Huawei C&I ESS Service Introduction

European Digital Power Smart PV Product Technical Support

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Standard Warranty & Optional Service

C&I ESS Installation & Commissioning

Standard Warranty Service Scope

Item	Service Item	Service Content	Maintenance Service Level Agreement (SLA)
Standard Warranty Scope	Remote support	Help Desk	24 x 7
		Remote troubleshooting	9 x 5
		Online technical support	Technical information sharing and patch download
	Software support	Software update authorization	24 x 7
	Hardware support	Spare parts replacement	Mainland: 2BD-S (09:00–18:00, working day)
		Spare parts replacement (STS Transformer/ Battery)	Ninety (90) days after the request has been logged, investigated and confirmed

Auxiliary materials and mechanical parts as below are not within the warranty scope:

Type	Description
Consumables	Include but not limited to cables, humidifiers, emergency light bulbs, fluorescent lamps, silica gel, hand-held fire extinguishers, door frame seals, container door trips, smoke alarms, wall switches, door padlocks
Mechanical parts	Include but not limited to battery racks and mechanical parts.
Cabinets and accessories	Include but not limited to cabinet mechanical parts, documents, product accessories, installation accessories, and tools.

Standard Warranty Period for C&I ESS

10 years advanced warranty for ESS, DCDC (Rack Controller), PCS, 2 years for SACU

- Connection to FusionSolar and/or purchase Huawei offline inspection, otherwise basic is **2 years** for the system (**1 year** for SACU)).
- If the customer fails to connect to Huawei management system for more than **three months**, Huawei has the right to cancel the advanced warranty.

Smart PCS

Rack controller

SACU

Note: Warranty start date: one hundred eighty (180) days after shipment.

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Warranty Period Check

Warranty Check Operation

① Link to Huawei Smart PV website

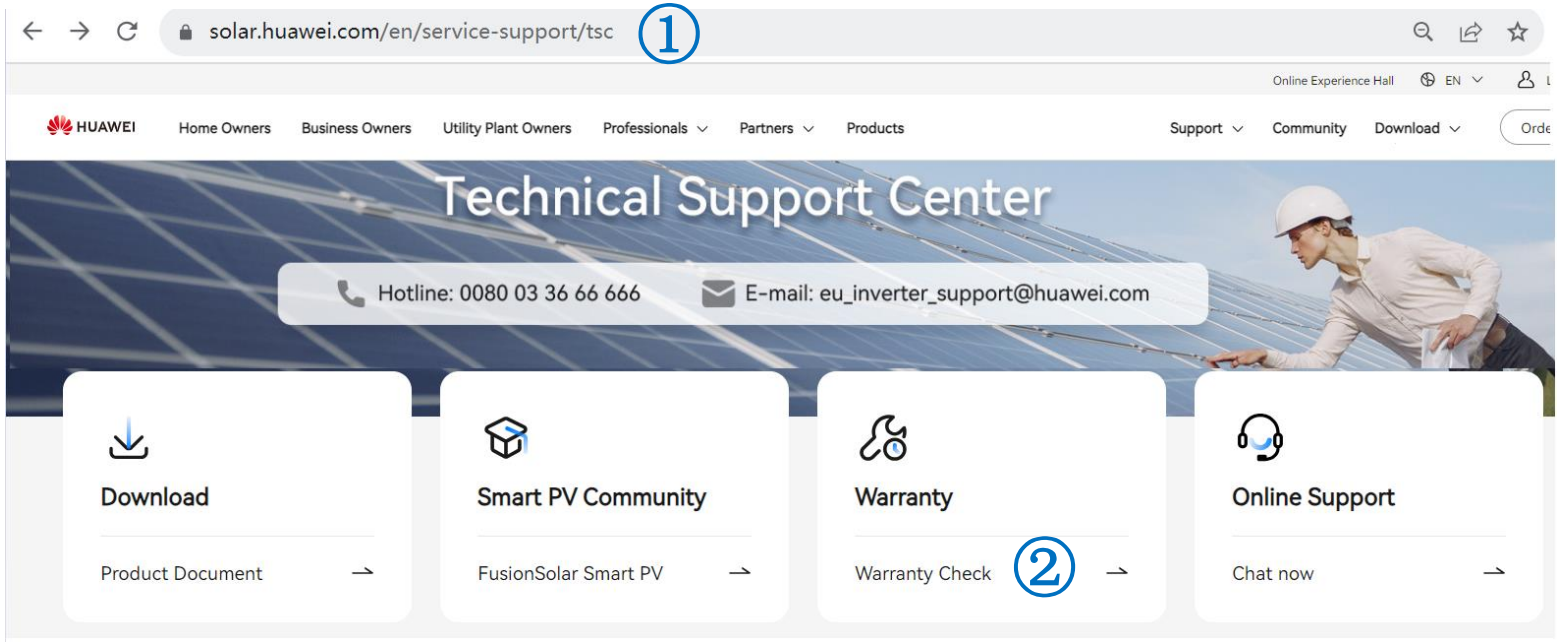
https://solar.huawei.com/en/service-support/tsc

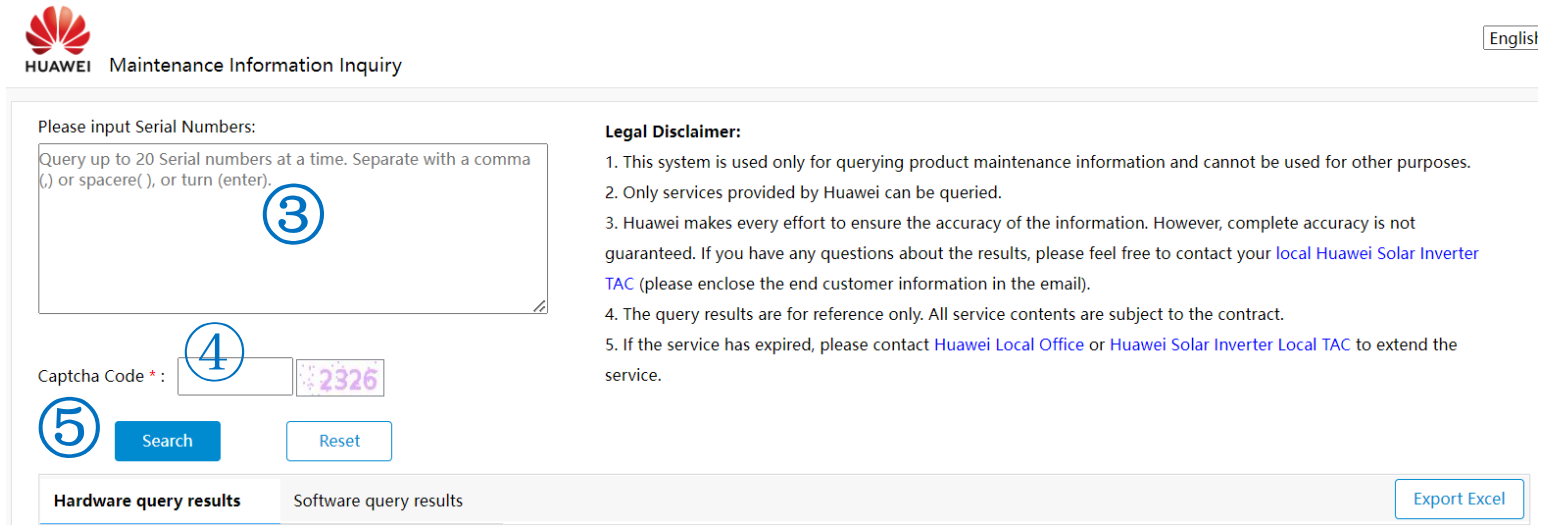
② Click *Check Warranty*

③ Input the serial number of the device which you want to check

④ Input the Captcha code

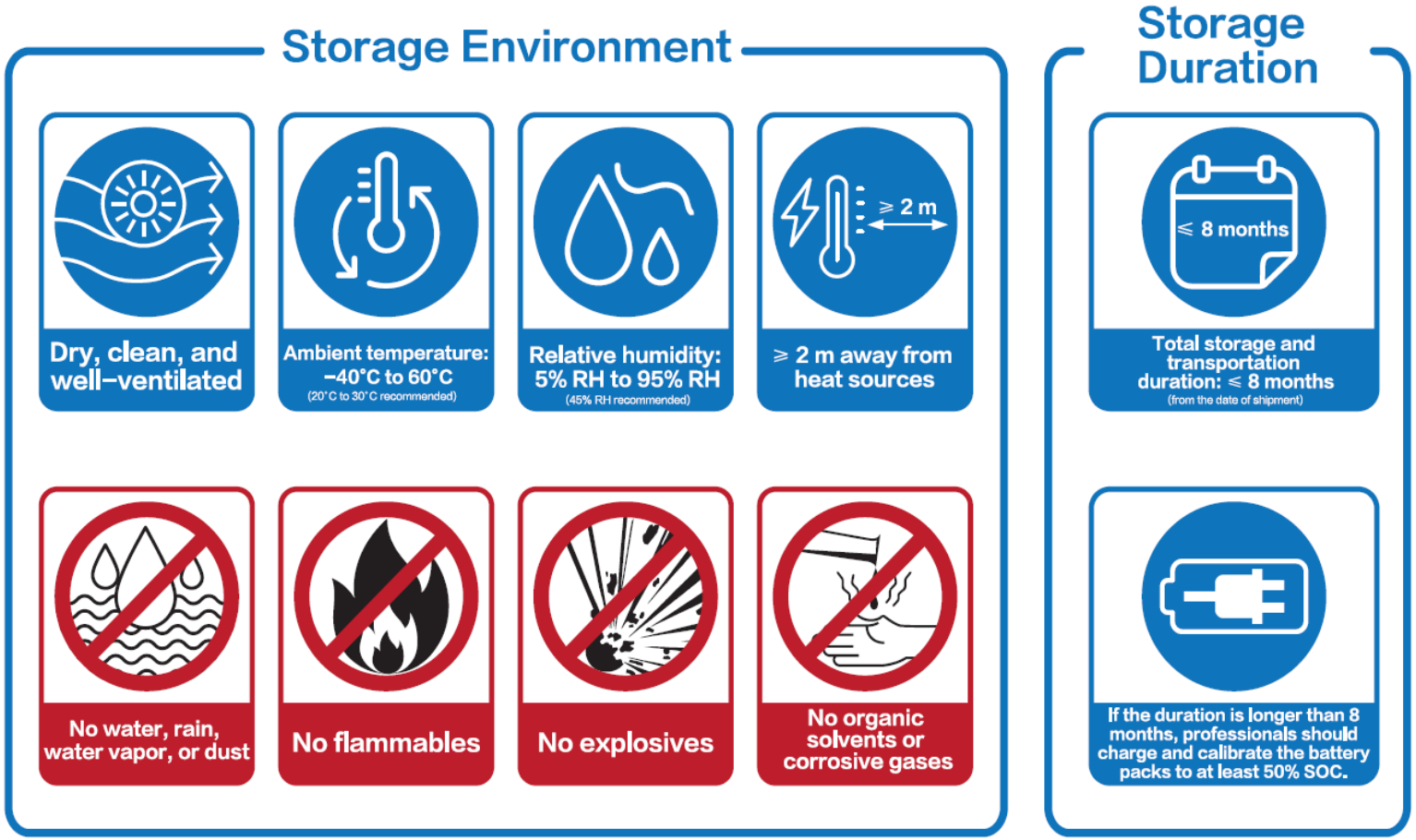
⑤ Click the *Search button.*





Charging Requirements for Battery

The total storage and transportation time of the battery packs shall not exceed the suggested maximum charge interval. If it reach the maximum interval, please charge the batteries and calibrate the SOC to at least 50%. Otherwise, the battery performance and service life may be deteriorated.



Storage Temperature (T)	Maximum Charge Interval[a]
–40°C < T ≤ +30°C	15 months
30°C < T ≤ 40°C	11 months
40°C < T < 60°C	7 months
Note a: The interval starts from the latest charge time labeled on the battery package.	

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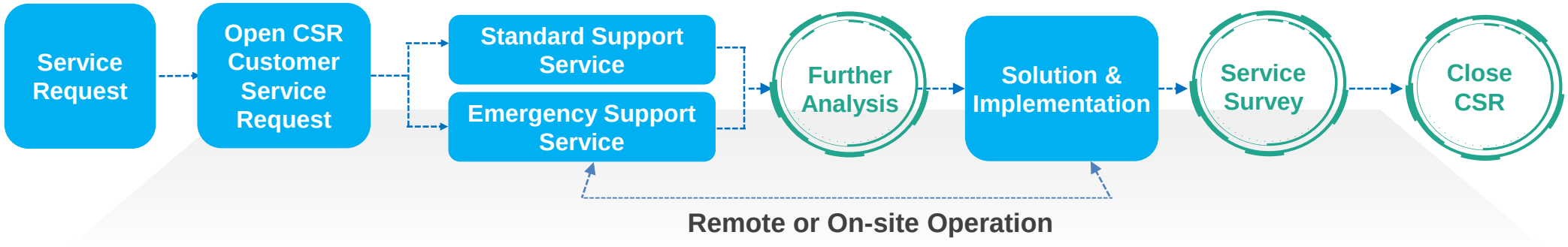
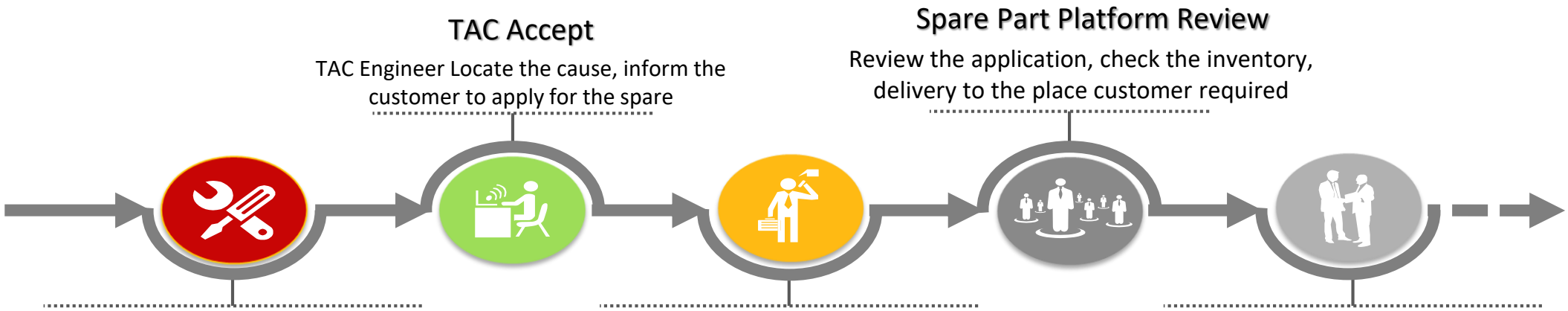
Customer Requests Handling Procedure

Response Target: real time answer for calls & 30 mins response for emails



Spare Part: Ship-out within 2 business days after the RMA is approved

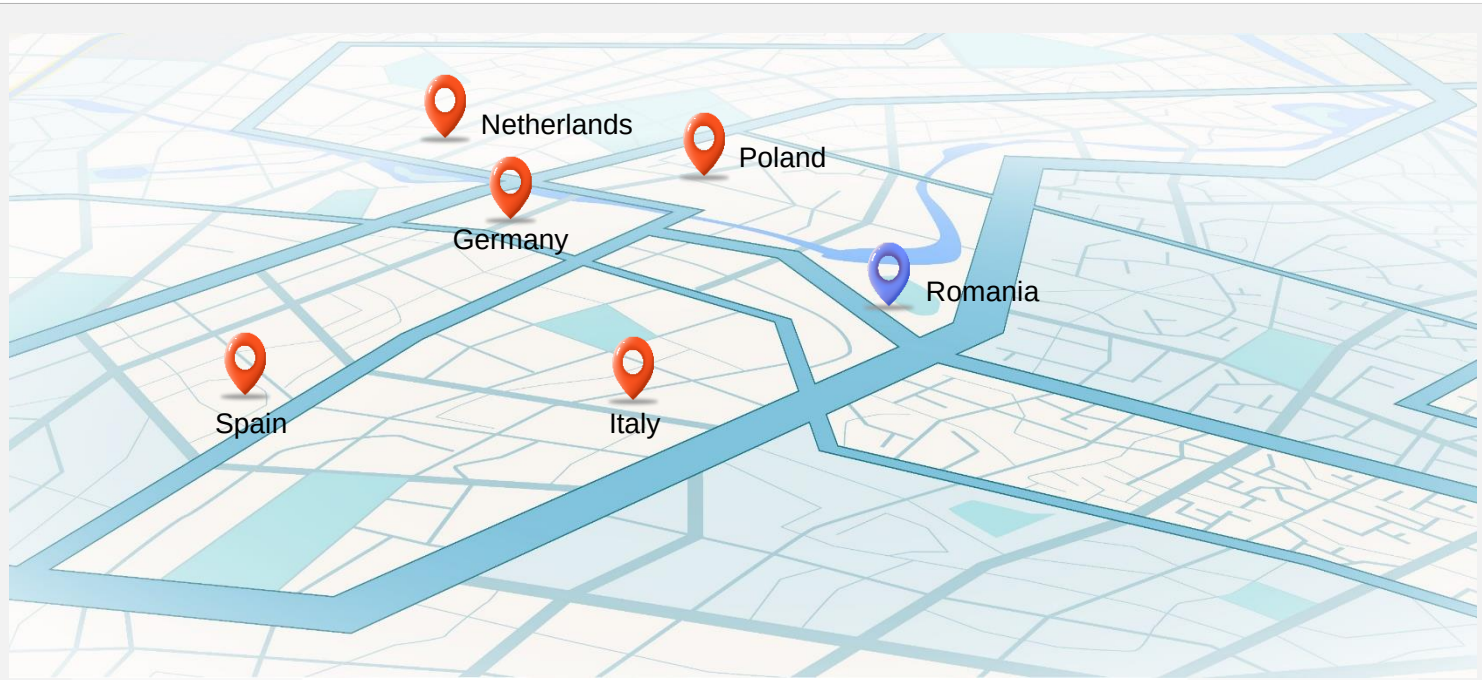


RMA: Return Material Agreement

Technical Assistance Center in Europe

NEW European country TAC hotline: **800 33 666 666**

Email: **eu_inverter_support@huawei.com**



Romania GTAC: Provides 7X24 hours English, German, French, Spanish, Italian, Romanian support services, and accepts customer service requests from Europe, Middle East Africa, North America, Australia, etc.

Poland, Germany, Italy, Spain and Netherlands can handle the issues locally

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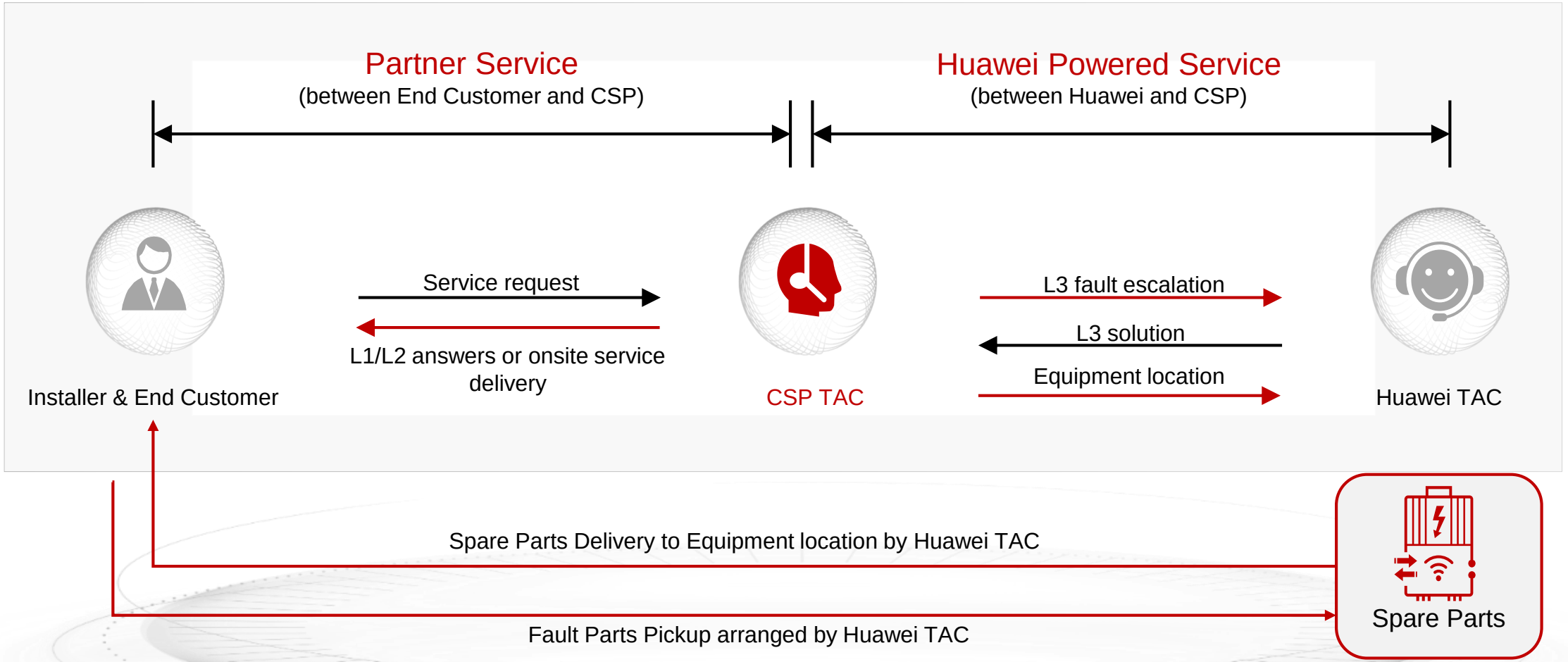
Partner’s TAC Support

Huawei's tier-1 partners have their own hotlines, they can provide the basic support



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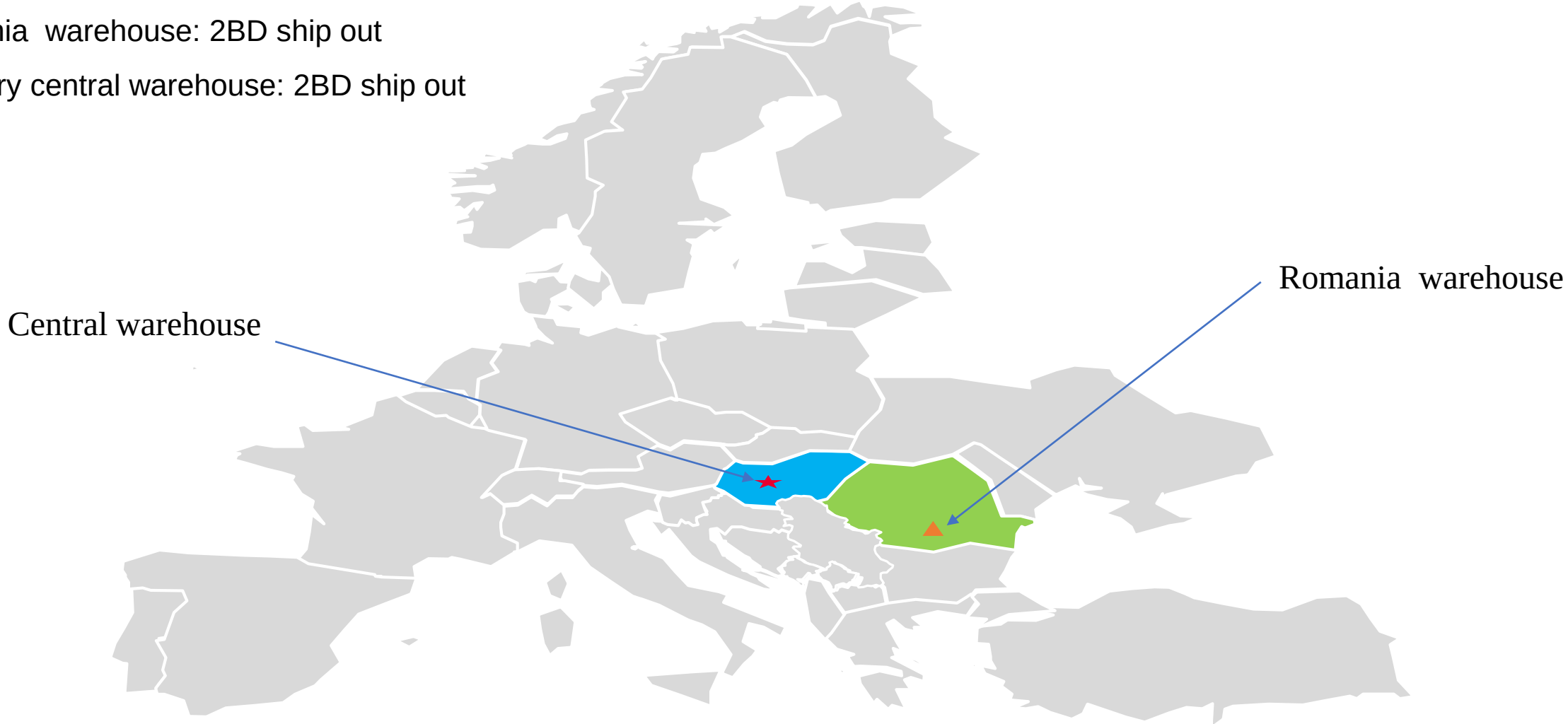
Hardware Support

Huawei has a local spare parts warehouse in Romania and a central spare parts warehouse in Hungary. Hungary central can provide additional support to Romania.

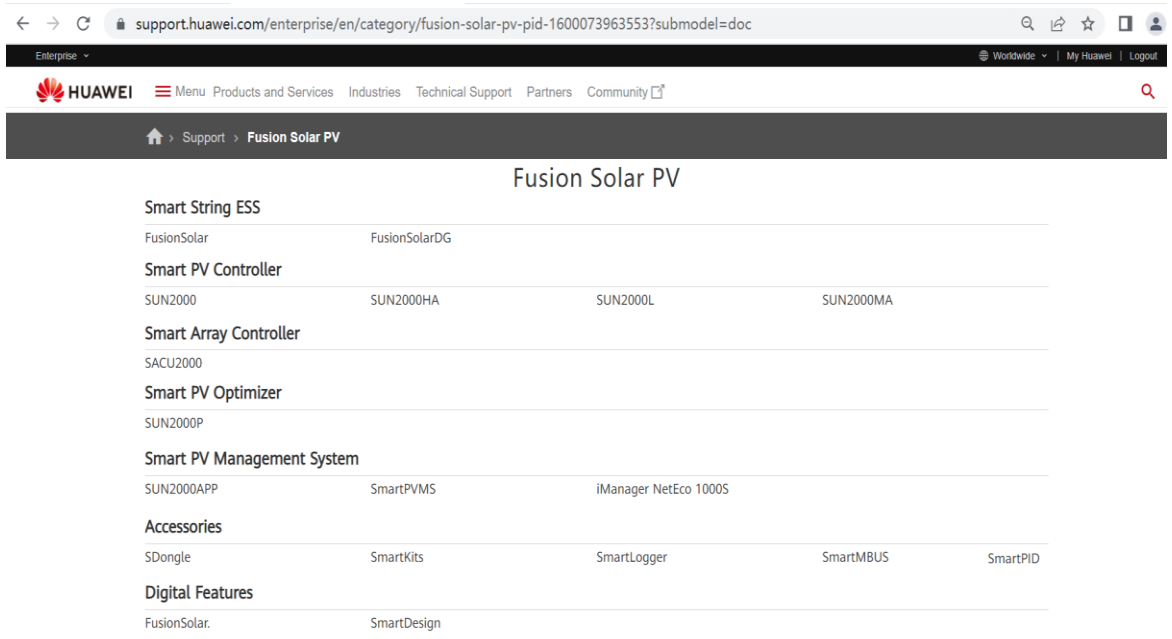
- Romania warehouse: 2BD ship out
- Hungary central warehouse: 2BD ship out



Online Technical Support

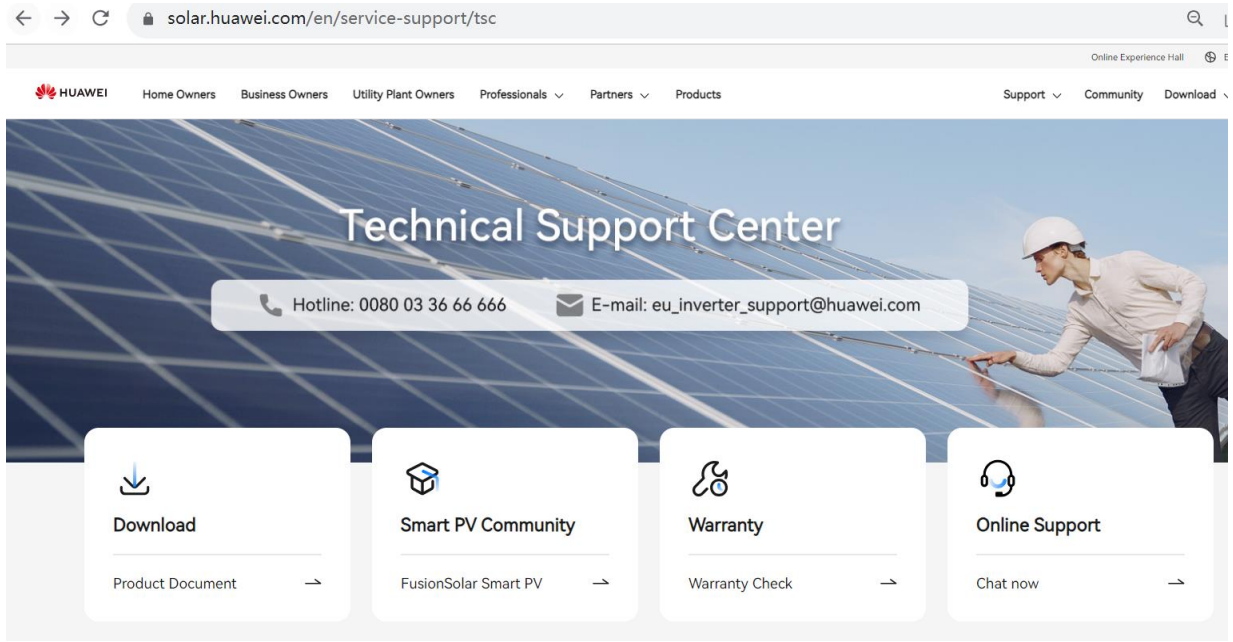
Support Website

https://support.huawei.com/enterprise/en/index.html



Official Website：

https://solar.huawei.com/en/service-support/tsc



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Self-Service: Online Forum & Robot

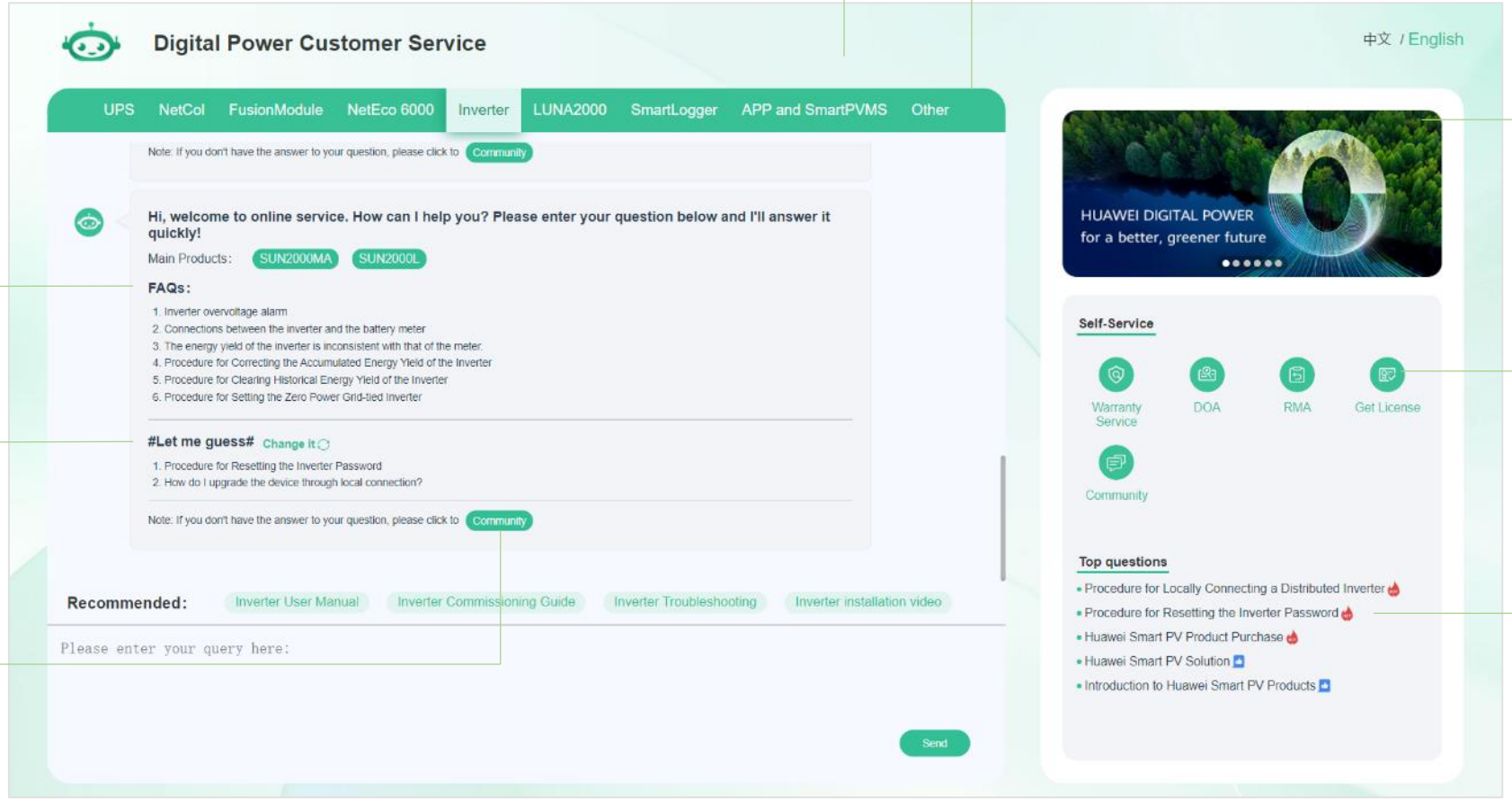
Link

Bulletin board

Displays the latest updates and bulletins.

Product list

Provides access for you to consult the desired product.



Banner

Displays information or activities related to Digital Power.

FAQs

Displays FAQs related to the selected product.

Let me guess

Predicts your questions based on historical questions.

Manual service

Provides access to manual services and the technical community.

Self-Service

Provides more services or tools.

Top questions

Displays the most popular questions from customers every week.

Click "Community" to obtain industry information, exchange experience and knowledge.

Community

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Huawei Optional Service--Supervision Service

If the customer does not have the delivery capability of Commercial & Industrial ESS product, the customer needs to purchase Huawei supervision service.

Supervision Service

Work

- **Expert On-site** Installation instruction
- **Technical disclosure** to EPC
- **On-Grid** defect elimination
- Expert On site training

Benefit

- **Improve efficiency:** guide customers in correctly hoisting, installing, commissioning and using
- **Ensure delivery quality:** To avoid faulty ,proper using equipment

Supervision Contents

Environment and equipment Check	**Technical Disclosure**	**Basic training**
Installation Check & defect elimination	**Powering-on / Commissioning**	**System Acceptance support**

Basic package

1) Inspection before power-on
2) System commissioning
3) System defect elimination
4) Function verification
5) 7*24 hotline support (delivery period)

Advanced package

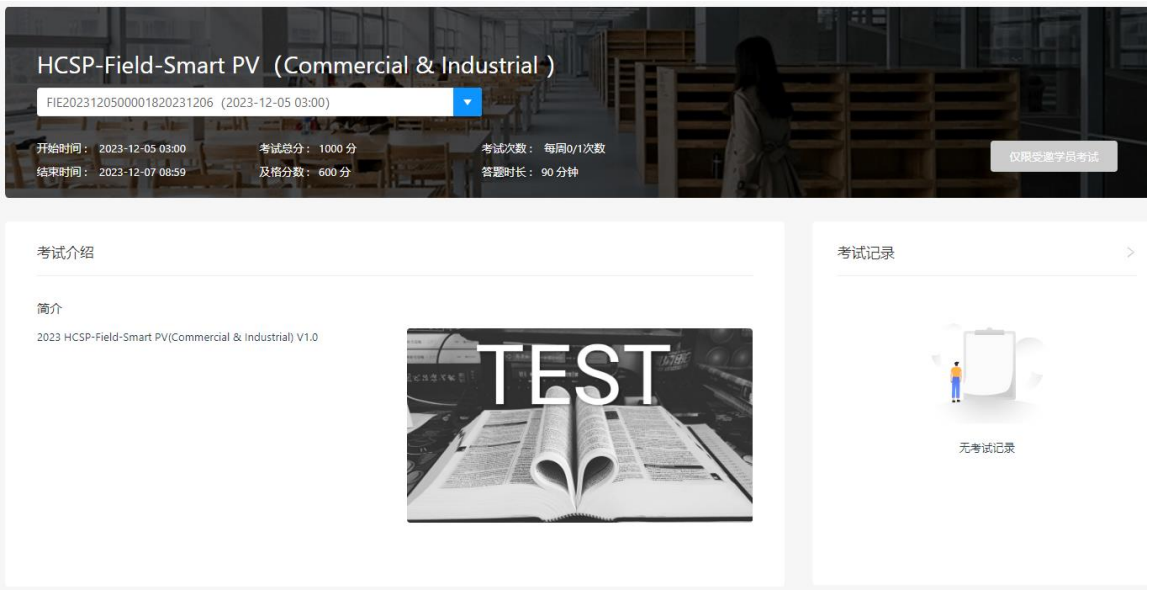
1) On-site Equipment list check
2) On-site basic training
3)On-site installation guidance
4) Inspection before power-on
5) System commissioning
6) System defect elimination
7) Function verification
8) Battery testing
9） O&M Handover training
10) 7*24 hotline support(delivery period)

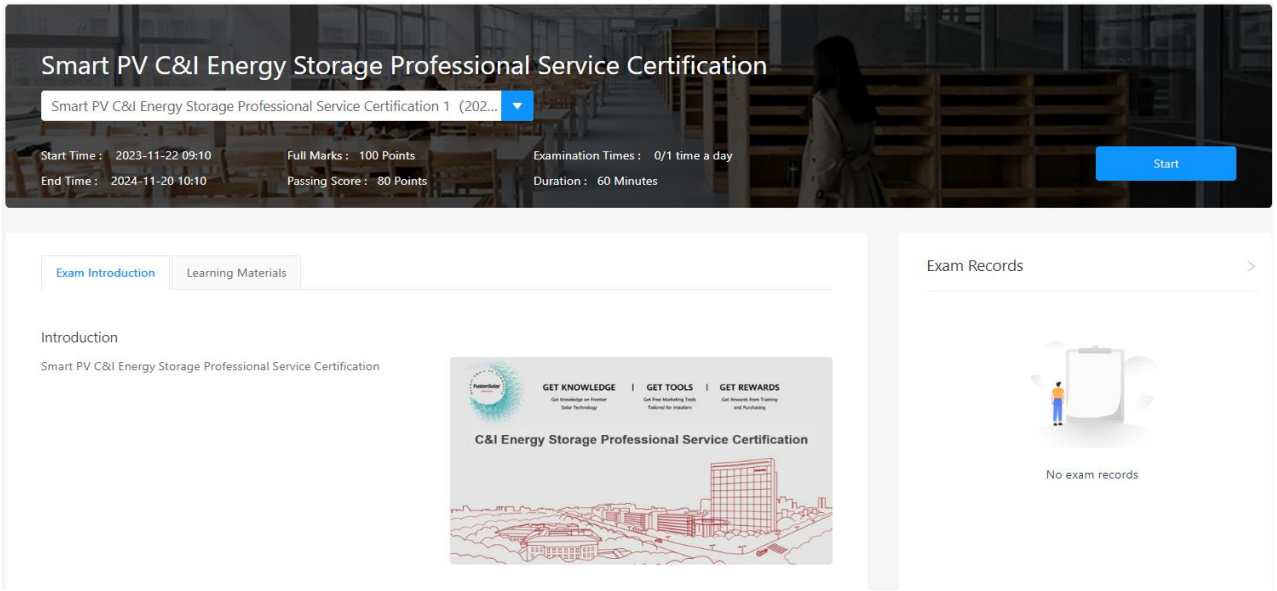
Requirement for Installation & Commissioning without Huawei Supervision

If installer/partner has the HCSP-Field-Smart PV (Commercial & Industrial) certificate or Smart PV C&I Energy Storage Professional Service Certification and **completes the first project delivery under Huawei's guidance**, it does not need Huawei's supervision service for subsequent projects.

HCSP-Field-Smart PV(Commercial & Industrial)
https://exam.shixizhi.huawei.com/iexam/15348318661493309 45/examInfo?examId=16254394296733696 01&sxz-lang=en_US

Smart PV C&I Energy Storage Professional Service Certification
https://solar.shixizhi.huawei.fr/iexam/16007996313074524 17/examInfo?examId=17271403123856916 50&sxz-lang=en_US





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basic Supervision Service Stratgey

Huawei provides lower basic Supervision Service for the first 20 psc C&I BESS to customer, and SKE and Partner can improve the service capabilities.

In the future, SKE and Partner can provide the basic Supervision Service to customer. The price of Huawei basic Supervision Service will be increased to ensure that customer will buy the service from SKE or Partner.

Huawei Other Optional Services

Service Item	SLA	Service Content	Quotation Method
Onsite Troubleshooting	7 x 10 x 2 CD arrival	If a fault occurs during the warranty period and the fault cannot be resolved through remote technical support, Huawei will arrange experienced technical support engineers to arrive at the customer's site within 2 calendar days to help the customer rectify the fault on site.	Quoted by set and service duration
Preventive Maintenance	Arrival in 2BD	Huawei provides on-site inspection for Huawei devices to ensure that they run properly	
Warranty Extension	Same as basic warranty	For the sites which can’t connect to Huawei FusionSolar system, customer can purchase 5 years warranty extension after purchasing the preventive maintenance service	

STANDARD WARRANTY & OPTIONAL SERVICE

C&I ESS INSTALLATION & COMMISSIONING

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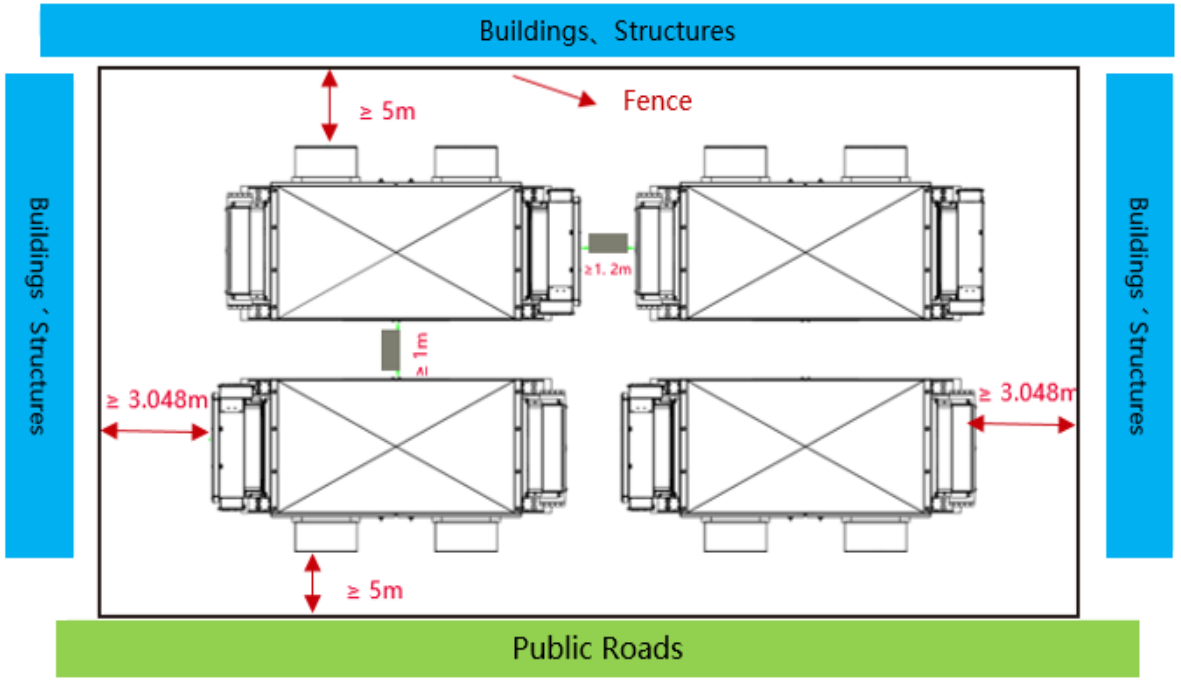
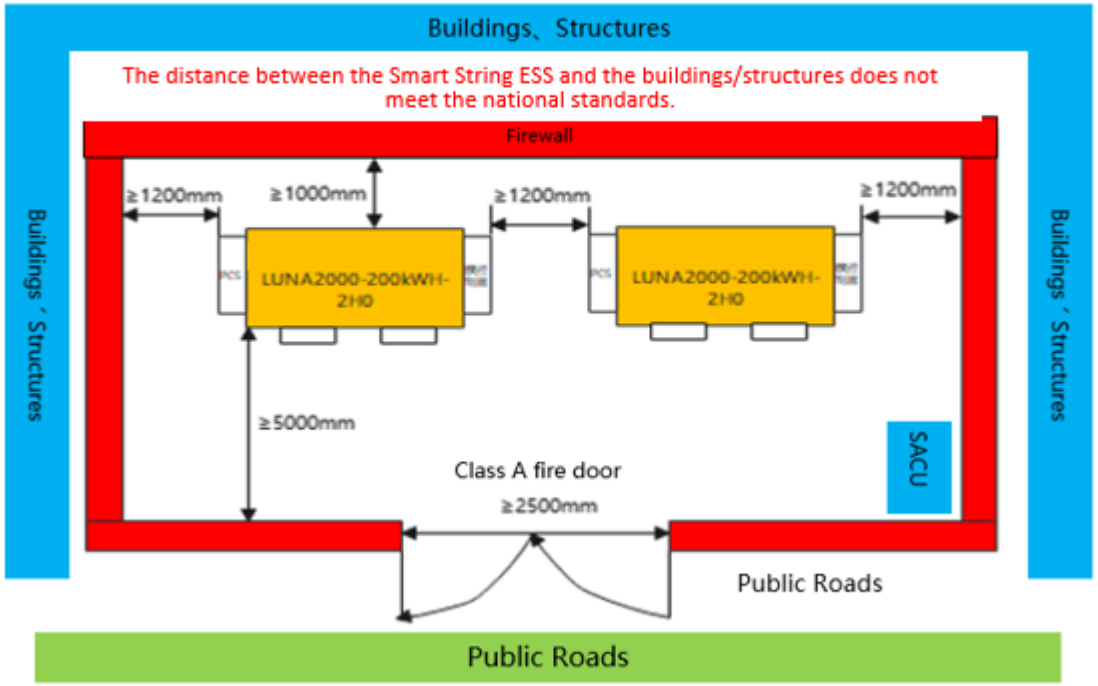
Installation Site Selection

Scenarios Without Firewalls



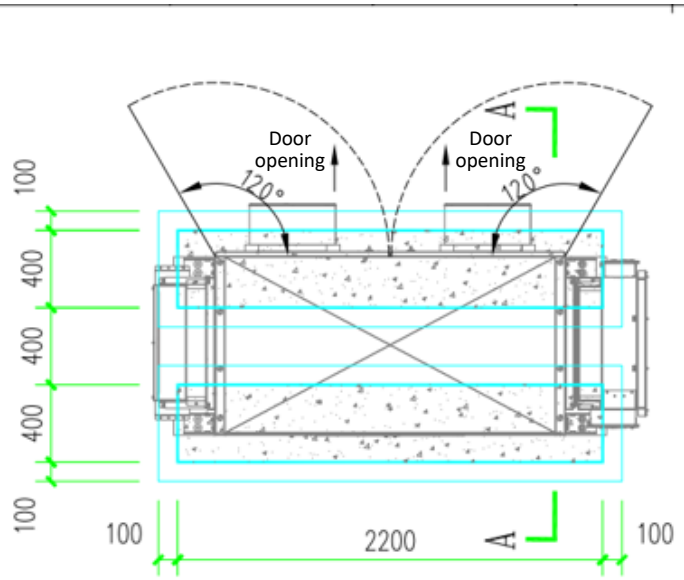
Scenarios with Firewalls



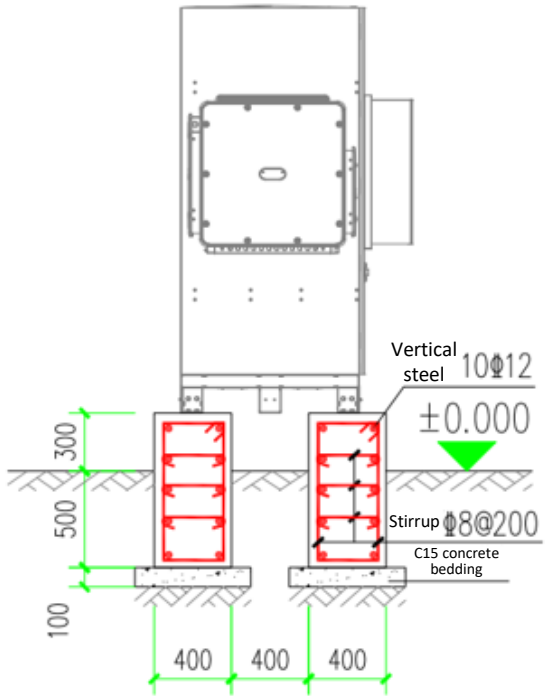
Note:

- Reserve at least 5 m of installation and maintenance aisle in front of the ESS for the forklift.
- Reserve at least 1.2 m clearance between ESSs for DCDC maintenance.
- The layout of the ESSs must meet local fire extinguishing clearance requirements. Such like GB 51048 Design code for electrochemical energy storage station.
- If the clearance requirements cannot be met, add a firewall (3-hour fire resistance) and keep the ESSs 1 m away from the firewall.
- For details, see the ***C&I Solution Site Selection, Safety Clearance, and Protection Measures Quick Guide***.

ESS Foundations Requirement



Foundation layout



A-A Foundation sectional view

Foundation design description:

1. The designed weight of the ESS must not exceed 2750 kg.
2. The foundation soil must be old soil layer, and the characteristic value of the foundation bearing capacity must be greater than or equal to 100 kPa. If the soil layer at the design elevation does not meet the requirements, excavate to the soil layer that meets the requirement. Use sand and gravel at the ratio of 3:7 to fill the ground to the design elevation. The four sides are 300 mm wider for each additional 500 mm depth, and the density is greater than or equal to 0.94.
3. The concrete grade of the foundation is C25. The thickness of the protective layer of the foundation is 50 mm. The concrete grade of the bedding layer is C15. The four sides of the concrete bedding layer are 100 mm wider than the foundation.
4. After the foundation is excavated, prevent water from entering the foundation. If water enters the foundation, excavate and replace the affected parts.
5. The error of the elevation of the top surface of the foundation (column) should not be greater than 3 mm.

REV	ECA NO.	DESCRIPTION

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C&I ESS Foundation Drawing

Note:

- Reinforced concrete must be used for the foundation structure. Brick concrete is not allowed.
- The support width of the foundation should be determined by the design institute according to the local soil layer.

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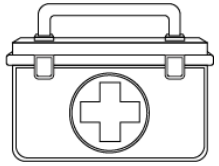
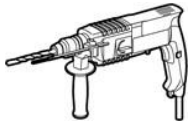
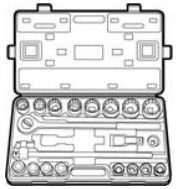
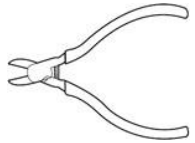
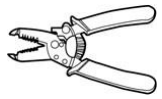
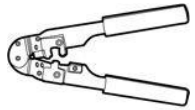
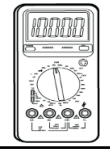
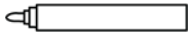
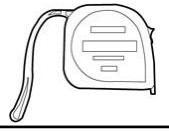
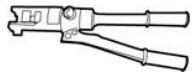
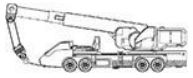
Personal Protection Equipment (PPE) & Tools Preparation

PPE

Safety gloves 	Safety goggles 	Dust mask 	Safety shoes 
Reflective vest 	Safety helmet 	Medical kit 	Workwear 

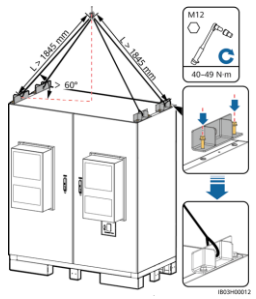
Note:
Before installing, commissioning, maintaining, and operating the system, comply with EHS regulations and wear appropriate PPE.

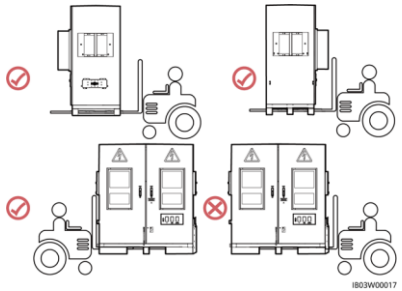
System installation tools

Hammer drill (drill bits: Φ14 mm and Φ16 mm) 	Socket wrench set 	Torque wrench (including an extension rod) 	Diagonal pliers 
Wire strippers 	Screwdriver suite Head: 0.6 mm x 3.5 mm 	Rubber mallet 	Utility knife 
Cable cutter 	RJ45 crimping tool 	Vacuum cleaner 	Multimeter DC voltage range ≥ 1500 V DC 
Marker 	Steel measuring tape 	Digital or bubble level 	Hydraulic pliers 
Heat shrink tubing 	Heat gun 	Cable tie 	Safety ladder 
Crane 	Lifting rope 	-	-

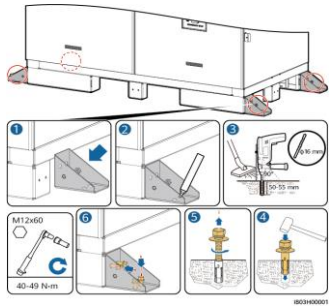
ESS Cabinet Installation — Cabinet & Battery Installation

Step 1: Transport the ESS using a crane or forklift.

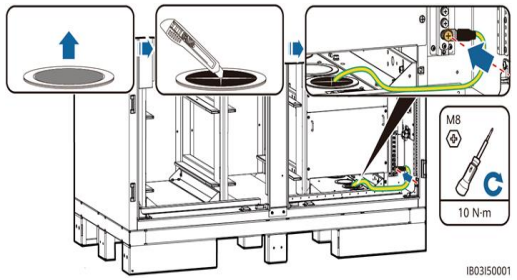




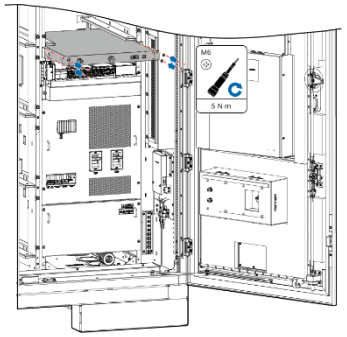
Step 2: Secure the ESS on the ground.



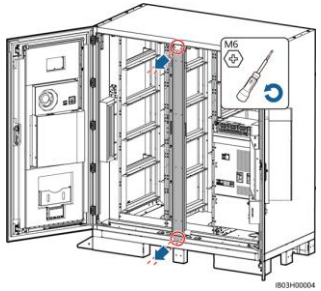
Step 3: Install a PE cable for the ESS.



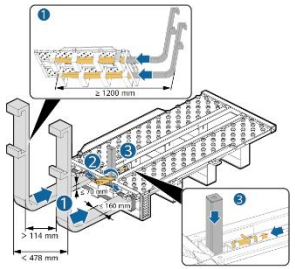
Step 4: Install the rack-mounted fire suppression system.



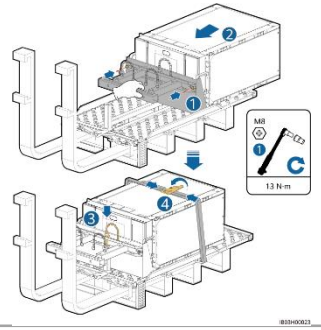
Step 5: Open the door of the ESS and remove the column in the middle.



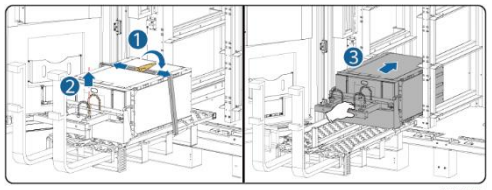
Step 6: Assemble the installation kit.



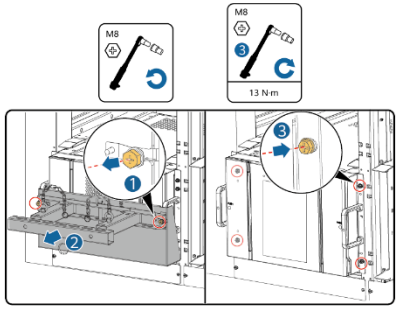
Step 7: Secure the battery packs.



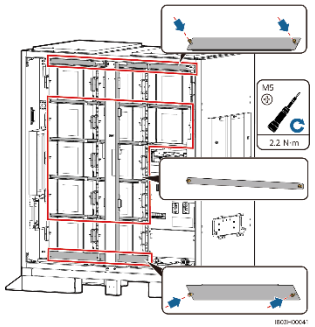
Step 8: Install the battery packs in the ESS.



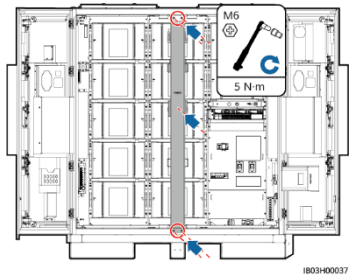
Step 9: Secure the battery packs.



Step 10: Install the air channel plates.



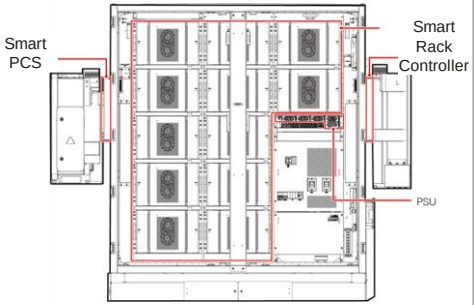
Step 12: Close the terminal covers and columns of the battery packs.



Notes:

1. The ESS needs to be secured to the installation platform using expansion bolts.
2. **Install the battery packs first, and then install the DCDCs and PCSs.**
3. The installation height of the ESSs must be greater than or equal to 30 cm, and the local rainfall and drainage system design must be considered when determining the height.
4. **The resistance between the PE cable and main ground grid should be less than or equal to 0.1 ohm.**
5. For details, see the *LUNA2000-200KWH-2H1 Smart String ESS User Manual*.

Component	Installation Position	Quantity
Battery pack	Support in the ESS	12
PSU	ETP48200-B2A1 embedded power subrack	2
Smart Rack Controller	Right side of the ESS	1
PCS	Left side of the ESS	1



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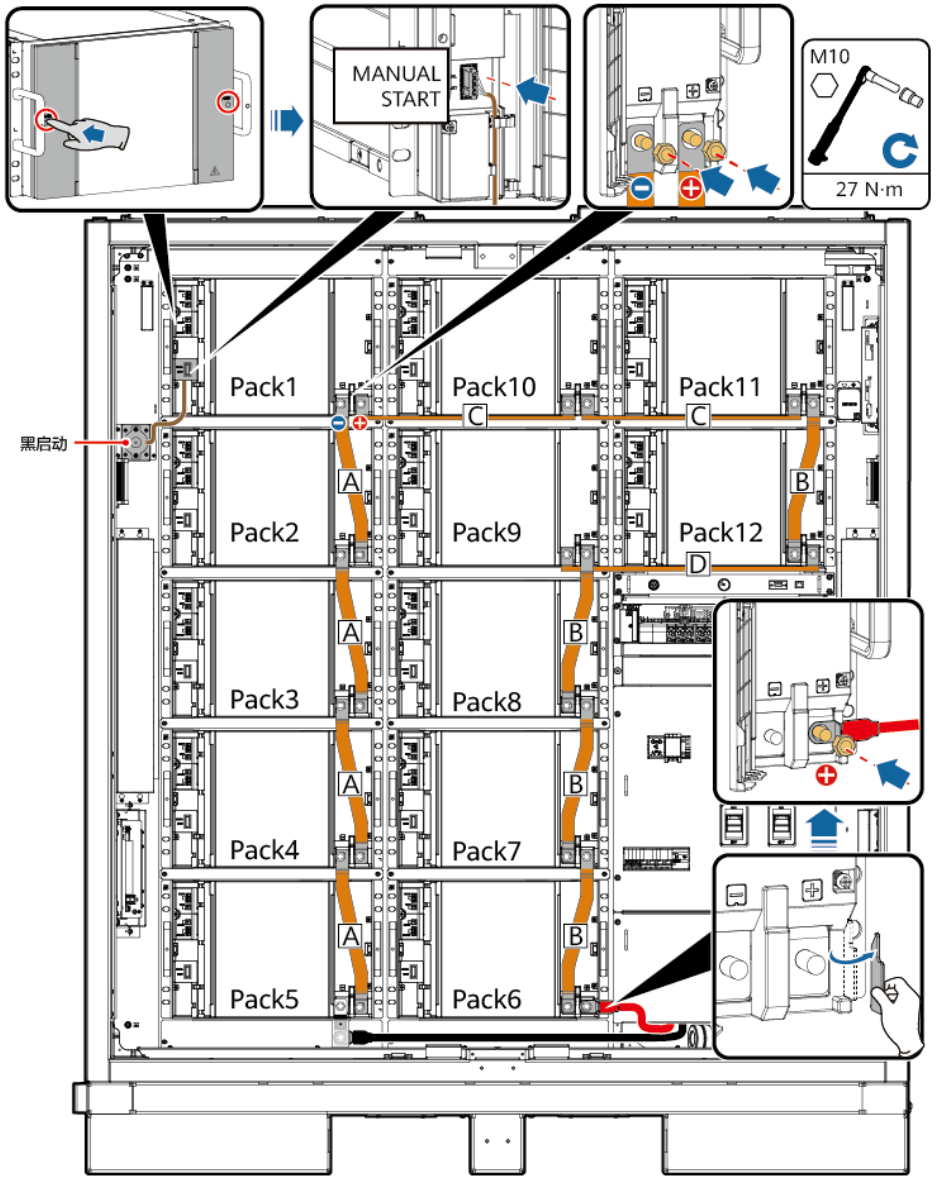
ESS Cabinet Installation — Battery Copper Bars Connection



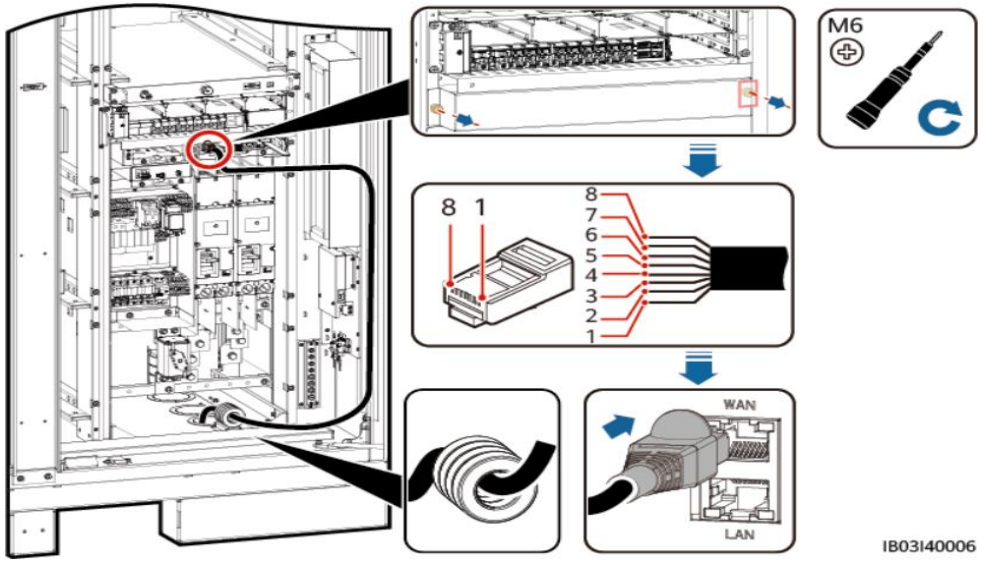
Note:

Install copper bars for battery packs, and connect the battery rack general output power cable and black start cable.

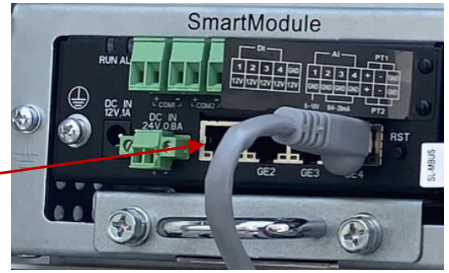
- Four types of copper bars are included with the equipment and are identified by the silkscreens A, B, C, and D printed on the front. Copper bars are installed in the sequence of Pack5-4-3-2-1-10-11-12-9-8-7-6.
- When installing copper bar C, keep away from communications cables and fan power cables of battery packs to prevent cables from being squeezed.
- Install and check nuts according to the recommended torque of 27 N·m.
- Mark the nuts whose torque has been verified using a marker.
- If the battery protective cover is abnormal or difficult to close, adjust the gap between copper bars by moving them upwards or downwards. Do not forcibly close the battery protective cover.

ESS Cabinet Installation — FE Communications/48V/COM Cable Connection

Connect the FE communications cable to the **WAN** port on the CMU. Connect the other end to the SmartModule in the data acquisition cabinet and bind the cables.

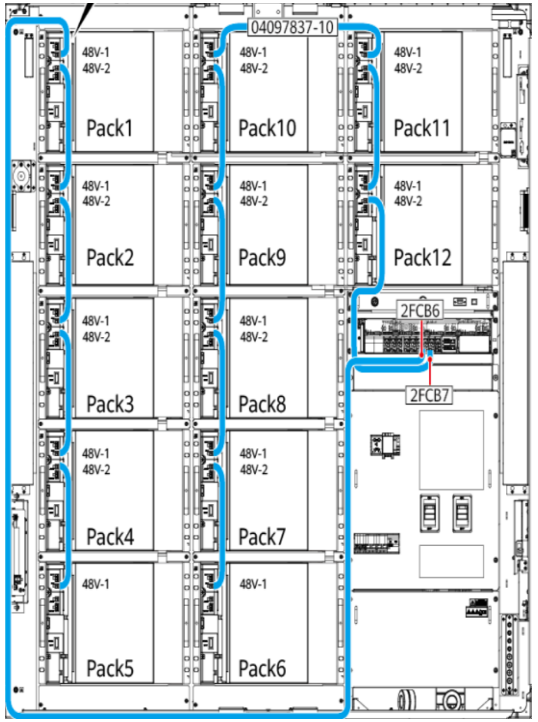


You are advised to connect the other end of the CMU cable to the GE1 port on the SmartModule in the communications cabinet.

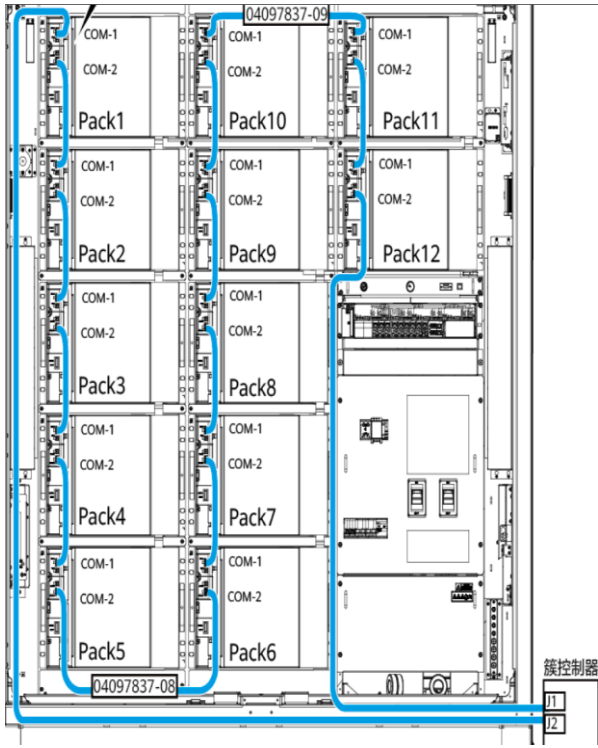


Note:
The communications cable needs to be routed through the magnetic ring at the cable hole at the bottom.

Connecting 48 V cables to battery packs



Connecting COM port cables to battery packs



Note:

- Cables are routed through the cable troughs. COM cables and 48 V cables are routed in parallel without crossing each other.
- Cables to 2FCB6 and 2FCB7 are preinstalled before delivery.
- Cables to COM-1 on Pack1 and COM-2 on Pack12 are reserved before delivery.

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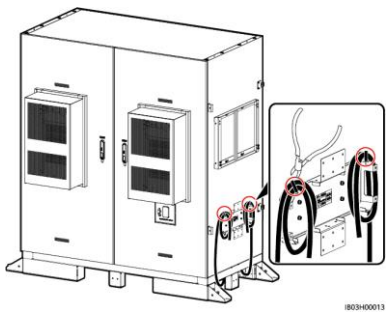
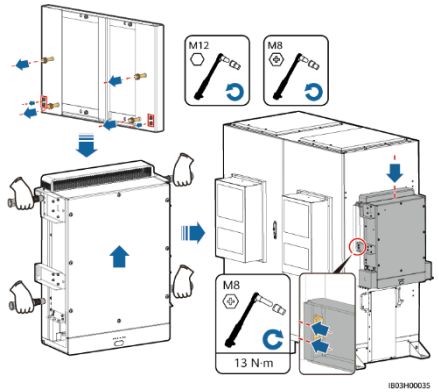
DCDC Installation—Installing the DCDC on the Right Side of the ESS

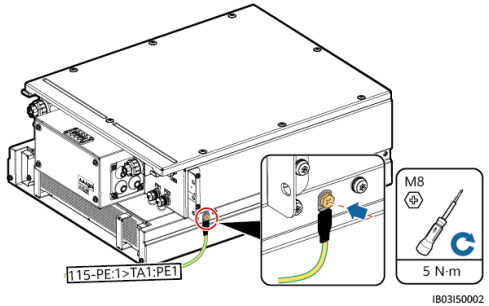
Step 1: Install the DCDC support.



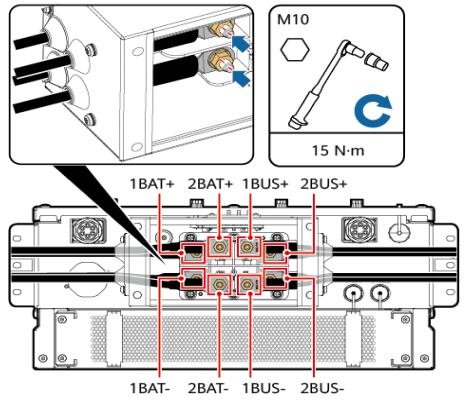
Step 2: Install the DCDC on the support.



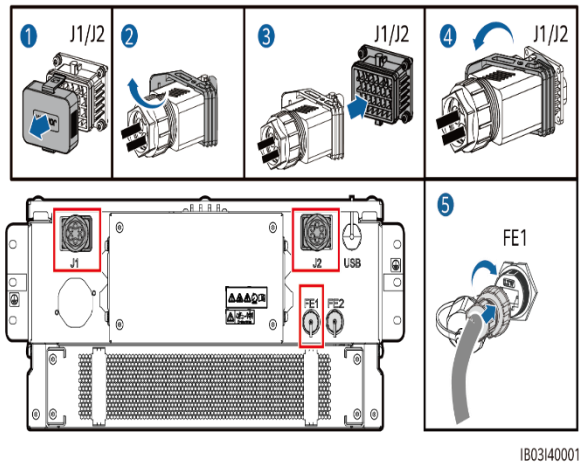
Step 3: Lock the DCDC PE cable.



Step 4: Install the bus cables.



Step 5: Install DCDC communications cables.



Cable Label	Wiring Terminal	Cable Label	Wiring Terminal
107-1F1:2>TA1:1BAT+	1BAT+	108-1Q2:1>TA1:1BUS+	1BUS+
112-1F2:2>TA1:2BAT+	2BAT+	113-1Q2:1>TA1:2BUS+	2BUS+
109-1Q1:4>TA1:1BAT-	1BAT-	111-1Q2:3>TA1:1BUS-	1BUS-
110-1Q1:4>TA1:2BAT-	2BAT-	114-1Q2:3>TA1:2BUS-	2BUS-

Cable	Type	Conductor Cross-Sectional Area	**Outer Diameter**	**Terminal**	**Source**
DC power cable	Two-core outdoor copper/copper-clad aluminum/aluminum alloy cable	50–95 mm^2	20–29 mm	M10 OT/DT terminal	Customer
	Single-core outdoor copper/copper-clad aluminum/aluminum alloy cable	25–70 mm^2	10.6–19.1 mm		
AC power cable	Two-core (L, N)/Three-core (L, N, PE) outdoor copper/copper-clad aluminum/aluminum alloy cable	6–25 mm^2	12.7–27 mm	Cord end terminal with an insertion depth of 12 mm	Customer
Ethernet cable	CAT 5E outdoor shielded network cable, internal resistance ≤ 1.5 Ω/10 m (1.5 Ω/393.70 in.)	-	≤ 9 mm	Shielded RJ45 connector	Customer
Optical cable	Four-core or eight-core single-mode armored cable with the transmission wavelength of 1310 nm	-	≤ 18 mm	-	Customer
The cable diameter must comply with local cable standards. The factors that affect cable selection include the rated current, cable type, routing mode, ambient temperature, and maximum expected line loss.					

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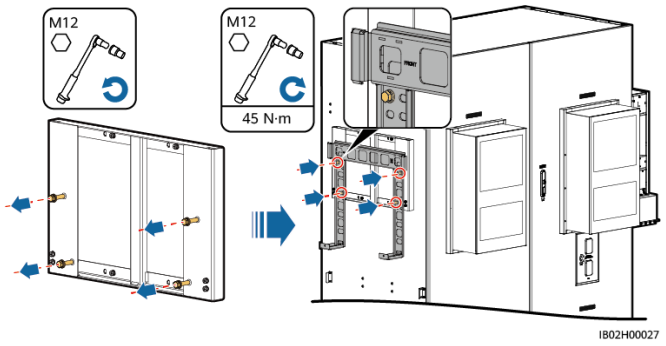
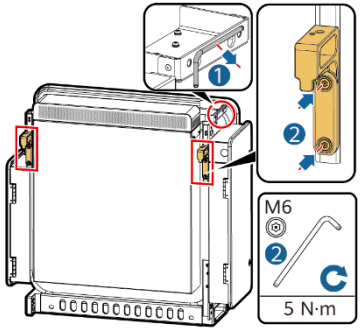
PCS Installation—Installing the PCS on the Left Side of the ESS

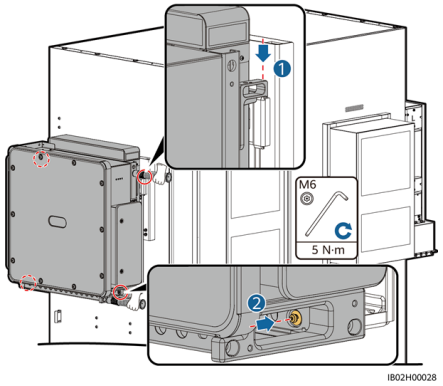
Step 1: Install the PCS support.

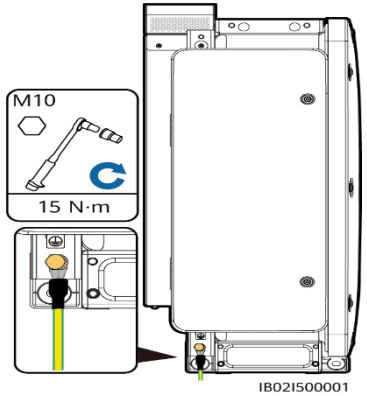


Step 2: Install the PCS mounting ears.

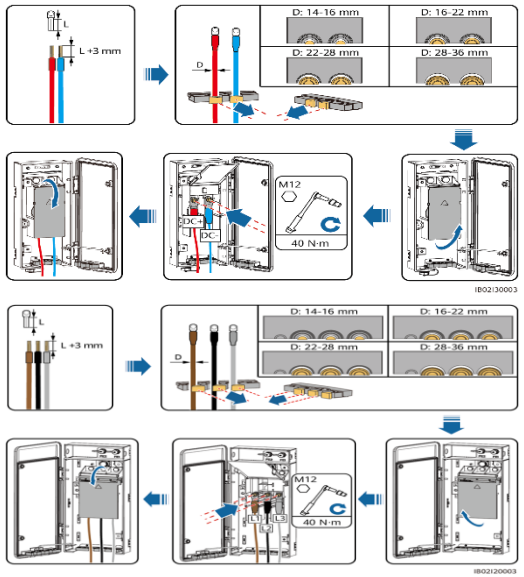


Step 3: Install the PCS on the support.

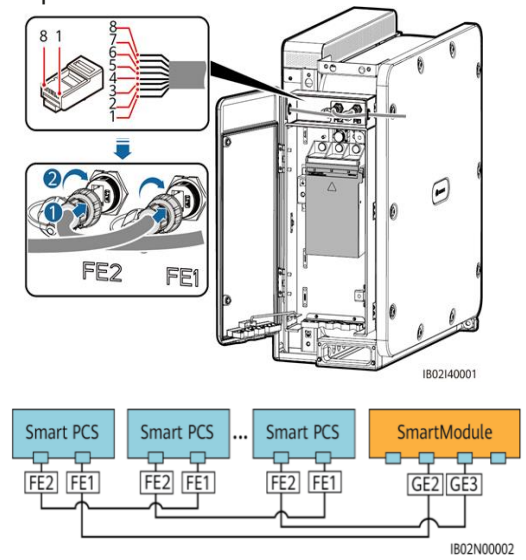




Step 5: Install AC and DC power cables for the PCS.



Step 6: Install PCS communications cables.



No.	Item	Type	Specifications	Source
1	PE cable	Single-core outdoor copper cable and M10 OT/DT terminal	Conductor cross-sectional area ≥ S/2 [1] (S indicates the conductor cross-sectional area of the AC power cable.)	Customer
2	AC power cable	Three-core (L1, L2, L3) outdoor cable and M12 OT/DT terminal (L1, L2, L3)	• Conductor cross-sectional area: 70–240 mm² • Cable outer diameter: 30–65 mm	Customer
		Single-core outdoor cable and M12 OT/DT terminal	• Conductor cross-sectional area: 70–240 mm² • Cable outer diameter: 15–35 mm	Customer
3	DC power cable	Two-core outdoor cable and M12 OT/DT terminal	• Conductor cross-sectional area: 70–95 mm² • Cable outer diameter: 30–45 mm	Customer
		Single-core outdoor cable and M12 OT/DT terminal	• Conductor cross-sectional area: 50–95 mm² • Cable outer diameter: 15–25 mm	Customer
		Indoor high-temperature-resistant cable (protected by corrugated pipes)	• Conductor cross-sectional area: 50 mm² • Outer diameter of the corrugated pipe: 25 mm	Customer/Huawei
4	FE communications cable	CAT 5E outdoor shielded network cable (internal resistance ≤ 1 ohms/10 m) and the shielded RJ45 connector	• Conductor cross-sectional area: 0.2 mm² • Cable outer diameter: 4.5–7.5 mm	• 1.2 m, delivered with the device • You can also prepare a cable according to site requirements.
Note [1]: The value is valid only if the conductors of the PE cable and AC power cable are made of the same material. If the materials are different, ensure that the conductor cross-sectional area of the PE cable produces a conductance equivalent to that of the area S/2. The specifications of the PE cable are subject to this table or calculated according to IEC 60364-5-54.				

- For details, see *LUNA2000-200KWH-2H1 Smart String ESS Quick Guide*.

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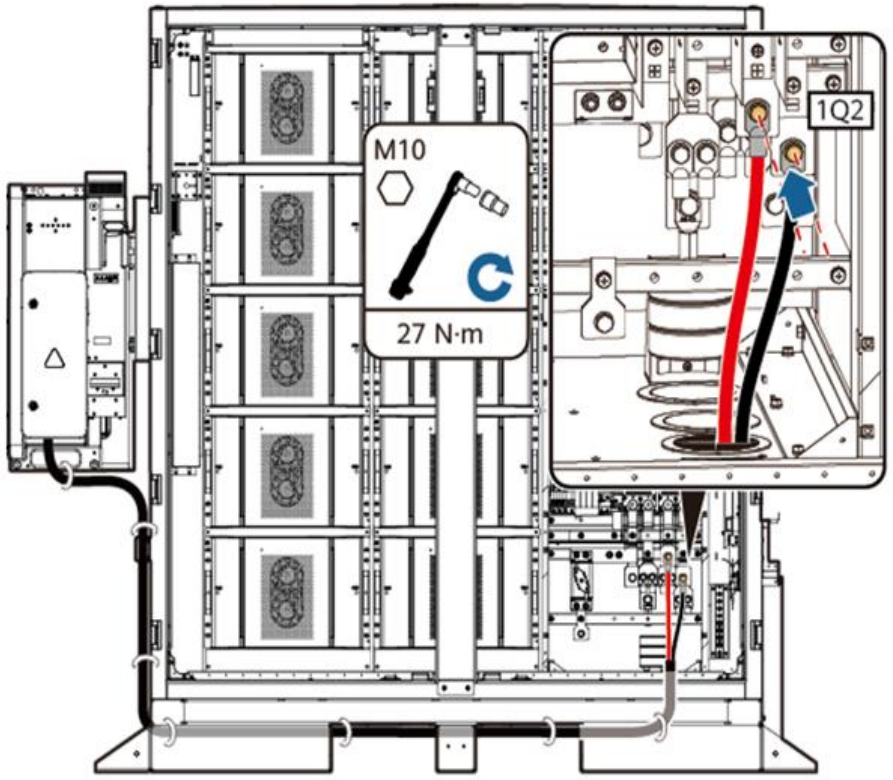
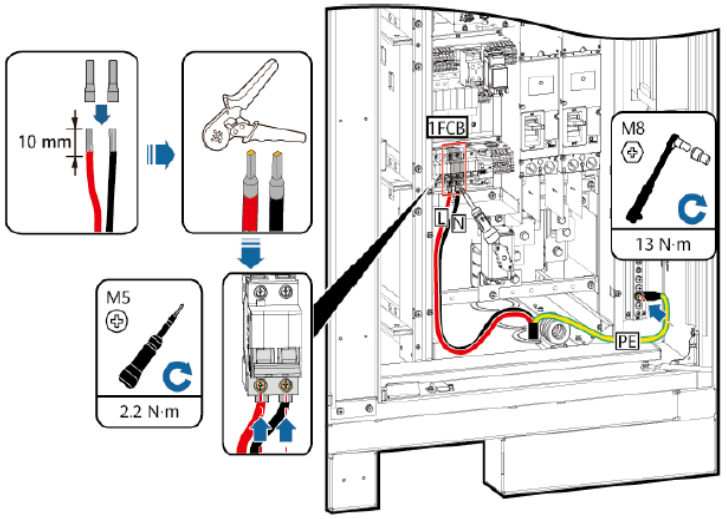
Power Cables Connection at ESS Cabinet

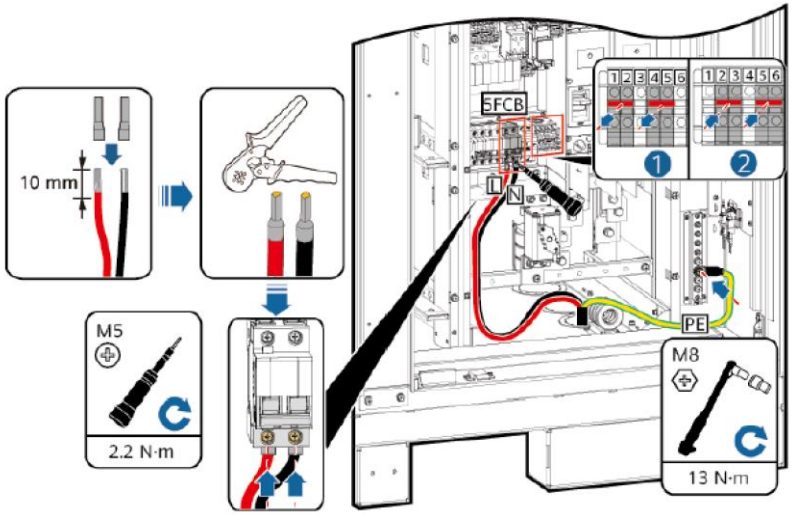
Connecting the DC power cable



Connecting the AC power cable to the auxiliary power supply



Connecting the AC power cable to the UPS



Note:

- Install and check according to the recommended torque

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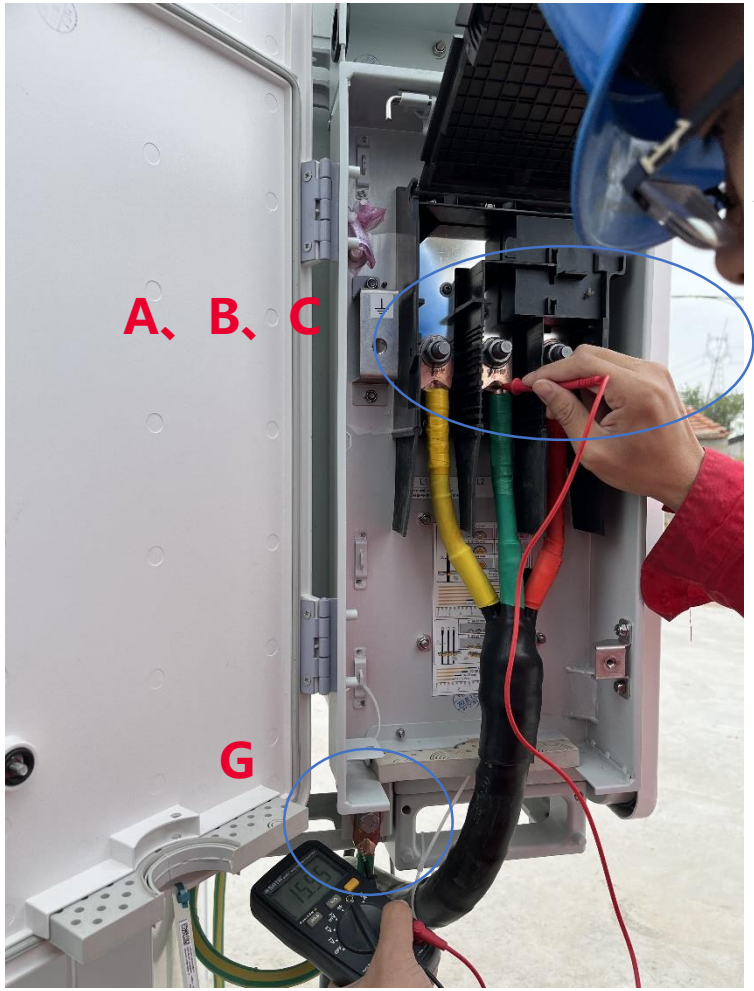
Isolation Resistance and Voltage Check before Commissioning

AC Resistance Measure



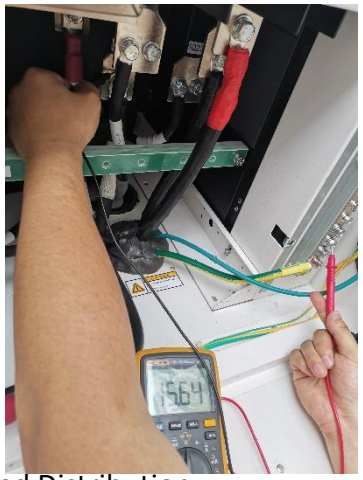
A to G:

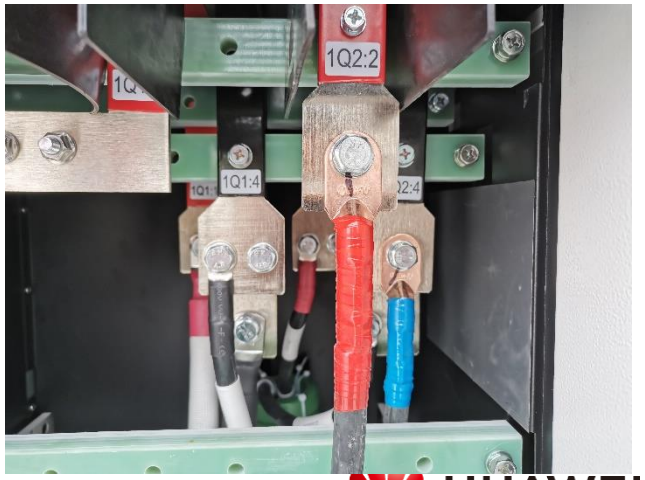
B to G:

C to G:

Resistance/Volteage Test Record					
SN:		Specification		Meet Spec	Value
Voltage		UAB	within local voltage Range	☐Yes ☐No	
		UBC	within local voltage Range	☐Yes ☐No	
		UCA	within local voltage Range	☐Yes ☐No	
AC Resistance		A→G	＞10MΩ	☐Yes ☐No	
		A→G	＞10MΩ	☐Yes ☐No	
		A→G	＞10MΩ	☐Yes ☐No	
DC Resistance	1Q1	1Q1:1→G	＞2MΩ	☐Yes ☐No	
		1Q1:2→G	＞2MΩ	☐Yes ☐No	
		1Q1:3→G	＞2MΩ	☐Yes ☐No	
		1Q1:4→G	＞2MΩ	☐Yes ☐No	
	1Q2	1Q2:1→G	＞2MΩ	☐Yes ☐No	
		1Q2:2→G	＞2MΩ	☐Yes ☐No	
		1Q2:3→G	＞2MΩ	☐Yes ☐No	
		1Q2:4→G	＞2MΩ	☐Yes ☐No	

DC Resistance Measure





Note:

- Resistance check before voltage check

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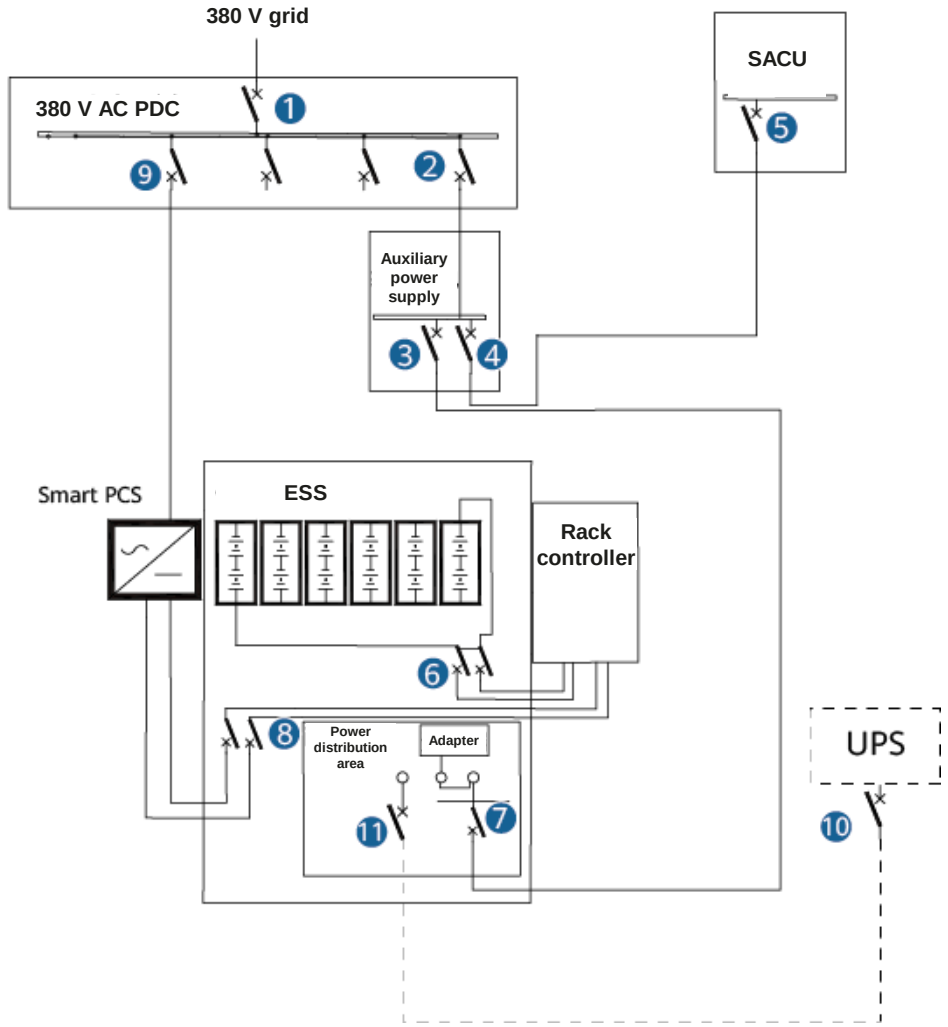
Smart String ESS Power-On Procedure



Step	Project		Remarks
1	Powering on the AC power distribution cabinet connected to the grid		Corresponding to number 1 in the power-on diagram
	Powering on the auxiliary power supply	(Optional) Powering on the UPS	Corresponding to numbers 10 and 11 in the power-on diagram
2		Powering on the 220 V AC auxiliary power supply	Corresponding to numbers 2, 3, and 4 in the power-on diagram
3	Powering on the SACU		Corresponding to number 5 in the power-on diagram
4	Powering on the ESS	Powering on the DC circuit breakers of battery racks	Corresponding to number 6 in the power-on diagram
5		Powering on the auxiliary power supply (turning on the AC switches and then the DC switches)[a]	Corresponding to number 7 in the power-on diagram
6		Powering on the output DC circuit breakers	Corresponding to number 8 in the power-on diagram
7	Powering on the AC side of the Smart PCS	Powering on the battery side of the AC power distribution cabinet	Corresponding to number 9 in the power-on diagram
Note a: Before turning on the internal switch of the ESS auxiliary power supply, check that the AC auxiliary power supply voltage is within the normal range (220 V ± 10%).			

Note: For details, see *LUNA2000-200KWH-2H1 Smart String ESS User Manual*.

System Deployment: Connecting to SmartLogger

1. Connect the network port of the PC to the WAN or LAN port of the SmartLogger with a network cable.
2. Set the IP address of the PC. Ensure that the IP address is in the same subnet as that of the SmartLogger.

Port	IP Setting	Default Value on SmartLogger	Example PC Setting
SmartLogger WAN port	IP address	192.168.0.10	192.168.0.11
	Subnet mask	255.255.255.0	255.255.255.0
	Default gateway	192.168.0.1	192.168.0.1
SmartLogger LAN port	IP address	192.168.8.10	192.168.8.11
	Subnet mask	255.255.255.0	255.255.255.0
	Default gateway	192.168.8.1	192.168.8.1

1. Login methods:
2. Method 1: Enter admin in User Name and log in using your new password.
3. Method 2: Select installer from the drop-down box of User Name and log in using your app login password (the initial password is 00000a).

Parameter	Description
Language	Select a desired language.
User Name	The default value is **admin**.
Password	The initial password is **Changeme**. Use the initial password upon the first power-on and change it immediately after login. Then, use the new password to log in again.

System Deployment Wizard

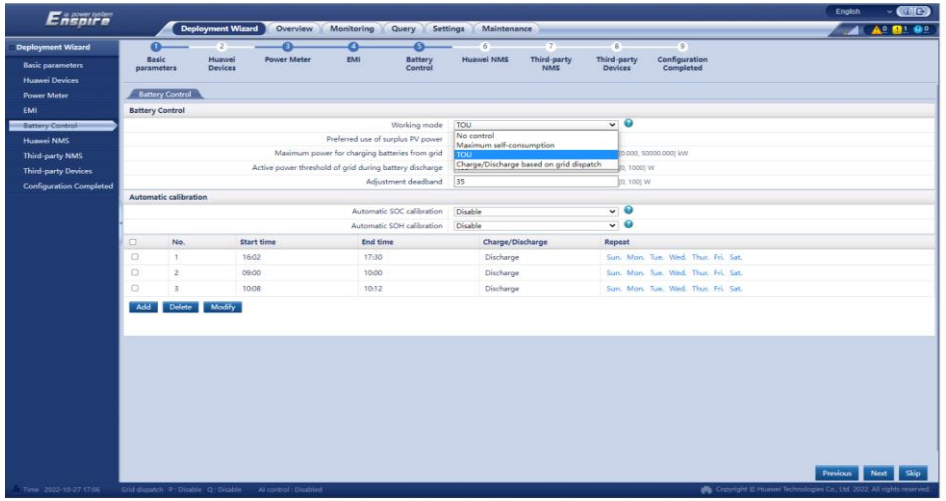
- Basic parameters
- Huawei devices
- Power Meter
- EMI
- Battery control
- Huawei NMS
- Third-party NMS
- Third-party device
- Configuration complete

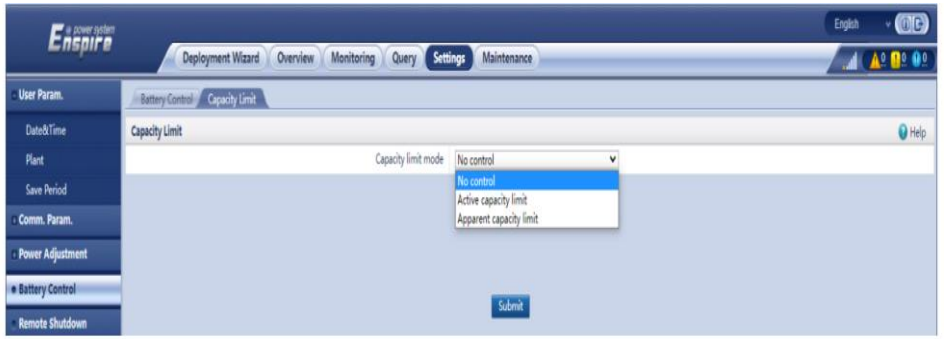
Time zone and time, wired network parameters, and mobile network parameters

MBUS configuration; self-developed device search
Grid code configuration;

If an ESS is connected to the system, you need to set ESS control parameters.
No control
Maximum Self-Consumption
TOU
Charge/Discharge based on grid dispatch

For details, see *LUNA2000-200KWH-2H1 Smart String ESS Quick Guide*.





Thank you.

Bring digital to every person, home, and organization for a fully connected, intelligent world.

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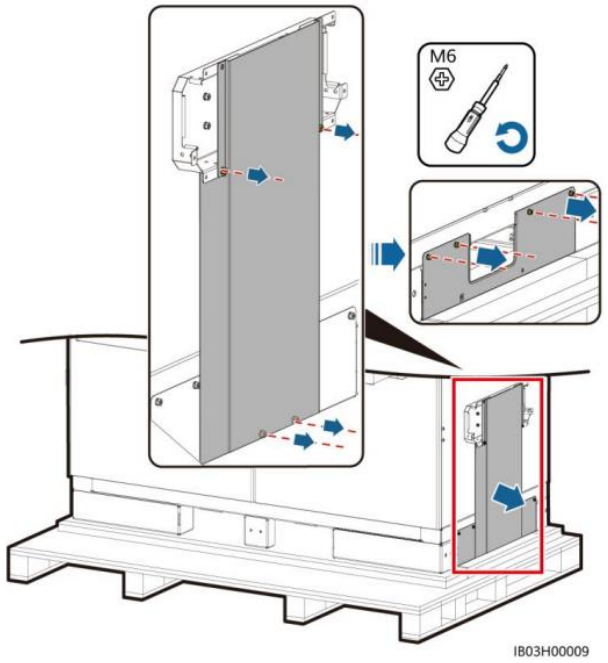
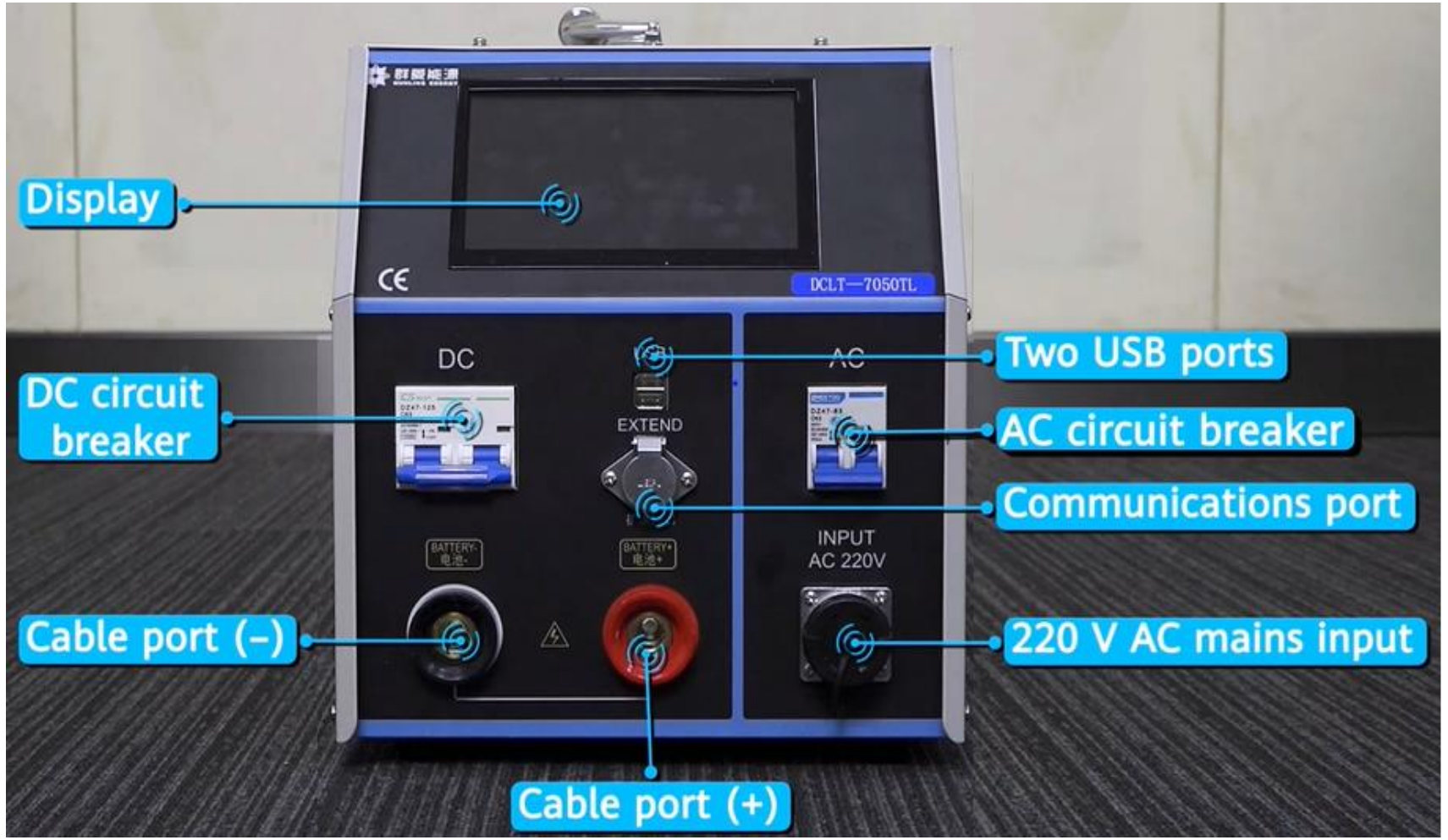
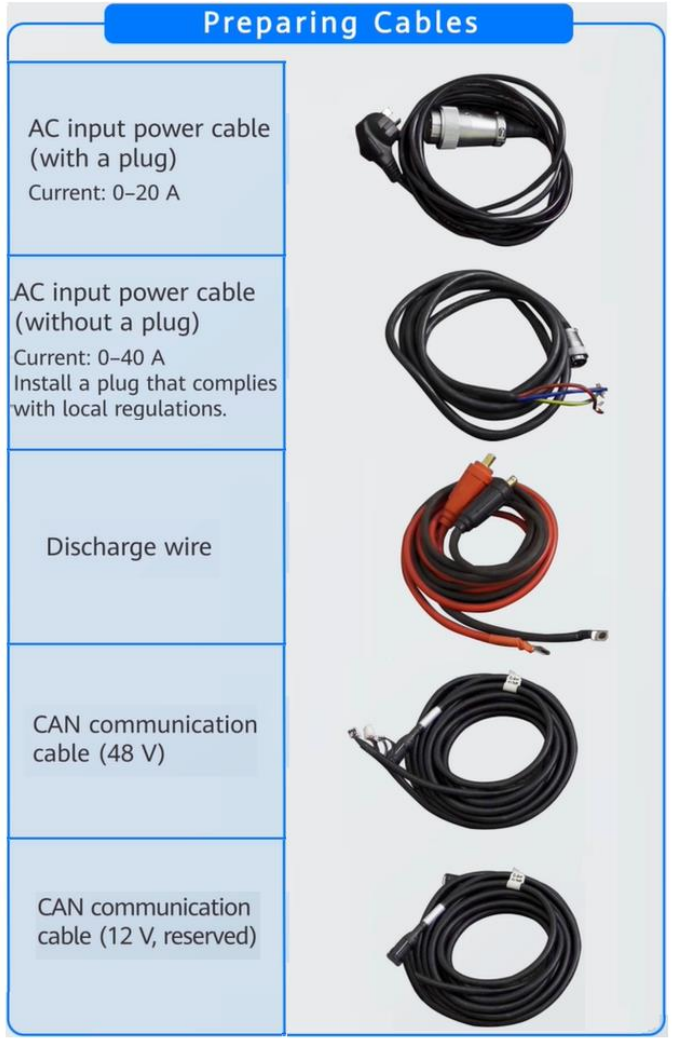


Charging the battery Pack by the Charger

Multimeter, Clamp meter, Insulated torque socket wrench, Charger

DCLT-7050 Charger





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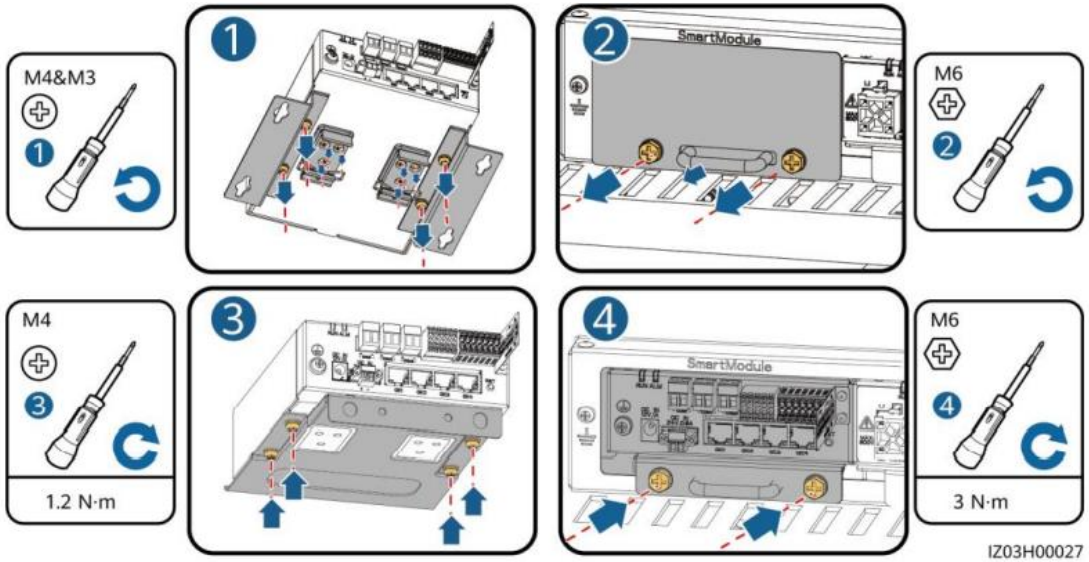
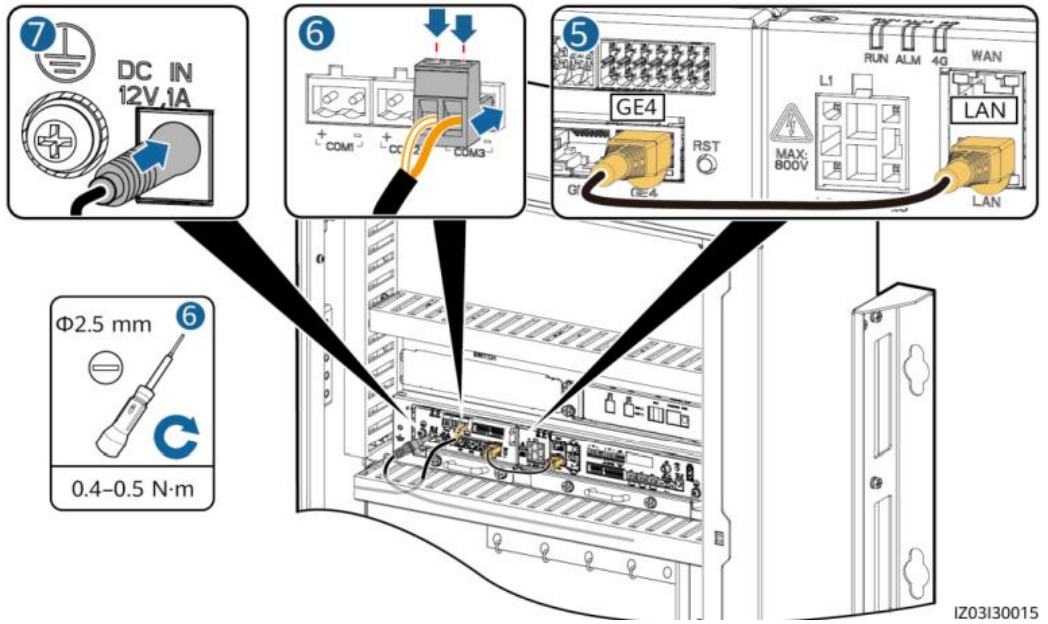
Equipment Installation: Installing the SmartModule

Procedure:

1. Remove the mounting ears and guide rail–mounting kit from the SmartModule.
2. Remove the panel at the position where the SmartModule is to be installed from the cabinet and take out the mounting kit.
3. Secure the mounting kit to the SmartModule.
4. Install the SmartModule.



5. Connect the GE4 port on the SmartModule to the LAN port on the SmartLogger using the network cable delivered with the SmartModule.
6. Connect the preinstalled RS485 cable to the COM port on the SmartModule based on the label.
7. Connect the preinstalled power cable to the "12V, 1A" port on the SmartModule based on the cable label.



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