

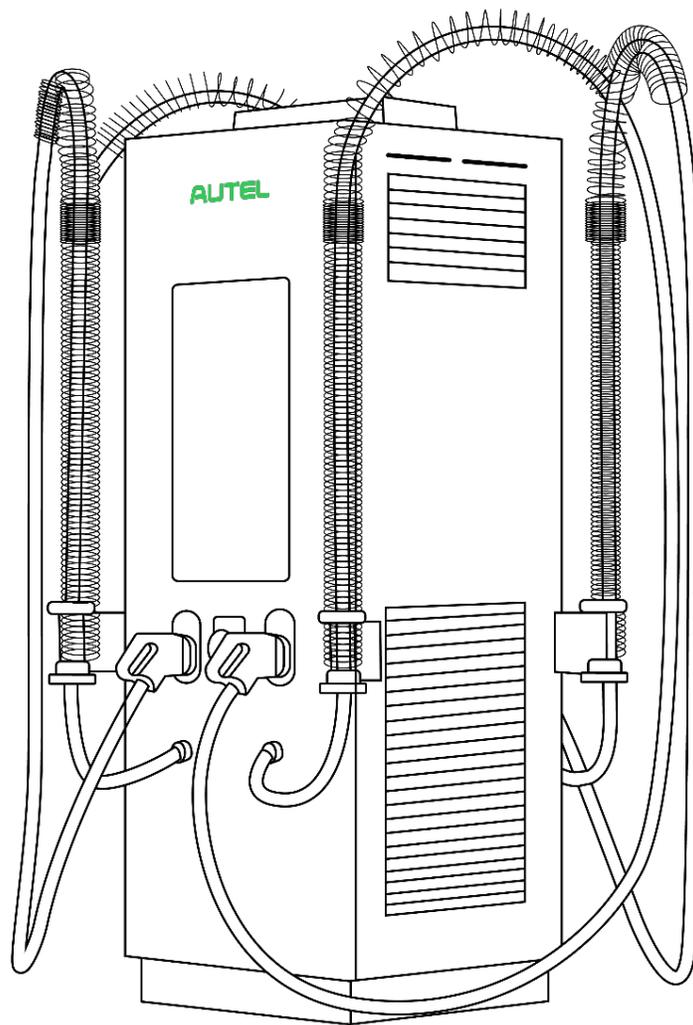
MaxiCharger

AUTEL

# DH240 & DH480

## Preventive

## Maintenance Guide



Technical Service Department

| <b>Date</b>        | <b>Version</b> | <b>Writer</b> | <b>Description</b>        |
|--------------------|----------------|---------------|---------------------------|
| <b>2024 -11-07</b> | <b>1.0</b>     | <b>Maye</b>   | <b>Initiate document.</b> |

# 1. Safety and Usage Instructions

## ***DANGER, WARNING, and NOTICE* statements**



### **DANGER**

*DANGER* indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

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### **WARNING**

*WARNING* indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

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### **NOTICE**

*NOTICE* provides helpful information such as additional explanations, tips, and comments.

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## Purpose and intended audience

This manual applies to the MaxiCharger DH240 and DH480 produced by Autel, Intelligent Technology Corp., Ltd. 2004-2024. (Autel). The DH240 and DH480 are intended exclusively for charging electric vehicles and when installed correctly, can be used by untrained individuals. Follow this manual to commission and operate the charging station correctly.

Installation, commissioning and maintenance of this charging station can be performed only by a qualified electrician who has the following capabilities:

- Expertise on general and specific rules regarding safety and incident prevention.
- Comprehensive knowledge of applicable electrical regulations.
- Ability to identify risks and avoid potential hazards.
- Familiarity to the installation and operation instructions described in this document.

## Improper use

Using the charging station is safe as long as it is used as intended. Any other use or changes to the charging station are considered improper use and therefore not allowed. The operator, owner or qualified technician is responsible for any personal injury or product damage arising from improper use.

## Disclaimer

This document is subjected to rigorous technical review before release. It is revised at regular intervals, and any modifications and amendments are included in the subsequent chapters. Although Autel has made its best efforts to keep the document as precise and up-to-date as possible, Autel does not assume any liability for defects and damage which results from the use of the information contained herein.



### NOTICE

This manual is subject to updates and changes. The latest version is available for download on Autel official website. Errors and omissions excepted.

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Any modifications to the product assembled by Autel may affect the product performance, such as the user experience, appearance, quality and lifespan. These custom modifications (customization) include but are not limited to the placement of stickers and SIM cards or the usage of different colors. Autel is not liable for any damage to, or caused by the customized product if the damage is caused by this applied customization.

## Safety warnings

The safety messages herein cover situations of which Autel is aware. Autel cannot know, evaluate or advise you as to all of the possible hazards. You must ensure your personal safety before performing any service procedure.

### General warnings

- Read and follow all warnings and instructions before commissioning the charging station.
- Do not attempt to operate or repair the charging station unless you have electrician qualifications. Only a qualified electrician is allowed to operate, service, repair, and commission the charging station.
- Perform a risk assessment before performing any electrical work. The assessment includes: electrical hazard identification, job analysis, risk control measures.

### Power and installation

- Switch off the input power before installing the charging station. Keep the power off until it is fully installed and secure.
- Do not commission or open the charging station in wet environments (such as rain or heavy fog).
- Install and commission the charging station according to local regulations. Local regulations may vary based on different countries or regions.
- Complete the following steps before you perform O&M operations on electrical systems: inspection and testing procedures, preventive maintenance, and troubleshooting.

### Fire and explosion hazards

- Do not use explosive or readily flammable substances near the charging station.
- (Optional) Install a fire alarm system to detect fires at an early stage.
- Refer to the vehicle user manual to check if the vehicle releases hazardous or explosive gas during charging.

## Handling and usage

- Do not operate the charging station if the charging cable is frayed, broken, damaged, or cannot work properly.
- Do not use the charging station if the cabinet or the connector is frayed, broken, or otherwise damaged, or cannot work properly.
- Place the charging cable where it cannot be stepped on, tripped over, driven over, or otherwise subjected to excessive force or damage. Ensure that the charging cable is correctly stowed when not in use and that the connector does not touch the ground.
- Do not insert fingers into the charging port.
- Do not leave objects inside the charging port.
- Keep the connector away from heat sources, dirt, and water.
- Keep the charging station away from direct water flow.
- Do not operate the charging station with wet hands.
- Do not put the connector into any liquid.

## Compatibility and compliance

- Use this charging station to charge only compatible electric vehicles. Refer to the technical specifications in this manual and the vehicle manual to check if the vehicle is compatible.
- Use the charging station only under the conditions specified in this manual.
- Do not use adaptors, conversion adapters, or cord extension sets.
- Ensure that the charging cable is not damaged or tangled prior to use.
- Use of the charging station may affect or impair the operation of any medical or implantable electronic devices, such as an implantable cardiac pacemaker or an implantable cardioverter defibrillator. Check with your electronic device manufacturer concerning the effects that charging may have on such electronic devices before using the charging station.

## Emergency procedures

- Disconnect the power supply of the charging station immediately in the event of danger or accident.
- Respond to the emergency by performing operations including but not limited to: emergency power shutdown and first aid and resuscitation measures.

## Personal protection

- Wear PPE (Personal Protective Equipment) such as protective suit, eye protection, mask protection, cut-resistant gloves, and non-slip safety shoes before commissioning the charging station.
- Complete relevant training courses before you engage in electrical work. The training content includes: basic knowledge of electrical safety, practical operation skills, response procedures in emergency situations.

## Disposal instructions

Handling waste incorrectly can have a negative impact on the environment and human health due to potentially toxic substances. Discarding the charging station correctly can facilitate the reuse and recycling of materials and contribute to environmental protection.

- Follow local regulations when you dispose parts, packaging materials, or charging stations.
- Discard electrical and electronic equipment separately in compliance with the WEEE-2012/19/EU Directive on waste of electrical and electronic equipment.
- Do not mix the dispose of the charging station with that of household waste.

## 2. Preventive Maintenance Guide and Checklist

### Overview

This manual describes the scope and inspection items of preventive maintenance on DH240 and DH 480. You can use this guide to locate and prevent problems before they occur.

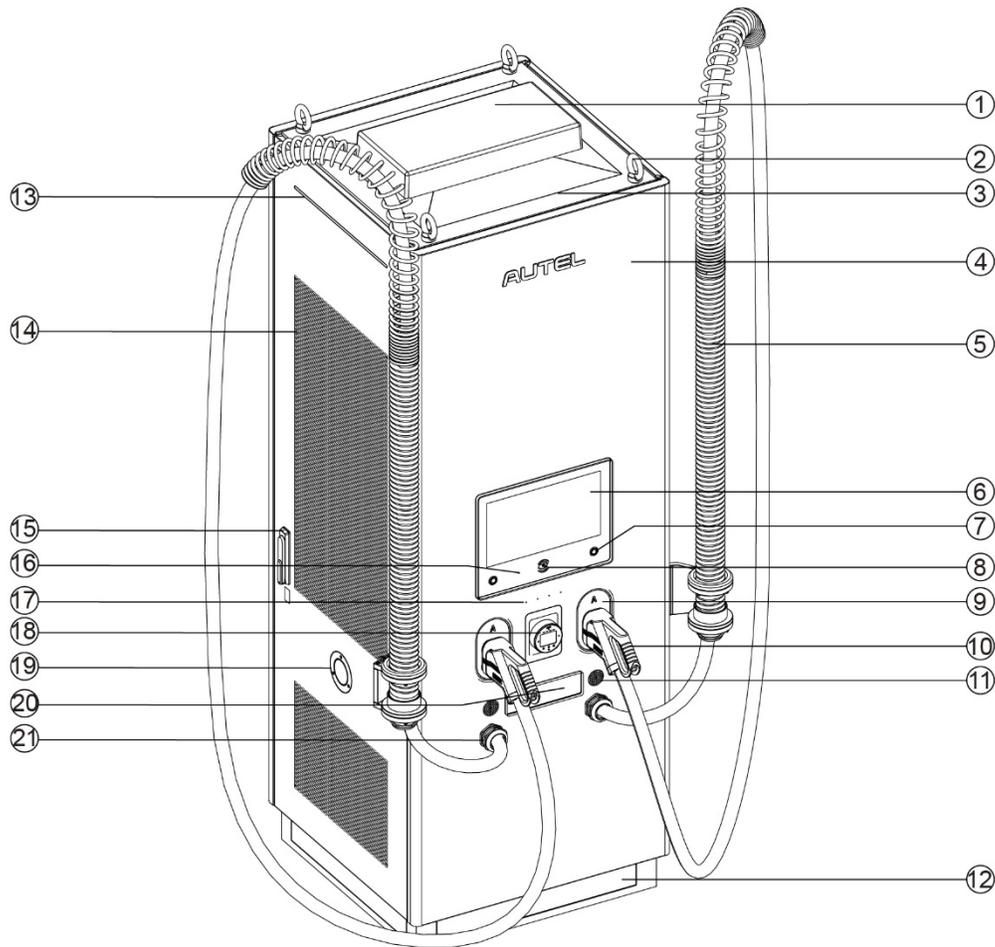
### Preparation

1. Ensure that a qualified electrician is on site to provide technical support.
2. Prepare the following tools for commissioning:
  - Hex Key
  - M12 Wrench
  - Cable Tie
  - Flathead Screwdriver
  - Phillips Screwdriver
  - 8 mm Socket Wrench
  - 10 mm Socket Wrench
  - 13 mm Socket Wrench
  - Temperature measuring gun
3. Contact the customer to confirm that the charging station is ready for commissioning.
4. Confirm that all parts are already installed.
5. Confirm that no extreme weather condition is expected to occur during commissioning, such as rainstorm, thunderstorm, or strong wind.

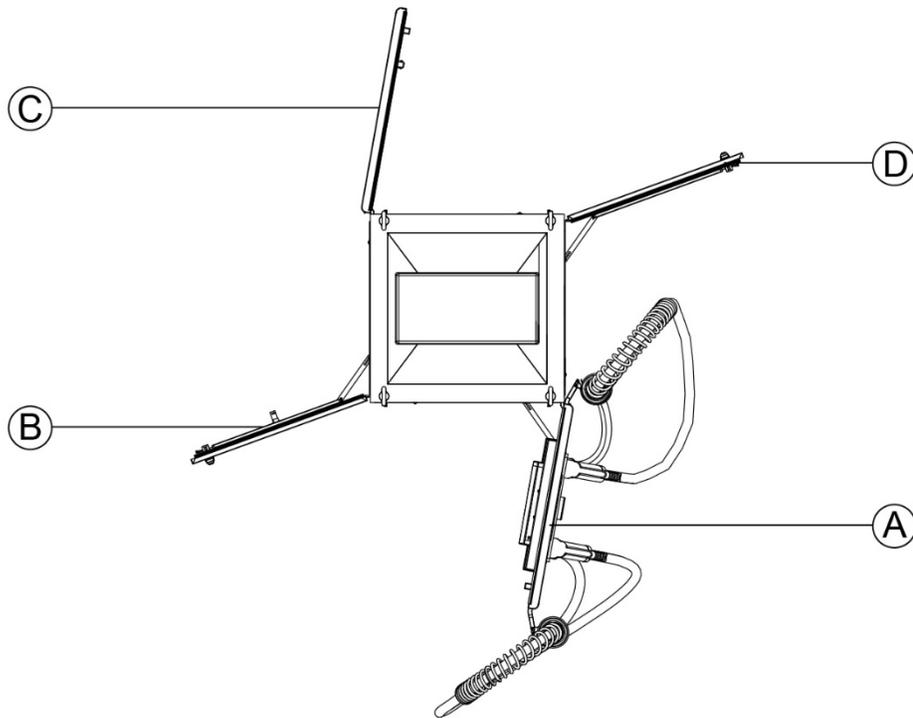
### Basic information

| Autel DH240/DH480 Preventive Maintenance Guide |  |                  |  |
|--|--|------------------|--|
| Charging station SN                            |  | Date             |  |
| Charger model                                  |  | Company          |  |
| Site owner                                     |  | Operator (ID)    |  |
| Site address                                   |  | Rated power      |  |
| Charging standard (CCS/CHAdeMO)                |  | Charging modules |  |

# Appearance



- |            |                  |            |                       |
|------------|------------------|------------|-----------------------|
| <b>1.</b>  | Antenna          | <b>12.</b> | Base                  |
| <b>2.</b>  | Eye bolt         | <b>13.</b> | LED indicator         |
| <b>3.</b>  | Main cabinet     | <b>14.</b> | Vent                  |
| <b>4.</b>  | Front door       | <b>15.</b> | Door lock             |
| <b>5.</b>  | CMS              | <b>16.</b> | Light sensor          |
| <b>6.</b>  | Touchscreen      | <b>17.</b> | Microphone            |
| <b>7.</b>  | Operation button | <b>18.</b> | POS system            |
| <b>8.</b>  | RFID reader      | <b>19.</b> | Emergency stop button |
| <b>9.</b>  | Connector socket | <b>20.</b> | Meter                 |
| <b>10.</b> | Connector handle | <b>21.</b> | Cable fastener        |
| <b>11.</b> | Speaker          |            |                       |



A: Front door – with the touchscreen and charging cables

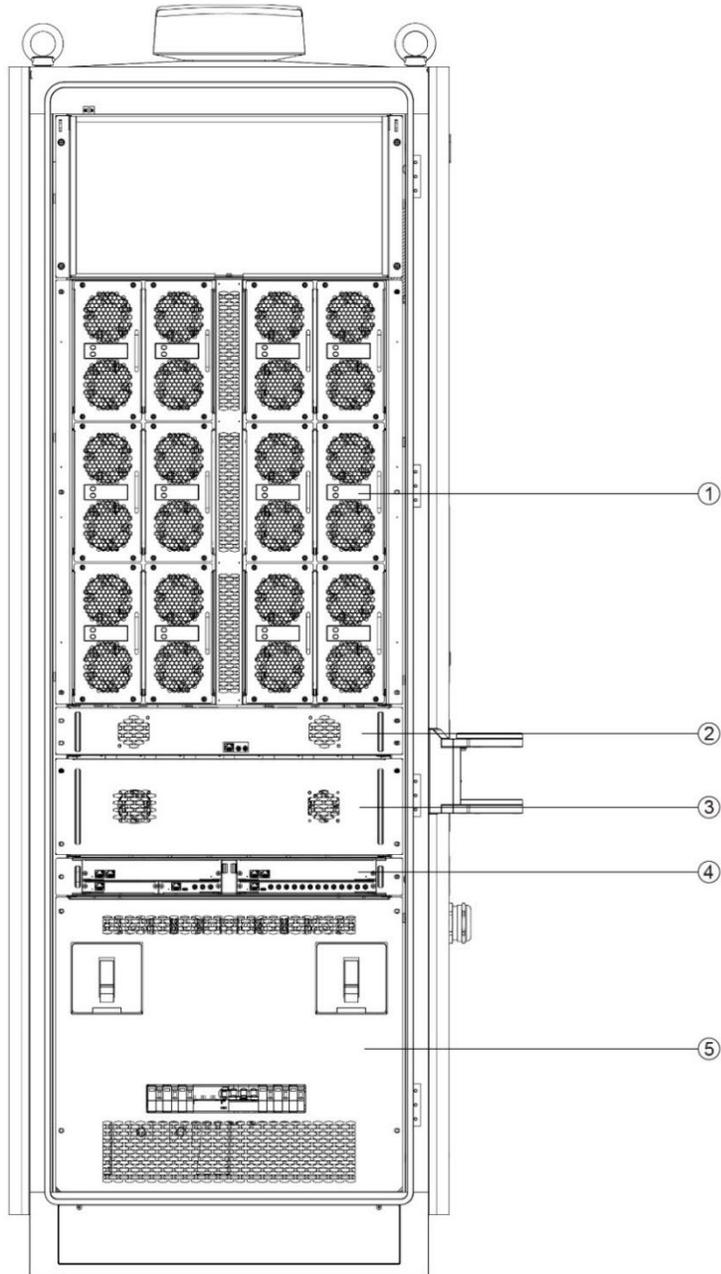
B: Left door – with the emergency stop button

C: Back door – no need to open

D: Right door

**Open the doors in the following order: door B, D, and then A, and C.**

**Close the doors in the following order: door A, C, and then B and D.**



1. Power module
2. Matrix module
3. DC output module
4. Control module
5. AC input module

# Procedure



## DANGER

The following procedure introduces you to an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**Power on the charger before you perform the following operations.**

| Check item  | Example   | Check result |
|---|---|--------------|
| <b>Cabinet appearance</b>   |   |              |
| RFID reader:<br>Check whether the system detects your card when you swipe the card on the RFID reader. You can hear a beep when the system detects your card.   |   |              |
| (Optional) POS:<br>1. Check whether the POP is well installed.<br>2. Check whether the POS screen displays properly without any flaw.<br>3. Check whether the POP screen displays swipe card reminder normally.<br>4. Check whether alarms are displayed on the POS screen. |  |              |

Connector socket:

1. Check whether the connector sockets are free from damage and deformation.
2. Check whether the connector sockets hold the charging connectors securely.

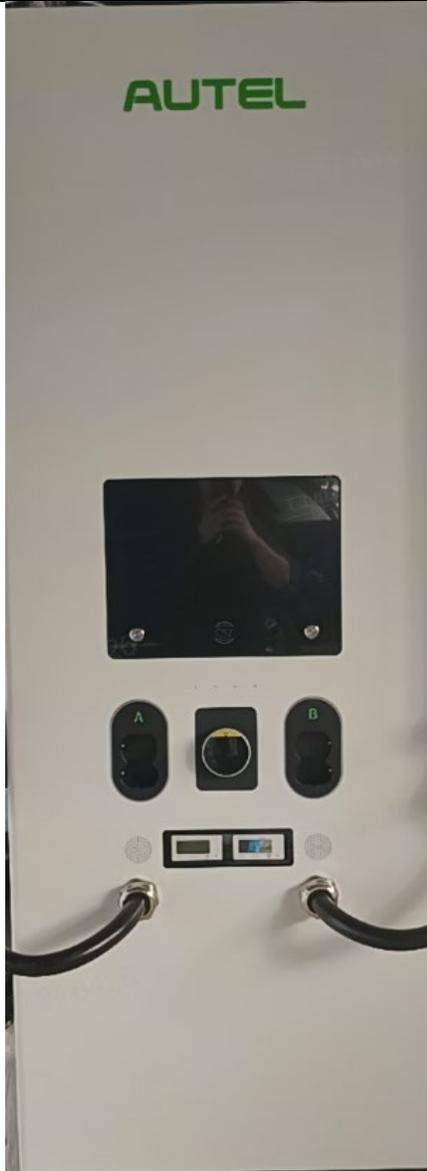


Vent:

1. Check whether the vent is blocked.
2. Check whether air is blowing out of the vent.



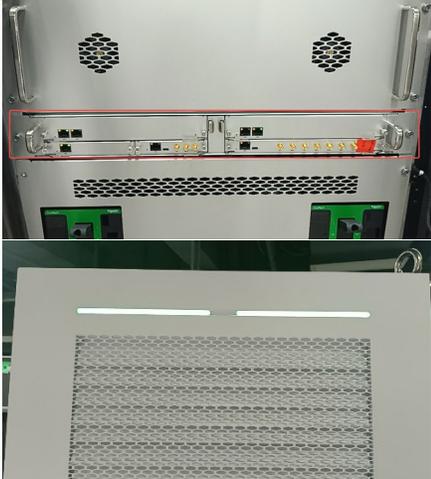
Front panel:  
Check whether the front panel is free from deformation and damage.

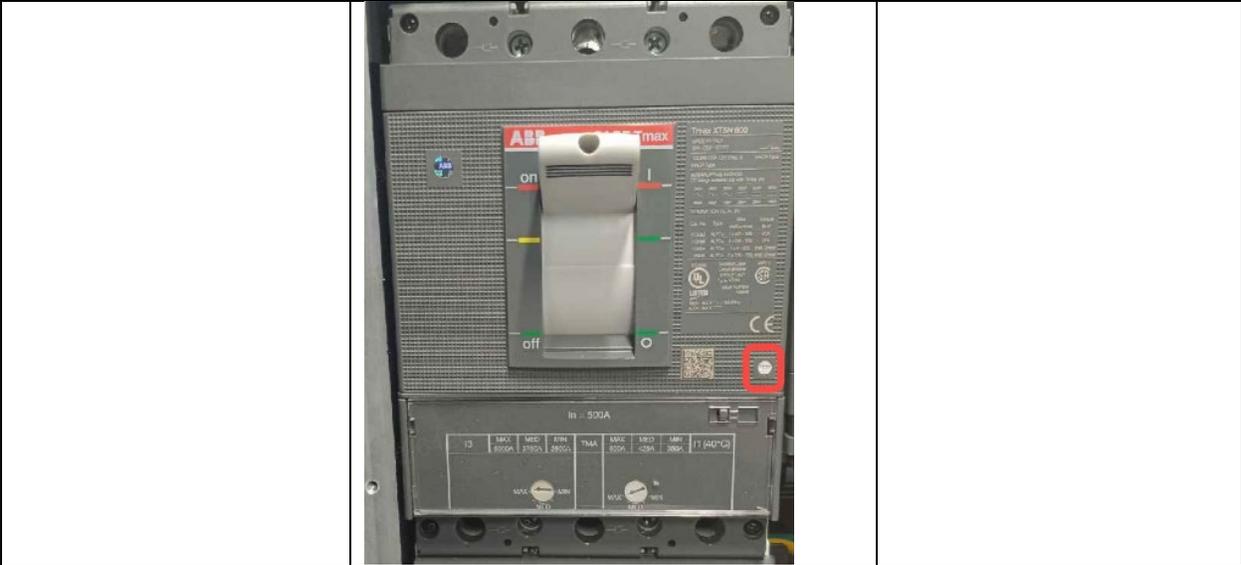


Cabinet door:

1. Check whether the cabinet door is free from deformation and damage.
2. Check whether the supporting structure is intact.
3. Check whether the door can be opened and closed normally.
4. Check whether the sealing strip is free from damage and aging.



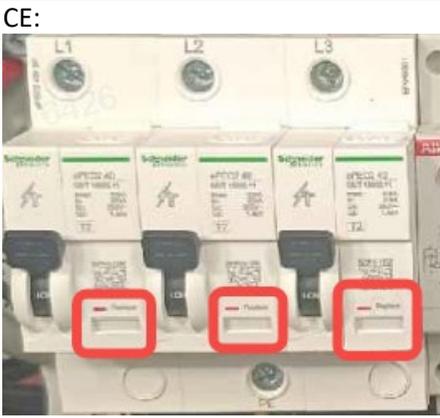
| <b>Inside the cabinet</b>   |   |  |
|---|---|--|
| <p>Control matrix:</p> <ol style="list-style-type: none"> <li>1. Check whether the LED on the control matrix can work normally.</li> <li>2. Check whether the charging station can charge EVs normally.</li> <li>3. Check whether the LED indicator on the left door lights up normally. Red light indicates charging error.</li> </ol> |                          |  |
| <p>DC Output Matrix:</p> <ol style="list-style-type: none"> <li>1. Check whether the charging station can charge EVs normally.</li> <li>2. Check whether the LED indicator on the left door lights up normally. Red light indicates charging error.</li> </ol>  |                          |  |
| <p>MCCB:<br/>Press the Test button on the MCCB and check whether the MCCB trips. Then, recover it.</p>  | <p>CE:</p>  <p>UL:</p> |  |



RCD:  
Press the test button on the RCD and check whether the RCD trips. Then, recover it.

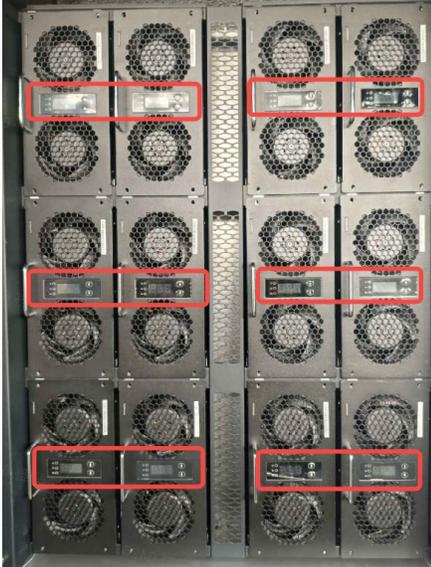


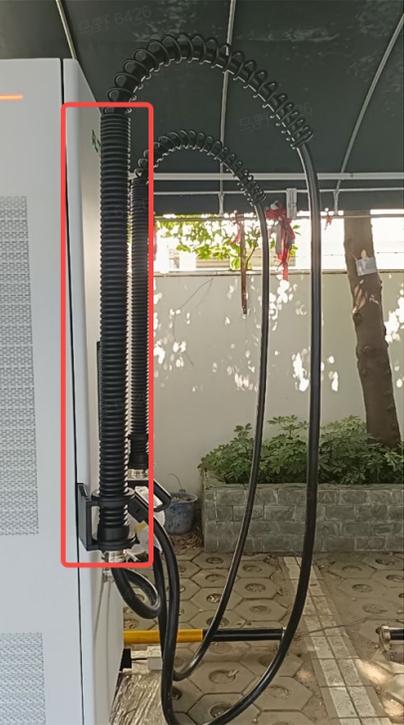
SPD:  
Check whether the indicator on the SPD lights up normally. Red light indicates error.



UL:

|  |  |  |
|--|--|--|
|  |   |  |
| <p>SPD switch:<br/>Check whether the SPD switch can be turned on and off normally.</p>   | <p>CE:</p>  <p>UL:</p>  |  |
| <p>AC Contactor:<br/>Check whether the AC contactor is working normally. The AC contactor is working normally if you can hear a loud noise when you start a charging session.</p> <p><i>Note: Before you plug in the connector, make sure that the charging station is in the normal status.</i></p> |    |  |

|  |   |  |
|--|---|--|
| <p><b>Meter:</b></p> <ol style="list-style-type: none"> <li>1. Check whether the meters are free from damage.</li> <li>2. Check whether the meter screen can display normally.</li> </ol>  |    |  |
| <p><b>Power module:</b></p> <p>Check whether 'ERR' is displayed on any of the power module screen.</p>   |   |  |
| <p><b>Vulnerable parts</b></p>   |   |  |
| <p><b>Charging cable and connectors:</b></p> <ol style="list-style-type: none"> <li>1. Check whether the charging cable and connectors are intact and no exposed wire exists.</li> <li>2. Check whether the connectors are securely installed.</li> <li>3. Check to make sure that no signs of burning exist on the charging cable or connectors.</li> </ol> |  |  |

|   |  |  |
|---|--|--|
| <p>Touchscreen:</p> <ol style="list-style-type: none"><li>1. Check whether the touchscreen is complete without any damage or flaw.</li><li>2. Check whether the screen displays normally without flickering or ghosting.</li><li>3. Check whether the touchscreen works without delay.</li><li>4. Check whether the buttons under the screen can work normally.</li></ol> |   |  |
| <p>CMS:</p> <ol style="list-style-type: none"><li>1. Pull on the charging cable to check whether the charging management system (CMS) can move with the cable smoothly.</li><li>2. Release the charging cable and check whether the CMS can go back to the straight position.</li></ol>   |  |  |

Emergency stop button:

1. Press down the emergency stop button and check whether the LED indicator on the left door turns red.
2. Check whether the status of all connectors changes to Fault on the screen.
3. Turn the emergency stop button to recover it.
4. Check whether the status of all connectors changes to normal on the charger screen.



# Checklist

The following table describes the onsite maintenance schedule. **Perform maintenance operations based on the environment and site-specific conditions.**

| <b>DH240/DH480 Onsite Preventive Maintenance Schedule</b>  |                     |    |    |    |    |    |    |    |    |     |
|--|---------------------|----|----|----|----|----|----|----|----|-----|
| <b>Estimated downtime of this part: 30 min</b>   |                     |    |    |    |    |    |    |    |    |     |
| I: Inspection (Visual inspection and required maintenance action if needed).   |                     |    |    |    |    |    |    |    |    |     |
| P: Performance of on-site work (commissioning, tests, measurements or other operations).   |                     |    |    |    |    |    |    |    |    |     |
| R: Replacement of component (see related service instruction).   |                     |    |    |    |    |    |    |    |    |     |
| Check item   | Years since startup |    |    |    |    |    |    |    |    |     |
|  | Y1                  | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 |
| <b>Appearance (10 min per person)</b>  |                     |    |    |    |    |    |    |    |    |     |
| RFID reader  | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| POS (Optional)   | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| Connector sockets  | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| Vent   | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| Front panel  | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| Cabinet door   | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| <b>Inside the cabinet (25 min per person)</b>  |                     |    |    |    |    |    |    |    |    |     |
| Control matrix   | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| DC output module   | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| MCCB   | P                   | P  | P  | P  | P  | P  | P  | P  | P  | P   |
| RCD (Optional)   | P                   | P  | P  | P  | P  | P  | P  | P  | P  | P   |
| SPD  | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| SPD switch   | P                   | P  | P  | P  | P  | P  | P  | P  | P  | P   |
| RCCB   | P                   | P  | P  | P  | P  | P  | P  | P  | P  | P   |
| AC contactor   | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| Auxiliary power  | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| Meters   | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| Fan  | I                   | I  | I  | I  | R  | I  | I  | I  | I  | R   |
| Power module   | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| <b>Vulnerable parts (10 min per person)</b>  |                     |    |    |    |    |    |    |    |    |     |
| Charging cable and connectors  | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| Touchscreen  | I                   | I  | I  | I  | I  | I  | I  | I  | I  | I   |
| Air filter   | R                   | R  | R  | R  | R  | R  | R  | R  | R  | R   |
| CMS  | P                   | P  | P  | P  | P  | P  | P  | P  | P  | P   |
| Emergency stop button  | P                   | P  | P  | P  | P  | P  | P  | P  | P  | P   |
| In addition to the maintenance based on the usage duration, specific components and parts are subject to wear and tear over time. These components and parts are not listed in this table.   |                     |    |    |    |    |    |    |    |    |     |
| Filters:   |                     |    |    |    |    |    |    |    |    |     |
| 1. Additional replacement of air filters may be necessary based on the environment and number of charging sessions within the charging station lifespan.                                     |                     |    |    |    |    |    |    |    |    |     |
| 2. Regular cleaning and maintenance of the charging station and its dust filter should be conducted according to actual environmental conditions on a monthly, quarterly, or biannual basis. |                     |    |    |    |    |    |    |    |    |     |
| The inspection intervals for the RCD must meet the local regulatory requirements.  |                     |    |    |    |    |    |    |    |    |     |

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