DS720-720LEUA3, A4 DC Charging System

# Wiring Guide (240-360H2F4M4, for Self-Developed Dispensers)

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# Overview

Models:

Power units: DS720-720LEUA3, DS720-720LEUA4

Charging dispenser: DT500-EU series

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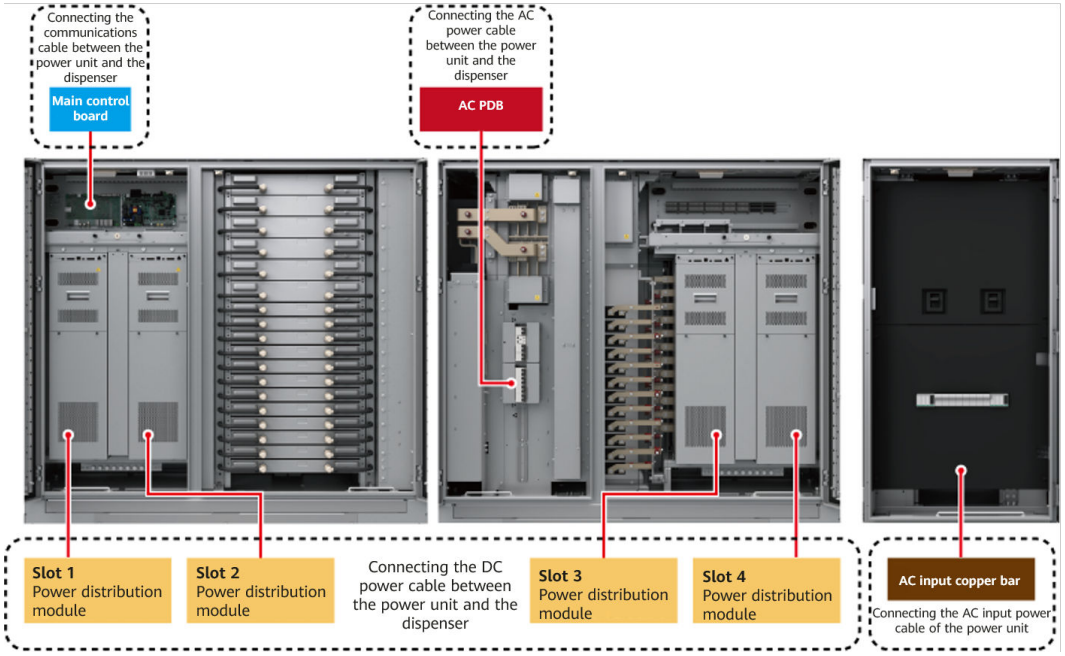
# 1 Precautions Before Wiring

**⚠ CAUTION**

Before connecting cables, read the power unit and charging dispenser user manuals to understand the cable specifications and other precautions.

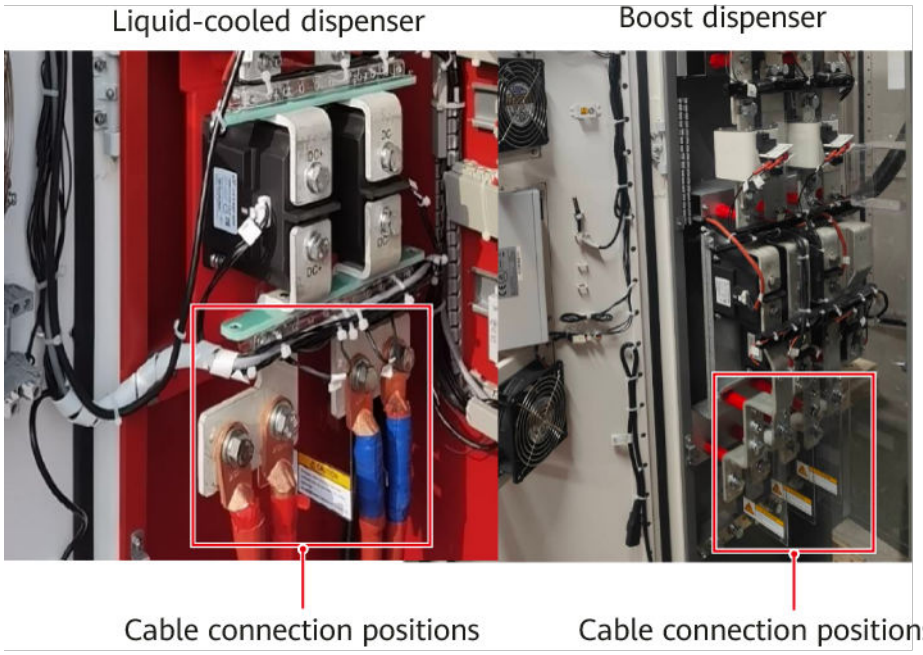
## 1.1 Wiring Positions

### Wiring Positions of the Power Unit



### Wiring Positions of Charging Dispensers




## 1.2 DC Output Cable Specifications

**Table 1-1** DC output cable specifications

| Cable Name | Recommended Type | Cross-sectional Area | Terminal on the Power Unit |
|---|---|---|---|
| DC output power cable[a] | Outdoor: XLPE armored cable<br>Indoor: XLPE cable<br>Withstand voltage: 1.8/3 kV or 0.6/1 kV[c] | Recommended[b]:<br>2 x 120 $mm^2$ + 70 $mm^2$ (copper cables)<br>2 x 185 $mm^2$ + 95 $mm^2$ (aluminum alloy cables) | DT/OT terminal<br>(M12 for power cables and M10 for the ground cable) |

a: Three-core or five-core cables with the required cross-sectional area can be used. If the cable terminals contact the labels on the copper bars, remove the labels before cable connection.

b: If the charging connector of the boost dispenser is used as a fast charging connector (only one pair of cables needs to be connected to the charging connector), 2 x 120 $mm^2$ + 70 $mm^2$ copper cables can be used. In this case, the charging connector can output the rated current of 250 A. If the charging connector is required to output the current of 300 A for a short term, you shall use 2 x 150 $mm^2$ + 70 $mm^2$ copper cables and set **Peak Current Control at Power Unit Port** to **Disable** in the Antohill app. Note that only the software version of FusionCharge V100R024C10 or later supports app settings. If the software version is earlier than this version, you shall use 2 x 150 $mm^2$ + 70 $mm^2$ copper cables. Select the cable specifications based on the cable routing mode and local regulations.

c: 1.8/3 kV cables are recommended. The insulation performance of 0.6/1 kV cables will deteriorate due to aging, and then charging may fail when the charging voltage exceeds 850 V.

# 2 Connecting DC Power Cables from Power Units to Dispensers (Passenger Vehicle Scenario)

**CAUTION**

When the ultra-fast charging ports of the power unit are used to connect to the liquid-cooled charging dispensers or boost dispensers, each charging connector must be connected to two pairs of cables. Do not connect only one pair of cables to avoid cable damage caused by overcurrent.

There are two types of charging dispensers: liquid-cooled charging dispenser and boost charging dispenser. They are ultra-fast charging dispensers.

- A liquid-cooled charging dispenser can be used only as an ultra-fast charging dispenser and can be connected only to the type II port, type III port, or two type I ports connected in parallel of the power unit.
- A boost charging dispenser can be used as an ultra-fast charging dispenser or a fast charging dispenser.
  - When the boost charging dispenser is used as an ultra-fast charging dispenser, it can be connected to the type II port, type III port, or two type I ports connected in parallel of the power unit.
  - When the boost charging dispenser is used as a fast charging dispenser, it can be connected only to the type I port of the power unit.

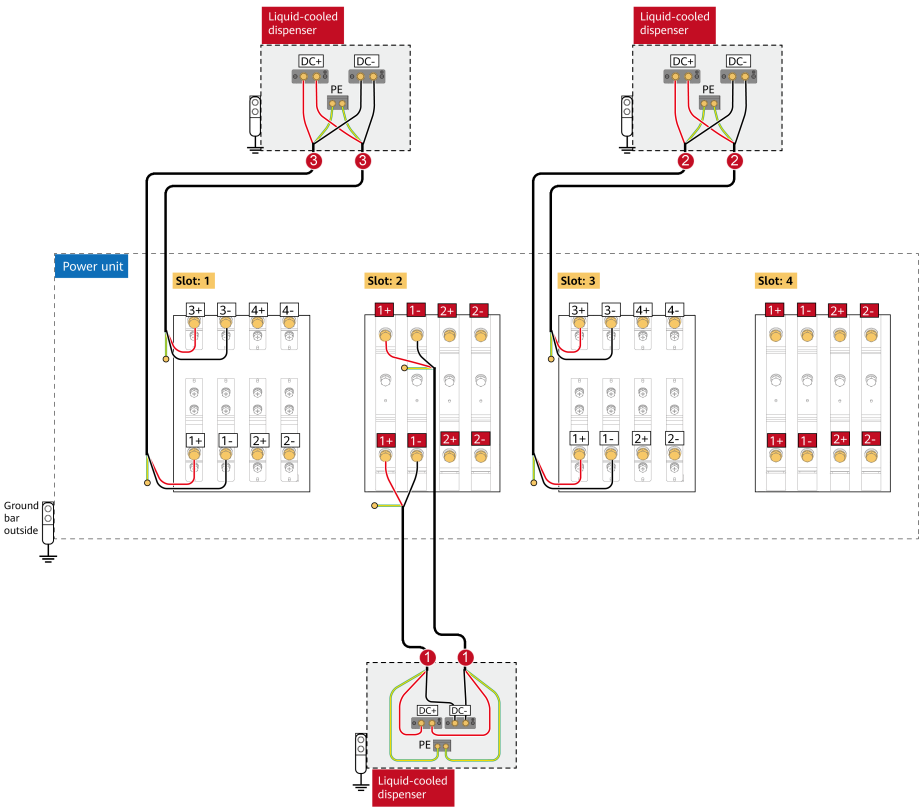
## 2.1 Three Ultra-fast Charging Connectors

## 2.1.1 Three Liquid-Cooled Charging Dispensers

NOTE

- This wiring diagram shows the [3 ultra-fast] charging scenario and applies to scenarios with less than 4 charging connectors. n indicates the recommended sequence of ultra-fast charging connectors.
- When the actual quantity of charging connectors is less than that in the diagram, connect their cables according to the cable numbers in ascending order. For example, if you need two ultra-fast charging connectors, connect them to 1 and 2.

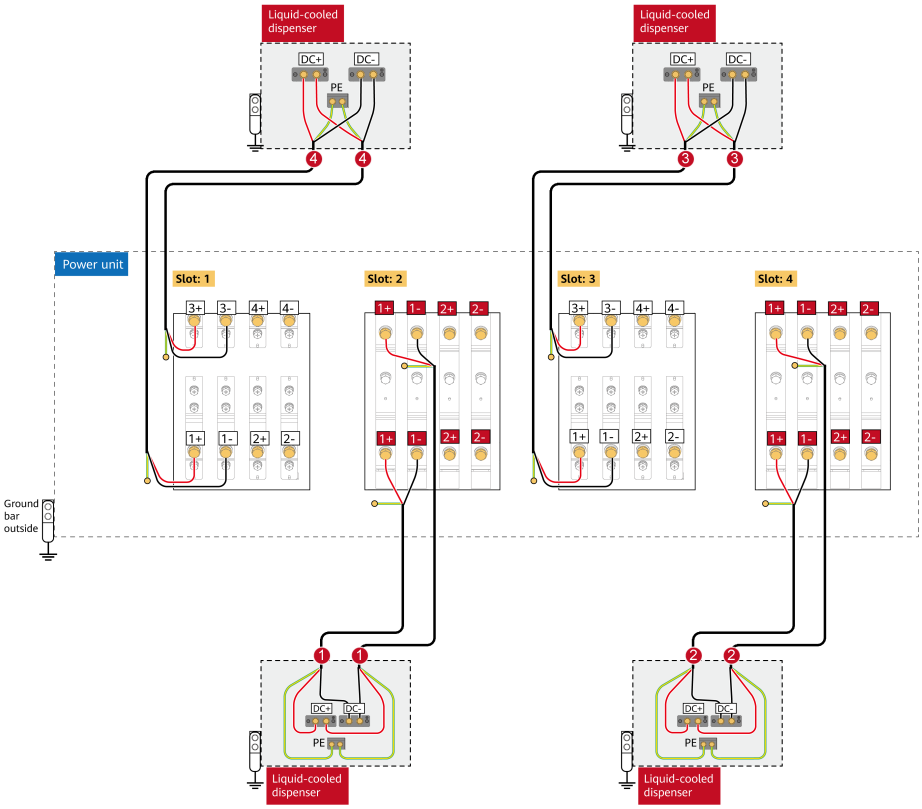



# 2.2 Four Ultra-fast Charging Connectors

## 2.2.1 Four Liquid-Cooled Charging Dispensers

NOTE

This wiring diagram shows the [4 ultra-fast] charging scenario and applies to scenarios with 4 charging connectors. n indicates the recommended sequence of ultra-fast charging connectors.

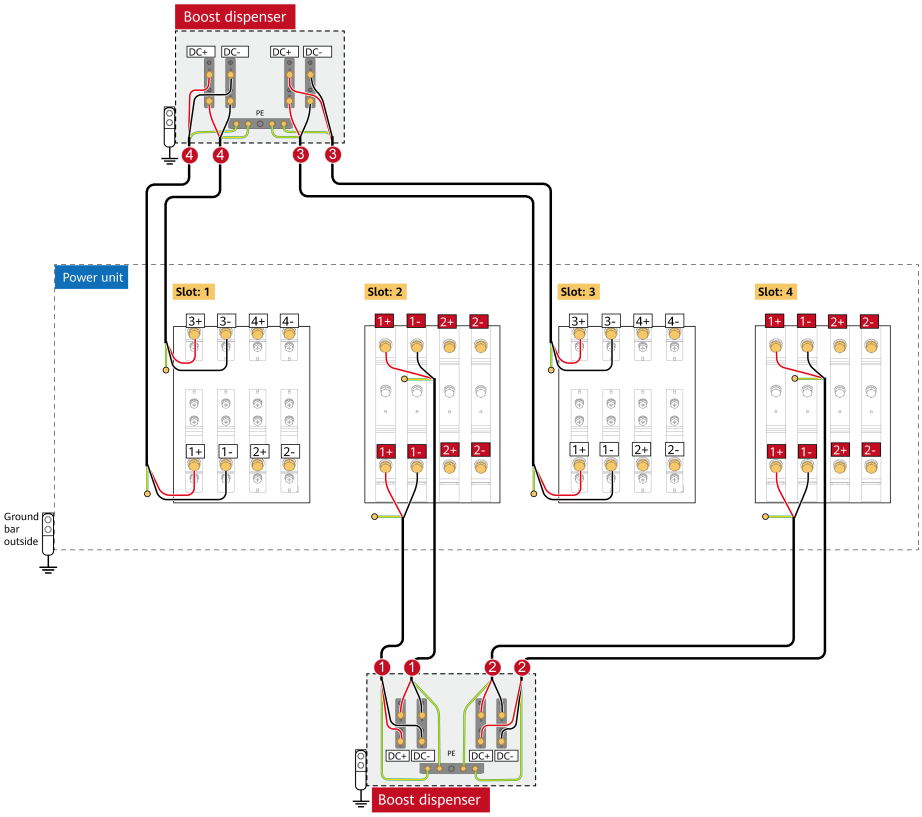



## 2.2.2 Two Boost Charging Dispensers

NOTE

This wiring diagram shows the [4 ultra-fast] charging scenario and applies to scenarios with 4 charging connectors. ⓝ indicates the recommended sequence of ultra-fast charging connectors.



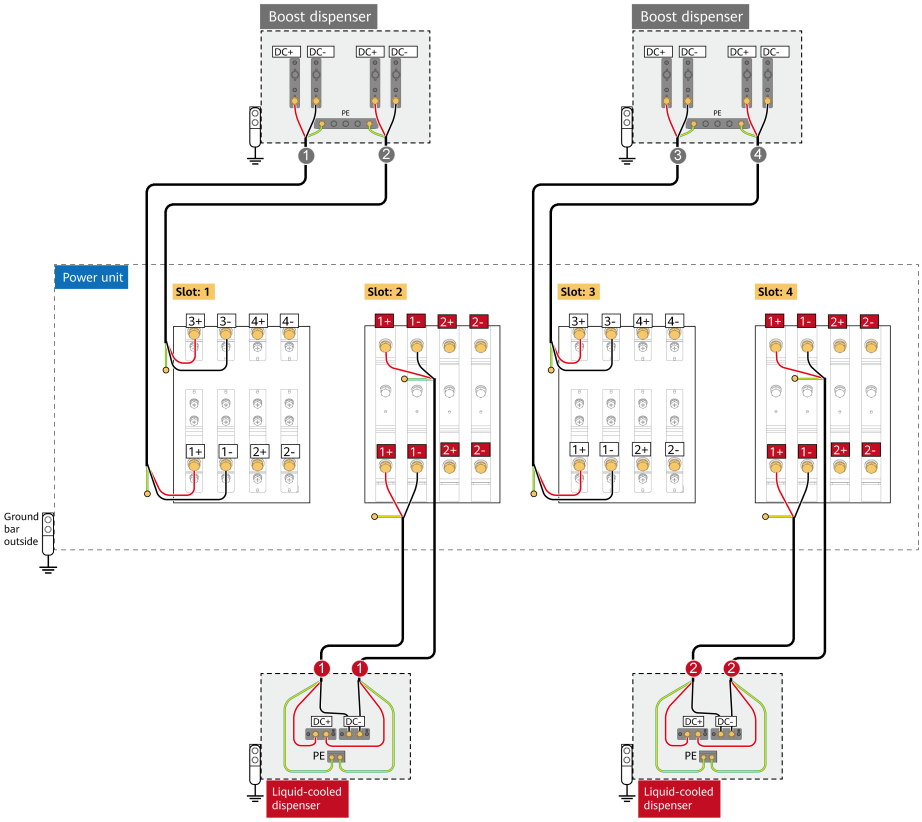

# 2.3 Two Ultra-fast Charging Connectors + Four Fast Charging Connectors (One Pair of Cables for Each Charging Connector of Boost Charging Dispensers)

## 2.3.1 Two Liquid-Cooled Charging Dispensers + Two Boost Charging Dispensers (Used as Fast Charging Dispensers)

NOTE

- This wiring diagram shows the [2 ultra-fast + 4 fast] charging scenario. ⓝ indicates the recommended sequence of ultra-fast charging connectors and ⓝ indicates the recommended sequence of fast charging connectors.
- When the actual quantity of charging connectors is less than that in the diagram, connect their cables according to the cable numbers in ascending order. Reduce the quantity of charging connectors for boost charging dispensers by even numbers. For example, if you need one ultra-fast charging connector, connect it to ❶. If you need two fast charging connectors, connect them to ❶ and ❷.

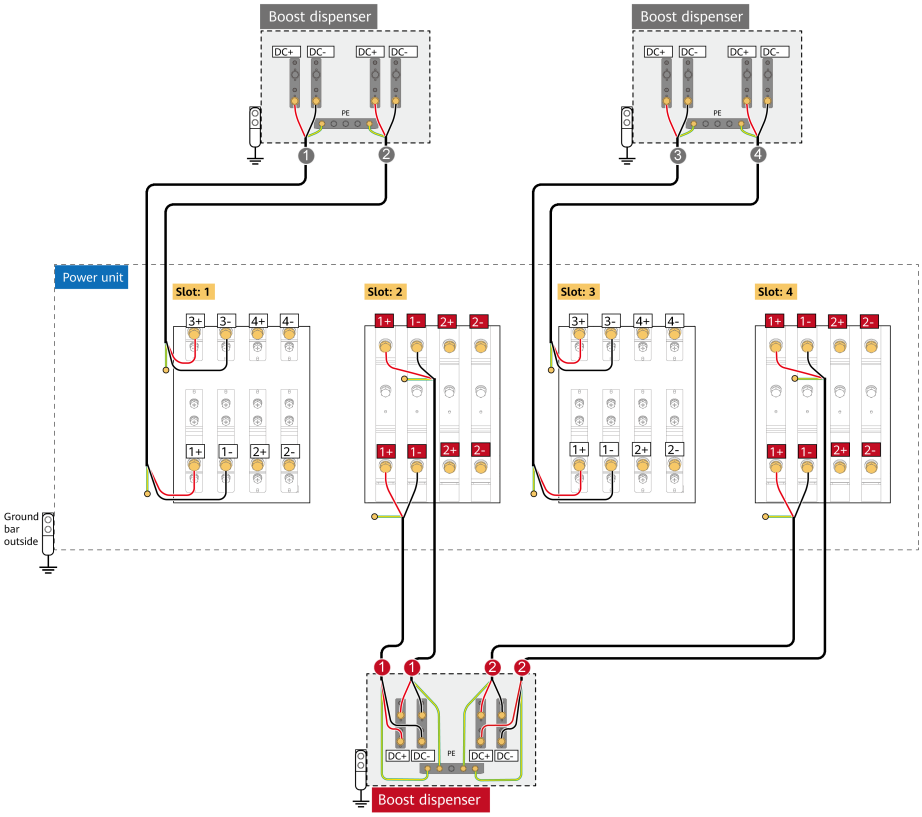



## 2.3.2 One Boost Charging Dispenser + Two Boost Charging Dispensers (Used as Fast Charging Dispensers)

**NOTE**

- This wiring diagram shows the [2 ultra-fast + 4 fast] charging scenario. ⓝ indicates the recommended sequence of ultra-fast charging connectors and ⓝ indicates the recommended sequence of fast charging connectors.
- When the actual quantity of charging connectors is less than that in the diagram, connect their cables according to the cable numbers in ascending order. Reduce the quantity of charging connectors for boost charging dispensers by even numbers. For example, if you need two fast charging connectors, connect them to ❶ and ❷.



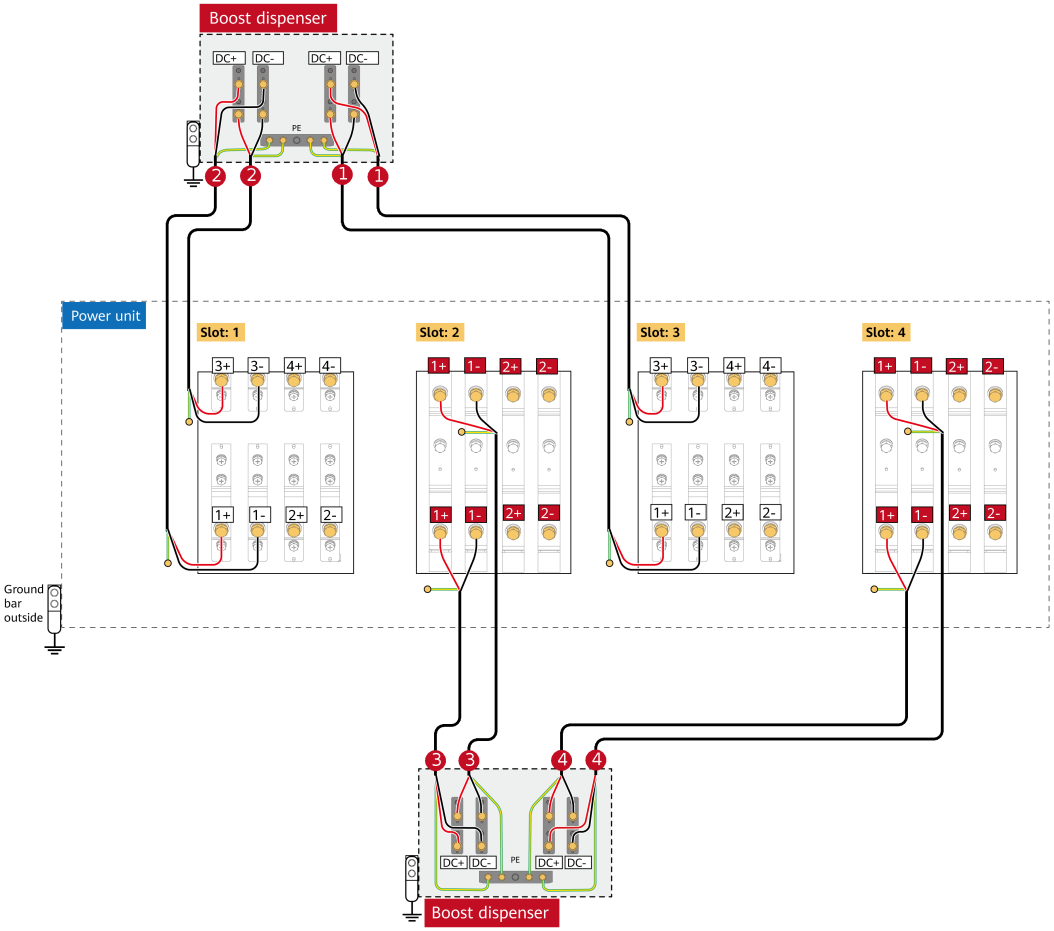
# 3 Connecting DC Power Cables from Power Units to Dispensers (Heavy Goods Vehicle Scenario)

## 3.1 Four Ultra-fast Charging Connectors

NOTE

- This wiring diagram shows the [4 ultra-fast] charging scenario. ⓝ indicates the recommended sequence of ultra-fast charging connectors.
- Only two charging connectors of the same boost charging dispenser can charge one vehicle at the same time.
- When the actual quantity of charging connectors is less than that in the diagram, connect their cables according to the cable numbers in ascending order. Reduce the quantity of charging connectors for boost charging dispensers by even numbers. For example, if you need two ultra-fast charging connectors, connect them to ❶ and ❷.

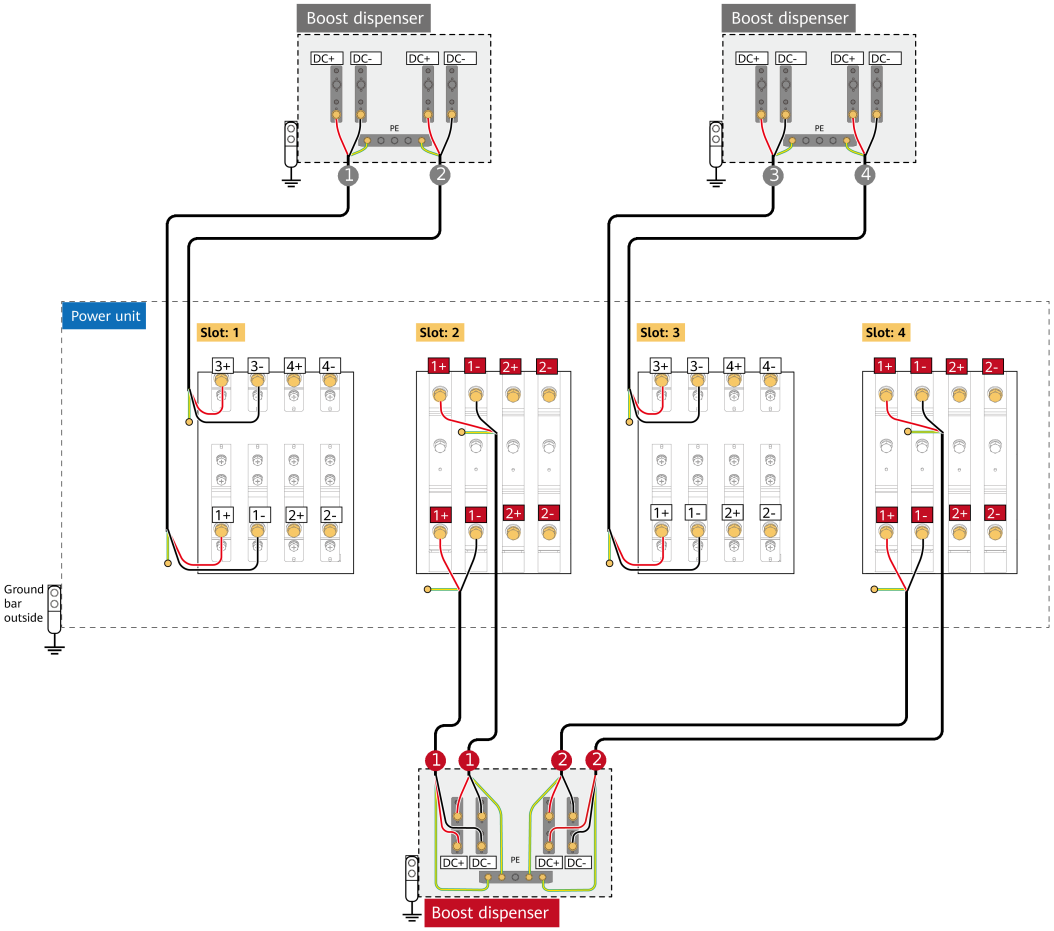



# 3.2 Two Ultra-fast Charging Connectors + Four Fast Charging Connectors (One Pair of Cables for Each Charging Connector of Boost Charging Dispensers)

NOTE

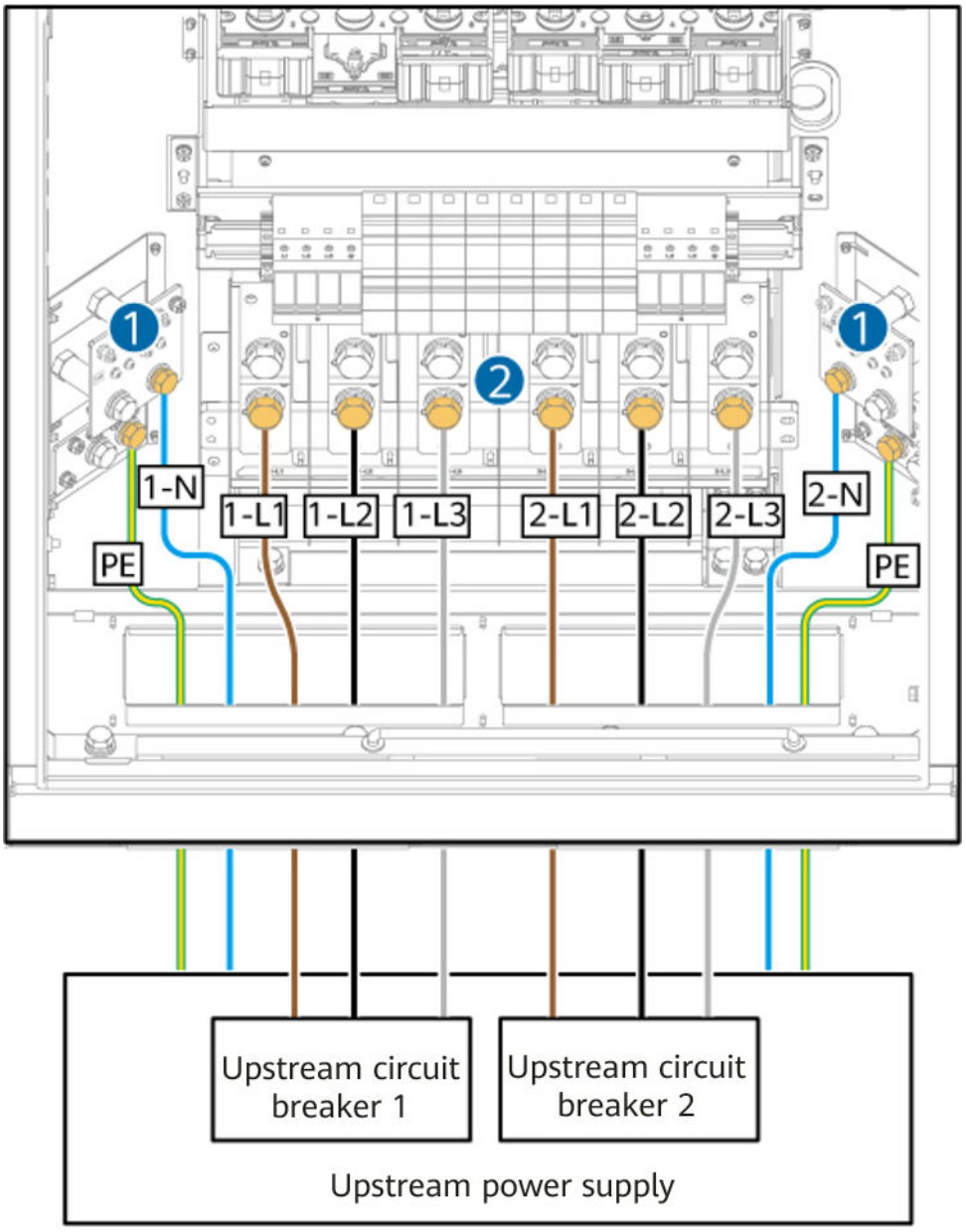
- This wiring diagram shows the [2 ultra-fast + 4 fast] charging scenario. ⓝ indicates the recommended sequence of ultra-fast charging connectors. ⓝ indicates the recommended sequence of fast charging connectors.
- Only two charging connectors of the same boost charging dispenser can charge one vehicle at the same time.
- When the actual quantity of charging connectors is less than that in the diagram, connect their cables according to the cable numbers in ascending order. Reduce the quantity of charging connectors for boost charging dispensers by even numbers. For example, if you need two fast charging connectors, connect them to ❶ and ❷.



# 4 Power Unit AC Input Wiring Diagram

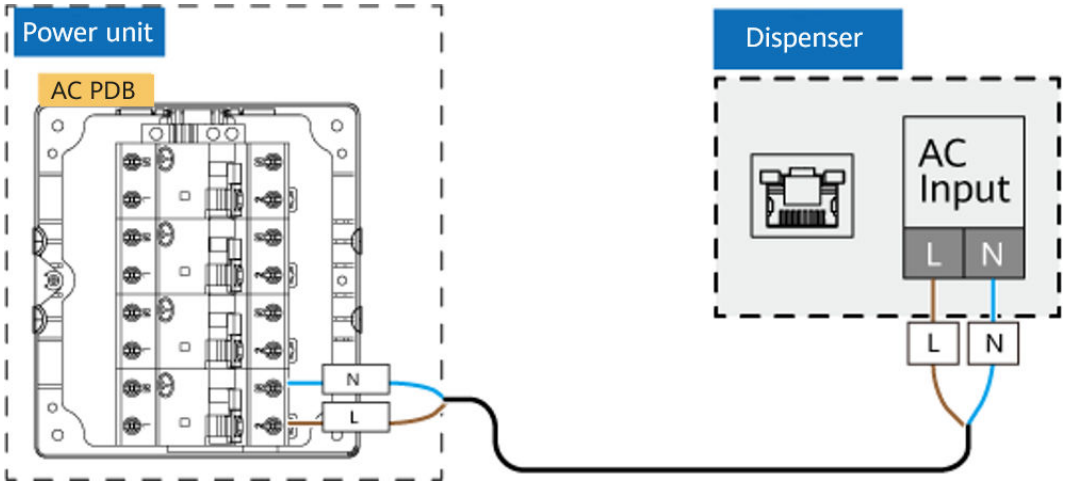


# 5 Connecting AC Power Cables from the Power Unit to the Dispensers

**NOTICE**

If a maximum of four dispensers are connected, each circuit breaker in the PDB can be connected to one dispenser. If more than four dispensers are connected, each circuit breaker can be connected to a maximum of two dispensers.



# 6 Connecting Communications Cables Between the Power Unit and the Dispensers

**Figure 6-1** Preparing an RJ45 terminal for a network cable (same steps for both ends)

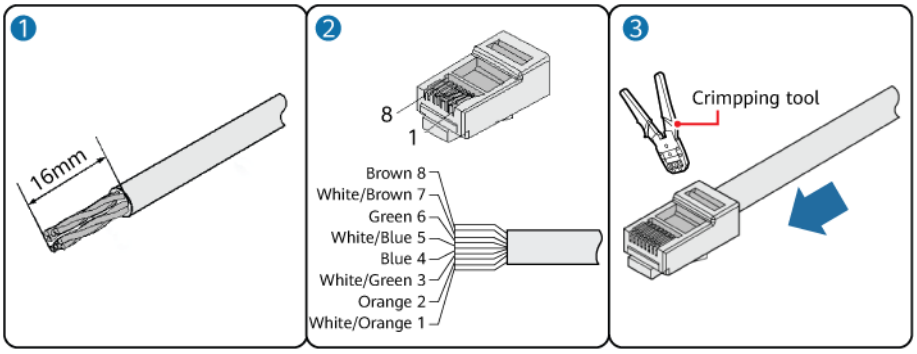
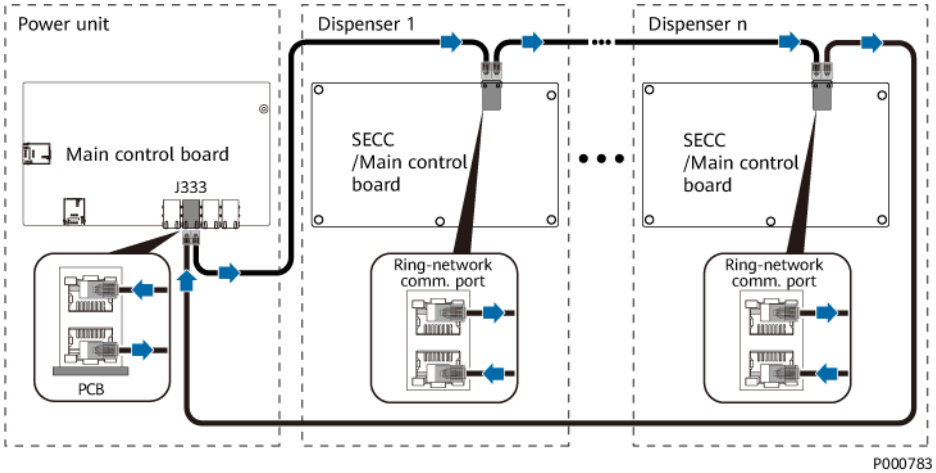



**Figure 6-2** Ring network communication between a power unit and dispensers



# 7 Terms

| Term | Definition |
| --- | --- |
| Passenger vehicle scenario | Charging stations mainly serve passenger vehicles. Generally, a parking spot is 5.5–6 m long and 2.2–2.5 m wide. |
| Heavy goods vehicle scenario | Charging stations mainly serve heavy goods vehicles or buses. Generally, a parking spot is about 3.8 m wide and at least 10 m long. The length of a parking spot may vary by vehicle length. |