

User Manual



AC EV Charger

L07P/ L11P

To prevent damage to the product caused by improper use, please carefully read this manual before operation.

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1 Notes on This Manual

1.1 Scope of Validity

This manual describes the assembly, installation, commissioning, maintenance and troubleshooting of the following model(s) of products:

L07P / L11P

Please keep this manual where it will be accessible at all times.

1.2 Target Group

This manual is intended for use by qualified electricians only. All procedures described herein shall be performed by trained and experienced electrical personnel in compliance with basic electrical safety requirements.

1.3 Symbols Used

The following symbols are used in the manual to highlight information in order to ensure the safety of the user's person and property when using the product, and to use the product more efficiently and optimally. The following symbols may appear in this manual, and the meanings they represent are listed below:

Warning!








"Warning" indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Note!

"Note" provides important tips and guidance.



It means the operation on the product is correct.

Symbols	Explanation
	CE mark. The charger complies with the requirements of the applicable CE guidelines.
	Beware of hot surface. The charger can become hot during operation. Avoid contact during operation.
	Danger of high voltages. Danger to life due to high voltages in the charger!
	UKCA mark. The charger complies with the requirements of the applicable UKCA guidelines.
	Please read the user manual carefully.
	The charger can not be disposed together with the household waste.
	RCM mark. The charger complies with the requirements of the applicable RCM guidelines.

2 Safety

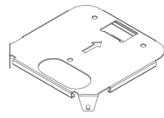
EV chargers are designed and rigorously tested in compliance with international safety standards. Nevertheless, it is imperative to adopt necessary safety precautions during the installation and operation of EV chargers. The installer is obligated to thoroughly read and adhere to all instructions, precautions, and warnings detailed in this installation manual.

- All operations encompassing transportation, installation, start-up, and maintenance must be performed by appropriately qualified and trained personnel.
- The electrical installation and maintenance of the charger should be carried out by a certified electrician in accordance with local electrical wiring codes and regulations.
- Before installation, check the unit to ensure it is free of any transport damage or handling issues.
- Unauthorized removal of necessary protective devices, improper usage, incorrect installation, or improper operation may result in serious safety hazards, shock risks, or damage to the equipment.
- Do not install the equipment in adverse environmental conditions, such as those in close proximity to flammable or explosive substances, corrosive or desert environments, areas exposed to extreme high or low temperatures, or high humidity environments.
- Do not use the equipment when the safety devices do not work or are disabled.
- During the installation process, please ensure the use of personal protective equipment, including gloves and safety goggles.
- Inform the manufacturer about non-standard installation conditions.
- Do not use the equipment in case of any operation anomalies. Avoid temporary repairs.
- All repair work must utilize only approved spare parts, which must be correctly installed according to their designed purposes by a licensed contractor or an authorized service provider.
- Liabilities stemming from commercial components shall be borne by their respective manufacturers.
- This product includes protection against PEN conductor faults to prevent electric shock risks under TN-C-S (PME) systems.

3 Packing List



A



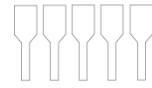
B



C



D



E



F



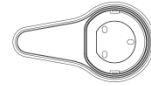
G



H



I



J



K



L



M



N



O



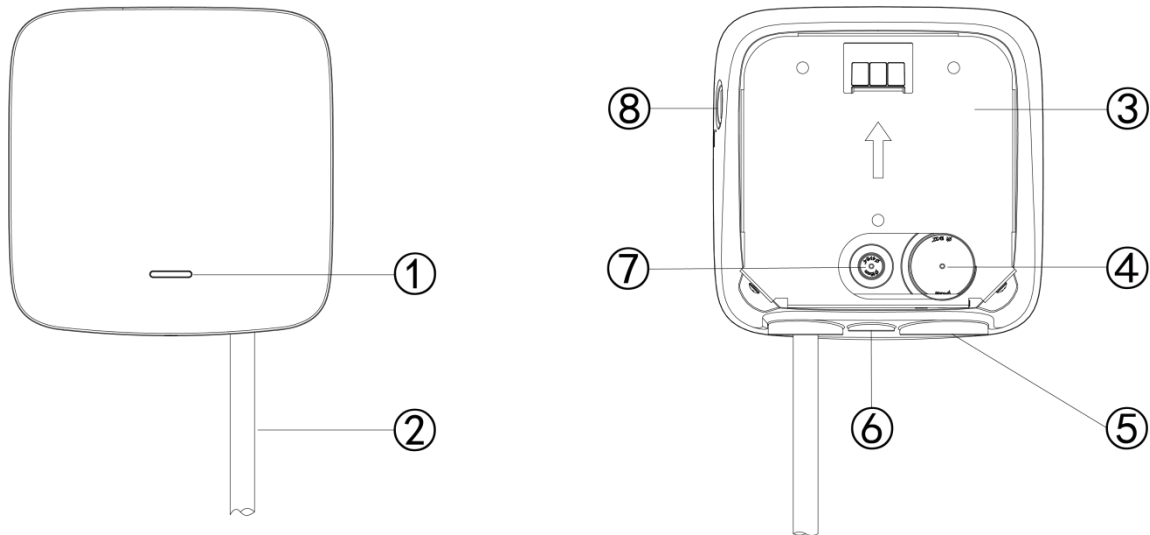
P

RFID Card

Q

No.	Name	Quantity
A	EV Charger	1
B	Mounting Backplate	1
C	Expansion pipe (Φ8*40)	3
D	Expansion screw (ST6*40)	3
E	Tubular terminal (E6012)	5
F	Self-tapping screw (ST4.2*9.5)	2
G	Tubular terminal (E0508)	2
H	Rubber curved coils (M16)	1
I	Rubber curved coils (M40)	1
J	Type 2 Plug holder	1
K	Expansion pipe (Φ6*30)	4
L	Expansion screw (ST4.2*35)	4
M	Plum head machine screw (M3*6)	2
N	Quick installation guide	1
O	Wrench (T10)	1
P	Machine screw (M3*6)	2
Q	RFID Card	2

4 Introduction



① Meaning of lights

- Green breathing light -standby status
- Blue Steady - EV Plug inserted status
- Blue breathing light - charging start status/pause
- Blue running light - charging status
- Green Steady - charging end status
- Red Steady-charger fault, shutdown protection
- Yellow Steady - locked status

②EV charging cable

③Mounting backplate

④Back entry hole

⑤Bottom entry hole

⑥Bottom communication inlet hole

⑦Back network inlet hole

⑧Stop button

5 Technical Data

FOXESS 7.3kW&11kW&22kWAC-CHARGERSPEC		
Model	L07P	L11P
Input		
Input line	L/N/PE	3L/N/PE
Rated voltage	230Vac, ±20%	400Vac, ±20%
Rated current	32A	16A
Rated frequency	50/60Hz	
Output		
Output voltage	230Vac, ±20%	400Vac, ±20%
Maximum output current	32A	16A
Rated power	7.3kW	11kW
Interaction method		
Connector Type	Type 2 Plug	
Start-up mode	Plug&Play/RFID card/App	
Communication method		
Bluetooth	Operating frequency range:2402~2480 MHz RF power control range:-24~20dBm	
WiFi	TX/RX frequency band:2412~2484 MHz	
OCPP	OCPP1.6 J, OCPP2.0.1	
LAN	Enable	
Environment		
Installation method	Wall mounting/floor-mounted column mounting	
Working temperature	-25°C~50°C	
Working humidity	5%~95% no condensation	
Altitude	≤2000m	
Size and weight		
Size	197*196*105 mm	
Weight	6.3kg	4.04kg
Charging Cable Length	5m (Standard), 6m(Optional)	
Safety		
Waterproof rating	IP55	
Anti-collision grade	IK08	
Residual current detection*	6mA DC	

Protection function	Over current protection, Over/Under voltage protection, Over temperature protection,Ground protection, Surge protection
Certification	CE/UKCA/CB/RCM
Certification standard	EN/IEC 61851-1:2019, EN/IEC 61851-21-2:2021

*Internal RCD-DD meets the trip time characteristics specified in IEC 62955

*External RCCB is required

*Select Type A or Type B according to local regulations.

6 Installation

6.1 Transportation and Installation Precautions

To ensure safety, attention should be given to the following points:

- All accessories should be stored separately during transportation or handling.
- Avoid exposing them to violent shocks and impacts; handle with care.
- Avoid inversion.

6.2 Check before Installation

- Unpack the EV Charger and verify the accessories against the packing list.
- Inspect the EV Charger for any damage incurred during transportation. If you find any damage or missing parts, do not power on the charger and promptly notify both the carrier and dealer.

Note

Please keep the packing boxes and packaging materials for future handling.

6.3 Installation

Pre-installation preparation

The following tools are necessary for the installation process:

Phillips (crosshead) screwdriver, Special torx screwdriver, Wire strippers, Crimping pliers, Electric drill.

Installation precautions

Please adhere strictly to the wiring specifications and ensure proper connection. Additionally, please confirm that all fasteners are securely tightened to safeguard the EV Charger.

Installation environment and location

- The area designated for the charger must be well-ventilated and kept away from water sources, combustible gases, and corrosive agents.
- Ensure that the ground or installation platform can support the weight of the charger without issue.

- In cases where the charger is disassembled and used in low-temperature environments, condensation may occur. Prior to installation or use, ensure that the charger is completely dry to avoid the risk of electric shock.
- Position the charger near the main power input to allow installers or users to easily access and disconnect the main power switch in emergency situations, effectively cutting off the power supply.

Note

The installation needs to comply with local installation requirements and safety regulations.

Earthing System Requirements (UK Only)

The charger integrates PEN fault protection in accordance with BS 7671 Clause 722.411.4.1 (Method 4 – voltage monitoring).

Earthing requirements:

- TN-C-S (PME) system:

No additional earth electrode (earth rod) is required.

- TN-S system:

Standard installation applies.

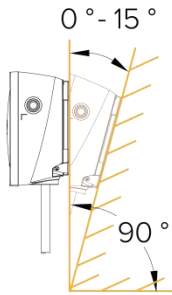
- TT system:

Installation shall follow local regulations.

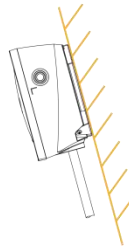
In the event of a PEN conductor fault, the charger will automatically disconnect the supply to ensure user safety.

For detailed information, refer to Appendix – PEN Fault Protection Statement.

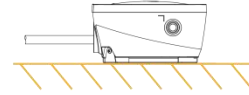
Before installation, ensure that the wall or column is vertical or tilted backward by 0° to 15°.



Vertical or Tilt Backward ✓



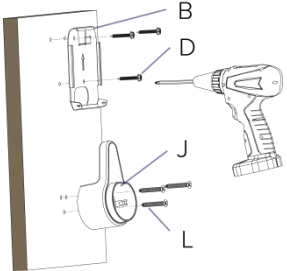
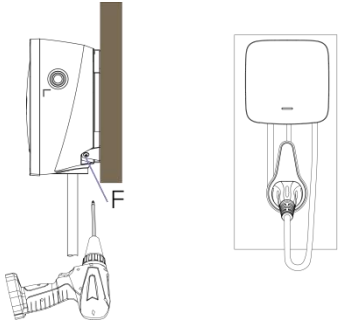
Tilt Forward ⚠️
WARNING



Level ⚠️
WARNING

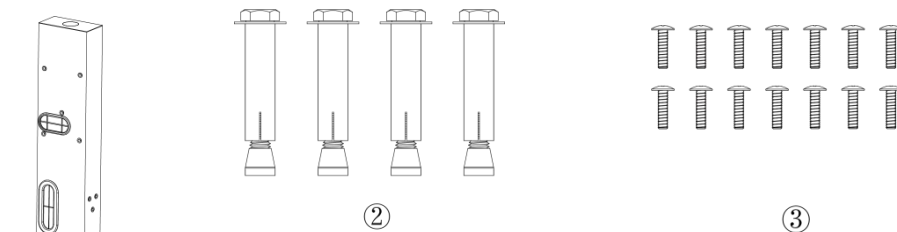
● Wall-mounted installation method

Procedures		
<p>Step 1</p>	<p>On the wall, mark six holes based on the positions of the Mounting backplate and the Type 2 plug holder.</p>	
<p>Step 2</p>	<p>1. Use an 8mm drill bit to drill holes. The holes should be at least 50mm deep for mounting the Mounting backplate. 2. Use an 6mm drill bit to drill holes. The holes should be at least 40mm deep for mounting the Type 2 Plug holder. 3. Clean the area around the drilled holes.</p>	
<p>Step 3</p>	<p>Insert the expansion pipe (C) and (K) into the holes and securely fasten them with a hammer.</p>	

<p>Step 4</p>	<p>Affix the Mounting backplate (B) and Type 2 Plug holder (J) to the wall using screws (D) and (L).</p>	
<p>Step 5</p>	<ol style="list-style-type: none"> 1. Hang the EV Charger into the Mounting backplate. 2. Remove the screws (F) and install them on the bottom of the backplate, tighten the screws. 3. Insert the charging connector into the Type 2 plug holder to complete the installation. 	

● Floor type / Vertical installation method

Column packing list:

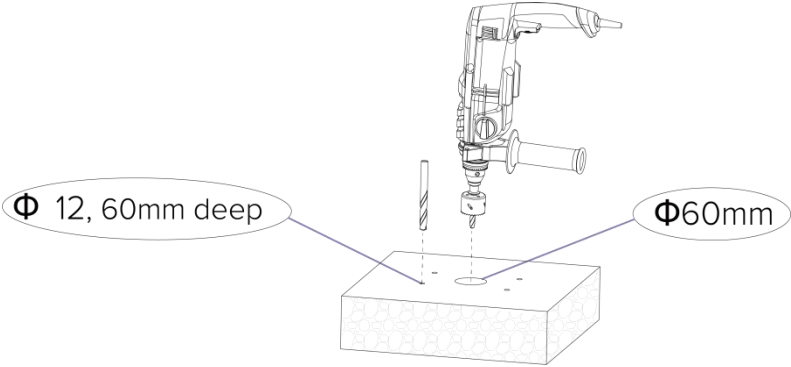
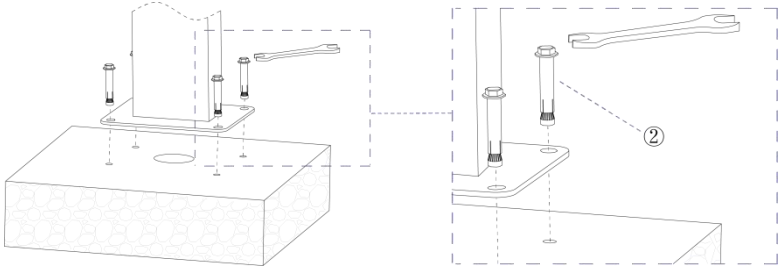

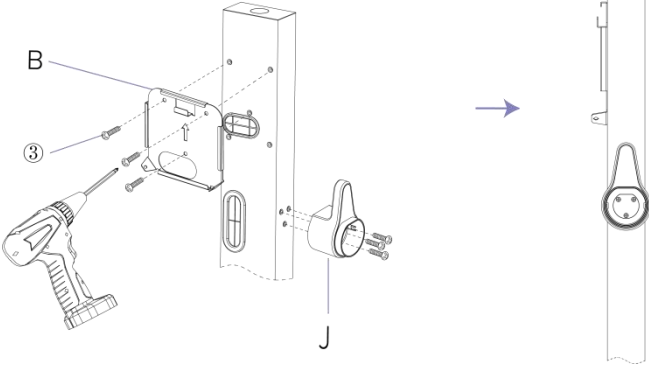


S/N	Name	Quantity
①	Column	1
②	Expansion Anchor Bolt (M8*60)	4
③	Machine Screw (M5*20)	14

Note

Column package needs to be purchased separately.

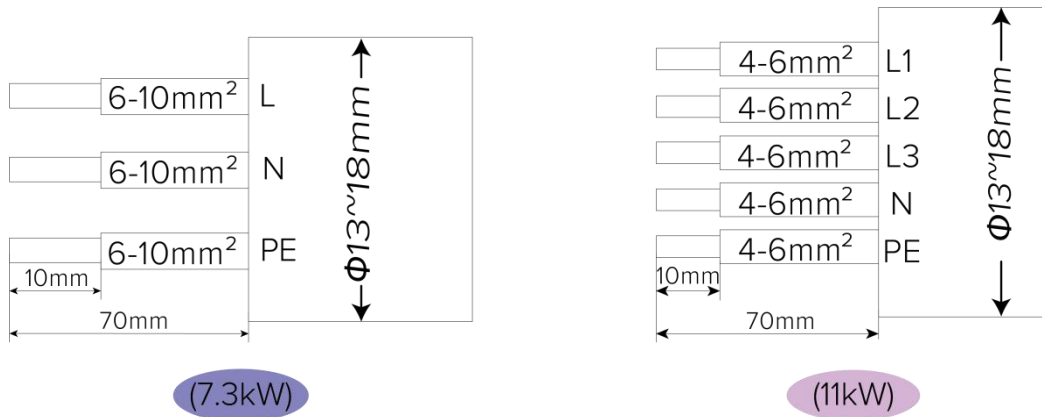
Procedures	
<p>Step 1</p>	<ol style="list-style-type: none"> 1. Drill four 60 mm deep holes spaced 170*120 mm apart using a 12 mm drill bit. 2. Drill one Φ60mm outlet hole in the center. 3. Clean the area around the drilled holes.

	
<p>Step 2</p>	<p>Install the expansion anchor bolt (②) and fix them with a wrench.</p> 
<p>Step 3</p>	<p>Router the input wire into bottom of the column and into the hole inside.</p> 
<p>Step 4</p>	<p>Fix the Mounting backplate (B) and Type 2 Plug holder (J) to the column with screws (③).</p> 

<p>Step 5</p>	<ol style="list-style-type: none"> 1. Hang the EV Charger into the Mounting backplate. 2. Remove the screws (F) and install them on the bottom of the backplate, tighten the screws. 3. Insert the charging connector into the Type 2 plug holder to complete the installation. 	
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Electrical Connections (from bottom)

A leakage protection switch needs to be installed. It is recommended to use a leakage protection device of Type A, Type C40 (suitable for 7.3kW) or Type C20 (suitable for 11kW), and the input wire should be routed out from the leakage protection switch. For 7.3kW applications, a cable with a wire diameter of 6-10mm² is recommended; for 11kW applications, a 4-6mm² cable is suggested. Trim the cable sheath to 70mm and leave the conductor exposed for 10mm.



L/L1/L2/L3: Brown/red/green or yellow wire

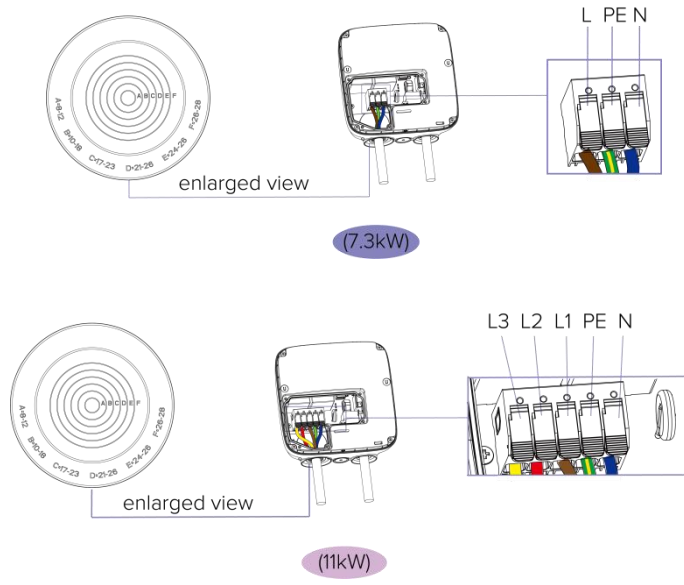
N: Blue/black wire PE: Yellow green wire

Note

Please refer to the local regulations on the cable model and color during installation.

Procedures																																											
Step 1	<p>Crimp the tubular terminal E6012 (E) onto the cable using crimping pliers.</p> <p>The diagram illustrates the crimping process for two cable types. For a 3-core cable, the wires are labeled L (brown), N (blue), and PE (green). For a 5-core cable, the wires are labeled L1 (brown), L2 (red), L3 (yellow), N (blue), and PE (green). A tubular terminal labeled 'E' is shown being crimped onto the end of each wire. The resulting crimped cables are shown with the terminal attached to each wire.</p> <p style="text-align: center;">(7.3kW)</p> <p style="text-align: center;">(11kW)</p>																																										
Step 2	<p>Use a wrench (O) to unscrew the bottom screws and remove the bottom cover.</p> <p>The diagram shows a top-down view of the device with a wrench (labeled 'O') being used to unscrew the bottom screws. An arrow points downwards, indicating the removal of the bottom cover.</p>																																										
Step 3	<p>Unscrew the wiring cover screws and open the wiring cover.</p> <p>The diagram shows the device with the bottom cover removed. A callout points to the screws on the wiring cover with the text 'Unscrew the screws'.</p>																																										
Step 4	<p>1. Consult the table below to determine the appropriate position of the rubber arc ring, through which you should insert either the 3-core cable (for 7.3kW) or the 5-core cable (for 11kW), based on their respective diameters.</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Hole Position</td> <td>A place</td> <td>B place</td> <td>C place</td> <td>D place</td> <td>E place</td> <td>F place</td> </tr> <tr> <td>Cable O.D.</td> <td>Φ 8-12mm</td> <td>Φ 10-18mm</td> <td>Φ 17-23mm</td> <td>Φ 21-26mm</td> <td>Φ 24-26mm</td> <td>Φ 26-28mm</td> </tr> <tr> <td>Wire(mm²)</td> <td>1.5</td> <td>2.5-6</td> <td>10</td> <td>16</td> <td></td> <td></td> </tr> </table> <p style="text-align: center;">(7.3kW)</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Hole Position</td> <td>A place</td> <td>B place</td> <td>C place</td> <td>D place</td> <td>E place</td> <td>F place</td> </tr> <tr> <td>Cable O.D.</td> <td>Φ 8-12mm</td> <td>Φ 10-18mm</td> <td>Φ 17-23mm</td> <td>Φ 21-26mm</td> <td>Φ 24-26mm</td> <td>Φ 26-28mm</td> </tr> <tr> <td>Wire(mm²)</td> <td></td> <td>1-6</td> <td>10</td> <td>16</td> <td></td> <td></td> </tr> </table> <p style="text-align: center;">(11kW)</p>	Hole Position	A place	B place	C place	D place	E place	F place	Cable O.D.	Φ 8-12mm	Φ 10-18mm	Φ 17-23mm	Φ 21-26mm	Φ 24-26mm	Φ 26-28mm	Wire(mm ²)	1.5	2.5-6	10	16			Hole Position	A place	B place	C place	D place	E place	F place	Cable O.D.	Φ 8-12mm	Φ 10-18mm	Φ 17-23mm	Φ 21-26mm	Φ 24-26mm	Φ 26-28mm	Wire(mm ²)		1-6	10	16		
Hole Position	A place	B place	C place	D place	E place	F place																																					
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Wire(mm ²)		1-6	10	16																																							

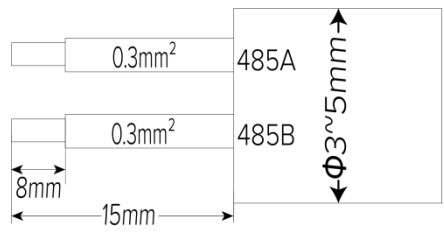
2. After threading the cable through the rubber arc ring, connect the L, N, PE leads (for 7.3 kW) or the L1, L2, L3, N, PE leads (for 11 kW) to the corresponding terminals.



**Communication wiring connections
(from bottom, when external meters need to be connected)**

Trim all cables with a wire diameter of 0.3mm² to a length of 15mm (as shown in the figure), and peel off the insulation sheath to expose the conductor by approximately 8mm.

Step 5



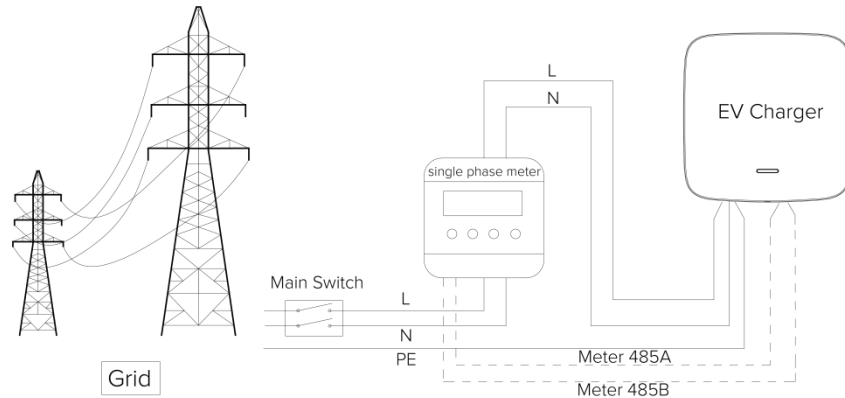
485A: Brown/red/green or yellow wire

485B: Blue/black wire

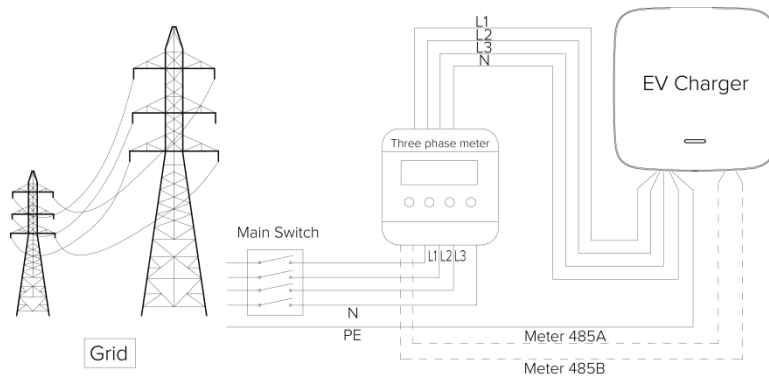
Note

Please refer to the local regulations on the cable model and color during installation.

The RS485 communication function needs to be implemented in conjunction with a meter, and the wiring diagram for the meter can be referred to in the following figure.



(7.3kW)



(11kW)

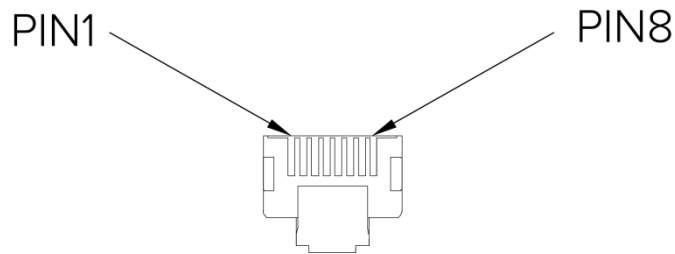
Procedures		
<p>Step 6</p>	<p>Crimp the tubular terminal E0508 (G) onto the cable using crimping pliers.</p>	
<p>Step 7</p>	<p>1. Poke the M16 rubber arc ring (H) through the center. 2. Pass the cable wires from the outside through the crossing holes.</p>	

Step 8

Install the cable into the signal terminal, then tighten the screw to compress the tubular terminal E0508.

- Network connection (optional)

The network cable interfaces of the charging pile are as follows:



PIN	1	2	3	4	5	6	7	8
Color	White/Orange	Orange	White/Green	Blue	White/Blue	Green	White/Brown	Brown

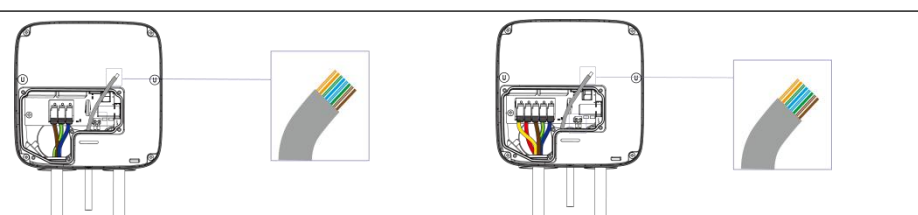
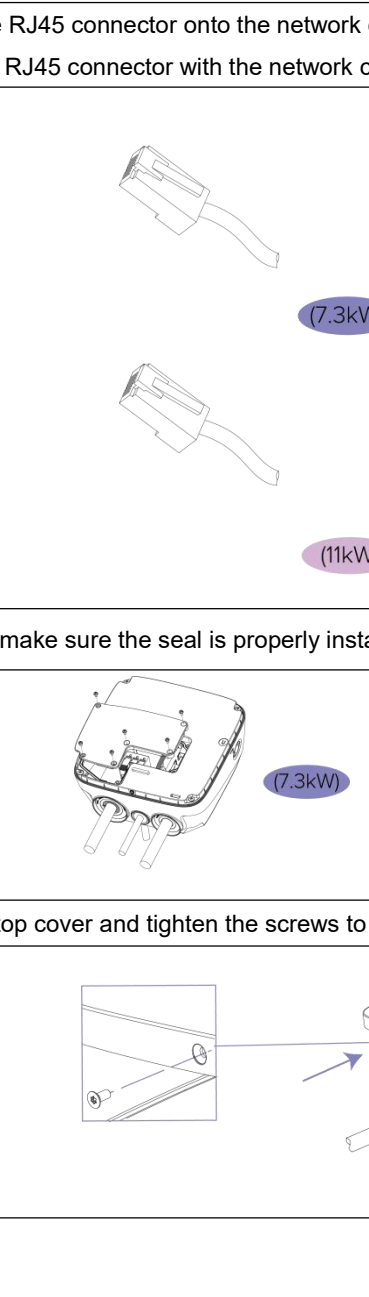
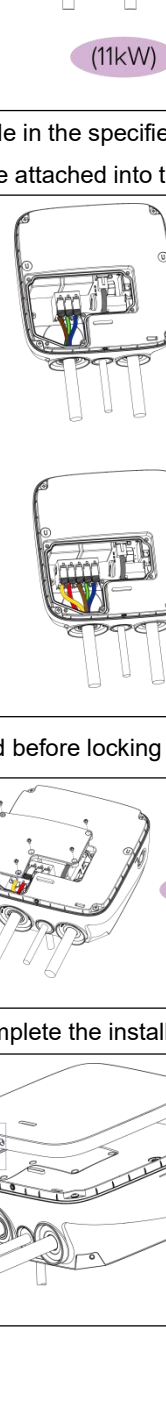
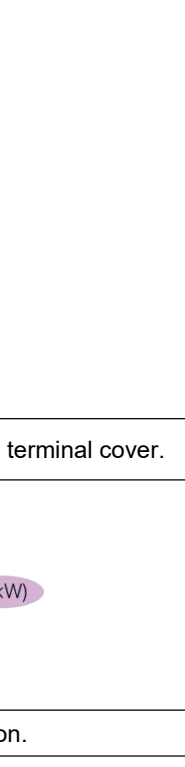
Note

- Ensure compliance with local regulations regarding cable type and color when installing, as the availability and performance of the network connection depend on these factors.
- Make sure to reserve 150-160mm of network cable length on the installation surface prior to installation.

Procedures

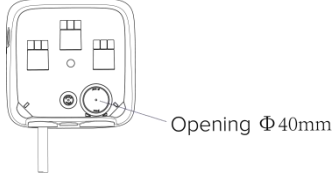
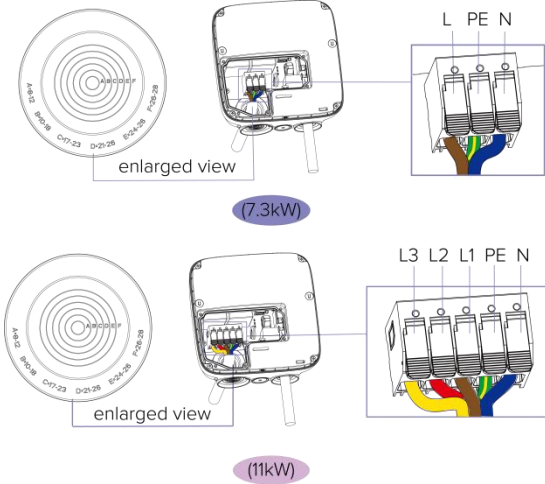
Step 9

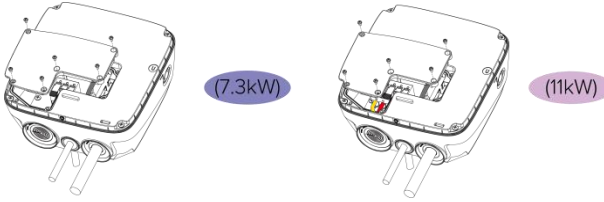
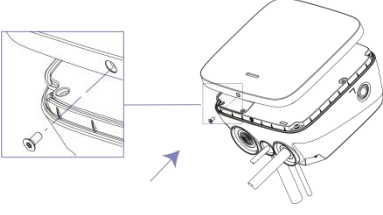
1. At the back of the EV Charger, process a hole with diameter $\Phi 16\text{mm}$.
2. Clean the area around the drilled holes.
3. Install the M16 rubber arc ring (H), into the hole.

<p>Step 1 0</p>	<p>1. Pass the network cable through connector. 2.Strip the outer jacket of a 10mm section of the network cable using cable strippers.</p> 
<p>Step 1 1</p>	<p>1.Crimp the RJ45 connector onto the network cable in the specified wiring sequence. 2.Insert the RJ45 connector with the network cable attached into the Ethernet port.</p> 
<p>Step 1 2</p>	<p>Check and make sure the seal is properly installed before locking the terminal cover.</p> 
<p>Step 1 3</p>	<p>Put on the top cover and tighten the screws to complete the installation.</p> 

● Electrical Connections (from back)

Complete steps 1, 2, and 3 in electrical connections (from bottom) steps first, then perform the following steps.

Procedures																																											
Step 1	<p>1. At the back of the EV Charger, process a hole of $\Phi 40\text{mm}$.</p> <p>2. Clean the the area around the drilled holes.</p> <p>3. Install the M40 rubber arc ring (I), into the hole.</p> 																																										
Step 2	<p>1. Consult the table below to determine the appropriate position of the rubber arc ring, through which you should insert either the 3-core cable (for 7.3kW) or the 5-core cable (for 11kW), based on their respective diameters.</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Hole Position</td> <td>A place</td> <td>B place</td> <td>C place</td> <td>D place</td> <td>E place</td> <td>F place</td> </tr> <tr> <td>Cable O.D.</td> <td>$\Phi 8-12\text{mm}$</td> <td>$\Phi 10-18\text{mm}$</td> <td>$\Phi 17-23\text{mm}$</td> <td>$\Phi 21-26\text{mm}$</td> <td>$\Phi 24-26\text{mm}$</td> <td>$\Phi 26-28\text{mm}$</td> </tr> <tr> <td>Wire(mm^2)</td> <td>1.5</td> <td>2.5-6</td> <td>10</td> <td>16</td> <td></td> <td></td> </tr> </table> <p style="text-align: center;">(7.3kW)</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Hole Position</td> <td>A place</td> <td>B place</td> <td>C place</td> <td>D place</td> <td>E place</td> <td>F place</td> </tr> <tr> <td>Cable O.D.</td> <td>$\Phi 8-12\text{mm}$</td> <td>$\Phi 10-18\text{mm}$</td> <td>$\Phi 17-23\text{mm}$</td> <td>$\Phi 21-26\text{mm}$</td> <td>$\Phi 24-26\text{mm}$</td> <td>$\Phi 26-28\text{mm}$</td> </tr> <tr> <td>Wire(mm^2)</td> <td></td> <td>1-6</td> <td>10</td> <td>16</td> <td></td> <td></td> </tr> </table> <p style="text-align: center;">(11kW)</p>	Hole Position	A place	B place	C place	D place	E place	F place	Cable O.D.	$\Phi 8-12\text{mm}$	$\Phi 10-18\text{mm}$	$\Phi 17-23\text{mm}$	$\Phi 21-26\text{mm}$	$\Phi 24-26\text{mm}$	$\Phi 26-28\text{mm}$	Wire(mm^2)	1.5	2.5-6	10	16			Hole Position	A place	B place	C place	D place	E place	F place	Cable O.D.	$\Phi 8-12\text{mm}$	$\Phi 10-18\text{mm}$	$\Phi 17-23\text{mm}$	$\Phi 21-26\text{mm}$	$\Phi 24-26\text{mm}$	$\Phi 26-28\text{mm}$	Wire(mm^2)		1-6	10	16		
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Wire(mm^2)		1-6	10	16																																							
<p>After threading the cable through the rubber arc ring, connect the L, N, PE leads (for 7.3 kW) or the L1, L2, L3, N, PE leads (for 11 kW) to the corresponding terminals.</p> <p>NOTE</p> <p>When both communication cable and network connections are necessary, adhere to the previously described wiring steps.</p>																																											
																																											
Step 3	<p>Install the cable into the signal terminal, tighten the screw and compress the tubular terminal.</p>																																										

		
<p>Step 4</p>	<p>Fix the male and female ends of the signal terminal by connecting them.</p>	

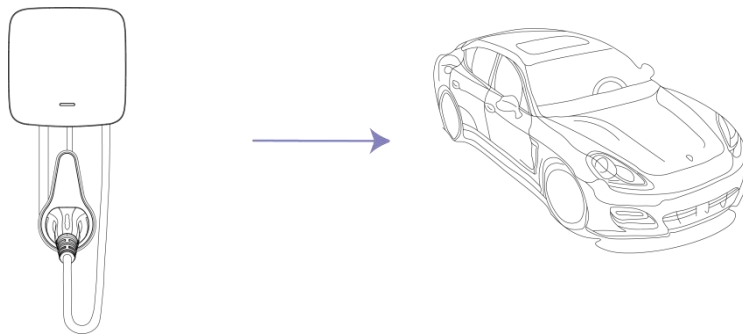
7 Operation

Charging mode and Operation

There are three charging modes which can be set on the corresponding interface of the APP: plug and charge, controlled, locked .

A. Plug and Charge mode

Charging will start automatically after EV plugged in. If you want to stop the charging, just press the stop button on the side of the charger.



- Start Charging:

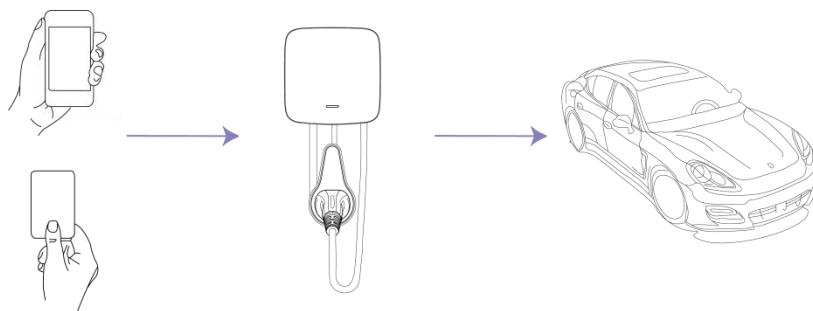
1. Set the charger to the plug and charge mode.
2. Insert the charging plug into the EV.
3. Charging session started.

- Stop Charging:

Press the stop button on the side of the charger.

B. Controlled mode

Initiate or cease charging by using APP on this mode. You can also use APP for reservations.



Controlled mode with RFID card

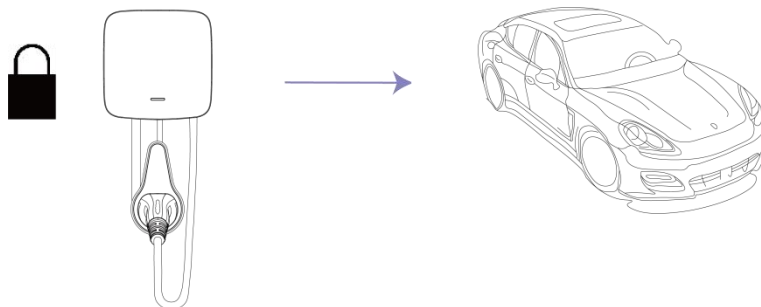
- Start Charging:
 1. Set the charger to the controlled mode.
 2. Insert the charging plug into the EV.
 3. Swipe card.
 4. Waiting for authorizing.
 5. Charging session started.

Controlled mode with APP

- Start Charging:
 1. Set the charger to the controlled mode.
 2. Insert the charging plug into the EV.
 3. Click to start the charge on the APP.
 4. Charging session started.
- Stop Charging:
 1. Click to stop the charge on the APP.
 2. Charging session end.

C. Locked mode

On this mode, the charger is locked and can not work



8 Maintenance

If fault occurs, users can check the fault information on the APP.

No.	Fault code on app	Solution
1	Electronic lock fault	Set the electronic lock status to the correct position. Or seek help from the installers/distributors.
2	Emergency stop fault	Reset the emergency stop button. Or seek help from the installers/distributors.
3	Abnormal CP voltage	Seek help from the installers/distributors.
4	Abnormal AC output contactor	Seek help from the installers/distributors.
5	Over current	Seek help from the installers/distributors.
6	Over voltage	Wait for the grid voltage to return to normal. Or seek help from the installers/distributors.
7	Under voltage	Wait for the grid voltage to return to normal. Or seek help from the installers/distributors.
8	Electric leakage	Seek help from the installers/distributors.
9	Reverse connection of lin N	Seek help from the installers/distributors
10	Abnormal frequency	Wait for the grid frequency to return to normal. Or seek help from the installers/distributors.
11	Over temperature of charging interface	Wait for the temperature of charging interface to return to normal. Or seek help from the installers/distributors.

9 Decommissioning

9.1 Dismantling the charger

- Disconnect the charger from AC input and AC output.
- Disconnect communication and optional connection wirings. Remove the charger from the bracket.
- Remove the bracket if necessary.

9.2 Packaging

If possible, please pack the charger with the original packaging. If it is no longer available, you can also use an equivalent box that meets the following requirements.

- Suitable for loads more than 30 kg.
- Contains a handle.
- Can be fully closed.

9.3 Storage and Transportation

Store the charger in dry place where ambient temperatures are always between -40°C and $+70^{\circ}\text{C}$. Take care of the charger during the storage and transportation keep less than 4 cartons in one stack. When the charger or other related components need to be disposed of, please ensure it is carried out according to local waste handling regulations. Please be sure to deliver any charger that needs to be disposed from sites that are appropriate for the disposal in accordance with local regulations.

10 Appendix

10.1 Quality Guarantee

FOXESS CO., Ltd. (hereinafter referred to as "the Company") will, for products found to be faulty during the warranty period, repair the product free of charge or replace it with a new one.

Supporting Documentation Required

When requesting warranty service, the customer must present the original purchase invoice indicating the date of purchase. Furthermore, the product's trademark must be clearly visible. The Company reserves the right to decline warranty coverage if these conditions are not met.

Relevant Conditions

- Non-conforming products replaced under warranty shall be disposed of by the Company.
- The customer must allow the Company a reasonable period of time to complete repairs on faulty equipment.

Warranty Exclusions

The Company reserves the right to decline warranty coverage under the following circumstances:

- The entire machine or specific components have exceeded the free warranty period.
- Damage incurred during transportation.
- Faults resulting from incorrect installation, modification, or use.
- Operation in environments that exceed the limits specified as harsh in this manual.
- Malfunctions or damage caused by installation, repair, alteration, or disassembly performed by service organizations or personnel not authorized by the Company.
- Use or installation outside the scope defined in the relevant international standards.
- Damage caused by abnormal natural disasters.
- Damage resulting from storage conditions that do not meet the requirements stated in the product documentation.
- Any losses arising from failure to adhere to the safety precautions outlined in this manual.

If a product failure is caused by any of the above circumstances and the customer still requests repair services, the Company's authorized service organization may, upon assessment, provide repair services subject to a charge.

Other Provisions

The Company reserves the right to change product dimensions and parameters based on its latest documentation without prior notice.

10.2 PEN Fault Protection Statement

10.2.1 Scope

This document describes the PEN fault protection function implemented in [Product Name], in accordance with Method 4 defined in Clause 722.411.4.1 of BS 7671.

10.2.2 Background

In TN-C-S (PME) systems, the Neutral (N) and Protective Earth (PE) conductors are combined as a PEN conductor.

In the event of a PEN conductor failure:

- The potential of exposed conductive parts may rise
- This may result in a risk of electric shock

10.2.3 Regulatory Compliance

The protection function is designed in accordance with:

- BS 7671 Clause 722.411.4.1 – Method 4

(Voltage monitoring method for detection of PEN conductor failure)

10.2.4 Detection Principle (Method 4)

The charger implements a voltage monitoring-based detection mechanism, including continuous monitoring of:

- Line-to-Neutral voltage (U_{L-N})
- Line-to-Earth voltage (U_{L-PE})
- Neutral-to-Earth voltage (U_{N-PE})

Voltage Threshold Criteria

A PEN fault or abnormal supply condition is detected when:

- Overvoltage condition:

$$U_{L-N} \geq 253 \text{ V}$$

- Undervoltage condition:

$$U_{L-N} \leq 207 \text{ V}$$

- Or when:

Abnormal voltage relationships are detected between L, N, and PE

Indicating a potential open PEN conductor

10.2.5 Protective Measure (Automatic Disconnection)

Upon detection of a PEN fault condition, the charger performs:

- Immediate Automatic Disconnection of Supply (ADS)
- Disconnection of:
 - Line (L)
 - Neutral (N)
- Disconnection of Protective Earth (PE), where required under UK national regulations

This ensures:

- Elimination of dangerous touch voltage
- Safe isolation from the supply

10.2.6 Installation Implications

With the integrated Method 4 PEN fault protection:

- No additional earth electrode is required
- The equipment is suitable for installation in TN-C-S systems

10.2.7 Regional Considerations

- UK configuration:
 - Full compliance with BS 7671 Method 4
- EU configuration:
 - PEN protection function may differ due to IEC constraints on PE disconnection

10.2.8 System Reset

After fault clearance:

- The system requires reset (manual or automatic)
- Charging resumes only after voltage conditions return within normal limits

10.3 Contact Us

If you have any questions about the product, please contact us:

- Fox ESS Headquarters: No.939, Jinhai Third Road, New Airport Industry Area, Longwan District, Wenzhou, Zhejiang, China.
- Wuxi R&D Center: No. 37 Huaqing Avenue, Wuxi Economic Development Zone (Intersection of Huaqing Avenue and Huayun Road)
- Wuhan R&D Center: 6th Floor, Block A, Tower T4, CHINA PROCUREMENT CENTER, No. 789 Gaoxin Avenue, East Lake New Technology Development Zone, Wuhan City, Hubei Province, P.R. China
- Shanghai R&D Center: No.1255, Jinhai Road, Pudong New Area, Shanghai, China
- After-Sales Service Hotline: 400 1888 900
- Contact Telephone (Wenzhou): 0577-88159999
- Contact Telephone (Wuxi): 0510-68092998
- Contact Us: info@fox-esscom
- Contact Us (EV Charger): ev@fox-esscom
- After-Sales Service: service@fox-esscom



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