | Port | Component |
| AC power cable | ⑨ | Master inverter | L1 | L1 | AC power distribution box |
| | | | L2 | L2 | |
| | | | L3 | L3 | |
| | | | N | N | |
| | | | PE | PE | |
| | ⑩ | AC power distribution box | L1 | 3 | DTSU666-H |
| | | | L2 | 6 | |
| | | | L3 | 9 | |
| | | | N | 10 | |
| | ⑪ | AC power distribution box | L1 | 13 | DTSU666-H CT |
| | | | | 14 | |
| | | | L2 | 16 | |
| | | | | 17 | |
| | | | L3 | 19 | |
| | | | | 21 | |

# Residential Smart PV Solution Quick Guide
## (Three-Phase PV+ESS Scenario + Smart Dongle Networking)

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## 4 System Commissioning

### App-based Deployment Procedure

Download and install the FusionSolar app

↓

Sign up as an installer (optional, required for initial registration)

↓

Enter the 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.
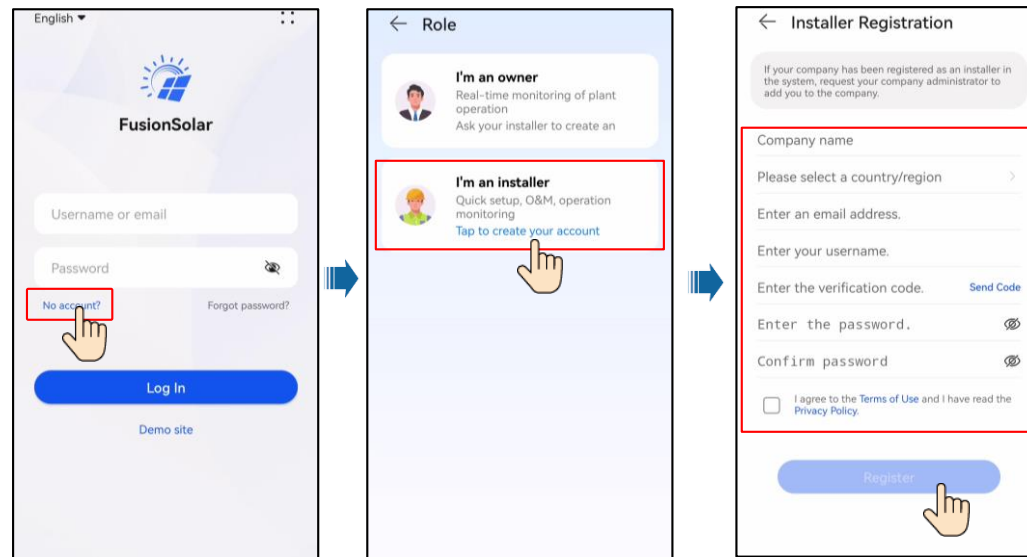


**Or**

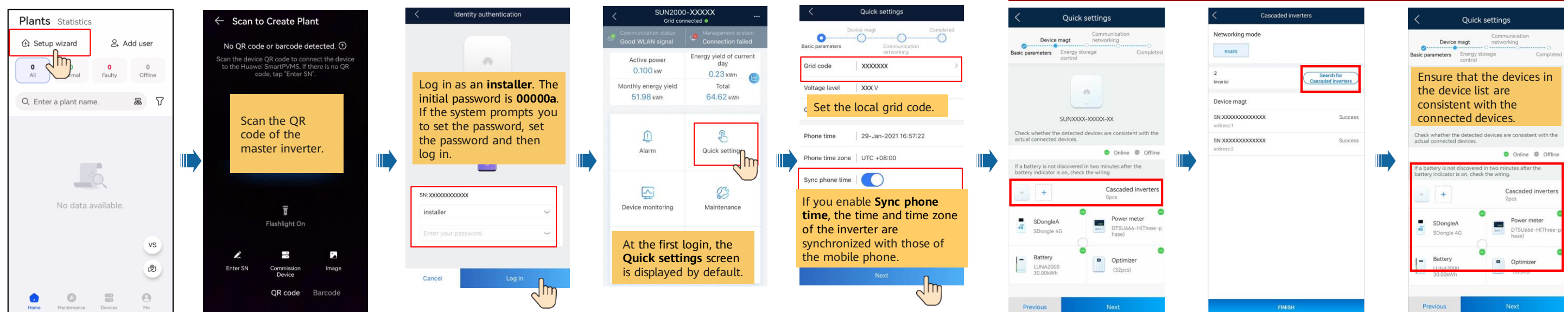#### Non-initial registration

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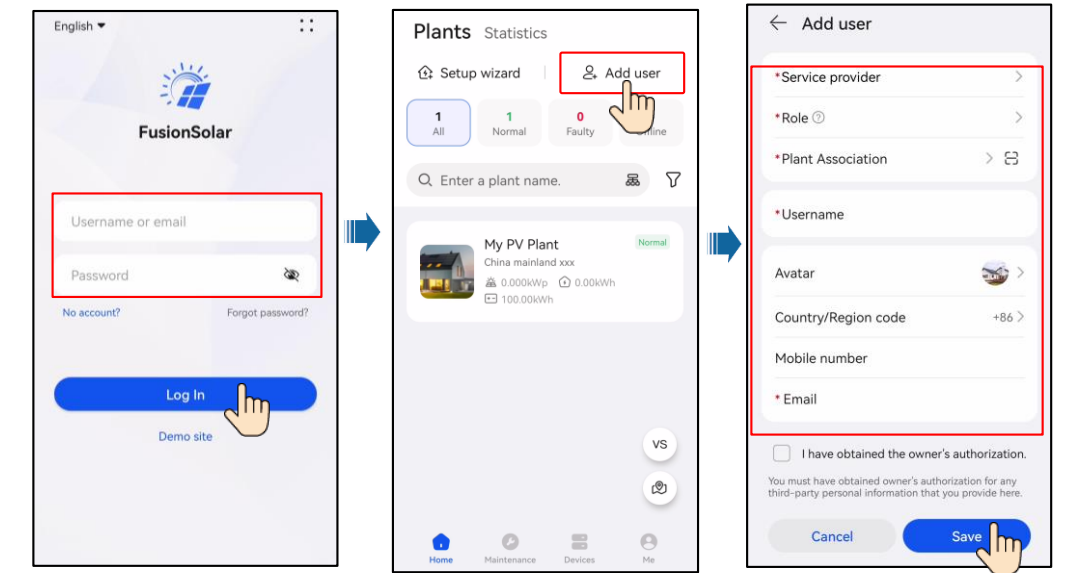


### Setup Wizard (Connecting to the Inverter WLAN for Commissioning)

Scan the QR code of the master inverter.

Log in as an **installer**. The initial password is **00000a**. If the system prompts you to set the password, set the password and then log in.

At the first login, the **Quick settings** screen is displayed by default.

Set the local grid code.

If you enable **Sync phone time**, the time and time zone of the inverter are synchronized with those of the mobile phone.

#### (Optional) Cascade inverters.

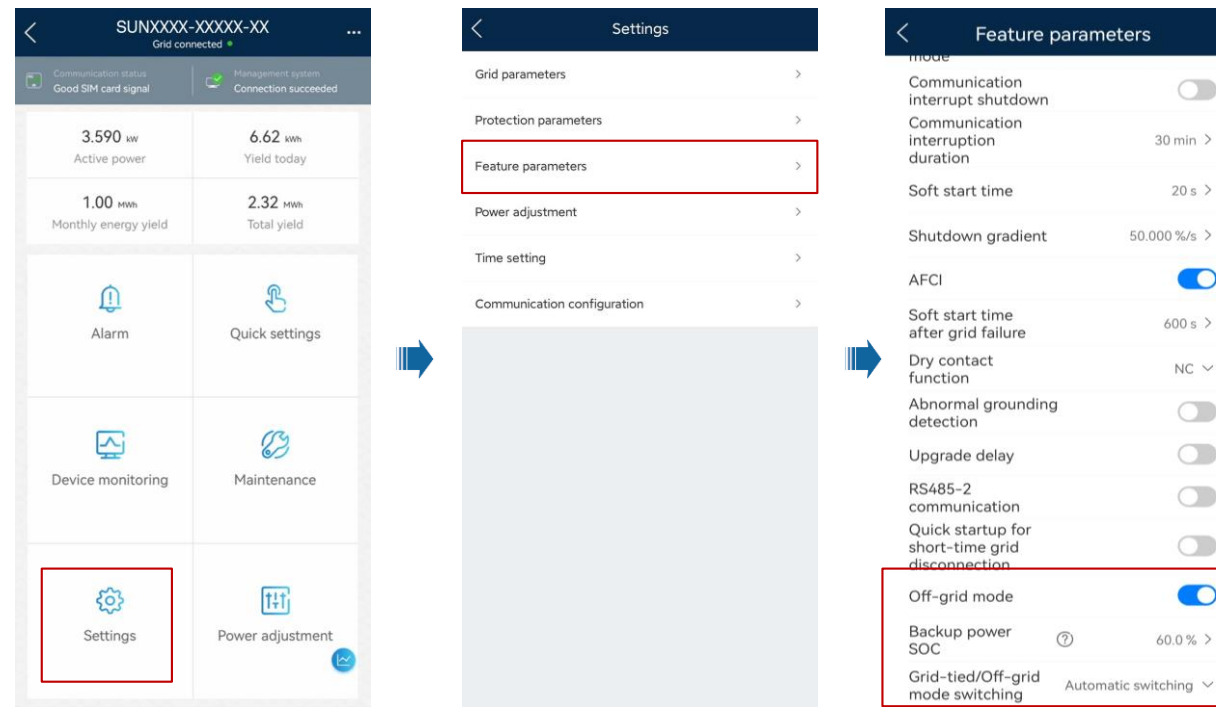Ensure that the devices in the device list are consistent with the connected devices.

# Residential Smart PV Solution Quick Guide
## (Three-Phase PV+ESS Scenario + Smart Dongle Networking)

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### Set the ESS parameters.
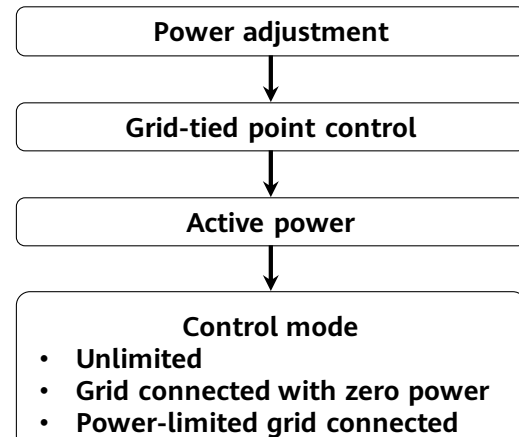


Set the ESS installation environment and working mode.

You can tap ⑦ to obtain the detailed working mode information.

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

---

### Set the communication networking.



**WLAN communication**

Select the desired router and enter the router password.

**Or**



**4G communication**

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**

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

---



In an inverter cascading scenario, the parameter synchronization result is displayed.



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### Add a plant.



---

### Create an owner account.



---

## Checking the Plant Status



---

# 5 Off-Grid/Grid-tied Control Parameters

## Enabling Off-Grid Mode

**Settings**

↓

**Feature parameters**

↓

- Off-grid mode
- Backup power SOC
- Grid-tied/Off-grid mode switching
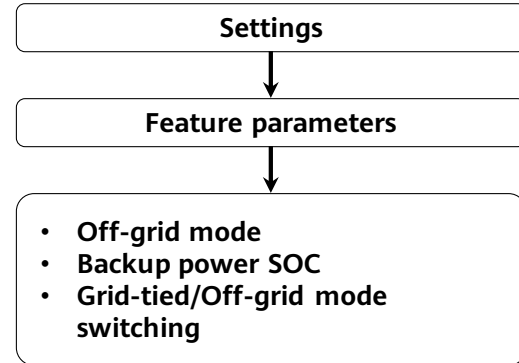


## Setting Grid-tied Point Control
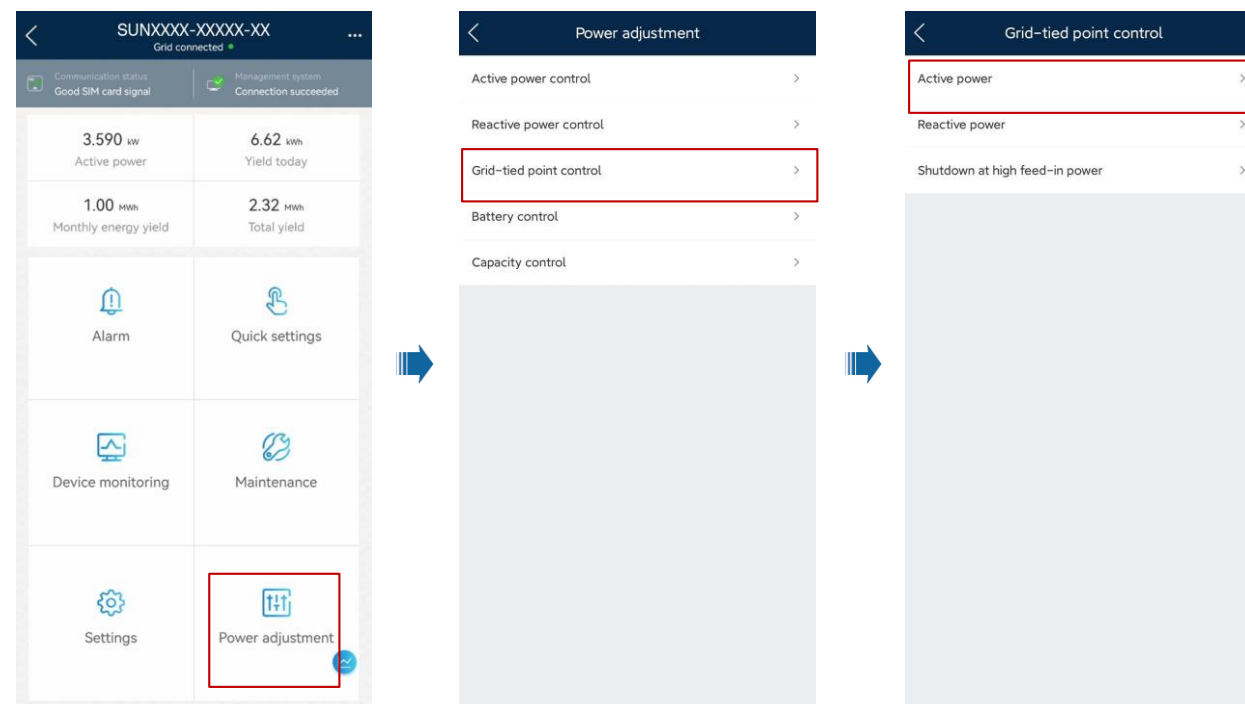
**Power adjustment**

↓

**Grid-tied point control**

↓

**Active power**

↓

**Control mode**
- Unlimited
- Grid connected with zero power
- Power-limited grid connected

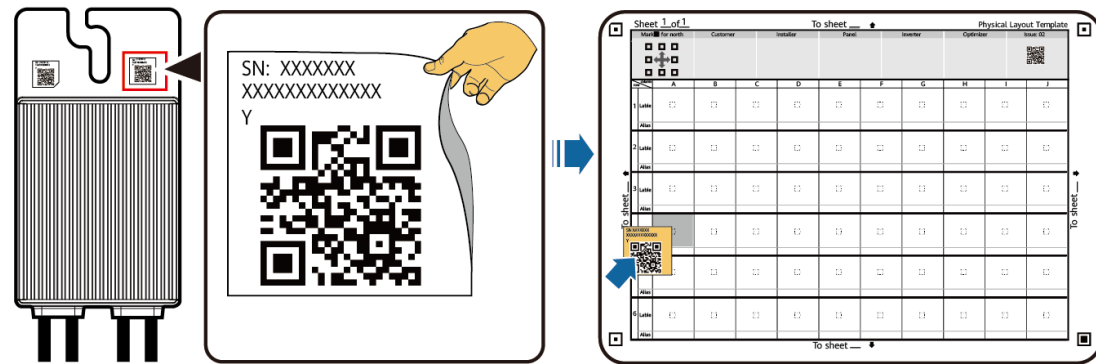# Residential Smart PV Solution Quick Guide
## (Three-Phase PV+ESS Scenario + Smart Dongle Networking)

## 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.
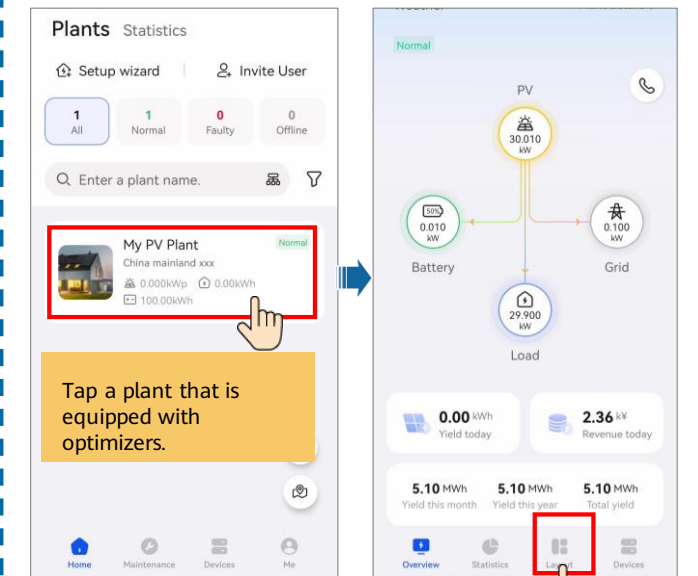


SN: XXXXXXX
XXXXXXXXXXXX
Y

### Taking a Photo of the Physical Layout Template

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

Positioning point
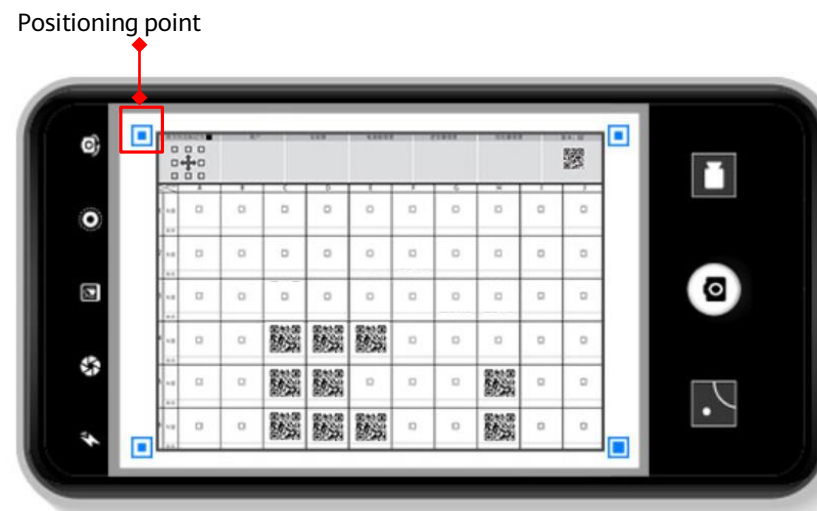


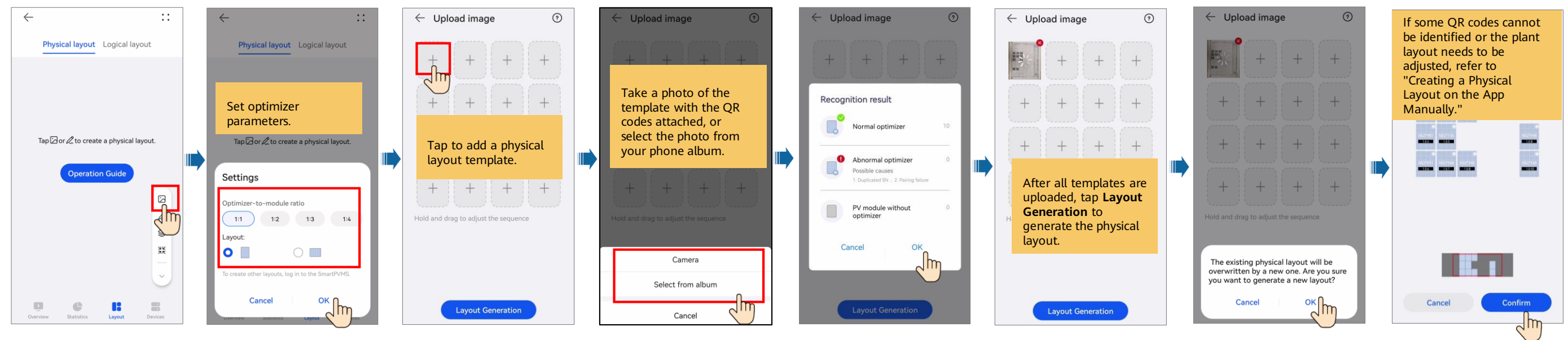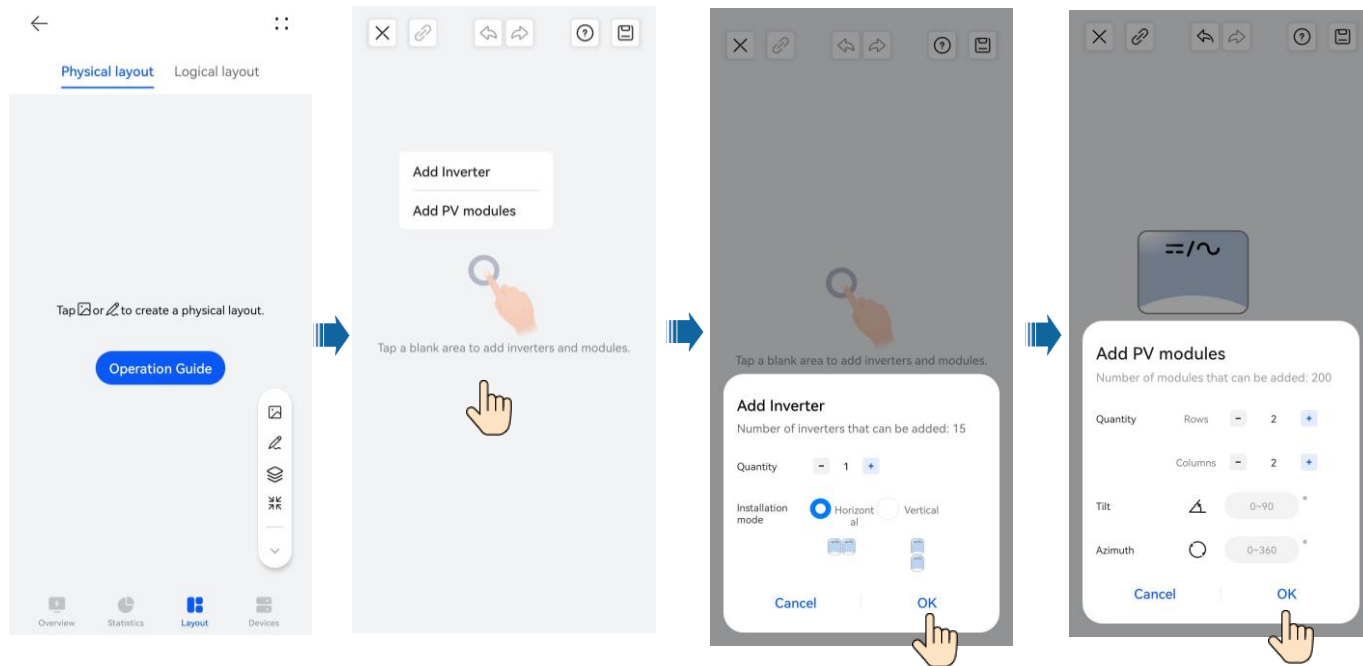### Generating a Physical Layout on the App

**Enter the Layout screen.**



Tap a plant that is equipped with optimizers.

### Generating a Physical Layout on the App Automatically

**Upload the template and generate a layout.**



Set optimizer parameters.

Tap to add a physical layout template.

Take a photo of the template with the QR codes attached, or select the photo from your phone album.

After all templates are uploaded, tap **Layout Generation** to generate the physical layout.

The existing physical layout will be overwritten by a new one. Are you sure you want to generate a new layout?

If some QR codes cannot be identified or the plant layout needs to be adjusted, refer to "Creating a Physical Layout on the App Manually."

## 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.**



Bind the inverter or optimizer SN.

**Adjust the physical layout.**



Select the PV modules that need to have the azimuth adjusted.