



FusionCharge AC

User Manual

AP07N-EU, AP22N-EU



Languages

 English	1
 Deutsch	17


Contents

Overview	
About This Manual	1
Safety	
Safety Information	2
Introduction	
Packing List	3
Product Overview	4
Technical Specifications	5
Installation	
Installation Preparations	6
Installation Instructions	8
App Guide	13
Usage	
Charger Usage	13
Indicator Introduction	14
Routine Maintenance	15
Miscellaneous	15

About This Manual

Thank you for choosing Huawei FusionCharge AC.
This manual will guide you through the steps required to install, use, and maintain FusionCharge AC.

Exercise caution when performing operations with "Caution" marks to avoid injury or product damage. The symbol that may be found in this manual is defined as follows.

-  Caution: supplements important information or indicates a potentially hazardous situation which, if not avoided, could result in device damage, data loss, performance deterioration, or unanticipated results.

The manual is for reference only and does not constitute a warranty of any kind. The actual product (including but not limited to color, size, and functions) may vary. If this manual is inconsistent with the description on the official website, the latter prevails.



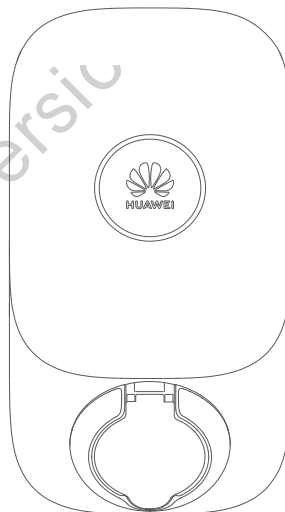
Scan the QR code to obtain the documents.

-  Some functions may be subject to change, according to the charger's latest software and app updates.

Safety Information

- Before using and operating this product, read this document thoroughly and observe all of the safety precautions, including the equipment safety markings.
- The statements made in this manual do not constitute the full safety instructions. These are only supplemental. The Company shall not be held liable for any consequences caused by the violation of these general safety requirements, design, production or safety standards.
- Ensure that the product is installed in environments as specified in this manual. Incorrect installation could potentially damage the charger. Any resulting damage, personal injury or property damage is excluded from the warranty.
- In addition to the requirements specified in this manual, the usage and operation of the product should also comply with the local regulations.
- Radio waves generated by the product may affect normal operation of implanted medical appliances or personal medical appliances, such as the pacemakers, cochlear implants, and hearing aids. Consult the manufacturer of your medical equipment for more information.
- Before installing or cleaning the product, switch off the upstream residual current operated circuit-breakers with integral overcurrent protection (RCBO) of it.
- Do not install or use the product in an environment with strong magnetic fields or near a wireless transmitter.
- Do not install or use the product in or near areas with flammable, explosive, chemical materials, or steam.
- Install and use this product in a place without direct sunlight.
- Do not use or replace the product in extreme weather conditions.
- Before charging an electric vehicle with the product, read the instructions of the vehicle carefully.
- Do not remove the safety marks, warning signs, nameplates, or cabling marks from the product.
- Do not spray water or any liquids on the product. Do not submerge the charging connector in water.
- Before charging your electric or hybrid vehicle, turn off the car.
- Keep children away from the product.
- Do not disassemble, repair, or modify the product by yourself.
- Do not use third-party cables or adapters.
- Do not insert your fingers or sharp objects into any components of the product.
- Do not drop, squeeze, or pierce the product to avoid device faults.
- Do not fold or crush any component of the product, or damage it with sharp objects.
- Do not use the product if it is defective, cracked, damaged, or malfunctioned.
- A generator cannot serve as the power supply for the product.
- Do not connect the product to devices other than a vehicle.

Packing List



Charger



Rubber plug
x 4



Cable rubber cover
x 3



Wall-mounting
screw x 4



Wall plug
x 4



Cable clip screw
x 4



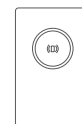
Cable clip x 2



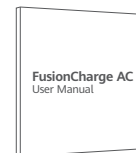
Cable clip x 2

Recommended cable diameter:
19.5–23 mm

Recommended cable diameter:
14.5–19.5 mm

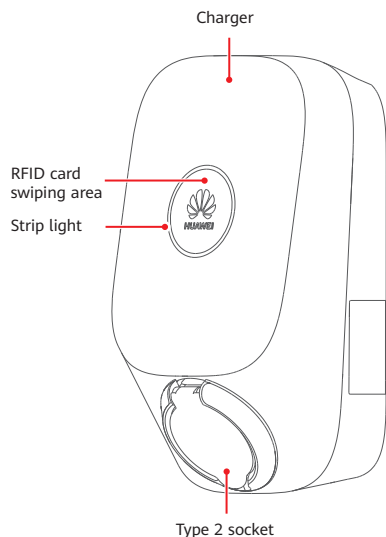


RFID card x 2



User manual

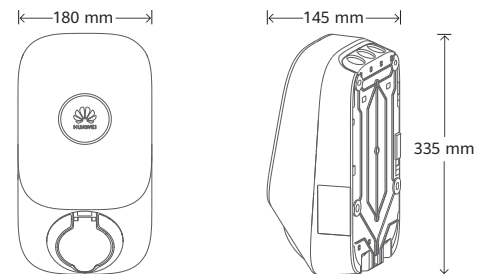
Product Overview



- PV power preferred***
 PV power adaptive charging with a high PV self-consumption rate. Automatic phase switchover to maximize PV power utilization (available on AP22N-EU).
- Scheduled charging**
 Scheduled time-of-use charging allows you to set when to start and stop a charging session on the app.
- Normal charging**
 Charging power up to 7.4 kW (single-phase) or 22 kW (three-phase).
- Smart authentication**
 Supports user authentication and denies access for unauthorized users. Plug-and-play charging is supported after authentication is disabled. Supports RFID card management.
- Power equalization***
 The charger power is dynamically controlled based on the total premise power to prevent the premise RCBO from tripping.

* This function is available when an electricity meter and a Huawei PV inverter of specified models and versions are installed. Scan the QR code in "About This Manual" and see detailed information about the meter in "Meter Description."

Technical Specifications



	AP07N-EU	AP22N-EU
Dimensions (H x W x D)	335 mm x 180 mm x 145 mm	335 mm x 180 mm x 145 mm
Weight	About 3.0 kg	About 3.1 kg
Operating voltage range	Single-phase 230 V AC ($\pm 20\%$)	Three-phase 400 V AC ($\pm 20\%$)
Supported earthing system	Single-phase, three-wire; TN, TT, IT	Three-phase five-wire; TN, TT
Frequency	50/60 Hz ± 1 Hz	50/60 Hz ± 1 Hz
Rated output power (current)	Single-phase: 7.4 kW (32 A)	Three-phase: 22 kW (32 A)
Network type	WiFi 2.4 GHz	WiFi 2.4 GHz
Bluetooth	BLE 5.0	BLE 5.0
Ethernet port	FE 100 Mbit/s	FE 100 Mbit/s
RFID	IEC 14443 Type A	IEC 14443 Type A
Operating temperature*	-35°C to +45°C	-35°C to +40°C
Transportation and storage temperature	-40°C to +70°C	-40°C to +70°C
Relative humidity	5%-95% RH (non-condensing)	5%-95% RH (non-condensing)
Altitude*	0-2000 m	0-2000 m
IP rating	IP54	IP54
Standard compliance	EN 61851-1 2019, IEC 62955 2018 IEC 61008-1 2010, IEC/EN 62196-1	EN 61851-1 2019, IEC 62955 2018 IEC 61008-1 2010, IEC/EN 62196-1

*AP07N-EU: When the operating temperature ranges from 45°C to 55°C, the output power of the charger is derated. When the altitude ranges from 2000 m to 4000 m, the output power of the charger is derated.

*AP22N-EU: When the operating temperature ranges from 40°C to 55°C, the output power of the charger is derated. When the altitude ranges from 2000 m to 4000 m, the output power of the charger is derated.

Installation Precautions

Before installation, carefully read the precautions in this manual and prepare for the installation.

- Only professionals with local qualifications are allowed to disassemble and install chargers.
- Ensure that all installation operations are performed correctly to avoid accidents such as fire and electric shock.
- Ensure that the installation surface is solid enough to hold the charger. It is recommended that the wall have a bearing capacity of at least 100 kg.
- Ensure that the wall is flat and reserve sufficient space around the installation position to ensure good ventilation.
- Ensure that the wall is larger than the rear cover of the charger.
- When installing the product, install the ground cable first. When uninstalling the product, remove the ground cable last. Do not work on the product in the absence of a properly installed ground cable.
- Do not install or remove power cables with power on.
- Before switching on the upstream RCBO, ensure that cables are correctly connected to the charger.
- After the upstream RCBO is switched on, do not touch the terminals on the rear cover directly or with conductors.
- Use cables that comply with local regulations and ensure that the insulation layer is intact.
- When installing the product, use a screwdriver with a proper torque to tighten the screws. When using a screwdriver, ensure that the screwdriver does not tilt and the torque error does not exceed 10% of the specified value.
- When routing power cables, ensure that there is no coiling or twisting.
- Keep cables at least 30 mm away from heat-generating components or heat source areas.

- Do not join or weld power cables. If necessary, use a longer cable.
- Seal unused power cable holes with rubber plugs after the installation is complete.



Scan the QR code to get the installation video.

Installation Preparations

Before the installation, ensure that:

- The charger power is within the allowed load range of the residence.
- Cables and RCBOs meet the installation and usage requirements.
- If the AC input power cable exposed to the outdoor environment is 3 m or longer, consult the local installer. You are advised to install a surge protective device (SPD) at the upstream of the charger's RCBO. The SPD specifications should meet the following requirements: $U_c = 385 \text{ V AC}$, $I_n \geq 10 \text{ kA}$, and $U_p \leq 2 \text{ kV}$. The cable between the SPD and charger must be at least 3 m.
- A network cable that is long enough is prepared if the charger is connected to a wired network.
- The installation area should be covered by a wireless network if the charger is connected to the network through WiFi.
- If the PV power preferred mode and power equalization function are used, you need to configure an electricity meter. Scan the QR code in "About This Manual" and see detailed information about the meter in "Meter Description."

Preparing Tools

Personal protective equipment	Safety helmet	Protective gloves	Insulated shoes
Hardware installation tools	Phillips insulated torque screwdriver (M4/M5/M6)	Insulated security torx torque screwdriver (TT20)	Hammer drill and drill bit ($\Phi 10$)
	Marker	Rubber mallet	
Cable installation tools	Wire stripper	Crimping tool	Scissors
Measurement instruments	Clamp meter	Steel measuring tape	Level instrument
Auxiliary materials	Insulation tape	Heat-shrink tubing	Cord end terminal

Preparing Cables

Cable Type	Operating Current	Cross-sectional Area
AC input power cable (single-phase three-wire)	32 A	6~10 mm ²
AC input power cable (three-phase five-wire)		6~10 mm ²

Note: To facilitate cabling, aluminum wires and solid copper wires are not recommended.

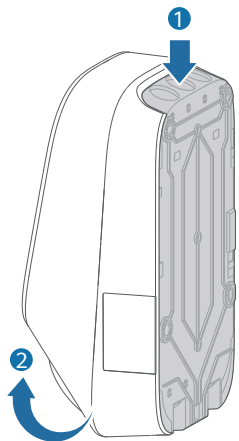
Preparing an RCBO

Input	Specifications
Single-phase / Three-phase	4P RCBO, 40 A (50 A is recommended if the ambient temperature is higher than 45°C), Type A or B, in compliance with local regulations.

1 Opening the Charger

i Read the installation precautions before the installation.

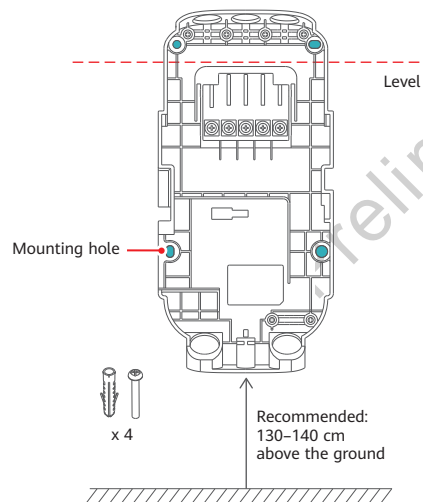
1. Push the rear cover downwards.
2. Separate the charger body from the rear cover.



2 Securing the Rear Cover

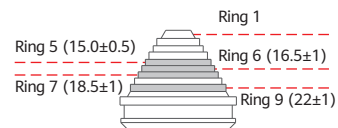
i Ensure that the installation surface is solid enough to hold the charger. It is recommended that the wall have a bearing capacity of at least 100 kg. Do not drill holes on the rear cover. Otherwise, the rear cover may be damaged.

1. Place the rear cover on the wall, keep it horizontal, and use a marker to mark the hole drilling positions on the wall.
2. Use a hammer drill to drill holes on the wall at the marked positions, and place wall plugs into the holes. (Insertion depth: 50 mm; $\phi 10$)
3. Use wall-mounting screws to secure the rear cover to the wall. (Use an M6 Phillips screwdriver with a torque of 1.4–1.6 N·m.)

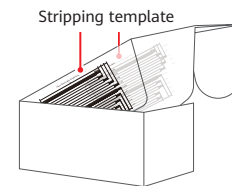


3 Cabling in the Rear Cover

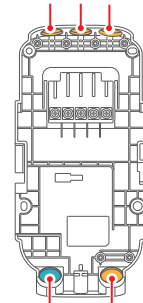
1. Switch off the upstream RCBO.
2. Use scissors to cut the rubber covers to fit the cable size. Rubber covers should tightly hold cables to ensure sealing effect.
3. The cable stripping template is printed inside the carton. Use a wire stripper to strip the power cable based on the template.
4. Select an appropriate cord end terminal based on the cable diameter, and crimp the cord end terminal to the cable.
5. Connect the power cable through the cable inlet based on the actual cable route. Squeeze the cable rubber cover in the cable inlet. (If the cable diameter is 22 ± 1 mm, you do not need to squeeze the cable rubber cover in the charger. Attach it to the charger enclosure.)



Cable diameters supported by the rubber cover (mm)

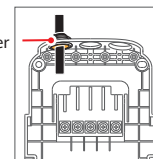


Power cable inlets

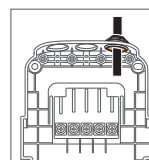
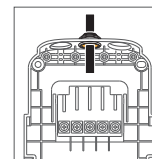


Communications cable inlet Power cable inlet

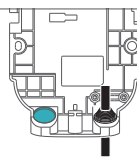
Left cabling



Middle cabling



Right cabling



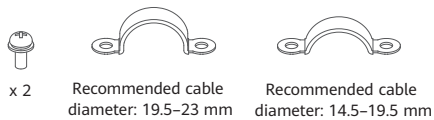
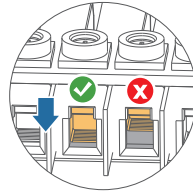
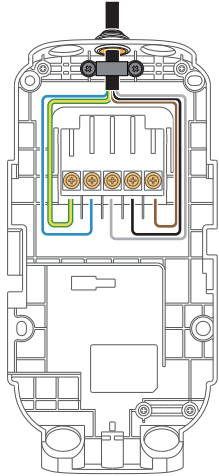
Bottom cabling

4

Connecting Power Cables

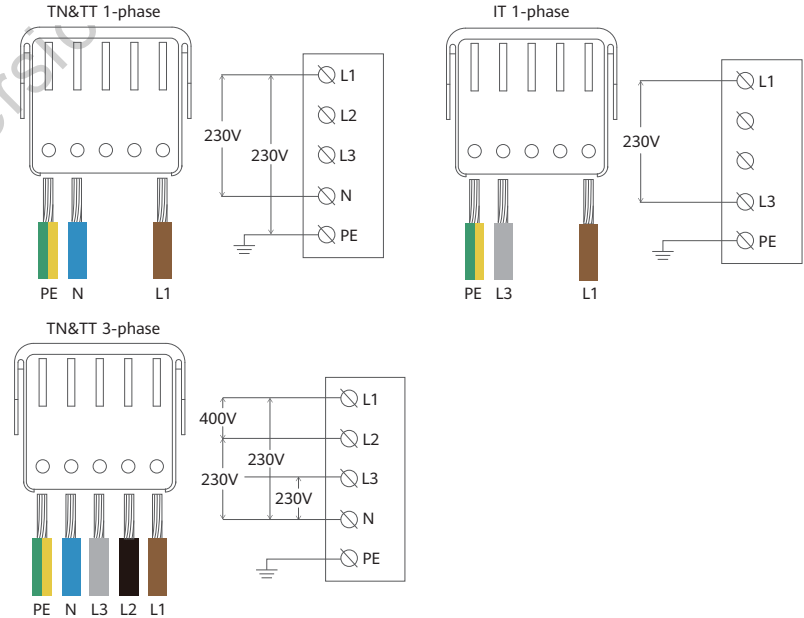
1. Keep the screw terminals in the correct status, as shown in the rightmost figures. Connect cables to the correct terminals and tighten the screws clockwise. Pull the power cables to check that the cables are securely connected. Check that the screws are in the required status. (Use an M5 torque screwdriver with a torque of 2.0 ± 0.2 N·m.)
2. Select a cable clip based on the cable size. Install the cable clip and use screws to secure the cables. (Use an M4 torque screwdriver with a torque of 1.2 N·m.)
3. Pull the power cables to ensure that they are securely connected.

i In the following figure, the power cable is routed in from the middle.



i When five 10 mm² cables are routed in from the bottom, it is recommended that no more than two layers of cables be stacked.

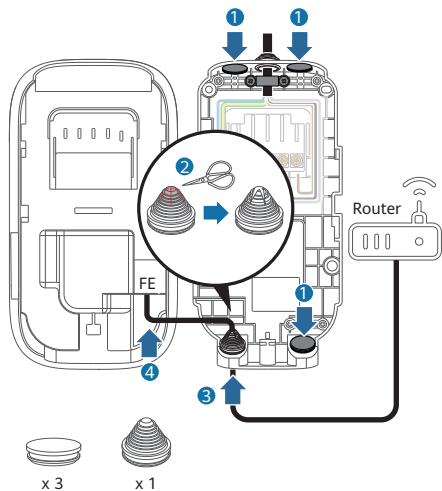
- i** The following cables comply with the IEC 60446 standard. Cable colours may vary according to different regions. Connect power cables based on the actual phase condition.
- TN and TT systems are configured with neutral conductors. IT systems do not have neutral conductors.
- The AP07N-EU supports TN&TT 1-phase and IT 1-phase.
- The AP22N-EU supports TN&TT 3-phase, TN&TT 1-phase, and IT 1-phase.



i For a TT system, connect cables by referring to the TN system cabling imprint on the rear cover.

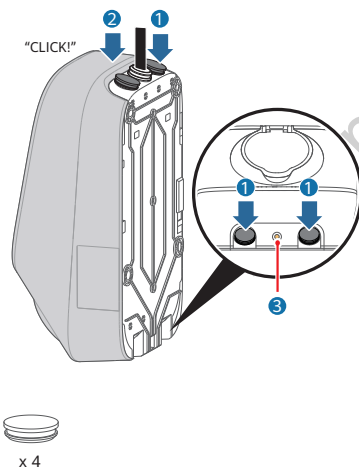
5 Connecting Communications Cables

- If you use WiFi connection, ensure that the installation area is within the coverage.
 - If you select wired connection, refer to the following to connect communications cables.
 - In the following figure, the power cable is routed in from the middle.
1. Seal unused power cable holes with rubber plugs.
 2. Cut the cable rubber cover based on site requirements and secure it to the communications cable inlet.
 3. Route the network cable through the left cable hole at the lower part of the rear cover.
 4. Connect the network cable to the FE port on the rear side of the charger.



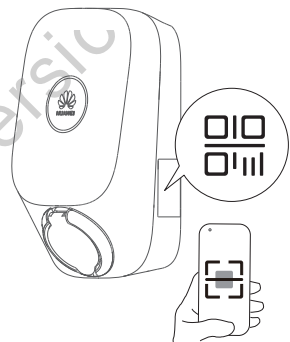
6 Completing the Installation

- In the following figure, the power cable is routed in from the middle and WiFi networking is used.
1. Seal unused power cable holes with rubber plugs.
 2. Align the charger with its rear cover, and push the charger downwards.
 3. Tighten the screws at the bottom. (Use a TT20 insulated security torx torque screwdriver with a torque of 2.0 N·m.)



App Installation

Scan the device's QR code before operating. Download and install the latest app on your smartphone. Follow the instructions on the app to complete wizard settings and parameter settings.



App Operation Guide



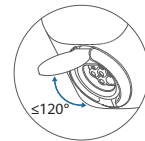
Scan the QR code to obtain the app operation guide.

Charger Usage

- Read the installation precautions before using the product.
- Ensure that the charger is not cracked or damaged.
- Ensure that there is no liquid or other foreign matter on the charging connector or inside the charging port of the vehicle.
- The following shows how to start a charging session by swiping the card. For details about other charging modes, see the charger app.
- If the plug-and-play charging mode is used, you can stop a charging session from the vehicle, by RFID card swiping, or on the charger app.

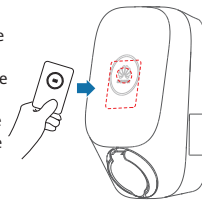
Charging by Card Swiping

1. Open the vehicle's charging port.



2. Take the charging connector, open the socket cover, and properly insert the charging connector into the charger and vehicle.

3. Place the RFID card in the swiping area to start a charging session. Keep the ring pattern on the card in the swiping area. If the indicator fast flashes blue for three times, the card swiping is successful.







Stopping Charging

Swipe the RFID card to stop a charging session.

- Charging will automatically stop when the battery is full.
- If the indicator fast flashes red for three times, scan the QR code in "About This Document" and refer to "Troubleshooting."

Indicators


 Some functions may be subject to change according to the charger's latest software and app updates.

Indicator	Indicator Status	Charger Status
 Blue	Cycle: steady blue for 4s and off for 1s	Charging connector plugged (The authentication function is disabled.)
	Cycle: pulsating blue for 1s	Charging in progress
	Steady blue	Charging ended (The charging connector is not removed.)
	Cycle: pulsating blue for 4s and off for 1s	Scheduled charging waiting
 White	Cycle: pulsating white for 4s and off for 1s	Idle (default state or charging connector removed from the vehicle)
	Cycle: flashing white for 0.5s	Software upgrading
 Green	Cycle: pulsating green for 1s	PV power charging waiting and PV power charging in progress*
 Red	Cycle: flashing red for 0.5s	Alarming
	Steady red	Faulty

*This function is available when an electricity meter and a Huawei PV inverter of specified models and versions are installed.

Routine Maintenance

- Chargers do not need special maintenance. You are advised to check and clean the enclosure of the charger and accessories such as the charging connector every six months.
- Check whether the charger and cables are damaged.
- Use a dry cloth to clean the surface of the charger. Do not spray water directly on the charger.

 Do not use corrosive cleaners, glass cleaners, or organic solvents.

Miscellaneous

Storage and Transportation

Chargers should be transported in the original packages. Do not place other objects on the top of the charger. Before transportation, store the product in a clean, dry, and well ventilated place with a relative humidity of not more than 80% and free from corrosive gases.

The environmental specifications for storage and transportation shall not go beyond those specified in the Technical Specifications.

Disassembly

Only authorized and qualified electricians are allowed to disassemble the product. Power off the charger before disassembling it. Disassemble a charger in the reverse order of installation.

Disposal/Scrapping

The product should be disposed of at recycling points for electronic equipment. Dispose of the product in a correct and environmental friendly manner in compliance with local laws and regulations. Electronic devices cannot be disposed of as household waste.

Privacy Protection

For more information about privacy protection, log in to the app.

Troubleshooting

For details about troubleshooting, scan the QR code in "About This Document" and refer to "Troubleshooting."

Customer Support

If you have any questions, please contact eu_inverter_support@huawei.com or call 008003388888 for service support.