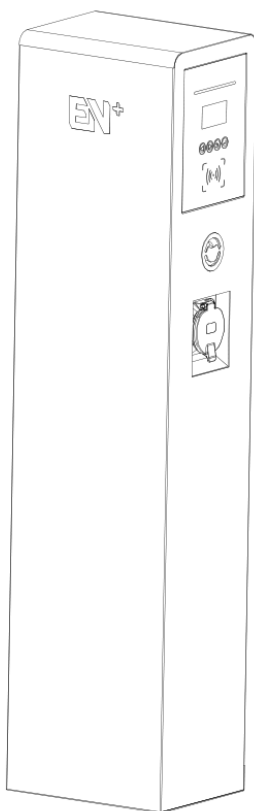


# EV Charger

## User Manual



AC044K-BE-24

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# Preface

Before any operation, please read the user manual carefully to understand the correct use of the product. After reading, please keep the user manual for future review.



## Warning



The input and output voltages of this product are dangerous high voltage, which can endanger human life safety. Please strictly observe all warnings and operating instructions on the product and in the manual. Unauthorized and non-professional service personnel should not remove the cover of this product.

Thank you for your support on our products, our company focus on new energy field of electric vehicle charging, dedicated to provide customers with excellent charging product and complete solutions. The EV chargers have the characteristics of advanced function, steady performance, wide application range and strong practicability, winning a good reputation in the industry.

# Safety Instruction

- 1) Keep the explosive or flammable materials, chemicals, vapors and other hazard objects away from the charger.
- 2) Keep the charging socket clean and dry. If dirty, please wipe with clean dry cloth. Touch the socket core is strictly forbidden when power on.
- 3) Do not use the charger in case the product has defects, crack, abrasion, bare leakage and so on. Please contact the working staff in case of above conditions.
- 4) Do not attempt to disassemble, repair, and refit the charger. If necessary, please contact the working staff. Improper operation will result in product damage, electric leakage, etc.
- 5) In case any abnormal condition happens, please press the emergency stop button immediately, cut off all input and output power supply.
- 6) Please make charging cautiously in raining or lighting weather.
- 7) The children should not get close to or use the charger to avoid being hurt.
- 8) During the charging, the EV is not allowed to drive. Charging only when the EV stops still. For Hybrid car, charging only when switching the engine off.

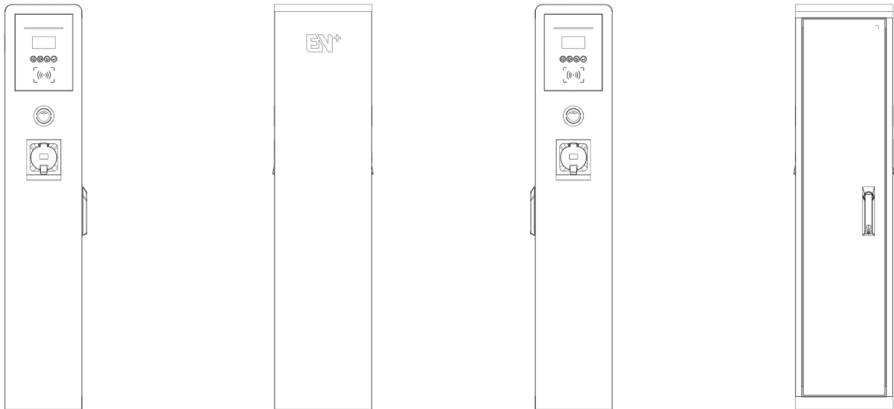
# 1 Product Overview

## 1.1 Product Introduction

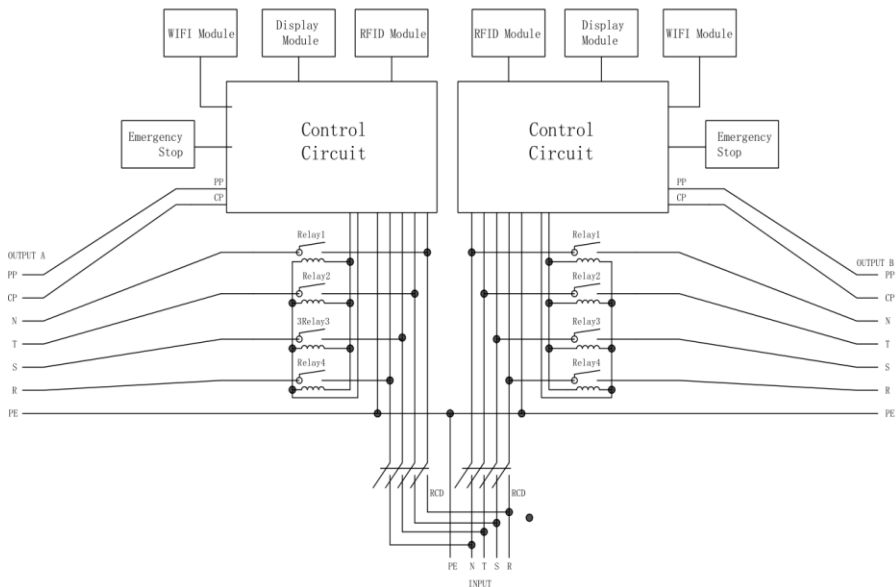
The three phase 44KW charger is combination of two 22KW chargers in a floor-standing housing, which provides AC charging to two electric vehicles simultaneously. It's equipped with the function of charging by scanning the RFID card. The RFID card is a key component to start or stop the charging session. The LED indicators on the left and right panels help you understand what is happening with the charger by indicating different colors.

With internet connection via a built-in EN-GATE, more functions like monitoring, operation management and remote upgrade are available on the backend named Charge Management System.

Compatible with all types of cables, the socket locks the charging cable into the charger to ensure a safe charging. The protection grade of the charger is high as IP54, with the excellent capacity of water and rust proof, assuring the safe outdoor operation and maintenance. Designed according to Electric Vehicle Charging System Standard EN 61851-1: 2011 and EN 61851-22: 2002, the charger is compliant with the industrial standards and safe for usage.



## 1.2 Schematic Diagram



## 1.3 Specification Parameter

|               | Model No.         | AC044K-BE-24  |
|---------------|-------------------|---|
| Configuration | Product Name      | Double 22KW AC Charger  |
|               | User Interface    | LED indicator, LCD screen, Touch buttons, RFID card reader, Emergency stop button |
|               | Charging Outlet   | Two charging sockets (type 2)   |
|               | Card Quantity     | 4pcs  |
|               | Energy Meter      | MID certified   |
|               | RCD               | Type A + 6mA DC   |
|               | Housing Material  | Galvanized Steel  |
|               | Installation Way  | Floor-stand   |
|               | Product Dimension | 290*230*1200mm ( L*W*H )  |
|               | Net Weight        | 32.5KG  |

|                         |   |                                     |
|-------------------------|---|-------------------------------------|
| Electrical<br>Parameter | Input Voltage   | 380V ±20%                           |
|                         | Input Frequency   | 50Hz                                |
|                         | Max Power   | 2x22kW                              |
|                         | Output Voltage  | 380V ±20%                           |
|                         | Max Output Current  | 32A                                 |
|                         | Standby Power   | <10W                                |
| Environmental<br>Index  | Application Place   | Indoor / Outdoor                    |
|                         | Working Temp  | -30℃ ~ +50℃                         |
|                         | Working Humidity  | 5% ~ 95% without condensation       |
|                         | Working Altitude  | <2000m                              |
|                         | Protection Grade  | IP54                                |
|                         | Cooling Method  | Natural air cooling                 |
|                         | Safety Standard   | EN 61851-1: 2011, EN 61851-22: 2002 |
|                         | MTBF  | 100,000 hours                       |
|                         | Special Protection  | Anti UV design                      |
| Safety Design           | Protections from over voltage, under voltage, over load, short circuit, current leakage, ground fault, over temperature, under temperature, lighting & surge. |                                     |
| Communication           | Charger v.s. EN-GATE communication: CAN<br>EN-GATE v.s. Backend communication: Ethernet<br>Internet Communication Protocol: OCPP 1.6                          |                                     |

## 1.4 Performance and Characteristics

### Performance:

- LED Indicator: Different light color indicate different working status of the charger.
- LCD Screen: Real-time display the charger status and charging data.
- Touch Buttons: Four touch buttons to adjust the charger's configuration and settings.
- RFID Card: Built-in card reader to realize the function of charging with RFID card. Scan RFID card first to start charging, and scan RFID card again to end charging.
- Emergency Stop Button: In case of emergent issues happen, press the button to cut off charging output for safety.

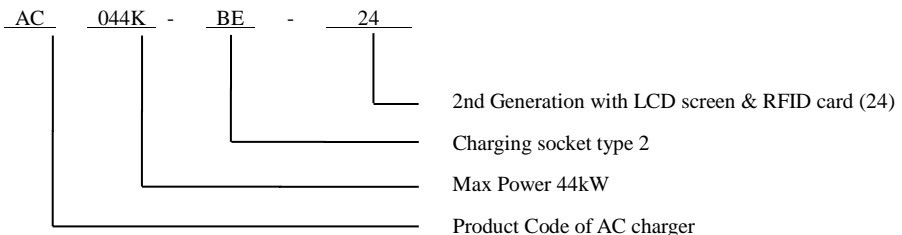
## Characteristics:

- Dust & Water Proof: IP54 protection grade, workable under severe conditions, no need of extra shelter.
- Low Standby Power Consumption: The standby power is as low as 8W, energy saving and green.
- Compatible Application: The product is equipped with type 2 charging sockets, compatible for all EV charging by using either type 1 or type 2 charging cable.
- Easy Installation: The floor-standing design makes it easy for installation. One installation, but two 22KW chargers, which increases the usage rate and saves the installation cost.
- All Direction Protection: Protections from over voltage, under voltage, over load, short circuit, current leakage, ground fault, over temperature, under temperature, lighting & surge to ensure the product working safely and avoid accidents effectively.
- Safety Design: The charger is designed with over-current and ground fault protection components that constantly monitor safety status. No voltage is present in the charging socket until your vehicle is properly connected. Each charger is locked with keys, allowing access to its interior only by maintenance professionals.

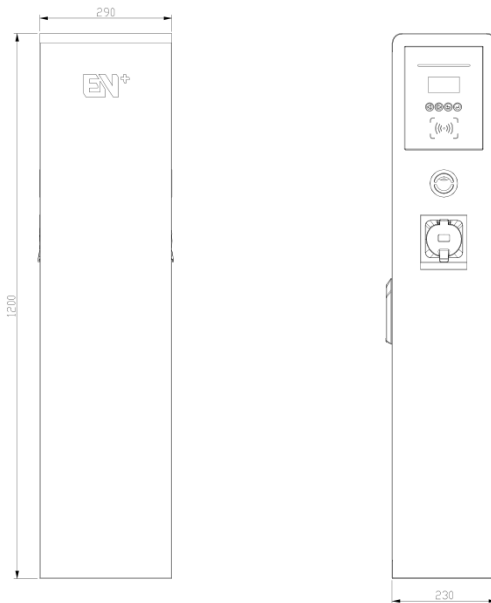
## 1.5 Working Environment

- Altitude:  $\leq 2000$  meters
- Temperature:  $-30^{\circ}\text{C} \sim 50^{\circ}\text{C}$
- Humidity: 5%~95%
- Indoor/Outdoor use
- Natural air cooling for ventilation
- Keep the charger away from flammable or explosive materials.

## 1.6 Product Naming



## 1.7 Product Dimension



# 2 Installation Instruction

## 2.1 Product Installation

### 2.1.1 Package Verification









Unpack to check and verify following items after receiving the charger:

- Visual inspection on external appearance. In case there is any broken or damage, notify the seller immediately.
- Check accessory type and quantity. If there is quantity in short or type inconformity, make the record in time and contact the seller at once.



## 2.1.2 Installation Preparation

### 1) Tools

| Tool Name                                   | Photo   | Function   |
|---|---|--|
| Multimeter                                  |  | Check electrical connection and electrical parameter |
| Cross Screwdriver<br>(PH2x150mm, PH3x250mm) |  | Tight the screws                                     |
| Insulated Spanner                           |  | Tight the bolts and nuts                             |
| Insulated Torque Wrench                     |  | Tight the bolts                                      |
| Combination Wrench                          |  | Tight the bolts                                      |
| Hydraulic Clamp                             |  | Press OT terminals                                   |
| Diagonal Pliers                             |  | Cut cables   |
| Percussion Drill                            |  | Drill screw holes                                    |

### 2) Cables & Materials

| Name               | Specification                                       | Quantity                     |
|--------------------|---|------------------------------|
| Power supply cable | ≥5*10mm <sup>2</sup> three-phase power supply cable | Depend on actual requirement |
| Network cable      | STP, Category 5 Enhanced, 8 cores                   | Depend on actual requirement |
| Network cable plug | RJ45  | Depend on actual requirement |
| Insulated tape     | 0.15mm*18mm, 0~600V, 0°C~80°C                       | Depend on actual requirement |
| Cable tie          | 4*200mm   | Depend on actual requirement |

### 2.1.3 Installation Process

#### 1) Installation Notice

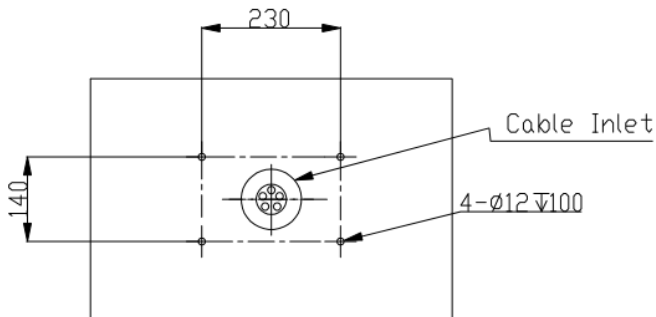
- a) Electrical product should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by the manufacturer for any consequences arising out of the installation of this product.
- b) A qualified person is one who has skills and knowledge related to the construction, installation and operation of electrical product and who has received safety training to recognize and avoid the hazards involved.
- c) All applicable local, regional, and national regulations must be respected when installing, repairing, and maintaining this product.

#### 2) Layout Cables

Select the standing positions of the charger on the ground. Lay network cables and power supply cables under the ground. Cables come out of the ground from the center of standing position with about 100cm length above the ground.

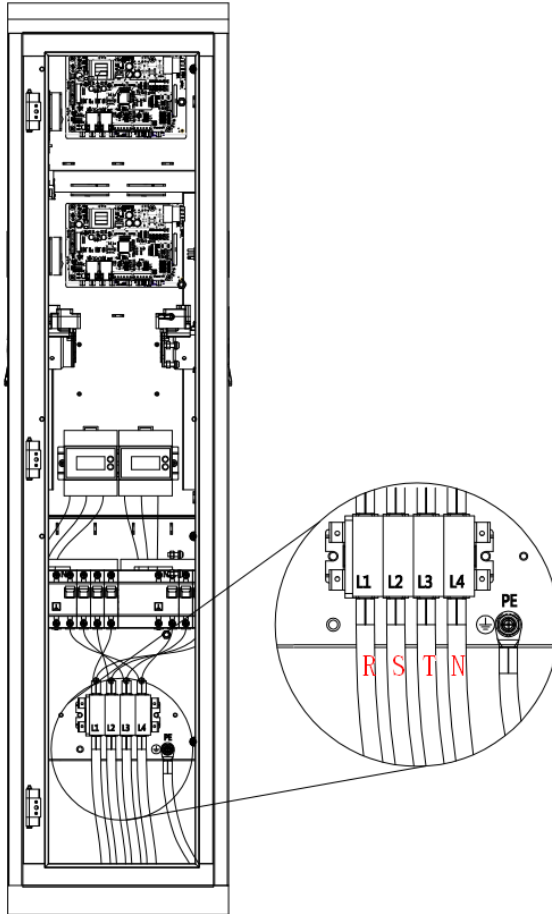
#### 3) Fix Charger

Locate the footprint of the charger on the ground of standing position. Drill the four screw holes as indicated below on the ground for the fixation of the charger. Place the charger on the standing position and fix the four screws.



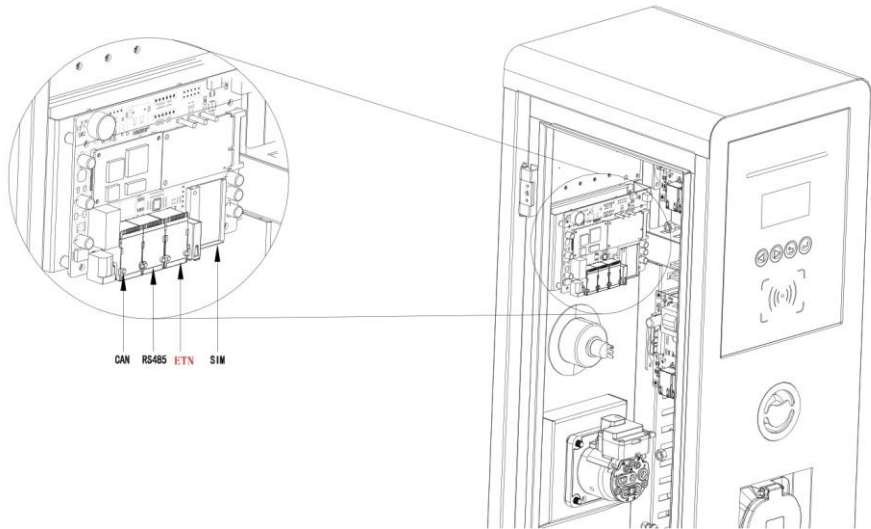
#### 4) Connect Power Cables

The power supply cables go through the input cable inlet at the charger's bottom, and connect to the corresponding L1, L2, L3, L4 and PE terminals inside the charger. Please note that L1, L2, L3, L4 correspond to R, S, T, N phases.



#### 5) Connect Network Cable

A network cable is needed to connect the charger's EN-GATE to the Internet by Ethernet. One end of the network cable connects to the Internet's router, and the other end connects to the ETN port of the EN-GATE.



## 8) Lock Charger

Turn on the breaker switch inside the charger and close the back door of the charger. Use the equipped keys to lock the charger.

## 2.2 Power-on Checking

### 1) Check before Power-on

Please check the followings before any operation:

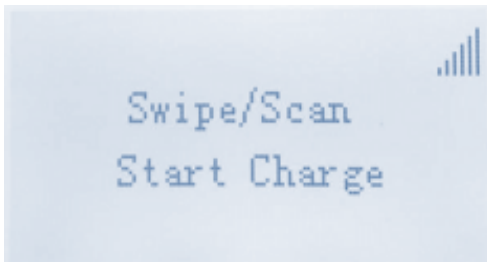
1. The charger's location is easy for operation and repairing.
2. Double confirm the charger is installed properly.
3. AC input's current leakage protection switch is reasonable.
4. No other stuff or component left on the top of the charger.

### 2) Power-on Charger

1. Make sure all checking is done according to the above items.
2. Turn on the current leakage protection switch of AC input.
3. Power-on the charger and observe the LED indicator, which should be standby status.

| State           | Description                             | LED Status                        |
|-----------------|---|-----------------------------------|
| Standby         | Power-on, but no gun plug-in            | Flashing green, 2S on 2S off      |
| Ready to charge | Gun plug-in, but not start charging yet | Flashing yellow, 2S on 2S off     |
| In charging     | Gun plug-in, and start charging by RFID | Breathing green, on/off gradually |
| Stop charging   | Charging stop, but gun is still plug-in | Solid green                       |
| Fault           | Error happens                           | Solid red                         |

4. Observe the screen display and the symbol on the top right corner. The screen should display as the following picture.



## 3 Charging Operation

### 3.1 Connect Charger to EV

Park EV near to the charger, take out the charging cable from EV, and plug its guns respectively into the socket of the charger and the EV. After plug-in, please check the gun is correctly and tightly connected. With appropriate connection, the charger LED indicator will change to flashing yellow light, which indicates that the charger is ready for charging.

### 3.2 Start Charging & Stop Charging

After the charger is connected to EV and ready for charging, scan the RFID card for once on the identification area of front panel, then the charging starts. When the charging starts, the gun will be locked on the charger socket. The charger screen will display the running information on the screen, such as charged electricity, charged time, voltage, current and power.

When the EV is fully charged, the charging will stop and the charger LED indicator will be solid green.

Please end the charging session by scanning the RFID card for a second time. If not scanning the RFID card again, the charger will not unlock the gun on the charger side and the user cannot plug out the gun.

In charging state before the EV is fully charged, the user can stop charging by scanning the RFID card for a second time. The charging session will end and the gun on the charger side will be unlocked. Another solution to stop charging is to end the charging session from the EV side. After the gun on the EV side is unlocked and plugged out, the charging session will end and the gun on the charger side will be unlocked automatically.

## 4 Troubleshooting

| <b>Problems</b>       | <b>Possible Causes</b>              | <b>Solutions</b>   |
|-----------------------|-------------------------------------|--|
| Input over voltage    | AC input voltage may be too high.   | 1. Check the input voltage from the backend.   |
|                       |                                     | 2. If the voltage is over 456Vac for a short time, wait till the power grid recovers to normal range.  |
| Input under voltage   | AC input voltage may be too low.    | 1. Check the input voltage from the backend.   |
|                       |                                     | 2. If the voltage is under 304Vac for a short time, wait till the power grid recovers to normal range. |
| Input over current    | AC input current may be too large.  | 1. Shut off the leakage current protection switch of power distribution cabinet immediately.           |
|                       |                                     | 2. Check whether there is low resistance connection between AC output cables of the charger.           |
| Input over frequency  | AC input frequency may be too high. | 1. Check the input voltage frequency from the backend.   |
|                       |                                     | 2. If the frequency exceeds 55Hz for a short time, wait till power grid recover to normal range.       |
| Input under frequency | AC input frequency may be too low.  | 1. Check the input voltage frequency from the backend.   |
|                       |                                     | 2. If the frequency is lower than 45Hz for short time, wait till power grid recover to normal range.   |

|                                    |  |  |
|------------------------------------|--|--|
| Over temperature                   | Temperature may be too high inside the charger.  | 1. Check the surrounding conditions of chargers installed whether there is heating product nearby.<br>Make sure environmental temperature is under 50°C. |
| Over leakage current               | Leakage current to the earth may be too high.  | 1. Shut off the leakage current protection switch of power distribution cabinet immediately.   |
|                                    |  | 2. Check whether there is broken of AC output cables or low resistance connection to the earth.  |
| Leakage current sensor abnormal    | Detection of leakage current sensor is abnormal.   | 1. Shut off the leakage current protection switch of power distribution cabinet immediately.   |
|                                    |  | 2. Check whether there is broken of AC output cables or low resistance connection to the earth.  |
| Grounding fault                    | Inappropriate grounding connection of input/output cables or inverse connection of L/N input cables. | 1. Shut off the leakage current protection switch of power distribution cabinet immediately.   |
|                                    |  | 2. Check if AC input/output cables are normal, and if inverse connection of L/N input cables.  |
| CAN communication abnormal         | Poor connection between AC charger and EN-GATE.  | 1. Check whether CAN bus connection is reliable and correct.   |
| Charging cable connection abnormal | Poor connection of charging cable with EV/Charger.   | 1. Check if charging cable connection is correct and firm.   |

Note: If the above problems cannot be solved, please contact the seller.

## 5 Disposal

The packaging materials are environmentally friendly and can be recycled. Put the packaging in applicable containers to recycle it. Do not dispose this product with the household waste. It shall be handed over to the applicable collection point for the recycling of electrical and electronic product. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.



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Due to the EN+ policy of continual product development, specifications, colors and details of our products and those mentioned in this manual are subject to change without notice.

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