



User Manual

CGE series AS/AC 7.0S – 22.0S

Electric Vehicle AC Charger



Clenergy ESS

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1 Preface

The Clenergy ESS CGE Series AC Charger (hereby charger) are designed for satisfying the booming demands of EVs (Electric Vehicles) for residential charging purposes. Charger models varied from 7kW to 22kW (maximum 32A), featuring flexible charger types and installation methods.

1.1 Applicable Models

This manual covers all chargers series:

- CGE AS7.0S • CGE AC11.0S
- CGE AC7.0S • CGE AS22.0S
- CGE AS11.0S • CGE AC22.0S

1.2 Objects of This Manual

This manual is intended for:

- Users
- Installation & maintenance personnel
- Professionals familiar with local regulations and standards, and electrical system, who have undergone specialized training and are familiar with relevant knowledge about the charger.

1.3 Symbols

The following symbols are used in this manual in order to highlight relevant important information. Please read the symbols and descriptions carefully.

Danger



"Danger" means highly potential dangers, which will lead to personal death or serious personal injury.

Warning



"Warning" refers to moderate potential dangers, which may lead to personal death or serious personal injury.

Care



"Care" refers to low potential dangers, which may lead to moderate or mitigated personal injury.

Attention



"Attention" means the contents that have been underlined and supplemented or skills for optimal use of the product. It could help you solve some specific problems or save your time. "Attention" does not belong to safety warning information and will not lead to personal injury or equipment and environment damage.

Attention**■ Dynamic Documentation & Compliance:**

The manual complements on-product safety labels. It may be updated without notice per hardware/software revisions or regulatory changes. Always verify the latest version at Clenergy ESS.

■ Key Safety:

- EN IEC 61851-1(EV conductive charging system: General requirements)
- IEC 61851-1 (EV conductive charging system: General requirements)

■ EMC & Wireless:

- IEC 61000-6-1/3 (EMC: Immunity / Emission for residential, commercial and light-industrial environments)
- EN IEC 61000-6-1/3 (EMC: Immunity / Emission for residential, commercial and light-industrial environments)
- IEC 61000-6-2/4 (EMC: Immunity / Emission for industrial environments)
- EN IEC 61000-6-2/4 (EMC: Immunity / Emission for industrial environments)
- IEC 61851-21-2 (EV conductive charging system: EMC requirements for off board electric vehicle charging systems)
- EN IEC 61851-21-2 (EV conductive charging system: EMC requirements for off board electric vehicle charging systems)
- EN 301 489-1/3/17/52 (EMC for radio equipment and services)
- EN 300 328 (2.4 GHz band transmission)
- EN 300 330 (Short-range devices)

■ Qualified Personnel Mandatory:

Operation/maintenance must be performed by licensed electricians certified under national standards.

Strictly prohibited:

- Hardware/software reverse engineering
- Bypassing safety circuits

2 Safety Precautions

Danger



■ Electrocutation & Fire Risk

- Do not touch charging connectors when energized.
- De-energize upstream circuit breakers before installation or maintenance, cleaning or dismantling
- No personal module disassembly
- No cable extensions/modifications
- No charging non-vehicle devices
- No operating without proper grounding (connect ground first, disconnect last)
- All labels and warning marks should be visible after the installation. Do not cover, scrawl, or damage any label on the equipment

■ Physical Hazard Prevention

- Maintain cable integrity: minimum bend radius >200mm (per EN 50631-1) and avoid squeezing/entangling
- Immediately discontinue use if: cracks or damage on enclosure or connectors; error codes persist
- Environmental restrictions

Warning



- Verify cover integrity, appearance monthly check or warning decals remain visible at pre-charge stage
- Always cap connectors when unused in connector handling.
- Coil cables with >150mm diameter loops.
- Do not use in ambient temp environmental condition at over maximum 50°C.
- Do not apply in humidity environmental condition at over maximum 95%.
- Do not apply in corrosive atmospheres environmental condition.
- RF emissions may disrupt pacemakers or implants
- Maintain no less than 30cm distance if using medical devices

3 Introduction

3.1 Product Overview

CGE AC7.0S

Number of Charging Guns

S:single; D: Dual

Rated Power

7.0: the rated power is 7000W

Charger Connection Type

S: Socket, C: Cable

Energy Form

A: AC Charger, D:DC Charger

CGE: Series Code

CGE Series

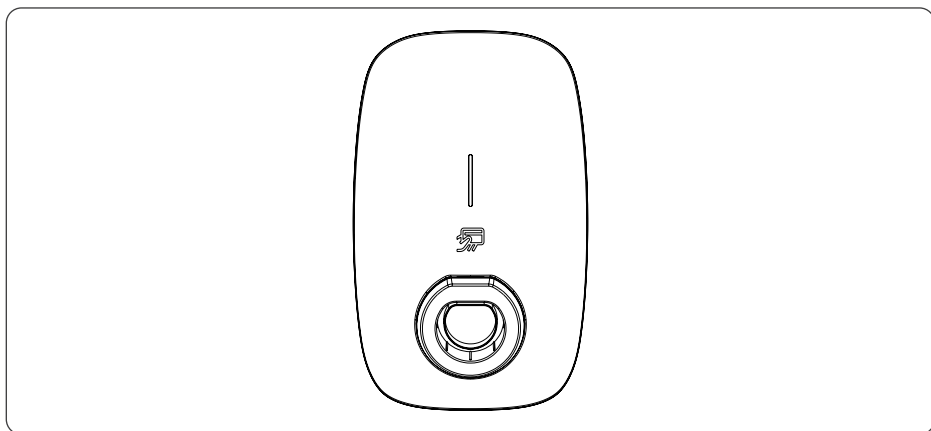
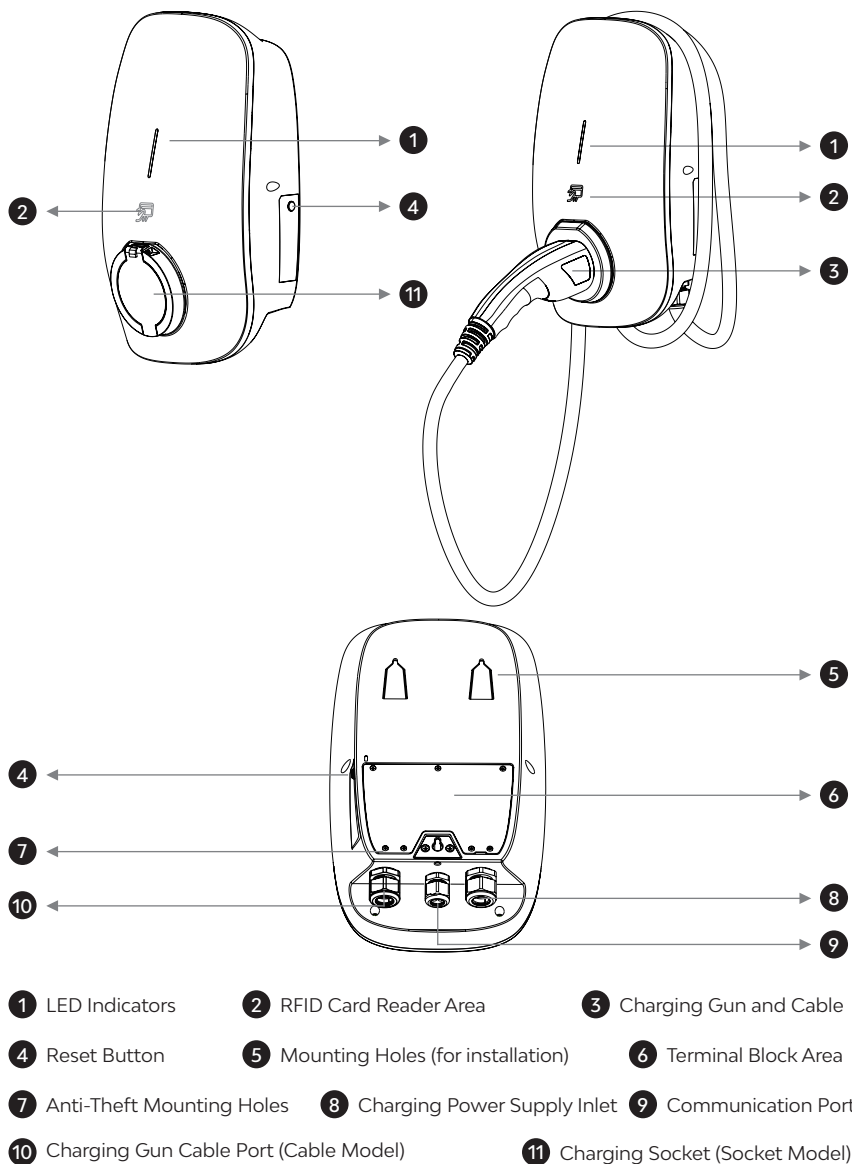


Figure 1:CGE series - Front view



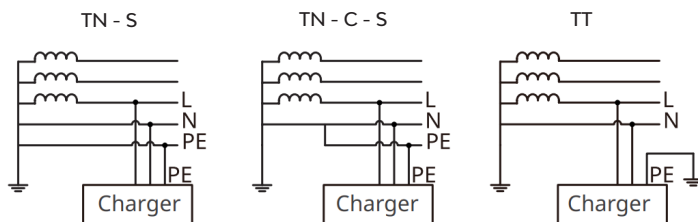
3.2 Grid Types

Attention

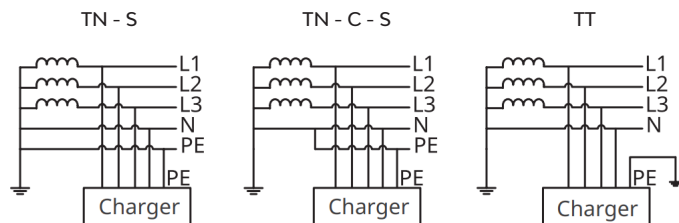


The charge can not be connected to the IT Grid.

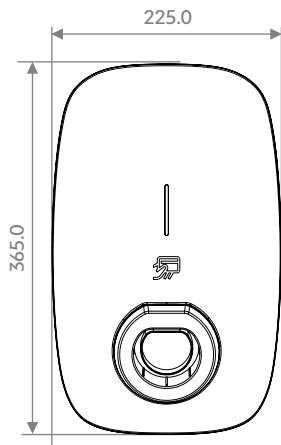
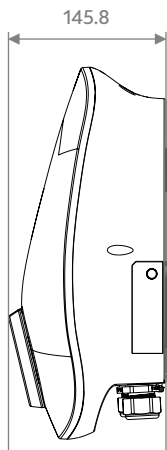
Single phase scenario:



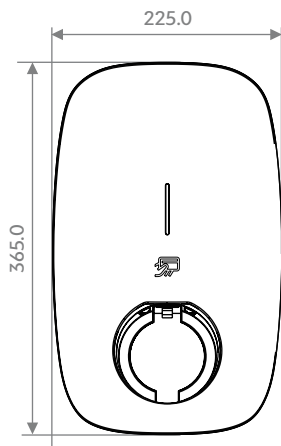
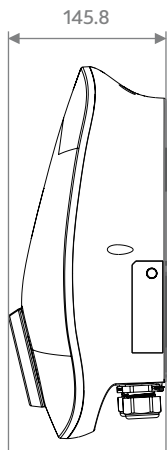
Three phase scenario:



3.3 Product Dimension



Cable Model Charger



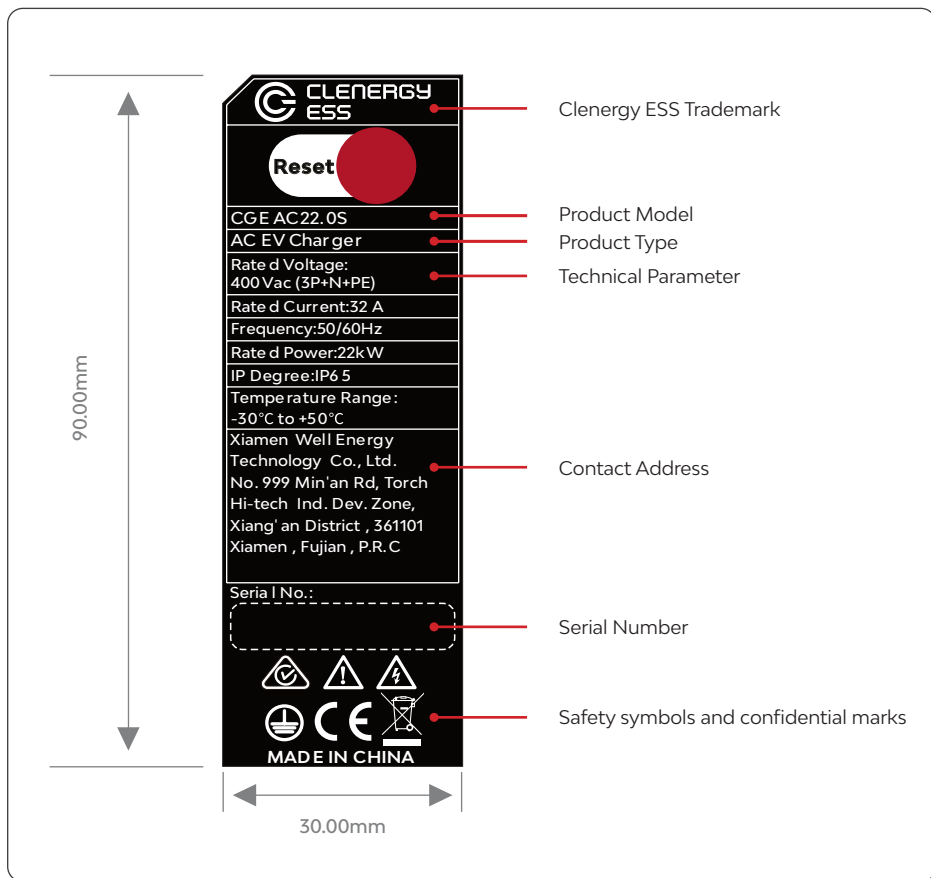
Socket Model Charger

3.4 Indicator Description

No	Color	Status	Exaplantion
1	 Green	ON	Standby status
		Twinkle	Offline card recording (green light twinkles every 1s)
2	 Ice Blue	ON	Connected to an EV, ready start charging status
		Breath	Charging status (ice blue light darks every 1s)
3	 Blue	ON	Charging complete
		Twinkle	Offline card whitelist reset
4	 Red	ON	Fault trigger
		Twinkle	Fault trigger
5	 Yellow	Twinkle	Fault trigger

3.5 Nameplate

The nameplate is for reference only



4 Installation

4.1 Select a Location for the charger

Consider the following when selecting a location to install the charger:

- Do not install the equipment in a place near flammable, explosive, or corrosive materials.
- Do not install the equipment in a place that is easy to touch. High temperatures exist when the equipment is working. Do not touch the surface to avoid burning.
- Avoid the water pipes and cables buried in the wall when drilling holes.
- Install the equipment in a sheltered place.
- The place to install the equipment shall be well-ventilated for heat radiation and large enough for operations.
- The equipment with a high ingress protection rating can be installed indoors or outdoors. The temperature and humidity at the installation site should be within the appropriate range.
- Install the equipment at a height that is convenient for operation and maintenance, electrical connections, and checking indicators and labels.
- The altitude to install the charger shall be lower than the maximum working altitude of 2000m.
- Install the equipment away from electromagnetic interference.

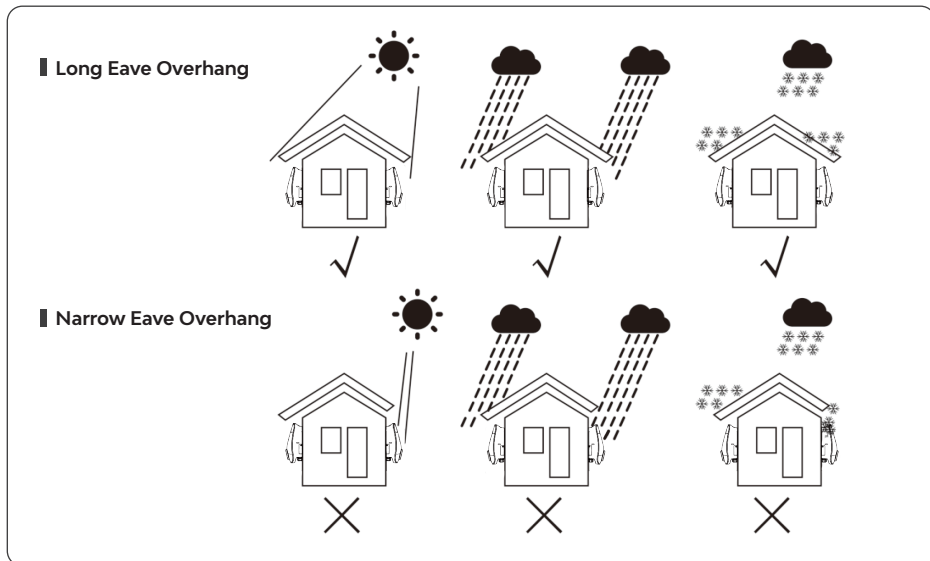


Figure 2: Recommended installation locations

**Danger: Fire risk**

Despite careful construction, electrical devices can cause fires.

Do not install:

- In areas containing highly flammable materials or gases.
- In potentially explosive atmospheres.
- On a mounting structure which is highly flammable.

4.2 Inspection and Confirm

When unpacking, please carefully confirm the following points:

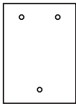
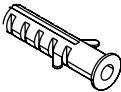
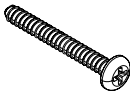
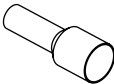
- Whether the accessories are missing according to the packing list.
- Whether there is any damage during transportation.
- Whether the model and specification of the machine's nameplate are consistent with the order requirements.

4.3 Prepare

When unpacking, please carefully confirm the following points:

- When transporting or moving the charger, pay attention to the following points to ensure product safety.
- If any damage or missing parts are found, please do not start the machine and contact the supplier as soon as possible.
- Please keep the package and packing materials 1 month for future handling.
- The paper packaging is recyclable.
- This product is electrical equipment. It should be handled with care to avoid violent vibration and impact.
- Charges shall not be transported by dragging the charging connector and its charging cable.
- Adaptors or conversion adapters are not allowed to be used.
- Cord extension sets are not allowed to be used.

4.4 Packing List

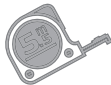
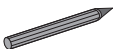
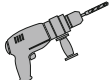
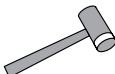
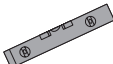
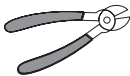
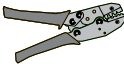
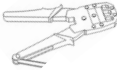
Parts Name	Diagram	Quantity	Function
Positioning paper		1	Hole position for upper wall installation
Expansion tube		4	Bolt fastening
Self-tapping screw (M4)		4	Bolt fastening
Clenergy ESS charge card		2	Authorization and Charging Startup
Wiring terminal		4 (Single-phase) 6 (Three phase)	Clamping tight input terminal

4.5 Pre-Installation Preparation

Before installation, you need to prepare the following installation accessories:

Item	Specification
Power Cable	6~10mm ² (22/7kW); 2.5~4mm ² (11kW)
RCD	230V,2P,C40,TYPEA(7kW)
	400V,4P,C20,TYPEA(11kW)
	400V,4P,C40,TYPEA(22kW)

Required Installation Tools:

Tool Name	Diagram	Specification	Purpose
Tape Measure		/	Measure installation height/range
Pencil		/	Mark drilling points on the wall
Phillips Screw-driver		PH2	Tighten or loosen screws
Slotted Screw-driver		PH0/PH2	Tighten or loosen screws
Electric Drill		D:6cm	Drill holes
Hammer		/	Install expansion tubes
Wire Strippers		/	Strip cable insulation cover
Gradienter		/	Ensure level installation
Wire Cutters		/	Cut cables
Crimping Tool		/	Crimp wire terminals or lugs
Network cable pliers		/	Crimp network cables
Wrench		/	Tight or loose hex socket screw

4.6 Wall-Mounted Installation

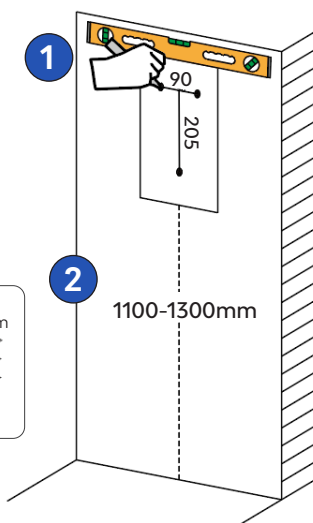
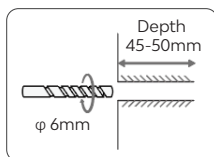
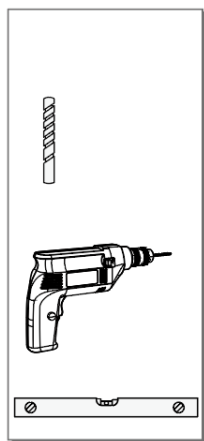


Note:

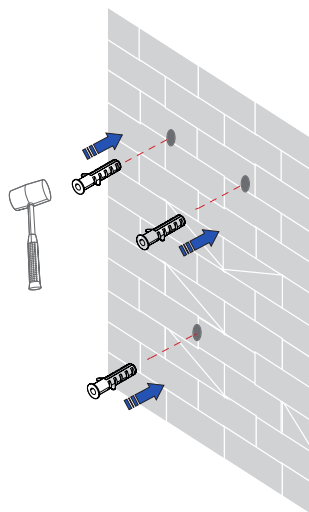
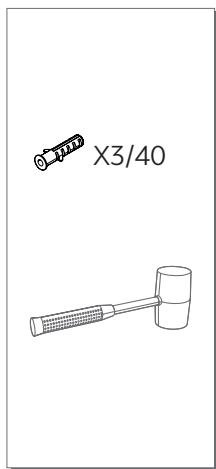
Before proceeding with wall-mounted installation, confirm the following:

- Ensure the wall structure is sturdy enough to support the weight of the charger and any mechanical stress during charging.
- Consider the location of the power outlet or meter to ensure the cable length from the power source to the charger is within a reasonable range.
- Plan the cable routing to avoid messy and unsafe arrangements.
- If the charger is installed outdoors or in areas exposed to moisture, ensure appropriate waterproofing and damp-proof measures are in place.
- The charger generates heat during operation. Ensure the installation location provides sufficient ventilation to prevent overheating.
- Reserve adequate space around the charger for maintenance.

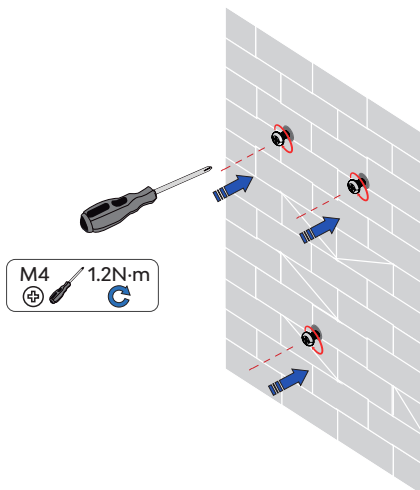
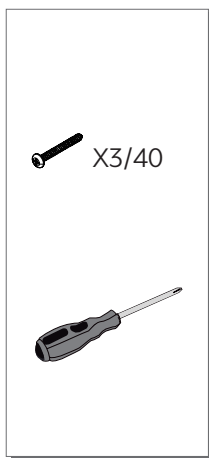
4.7 Installation Steps:



3



4



Step 1

Secure the positioning paper to the wall. Adjust the right direction that two holes on the top (90mm between), one is on the bottom (205mm vertical distance to upper holes' line). 1100-1300mm (recommend 1000 mm) height from the ground, at least 200 mm distance for the remaining directions. Afterwards, use a gradienter to ensure its level and mark down three holes' position with pen.

Step 2

Drill 3 mounting holes of 6mm diameter and 40mm depth at the three marking points.

Step 3

Secure the mounting accessories to the wall with the expansion screw in package. Use a hammer to gradually insert the expansion tubes fixed into the holes.

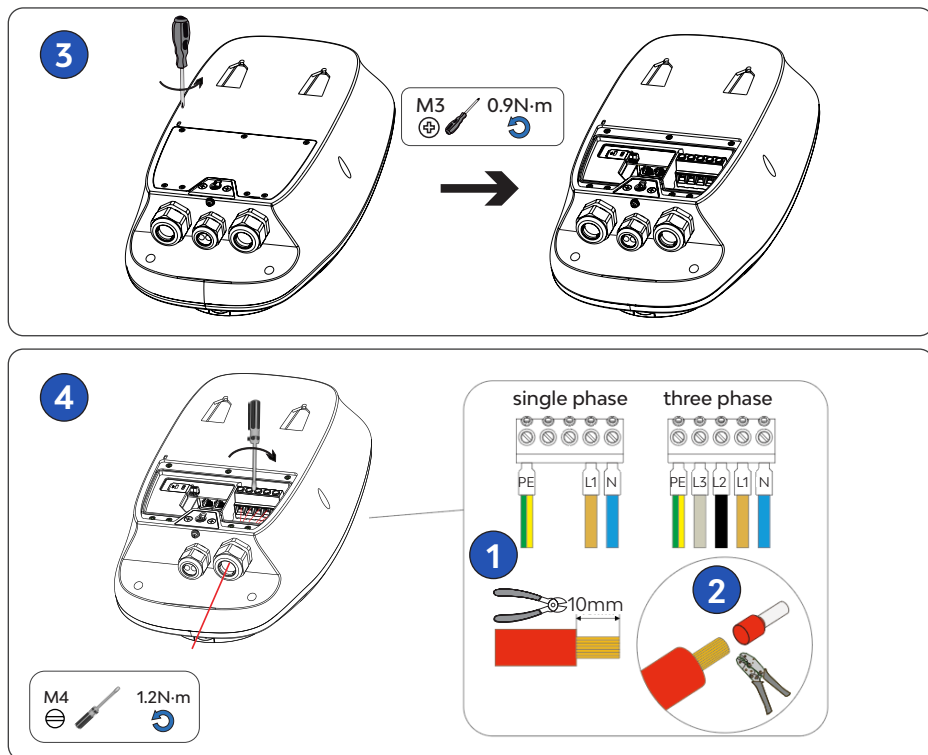
Step 4

Tighten the M4 self-tapping screws with a Phillips screwdriver, leaving 3 mm of the screw head exposed for mounting the charger.

To ensure the long-term stable operation of the product, it is recommended to avoid installing chargers in extreme weather as far as possible, especially low or high ambient temperature may affect the installation effect due to thermal expansion and cold contraction.

- The electrical power cable must be prepared
- It is suggested that the charger should be installed in a place with good ventilation, no direct sunlight and shelter from wind and rain.
- To ensure good ventilation condition, you should mount the charger vertically and leave enough space mentioned in the installation steps above.

4.8 Power Cable Connection



Step 1

Strip the power cable conductors to approximately 10mm of exposure with a wire stripper.

Step 2

Crimp the wire terminals or lugs connected with the AC cables.

Step 3

Use a phillips screwdriver to unscrew and remove the plastic cover on the back.

Step 4

Pass the prepared power cable through the input cable interface, connect each cable to the input terminals according to the terminal label L(Brown), N(Blue) and PE(Green&Yellow) in single phase, L1(Brown), L2(Black), L3(Grey), N(Blue) and PE(Green&Yellow) in three phase as shown in figure. Use a slotted screwdriver to anticlockwise loosen and clockwise tighten wiring terminal block.



Note:

The wiring method for the power supply Inlet is the same for both the Cable Model and the Socket Model.

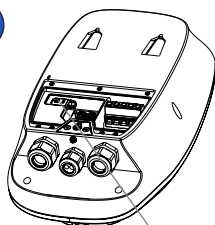


Danger: Fire risk

Ensure the power supply is completely disconnected before performing any wiring.

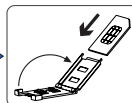
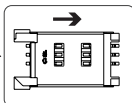
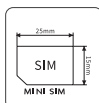
■ Communication Connection

1

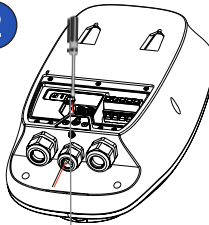


Optional: 4G version only

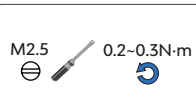
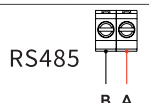
Please follow the same procedures to close the SIM card block



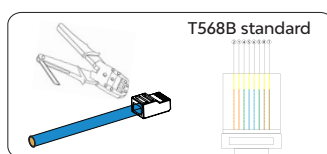
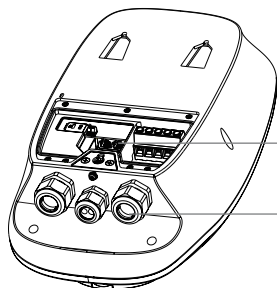
2



Optional: RS485 only



3



Prepare RJ45 and plug into the communication port



Step 1

Install SIM card in designated slot:

Right push the SIM card moving slot until it disconnects, then clockwise direction open it. Insert the MINI SIM card and place on card slot. After the SIM card is properly installed, anti-clockwise and backward push to lock back the SIM card moving slot. (only for 4G version)

Step 2

Install RS485 interface in designated port:

Connect the RS485 interface: unplug the small block. Use a slot screwdriver (M2.5, 0.2-0.3Nm) to anti-clockwise loose block, put prepared RS485 cables (left to right: RS485-B, RS485-A) inside the block and tight it in an opposite direction. Plug the RS485 communication cable into its designated port.

Step 3

Connect RJ45 Ethernet cable:

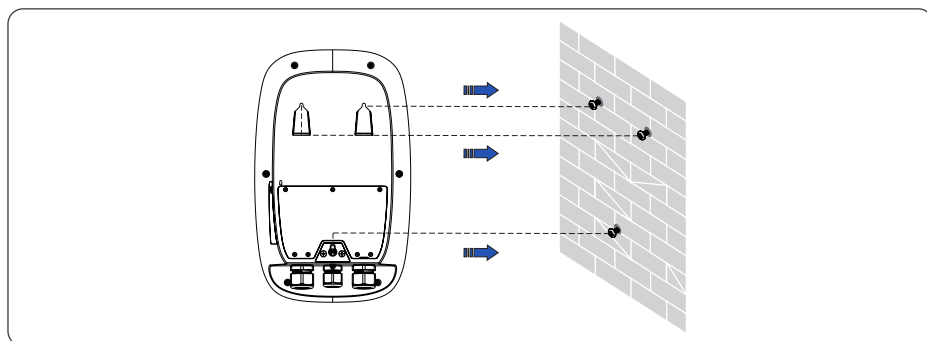
- Thread the network cable without registered jack sequentially through the components of the cable strain relief assembly.
- Prepare T568-B standard RJ45 network cable by using a network cable crimping tool to crimp a registered jack and cable.
- Plug the terminated network cable firmly into the right Ethernet port.

Step 4

Use a Philips screwdriver (M3, 0.9Nm) to clockwise tighten product back cover panel.

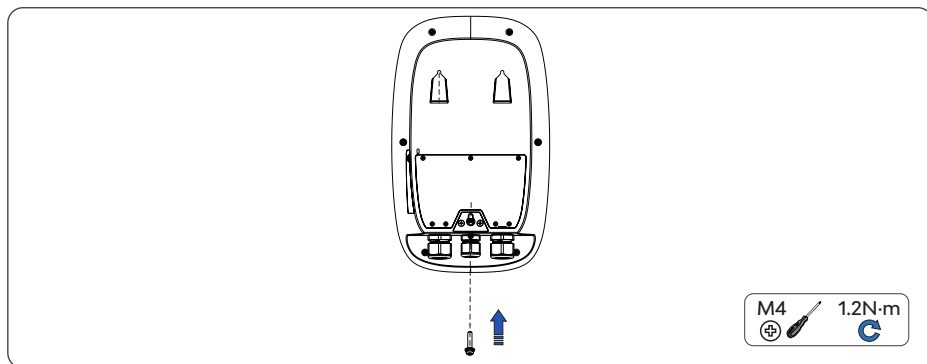
■ Align and Mount the Charger

- Carefully align the mounting slots on the back of the charger unit with the pre-installed screws on the wall.
- Gently hang the charger onto the screws, ensuring it is fully engaged and level.



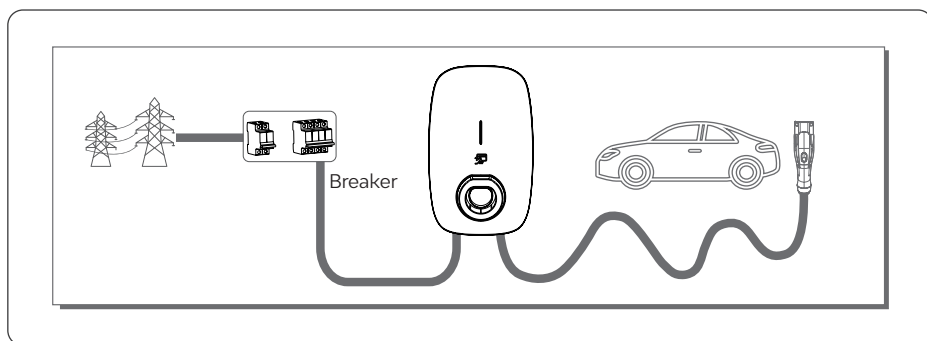
■ Secure the Anti-Theft Screw

- Locate the anti-theft screw at the bottom of the charger.
- Using the provided specialized tool (e.g., slotted screwdriver), firmly tighten the anti-theft screw until snug.
- Do not overtighten, as this may damage the screw or charger housing.



■ Wiring Precautions

- Before wiring, ensure the power supply to the charger is completely disconnected.
- Prepare cables and circuit breakers, make sure crimping them properly before grid connection.



■ 4.9 Pole-Mounted Installation (Optional)

- Secure the unit to the pole using mounting screws.
- Route cables through the rear cable entry point.
- Connect tight the charger to the pole fixing points.

■ Installation Steps:

Step 1

Use a mark pen to ensure four holes on the preset concrete foundation base (recommended LxWxH = 400mm x 300mm x 150mm) are corresponding to the four holes on pole-mounted racks. Prepare a driller with diameter 12mm and vertically downwards direction drills four marking holes approx. 100mm depth.

Step 2

Insert four expansion bolts vertically into the pre-drilled holes and gently tap them into place using a small hammer. Meanwhile, remove the four nuts on expansion bolts and prepare to use in step 3.

Step 3

Place the pole-mounted rack onto the concrete base, aligning its four holes with the pre-drilled holes. Use a M8 wrench to clockwise direction tighten the nuts in step 2.

Step 4

Firstly, remove the cable exit panel for manual operation with a M4 Philips screwdriver. Route cables through the rear cable entry point till the cable exit point ready for charger installation. Once the cable is successfully routed, re-tighten cable exit panel.

Step 5

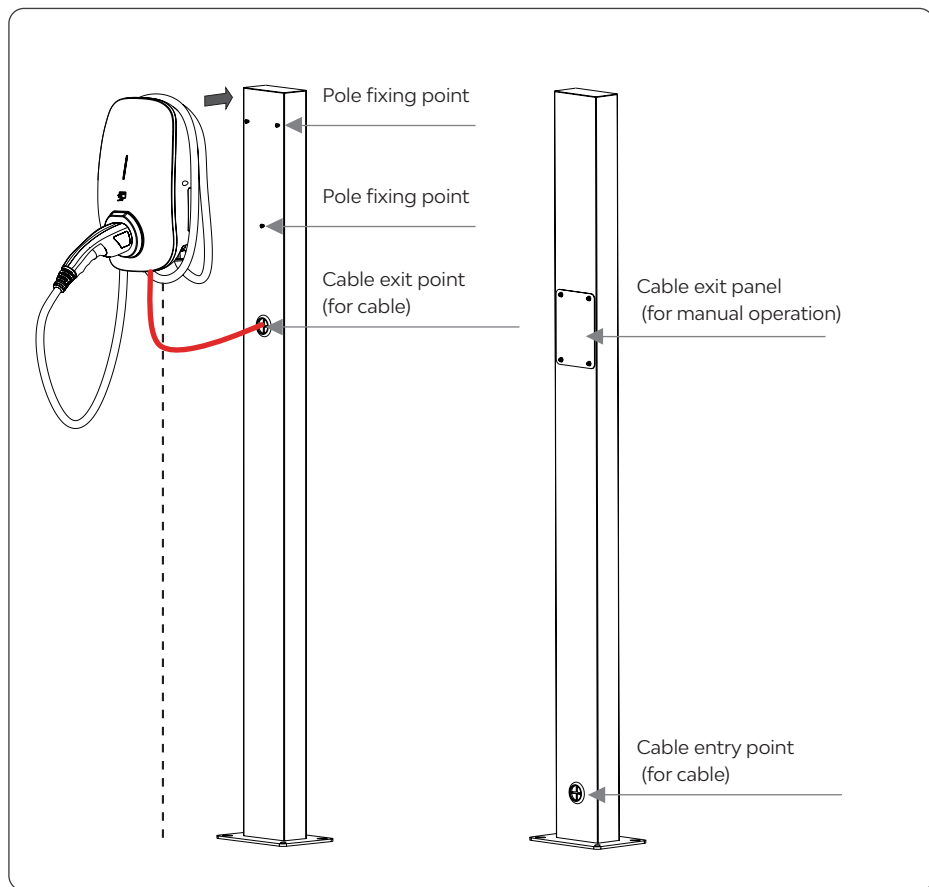
Make sure that 3 mm of the screw head is exposed for mounting the charger on three pole fixing points. After connecting charger and cables, hang the charger onto the pole's pre-mounted screws fixation points. Tighten the anti-theft screw at the bottom to secure the unit, and close the cable exit panel protective cover.

Step 6

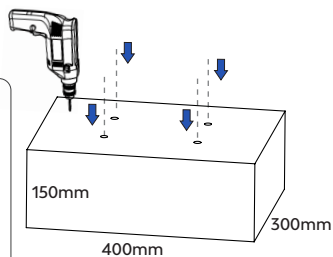
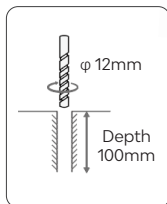
After successful installation, always remember to place the charging gun back when it is unused.

**Note:**

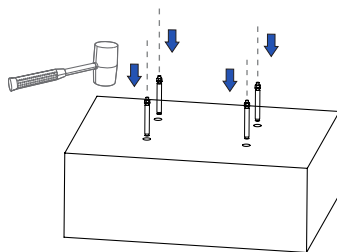
For case C EV supply equipment, the lowest point of the vehicle connector when stored shall be located at a height between 500-1500mm above ground level.



1

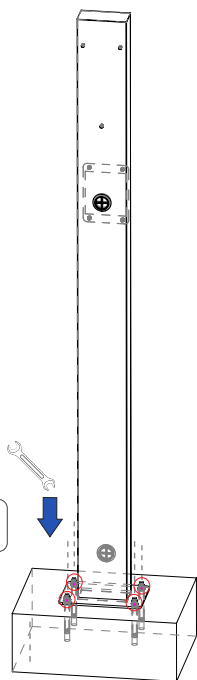


2



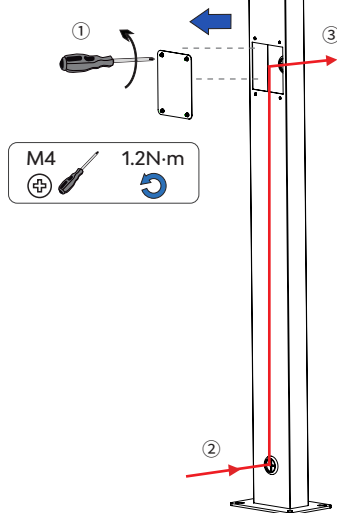
3

Pole-mounted
Front View

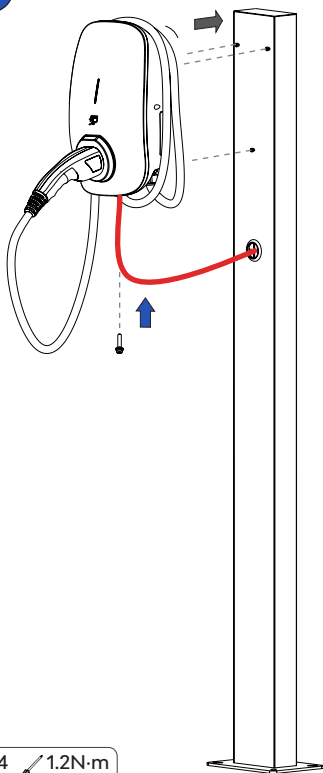


4

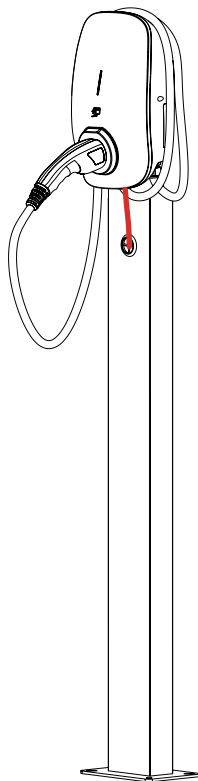
Pole-mounted
Rear View



5



6



5 Operating Instructions

5.1 Clenergy ESS Charge Card Operation

In general, the basic Clenergy ESS charge card function is equipped with all models in CGE series AC charger, and the charging process can be started and stopped by using the Clenergy ESS charge card configured with the host. This procedure ensures secure management of user access cards and complies with functionality.

5.1.1 Clenergy ESS Charge Card Offline Recording

Each charger can support maximum 10pcs of Clenergy ESS charge card, please follow the procedures below to start and finish recording:

Step	Action	Charger Status	Indicator Status
1	Ensure the connector is unplugged	Standby	Green light ON
2	Press and hold the button for 3 seconds	Entering recording mode	Green light twinkles every 1s
3	Place the card in the RFID area: - One beep: recording successful - Two beeps: recording failed	Recording	Green light twinkles every 1s
4	Long press the button 3 seconds to manually exit recording mode. Or remains no operation 1 minute to auto exit recording mode.	Exit recording mode	Green light ON



Note:

recording shall be completed within **1 minute**; otherwise, system recording **timeout**.

5.1.2 Clenergy ESS charge card Offline Reset

This function clears all authorized cards from the offline charger list, please follow the start and finish reset procedures below:

Step	Action	Charger Status	Indicator Status
1	Ensure the connector is unplugged	Standby	Green light ON
2	Press and hold the button for 10 seconds	Entering reset mode	Blue light twinkles every 1s
3	Quick press the button twice with one beep	Reconfirmed reset	Blue light twinkles every 1s
4	Long press the button 10 seconds to manually exit resetting mode. Or remains no operation 30 seconds to auto exit resetting mode	Exit reset mode	Green light ON


Note:

 Resetting shall be completed within **30 seconds**; otherwise, system reset **timeout**

Ensure the charging connector is not plugged in during these operations.

 The charger must be in **Standby** mode (Green light ON) to start the processes

5.1.3 Offline Starts Charging

Users apply Cleenergy ESS charge card to start and finish charging:

Step	Action	Charger Status	Indicator Status
1	Ensure the connector is plugged.	Ready start charging	Ice blue light ON
2	Place the card in the RFID area: - One beep: charging confirmed	Entering charging mode	Ice blue light ON with beep
3	Place the card in the RFID area: - One beep: charging stopped	Finish charging mode	Blue light ON with beep
4	Ensure the connector is unplugged	Standby	Green light ON

5.2 Troubleshooting

Perform troubleshooting according to the following methods. Contact the After Sales Service if these methods do not work.

Collect the information below before contacting the After Sales Service, so that the problems can be solved quickly.

- Charger information (e.g. SN, software version, installation date, fault time, fault frequency, etc.)
- Installation environment (e.g. weather conditions). It is recommended to provide some photos and videos to assist in analyzing the problem.
- Utility grid situation.

5.3 Fault & Warning Indicator Introduction

- Red light ON when there is a fault that requires attention before operation can continue.
- Red light twinkle when there is a critical fault that prevents charging.
- Yellow light twinkle when there is a system warning or non-critical fault. Charging may be interrupted or may not start.

No.	Color	Status	Indicator Status
1	 Yellow	Twinkle	Relay Overtemperature Fault Twinkle once (ON 0.5s, OFF 0.5s), then 3s Over/Under Voltage Fault Twinkle twice (ON 0.5s, OFF 0.5s), then 3s Over/Under Frequency Fault Twinkle 3 times (ON 0.5s, OFF 0.5s), then 3s Overcurrent Fault Twinkle 4 times (ON 0.5s, OFF 0.5s), then 3s Electromagnetic Lock Malfunction Twinkle 5 times (ON 0.5s, OFF 0.5s), then 3s

No.	Color	Status	Indicator Status
2	 Red	ON	Please contact Clenergy ESS after-sales team for further information
		Twinkle	CP Fault (Control Pilot) Twinkle once (ON 0.5s, OFF 0.5s), then 3s PP Fault (Proximity Pilot) Twinkle twice (ON 0.5s, OFF 0.5s), then 3s Leakage Current Fault (RCD Trip) Twinkle 3 times (ON 0.5s, OFF 0.5s), then 3s Reverse Polarity Fault (AC Input) Twinkle 4 times (ON 0.5s, OFF 0.5s), then 3s Ambient Overtemperature Fault Twinkle 5 times (ON 0.5s, OFF 0.5s), then 3s Connector Overtemperature Fault Twinkle 6 times (ON 0.5s, OFF 0.5s), then 3s

6 Technical Specifications

Model	CGE AS7.0S	CGE AC7.0S	CGE AS11.0S	CGE AC11.0S	CGE AS22.0S	CGE AC22.0S
AC Input						
Rated voltage (V AC)	230		400			
Voltage range(V AC)	176-264		304-456			
Power Supply	1P+N+PE		3P+N+PE			
Rated current (A)	32		16		32	
Main frequency (Hz)	50/60					
AC Output						
Rated Power(kW)	7		11		22	
Rated voltage (V AC)	230		400			
Rated current (A)	32		16		32	
Protection						
RCD	30mA TYPE A+6mA DC					
Electrical Protection	Over current protection、Residual current protection、Surge protection、Over/Under voltage protection,Over/Under frequency protection、Over/Under temperature protection、Neutral-grounding resistor monitoring					
Grid configurations	TT/TN					
Surge protection	Type III					
Impact resistance	IK08					
User interface & Communication						
Display	LED Indicator					
Charging socket	Type 2 Socket	6m Type 2 Cable	Type 2 Socket	6m Type 2 Cable	Type 2 Socket	6m Type 2 Cable
Communication protocol	OCPP 1.6 J					
General Data						
Ambient temperature (°C)	-30 ~ +50					
Humidity (%)	5%- 95%					
Altitude(m)	0 ~ 2000					
Cooling method	Natural cooling					
Installation	Indoors and outdoors					
Mounting Method	Wall-mount / Pole-mount(Optional)					
Type of installation	Suspended upright					
Ingress Protection Rating	IP54	IP65	IP54	IP65	IP54	IP65
Standby Power (W)	≤5					
Start Mode	Plug to Charge/RFID Card					
RFID Reader	Mifare ISO / IEC 14443A					
AC cable specification	Cross-section 3*6mm ² + 2*0.75mm ²	Cross-section 3*6mm ² + 1*0.5 mm ²	Cross-section 5*6mm ² + 2*0.75mm ²	Cross-section 5*2.5mm ² + 1*0.5 mm ²	Cross-section 5*6mm ² + 2*0.75mm ²	Cross-section 5*6mm ² + 1*0.5mm ²
Dimensions (H*W*D) (mm)	365*225*156					
Weight (kg)	2.1	3.8	2.2	3.5	2.2	4.8
Certification Standards	P29 IEC 61851-1, EN IEC 61851-1, IEC 61000-6-1/2/3/4, EN IEC 61000-6-1/2/3/4, IEC 61851-21-2, EN IEC 61851-21-2, EN 301 489-1/3/17/52, EN 300 328, EN 300 330					

7 Product Maintenance

7.1 Maintenance

To ensure the long-term stable operation of the equipment, please maintain the equipment regularly (usually every month) according to the operating environment.

- The equipment is maintained by professionals.
- Check whether the equipment is well grounded and safe.
- Check whether there are potential safety hazards around the charger (e.g. high temperature, corrosion or inflammable, explosive articles).
- Check whether the join point of the input terminal is in good contact and whether there is any abnormality. Check whether other terminal points are loose.

Routine Maintenance

Maintaining Item	Maintaining Method	Maintaining Period
Electrical Connection	Check whether the cables are securely connected. Check whether the cables are broken or whether there is any exposed copper core	Once 6-12 months
Sealing	Check whether all the terminals and ports are properly sealed. Reseal the cable hole if it is not sealed or too large	Once 6-12 months
Protection switch	Press the protection switch to ensure its disconnecting normality.	Once a month



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