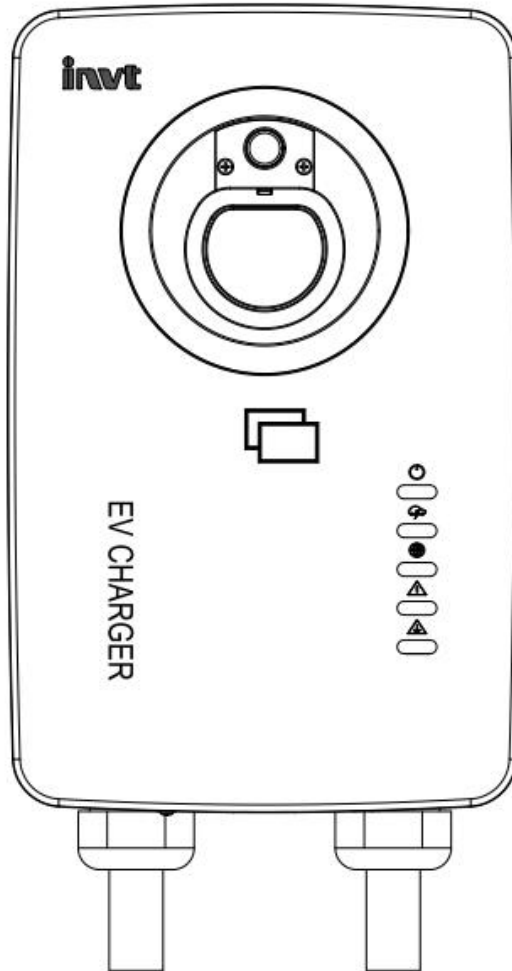




Home Smart AC EV Charger

EVC16-AW7K/11K/22KGF1U2 (UC)



Installation and Operation Manual

V1.1

CONTENTS

Home Smart AC EV Charger	1
1 About This Manual	3
1.1 Conventions	3
1.2 Document Accuracy	4
1.3 Applicable Group & Area	4
1.4 How To Use This Manual	4
1.5 Symbols, Abbreviations, and Terms	4
1.6 General Documents	6
2 SAFETY INSTRUCTIONS	6
2.1 Safety Information	6
2.2 Necessary Qualifications of Installer	6
2.3 Save These Instructions	6
2.4 Product Disposal	8
3 Product Description	8
3.1 Operating Environment and Use Statement	8
3.2 Product Overview	8
3.3 LED Indicator Descriptions	9
3.4 Specifications	10
3.5 Product Nameplate	12
3.6 Series Number Description	12
4 Preparing for Installation	12
4.1 General Requirements	12
4.2 General Installation Procedure	13
4.3 Ambient and Tool Requirements	13
4.4 Unpack the Charger	13
5 Installation	14
5.1 General Electrical Regulation	14
5.2 Hardwired Installation	15
5.3 Location and Position	18
5.4 Connecting the Ethernet Cable	20
5.5 RS485 Cables Wiring (Optional)	21
5.6 Firmware Update / 4G SIM Card Plug-in	21
6 Operation	22
6.1 Power-on the Charger	22
6.2 Adding Your Charger	22
6.3 Binding RFID Card via App	23
6.4 Start Charging	23
6.5 Ending Charging	24
7 Troubleshooting	24
8 Regulations Compliance	26
8.1 EMC Regulatory Conformance	26
8.2 Radiation Frequency (RF) Exposure	27
8.3 Service and Support	27

1 About This Manual

This manual provides instructions for installing, utilizing, and routine fault diagnosis & troubleshooting of INVT 7 kW, 11kW, and 22kW AC Smart EV Charger Home. Before installing the charger, please read this manual to familiarize yourself with the instructions and ensure a successful installation and smooth operation.

1.1 Conventions

We use the following conventions to help you facilitate a quick understanding of this manual.

1) **Bold Text**

Bold text is used to highlight selectable items such as buttons and menu options.

2) **Notes**

Notes: A **NOTE** provides helpful information such as additional explanations, tips, and comments.

Example



NOTE:

The images and illustrations depicted in this manual may differ slightly from the actual ones.

3) **Important Messages**

IMPORTANT indicates a situation which if not avoided, may result in damage to the test equipment or vehicle.

Example



IMPORTANT:

Before operating or maintaining this charger, please read this manual carefully, paying extra attention to the safety warnings and precautions.

4) **Hyperlink**

Hyperlinks or links that take you to other related articles, procedures, and illustrations are available in electronic documents.

5) **Illustrations**

Illustrations are included solely for explanatory and descriptive purposes.



NOTE: The illustrations included in this manual may not depict all of the product's functionalities, they only showcase some of the product's features or typical configurations. Some illustrations may not be related to the product.

1.2 Document Accuracy

This manual contains information about one or more INVT products and may include descriptions or references to one or more standards for INVT products. The presence of any such standard description does not imply that all INVT products referenced in this document support that standard or all described functionalities

All information, specifications, and illustrations in this manual are based on the latest information available at the time of printing. INVT reserves the right to make changes at any time without notice. For the latest information, see our documentation online at www.invt-ev.com.

INVT will not be liable for any direct, special, incidental, or indirect damages or any economic consequential damages (including the loss of profits).

1.3 Applicable Group & Area

- This manual is applicable to all groups, including customers.
- Certain sections of this manual are intended for professional installation electricians.
- In addition to professional electricians, users may also strictly follow the manual's described procedures for basic troubleshooting.
- This manual is applicable to the EU community countries and other areas that use charging standard IEC61851-1& IEC61851-21-2.
- Some terms of this manual do not apply to non-North American installed products, and this manual does not assume any responsibility for non-North American installed products.




1.4 How To Use This Manual




- It is essential to ensure that you understand and are familiar with all the contents of this manual to use it correctly.
- Please carefully read the safety section to make sure you are aware of all the relevant safety instructions.
- Installers must follow the correct order and complete all the steps in the procedures as outlined in the manual.

1.5 Symbols, Abbreviations, and Terms





Before using this manual, please take the time to familiarize yourself with the following symbols, abbreviations and terms, they may help you understand the product's relevant information.

1) General symbols and terms

Symbol	Instruction
	The operation may cause injury, or damage the charger, or cause other property losses if you do not comply with the description of this manual.
	Injury or death may occur if you do not comply with the description of this manual.
	Additional descriptions are provided as supplementary instructions to perform the procedures.

	Tools required to perform the installation procedures.
	Ensure the charger is powered off before performing the procedures of this manual
	The operator needs to have professional knowledge of electricity or qualifications according to the requirement of local criteria.
Note: The manual may not demonstrate all the symbols or terms of the charger, but it does not affect your understanding of this manual.	

2) Special symbols of warning and dangerous


Symbol	Instruction
	The charger must be powered off for at least 5 minutes before performing some procedure.
	Please take care of the dangers of electric shock(Live parts of charger).
	Pay more attention to the installation procedure to prevent clamping hands.
	The charger must be grounded safely and effectively.
Note: The manual may not demonstrate all the symbols or terms of the charger, but it does not affect your understanding of this manual.	

3) Abbreviations and terms

Abbreviation	Definition and Interpretation
AC	Alternating Current Power Supply
DC	Direct Current Power Supply
EMC	Electromagnetic Compatibility
EV	Electric Vehicle
EVSE	Electric Vehicle Power Supply Equipment
MCB	Micro Circuit Breaker
DLB	Dynamic Load Balancing
OCPP	Open Charging Protocol
PE	Protection Earth
Note: The manual may not demonstrate all the symbols or terms of the charger, but it does not affect your understanding of this manual.	

1.6 General Documents

Document	Target Group
Installation and Operation Manual	All target group
User Manual	Professional engineer with installation qualification
Product Specification	All target group

 **NOTE:** The attachments may not contain all of the above documents, but you can obtain the above documents from the supplier or download them from www.invt-ev.com.

2 SAFETY INSTRUCTIONS

2.1 Safety Information

For your safety and the safety of others, as well as to prevent damage to the charger and the vehicles it is used with, it is crucial that all individuals operating or coming into contact with the charger read and fully understand the safety instructions provided throughout this manual.

2.2 Necessary Qualifications of Installer

- 1) Installers should possess qualifications for high-voltage and electrical installation work or other relevant certifications as required by local regulations.
- 2) Installers must have a thorough understanding of the charger, its relevant applications, and safety operating procedures.
- 3) Installers should only execute procedures described in the manual for which they are qualified.
- 4) The warnings in the manual or other related product documents cannot replace the engineer's common sense and responsibility in the application and installation of the charger.
- 5) Installers adhere to the relevant instructions in the manual and local regulations. In case of any conflicts between the manual's instructions and local regulations, the local regulations should take precedence.

2.3 Save These Instructions

The safety messages herein cover situations INVT is aware of. INVT cannot know, evaluate, or advise you as to all of the possible hazards. You must be certain that any condition or service procedure encountered does not jeopardize your personal safety.



WARNINGS: This chapter section provides crucial instructions for our charger. When using and installing it, always follow these basic precautions:

- This charger should only be installed by a licensed electrician in accordance with all local codes and ordinances.
 - Always properly ground the charging station, and adhere to the local codes and ordinances.
 - Do not use any extension cords to extend the charging cables and forbidden any other modifications.
 - Do not install power adapters or converters in between the power grid and the charger's power circuit.
 - Ensure that the load capacity of the power grid to which the charger is connected meets the power requirements indicated on the nameplate of the device.
 - All cables used for wiring must meet the rated current and voltage requirements specified in the manual, otherwise there may be risks of electric shock or other hazards.
 - Please wear personal protective equipment while installing, and ensure that the AC input cable link being installed has no voltage.
 - Do not let water enter the charger's internal components during installation, as it may cause a short-circuit hazard.
 - To ensure the proper operation of the charger, it's recommended to use 105 °C wire copper conductors.
 - Children are not allowed to use this charger unless under the supervision of a guardian.
 - Never insert fingers or foreign objects into the electric vehicle connector, as it may pose an electric shock hazard.
 - Do not install or use this charger near flammable, explosive, hazardous, or combustible materials, chemicals, or steam.
 - Do not operate the charger outside its operating temperature range of -13 to 122 °F (-25 to 50 °C).
 - Do not exert force, impact, pull, twist, entangle, drag, or step on the charger to avoid damaging the charging station or any of its components.
 - Do not use the charger if the flexible power cord or EV cable is frayed, broken, or otherwise damaged, or fails to operate.
 - Do not use the charger if the enclosure or the EV connector is frayed, broken, or otherwise damaged, or fails to operate.
 - Improper installation and use of the charger may cause damage to the vehicle's battery pack, electrical components, and/or the charging station itself.
-



IMPORTANT:

1. This charger must be installed by a licensed electrician.
 2. INVT is not responsible for the following conditions:
 - Failure to adhere to the above-mentioned safety instructions.
 - Any damage caused by failure to follow relevant procedures for equipment installation or other operations.
 - Misuse, abuse, intentional damage to the equipment, or unauthorized changes to the charger's purpose.
 - Any malfunctions or damage caused by accidents or human error (e.g., mishandling, scratching, moving, bumping, connecting to inappropriate voltages, etc.).
 - Any malfunctions or damage caused by uncontrollable factors such as natural disasters (e.g., earthquakes, lightning strikes, fires, etc.).
-

2.4 Product Disposal

- This charger is an electronic product and, therefore, should not be disposed of as unclassified household waste.
- When the product reaches the end of its service life or needs to be disposed of due to uncontrollable factors, please follow local standards and regulations by taking the device to designated disposal and recycling facilities.
- The product materials are recyclable as marked.



3 Product Description

EVC16-AW7K/911K/22KGF1U2 (UC) is an intelligent charger series launched by INVT for European areas and other areas than comply with IEC standard, which is designed to charge a plug-in hybrid electric vehicle or an electric vehicle. Our charger provides a reliable, fast, safe, and smart charging solution for individual home users.

3.1 Operating Environment and Use Statement

The EVC16 series Smart EV Charger is suitable for both indoor and outdoor AC charging of electric vehicles, with the power/network to be connected must meet the technical specifications. Its technical specifications should adhere to the local grid characteristics and regulations. And it is crucial to use only manufacturer-approved accessories or those that comply with local standards and regulations.



DANGER:

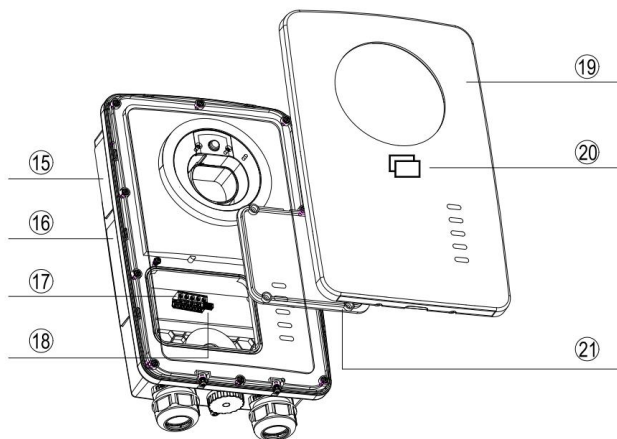
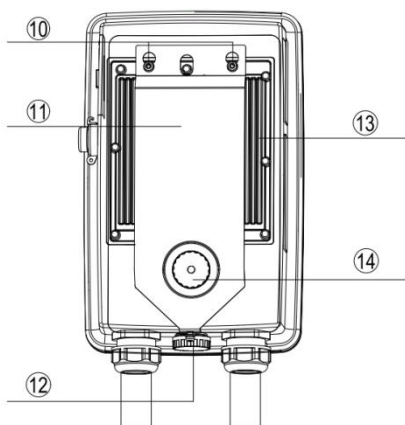
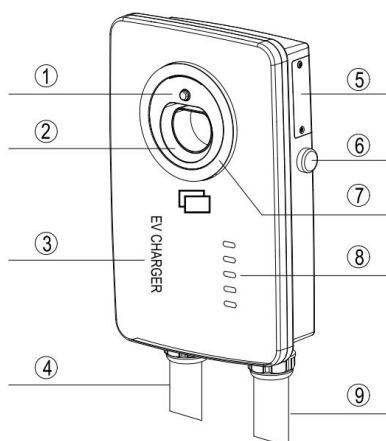
1. If you use the charger in any way other than described in this manual or other related documents, possible death, injury, and damage to property may occur.
 2. This charger can only apply to the intended purpose described in the manual.
-

3.2 Product Overview



NOTE:

The images and illustrations depicted in this manual may differ slightly from the actual ones.



1.Connector Release Button
2.Charging Connector Holder
3.Charger Enclosure Name
4.Bottom AC cable Inlet Hole
5.USB Port for Software Upgrade and 4G Card Inlet(Reserved)
6.Emergency Stop Button
7.Circular Breathing LED
8.LED Indicator (Top to bottom)
<ul style="list-style-type: none"> ● Power LED ● Charging LED ● Internet & Bluetooth Connection LED ● Charging Fault LED ● Ground LED
9.EV Charging Cable
10.Mounting Screws
11.Rear Mounting Plate
12.RJ45 Network Inlet
13.Heat Dissipation Plate
14.RS485 Wire Inlet
15.Warning Information
16.Product Nameplate
17.Power Input Connector
18.RS485 Connector
19.Front Cover Plate
20.RFID Reader
21.Maintaining Plate

3.3 LED Indicator Descriptions

LED	Descriptions
Circular LED	<ul style="list-style-type: none"> ● Breathing Green: The charger is on standby, and the LED switch in the App is turned on. ● Solid Green: An EV is connected (but does not start charging). ● Rolling Green: An EV is charging. ● Not Illuminated: The charger is off, or the LED switch in the App is turned off.
Power LED	<ul style="list-style-type: none"> ● Solid Green: The charger is on. ● Not Illuminated: The charger is off.

Charging LED	<ul style="list-style-type: none"> ● Solid Orange: An EV is connected, or a charging session has ended. ● Flashing Orange: An EV is charging. ● Not Illuminated: No vehicle is connected.
Internet & Bluetooth Connection LED	<ul style="list-style-type: none"> ● Flashing Orange (Slow): The charger is connected to the Internet only. ● Flashing Orange (Fast): The charger is connected to Bluetooth only. ● Solid Orange: Both the Internet and Bluetooth are connected. ● Not Illuminated: Neither the Internet nor Bluetooth is connected.
Fault LED	<ul style="list-style-type: none"> ● Solid Red: Charger failure. ● Flashing Red: Bluetooth connection failure.
Ground LED	<ul style="list-style-type: none"> ● Solid Red: Ground connection failure.

3.4 Specifications

Working Environment

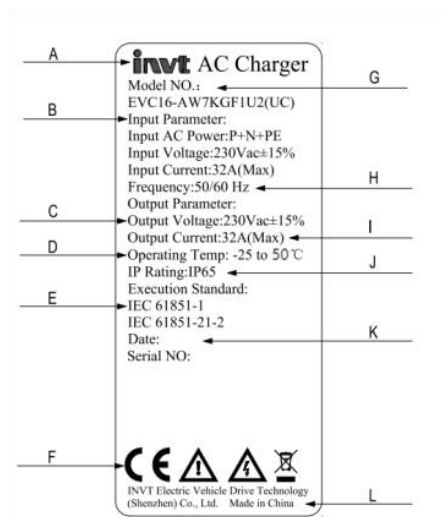
Parameter	Minimum	Typical	Maximum	Comment
Operating Temperature	-13°F (-25°C)	77°F (25°C)	122°F (50°C)	Authenticate within this temperature range
Storage Temperature	-40°F (-40°C)	77°F (25°C)	167°F (75°C)	
Relative Humidity	-	-	95%	No condensation on the surface
Altitude	0	-	6561ft 2000m	The allowable operating altitude for this charger. If higher altitude operation is required, please contact local dealer or manufacturer further assistance.


Electrical Parameters

Product Information	EVC16-AW7KGF1U2(UC)	EVC16-AW11KGF1U2(UC)	EVC16-AW22KGF1U2(UC)
Charging Mode	Mode 3		
Input/Output Voltage	230Vac ± 15% (L,N,PE) , 50/60 Hz	400Vac ± 15% (L1,L2,L3,N,PE) ,50/60 Hz	
Input/Output Current	32 A	16 A	32 A
Input/Output Power	7 kW	11 kW	22 kW
Network Type	TT / TN		
Connection Type	Type 2 Cable		
Cable length (m)	5m		
Over Voltage Category	III		

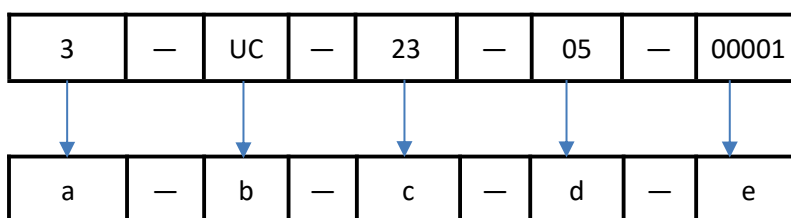
Protection	Over current, Over voltage, Under voltage, Ground fault detection		
User Interface			
User Authentication	INVT RFID Card (2 included) or INVT EV Charger App		
User Interface	INVT Charge App		
Communication Protocol	OCPP1.6J (Customization)		
Connectivity	WIFI / Bluetooth		
Status Indication	5 LEDs + 1 Charging breath circular LED		
Certification			
Safety and Compliance	EN IEC 61851-1, EN IEC 62311, ETSI EN 300 328		
Certification	CE		
EMC	ETSI EN 301 489-1 V2.2.3: 2019 ETSI EN 301 489-17 V3.2.4: 2020 EN 61000-3-12:2011 ENIEC 61000-3-11: 2019		
Warranty	36 months, warranty can be discussed		
General Characteristics			
IP and IK Rating	IP65 / IK10		
Operating Altitude	2000m		
Current Leakage Protection	DC 6mA		
Mounting	Wall or Floor using pedestal		
Emergency Stop Button	YES		
Dynamic Load Balancing	YES		
Dimension (W*H*D)	210×330×92 mm (Wall mounting)		
Enclosure Type	Plastic		
Weight	5.2 Kg	5.8 Kg	6.15 Kg
Circuit Breaker (Install by customer)	40A(Single-phase)	25A(Three-phase)	40A(Three-phase)
Cooling Mode	Natural cooling		

3.5 Product Nameplate



A	Manufacturer Logo	G	Charger Model
B	Charger Input Parameters	H	Charger Rated Frequency
C	Charger Output Voltage	I	Charger Output Current
D	Working Ambient Temperature	J	Charger IP Rating
E	Execution Standard	K	Series Number and Production Date
F	Charger Compliance Mark	L	Manufacture Name
 NOTE: The image data is for reference only; please refer to the actual nameplate on the charger.			

3.6 Series Number Description



- a: Product Type: 3 - (AC charger), 1 - (DC Charger or AC and DC integrated charger)
- b: Target Sales Region: European region
- c: Productive Year: 2023
- d: The Number of Weeks in the Year of Production
- e: Serial Number on a Batch Production

4 Preparing for Installation

During the installation process, the installer is the primary responsible person for their personal safety. Please carefully read the SAFETY INSTRUCTIONS in Chapter 2.

4.1 General Requirements

Initial requirement before installation:

- Obtain the charger installation permission in accordance with local regulations.
- AC power input is available at the installation site.
- There is no voltage on the power cable during installation.

4.2 General Installation Procedure

- 1) Preparing location before installation. For detailed information, please refer to Chapter 4.3.
- 2) Unpacking the packaging. For detailed information, please refer to Chapter 4.4.
- 3) Carry out installation. For detailed information, please refer to Chapter 5.
- 4) Powering on and off the charger. For detailed information, please refer to Chapter 6.

4.3 Ambient and Tool Requirements


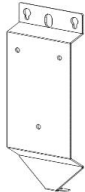

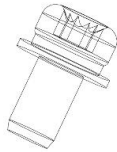


Before installation, please prepare:



- Clear an appropriate site for installation.
- Ensure that the installation site has suitable walls for mounting and securing the installation back plate to support the charger.
- In addition to the above, you may also need to prepare the following related tools or electrical accessories: drilling machine, wire strippers, crimping pliers, insulation tape, terminal blocks, cable ties, etc.

4.4 Unpack the Charger

- 1) Open the packaging box and take out of the charger.
- 2) Take out all the mounting accessories and place them aside.
- 3) Check and ensure that all parts have been delivered complete:
A: EV Charger; B: Wall Dock; C: Screws + Wall Anchor; D: User Manual ; E: Screwdriver F: RFID Card(2 Sets)
- 4) Inspect the charger and installation parts for any damage.
- 5) If any parts are missing or damaged, kindly get in touch with customer support or the representatives from the local supplier.

Please check the packaging for the following parts:

EV Charger		Wall Dock	
Screws (M6 x 50) Wall Anchor (φ 10 x 50) 3 PCS + 3 PCS		Screw (M5 x 10) 3 PCS	
User Manual		RFID Card	

Screwdriver (Type T10)		Screwdriver (Type T25)	
------------------------	---	------------------------	---

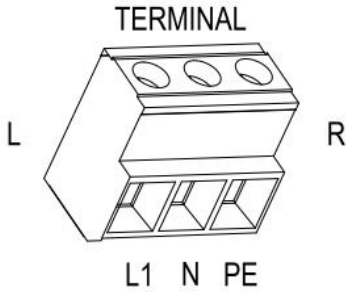
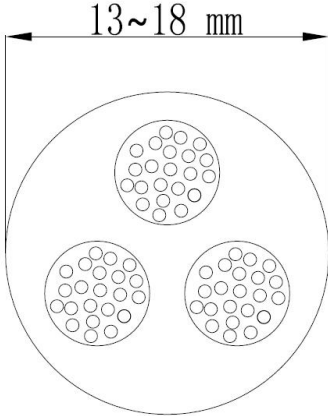


NOTE: The list may not necessarily include all the tools required for installation. We recommend you read through the installation procedure and gather all the tools needed prior to installation.

5 Installation

5.1 General Electrical Regulation

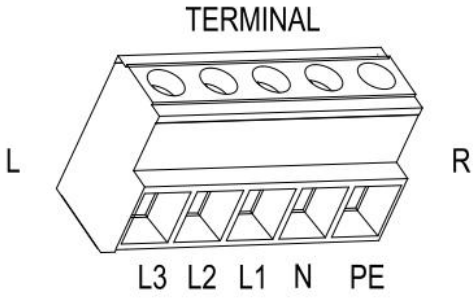
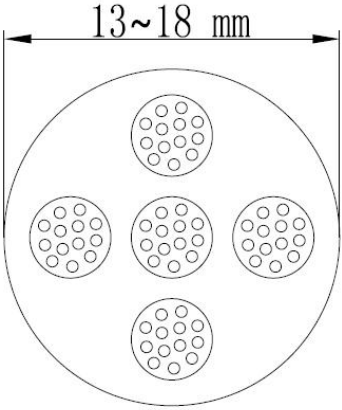
Before operating the electrical installation, ensure you have understand the following electrical rules of the charger, there are two models of AC power input connectors, single phase and three phase, the pictures are as follows:

Wiring Terminal Definition	Cable Requirement
 <p>Diagram showing a wiring terminal block with terminals labeled L, R, L1, N, and PE.</p>	 <p>Diagram showing a cable cross-section with three conductors. The diameter of the cable is indicated as 13~18 mm.</p>

Note:

1. For the model of EVC 16-AW7KGP1U2(UC) , the maximum continuous working current is 32A, and the cable diameter should meet the above requirements. It is recommended to use the 10 AWG cable with 600Vac withstand voltage. Of course, you can also choose a larger size of the cable, but no more than 8 AWG.
2. For single-phase AC charger, the power cable can be use with sheath, but its maximum allowable diameter should not exceed the range shown in the above diagram, otherwise the assembly can not be completed

For the charger models: EVC 16-AW11KGP1U2(UC) and EVC 16-AW22KGP1U2(UC), they are suitable for 400 (380) Vac three-phase AC power input:

Wiring Terminal Definition	General Requirement
	
<p>Note:</p> <ol style="list-style-type: none"> 1. For EVC 16-AW11KGP1U2(UC) charger, the maximum continuous working current is 16A, and the cable should meet the above requirements. It is recommended to use the 12 AWG cable with 600Vac withstand voltage. 2. EVC 16-AW22KGP1U2(UC) charger, the maximum continuous working current is 32A, and the cable shall meet the above requirements. It is recommended to use a 10 AWG cable with 600Vac withstand voltage. Of course, you can also choose a larger size of the cable. 3. For single-phase AC charger, the power cable can be use with sheath, but its maximum allowable diameter should not exceed the range shown in the above diagram, otherwise the assembly can not be completed.. 	

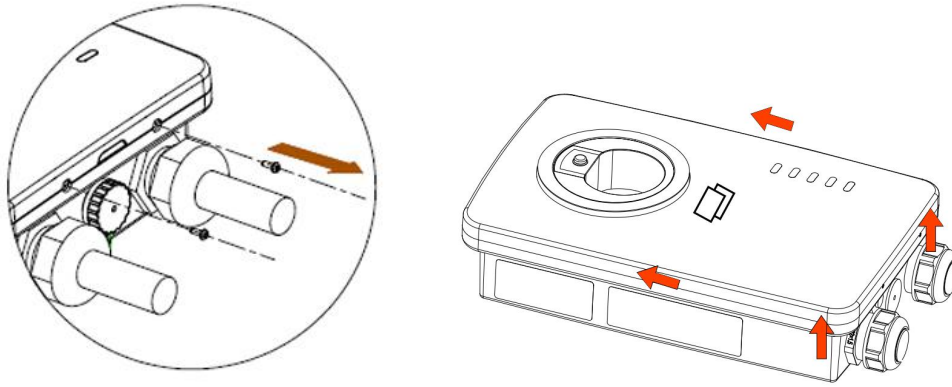
5.2 Hardwired Installation



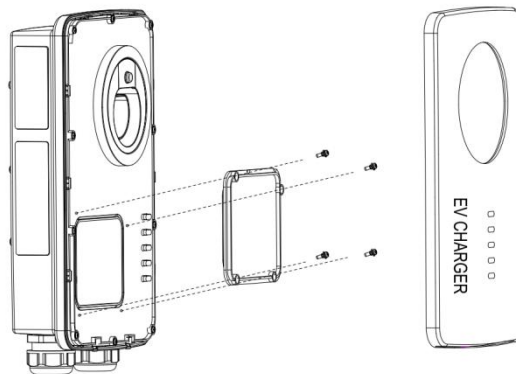
IMPORTANT:

1. Use copper conductors with a maximum wire size of 10 AWG (16 mm²).
2. Ensure that the screws for the terminal blocks are properly tightened.
3. Ensure that there is no copper wire or debris left inside of the charger before switching on the electrical power to the charger.

- 1) Please connect the AC power input cable to the charger connectors before install the charger to the wall.
- 2) Please connect the RS485 communication cable before install the charger to the wall if the DLB module is include on the packaging box. (DLB module is an optional configuration for customer)
- 3) Remove the screws of the front protective cover plate under the charger, and put them aside.
- 4) Remove the front protective cover carefully , please refer to the follow picture from direction bottom to the top.
- 5) It's not allow to use a sharp tool to open the front protective cover as it may damage smooth paint of its surface.



- 6) Remove the maintaining plate from the charger by removing the screws using a screw driver and the power input connector can be visible.



- 7) Put the power cable (10AWG Max) through the input port and connect it to the L1(L2,L3)N, and PE connector. Tighten each connectors screw with a maximum 2 N·m (17.7 in·lbs).



DANGER

Please ensure that the AC power cable is powered off before the electrical installation.

- 8) Reinstall the waterproof connector of the inlet port and tighten it after the cable connection is complete.



NOTE: If your charger comes with the Power Distribution Module (DLB Module), please complete the rear entry RS485 communication cable connection between the Dynamic Loading Balance Module and the charger before mounting the charger to the wall dock.


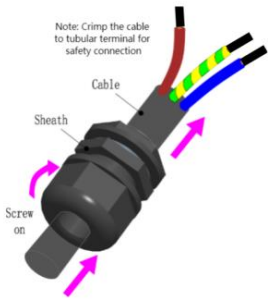
Since the connection of the cable is made in the front plate of the charger, the electrical installation procedure should be completed before the mechanical installation.

(1) Cable Pre-treatment

- 1) Measure the actual length of the AC power cable according to the installation location of the charger, and

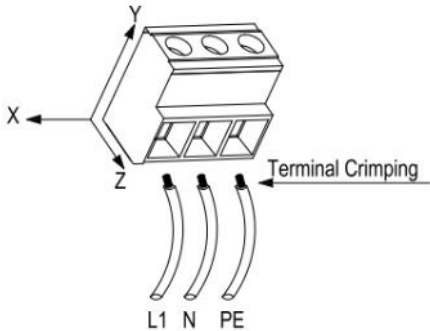
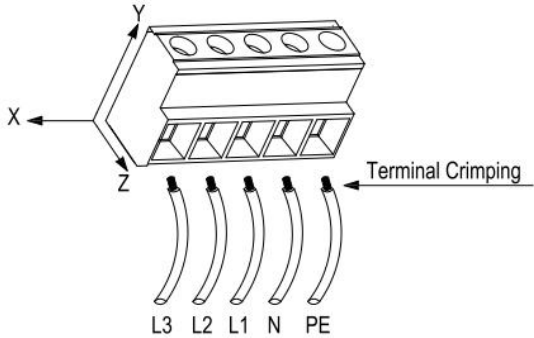
pretreat the cable (if possible, crimp the cable to a tubular terminal for subsequent connection) for preparation.

- 2) Remove the front plate maintenance cover
- 3) Remove the maintenance cover screws using a screwdriver, and you can see the terminal connect to the AC cable and the power distribution module.
- 4) Place the maintenance cover and fixing screws aside for standby.
- 5) Loosen the waterproof jacket of the cable by turning it counterclockwise.
- 6) Insert the pre-treated cable into the waterproof jacket. Reserve the cable length around 10~15mm based on the installation position for easy access to the terminal.
- 7) Tighten the waterproof jacket by turning a counterclockwise direction.

Loosen the cable waterproof jacket	Cable and waterproof jacket installation
	
<p>Note: Crimp the the end of cable to a tubular terminal is essentially for safety connection. It's forbidden to connect the naked copper cable to the AC power input connector to avoid the risk of heating.</p>	


(2) Charger AC input cable connection

- 1) Loosen the wiring terminal fixing screws by using a screwdriver.
- 2) Connect the cable to the corresponding terminal port. See follow installation diagram for details. Use a screwdriver to tighten the screws with a correct torque. (Recommended torque : Max 2 N.m / 10.6 Lbf. in)
- 3) Check the cable after finishing connection: pull the cable with a little force if the cable is not pulled out then connection is well.

AC input cable wiring diagram for single-phase charger	AC input cable wiring diagram for three-phase charger
	

Note: 1. In addition to identify the AC input cable connection by above pictures,engineers can also distinguish the wiring by the print on the terminal row.

2. Before connecting the AC input cable to the power grid network, please complete the mechanical installation of the charger first in order to ensure safety.

 **NOTE:** The cable specification shown in the above data sheet meets the minimum requirement of charger safety operation, you can choose the cable with a higher grade if you have the higher safety requirement.

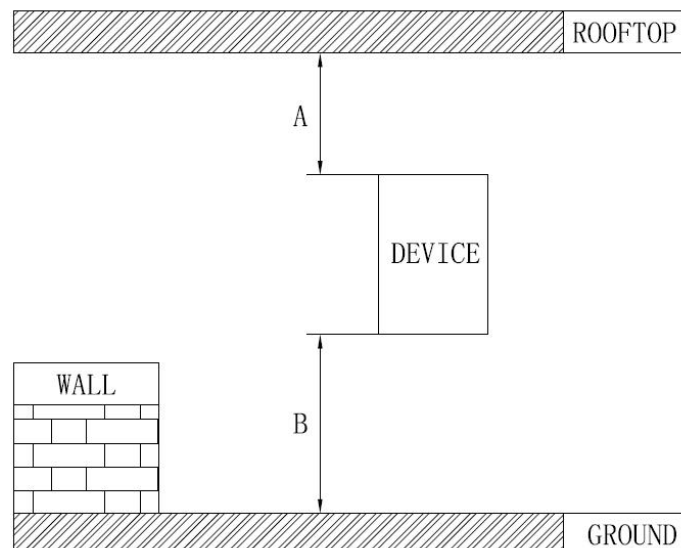
5.3 Location and Position

When selecting the charger installation location, please ensure strict adherence to the following regulations, as this will contribute to the proper installation of the charger:

- Position the charger in a location where it is not vulnerable to being damaged.
- Install the charger on a flat and vertical surface capable of supporting its weight (e.g., a finished wall or pedestal).
- Install the charger in a location that allows the charging cable to remain within its bending tolerance. And ensure the WiFi signal is available.
- The recommended installation height is between 51 and 63 inches (1300 and 1600 mm). For NEMA plug-in installation, the NEMA outlet should be at least 43 inches (1100 mm) above the ground and near the left side of the charger.

General Specification

1. Engineer / user shall provide 4 expansion bolts of M6x50mm and support 10kg.
2. See the detailed Charger requirement of installation space as follows:



3. Specific technical data:

parameter	Recommended Specification (mm)
A	≥300
B(Indoor installation)	≥900
B (Outdoor installation)	≥1300

Note: The range of installation size can be selected according to local regulatory requirements or actual installation conditions of the location.

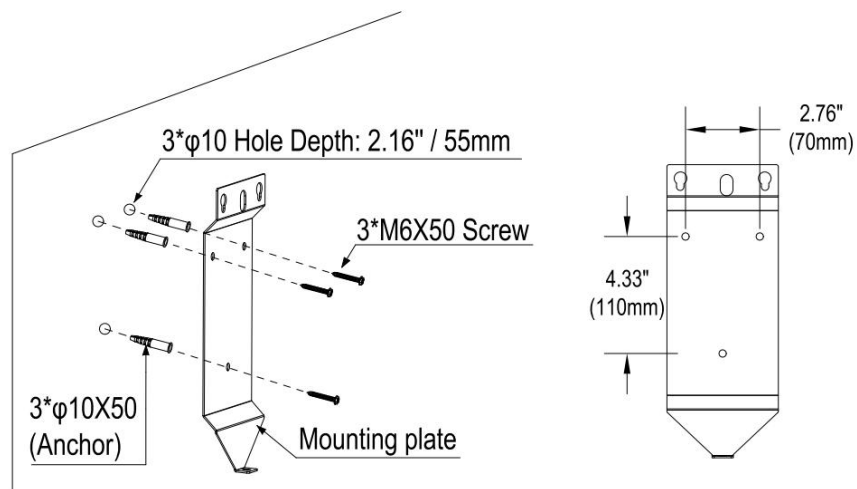


DANGER:

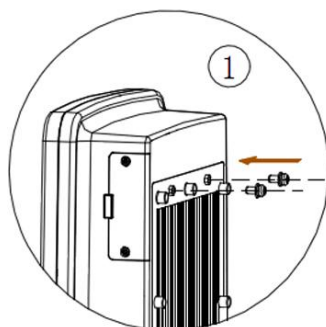
Risk of shock. Turn off the power to the outlet at the circuit breaker until the installation is completed.

Install the rear plate and the charger

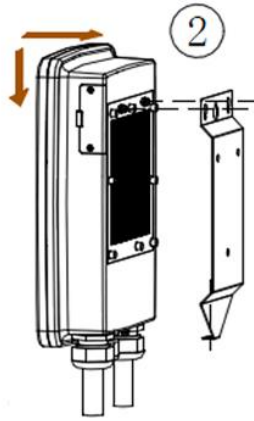
- Remove the charger rear plate from the accessories bag.
- Attach the rear plate to the wall, and drill three $\phi 10$ (depth 2.16"/ 55mm) mounting holes on the wall by using a drilling machine.



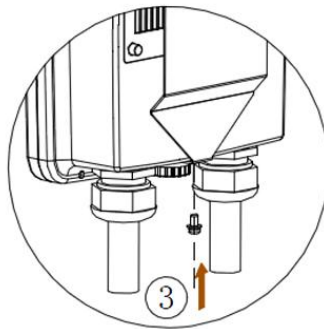
- Attach the rear plate and alignment to the wall mounting holes, insert the anchor, and tighten the screws.
- Install two M5x10 bolts used for fixing the charger.



- Install the charger to the rear plate according to the location of the mounting holes.

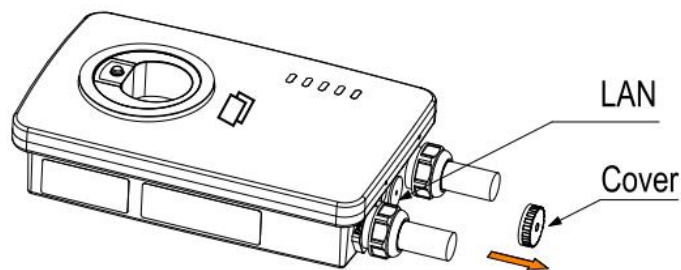


- Tighten the bottom screws of the charger.

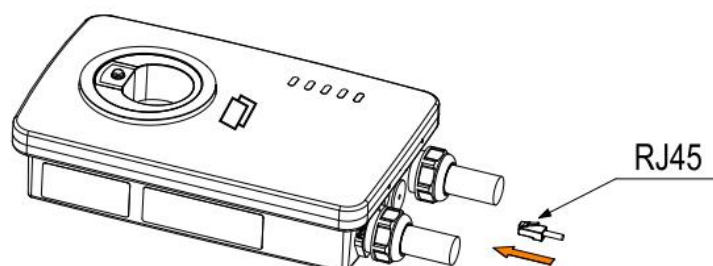


5.4 Connecting the Ethernet Cable

- 1) Loosen the protective cover of the charger's LAN port to access the LAN connector.



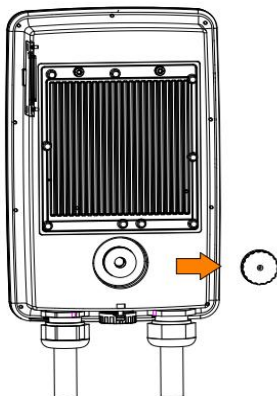
- 2) Put the Ethernet cable with the RJ45 plug to the LAN port for the LAN/Internet access preparation.



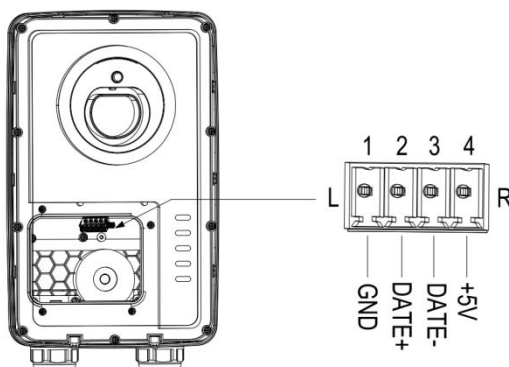
5.5 RS485 Cables Wiring (Optional)

This communication port is solely intended to connect the charger and Power Distribution Module/DLB module(sold separately). If your charger does not come with the module, please ignore the description in this section.

- 1) Loosen the terminal cover at the back or the bottom of the device and use a tool to punch through the wire holes.



- 2) Refer to [Step 3](#) and [Step 4](#) in Hardwired Installation (Chapter 5.2) to remove the front cover.
- 3) Connect the Power Distribution Module wire to the connector on the control PCB board. And recover it to its original condition.

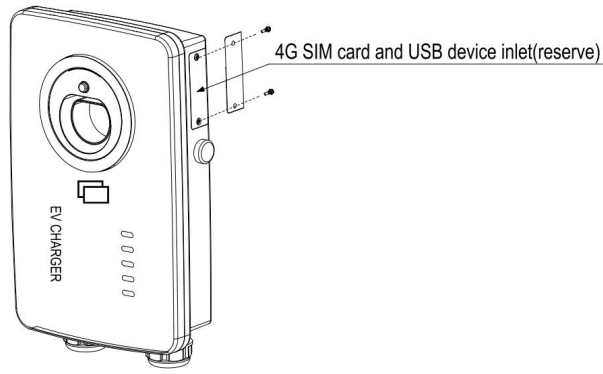


5.6 Firmware Update / 4G SIM Card Plug-in

You can directly update the firmware on the App, please ensure the charger is connected to your phone via Bluetooth. Alternatively, you can update it manually via a USB device (Please contact customer support to obtain the latest firmware).

(Note: 4G SIM Card plug-in is a customization function , generally , it will not include in the standard configuration)

- 1) Remove the protective cover on the right side of the charger to visually see the USB port.
- 2) Insert the USB device into the port and power on the charger, the firmware will update into the charger automatically. Remove the USB device and reinstall the protective cover after the firmware is updated.



6 Operation

6.1 Power-on the Charger

- 1) For all models, once all electrical connections have been safely made, switch on the power to the circuit from the circuit breaker and wait for the power supply to come on. (Emergency Stop Button need to be switched on)
- 2) There will be a series of self-check starts to ensure that the charger works correctly and safely. When the power LED shows a solid green, that indicates the charger has passed its self-check program and is ready for charging.
- 3) If the charger fails the self-check program, the Fault LED will display a solid red. Please refer to Chapter 7 for troubleshooting, or contact customer support for assistance.



IMPORTANT:

Please pay attention to the danger of electrical shock to prevent the person from injury while powering on the charger.

6.2 Adding Your Charger

You may need to add the charger through your mobile devices:

- 1) Please scan the QR code below, or simply search for “INVT Charge” on Google Play or the App Store to download our App to your mobile device. (Note: APP name is “INVT Charge”, not “INVT EV Charge”)



- 2) Open our EV Charging app on your mobile device, and log in with your email or phone number. If you do not yet have an account, register with your email or phone number first.

- 3) Scan the charger's barcode and the QR code below, you can also find it on the charger's nameplate, to add the charger.

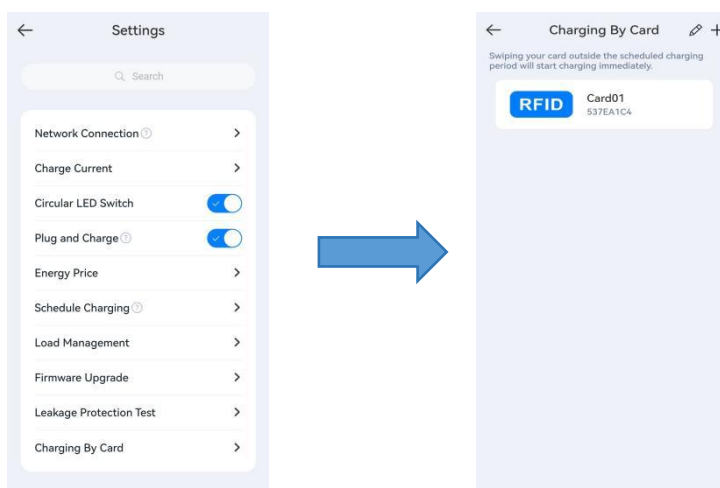


IMPORTANT:

To add a charger, please ensure that the charger is already connected to the Internet or Bluetooth is enabled on your mobile device. Otherwise, you won't be able to add it successfully, and won't be able to control the charger or configure personalized functions through the APP.

6.3 Binding RFID Card via APP

Connecting to the EV Charger via Bluetooth and enter the APP setting interface. Click "Charging By Card" as shown below picture to enter the RFID card binding interface. You can add or delete the RFID card number in this interface. (Note: only when the Bluetooth connected, users can enter the setting interface to start some settings)



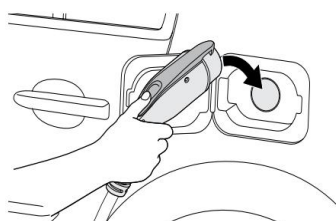
6.4 Start Charging



CAUTION:

Do not disconnect the connector during the charge session. There is a risk of damage to the connector or your EV charging port.

-
- 1) Remove the connector from the holder.
 - 2) Plug the connector into your EV charging port.



3) Choose one of the following charging methods to start a charging session:

- Tap 'Start' on the charging interface of the charging App.
- If the Auto Start function(Plug and Play) is enabled in the charging App, the charger will automatically start charging once the connector is properly connected.
- If you have set a charging schedule in the charging App, the charger will automatically initiate the charge session as scheduled.
- You can also tap the RFID card to the charger, the charging session will start automatically if the charger pass all the self checking procedure.



NOTE:

Ensure your EV is charging. The charging LED indicator on the charger should be flashing orange. Or if you turn the circular breath LED on, the circular LED will light scrolling. If you suspect the vehicle is not charging properly, try reconnecting the charging cable or contact customer support.

6.5 Ending Charging

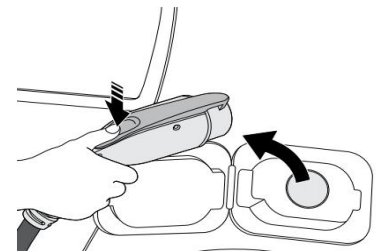


NOTE:

If you disconnect the EV charging cable during the charge session, the charger will automatically disconnects the power supply. This will stop all charging operations. (It's harmful to the charging connector or the car charging socket.)

1) To stop a charging session, you can choose either of the following two methods:

- Tap 'End' on the charging interface of the charging App.
- Wait for the charging session to end and no further actions are required in the case of scheduled charging or Auto Start(Plug and Play).
 - The charging LED will display a solid orange if a charging session has finished.
 - The charging App will display that your EV is fully charged.
- Tap the RFID card to the charger again, the charger will stop power output.



2) Please unplug the connector from your EV and return it to the holster.

7 Troubleshooting

According to the following troubleshooting table, you can independently diagnose the charger's basic faults and find solutions to related issues. If you do not find a solution, please contact customer support or the representatives of the local supplier.

Item	Faults	Solutions
1	Power input failure/no voltage.	Make sure the circuit breaker or other power switch has been turned on.
2	The charge session does not start as scheduled.	<ol style="list-style-type: none"> 1. Do not insert the charging interface into your EV charging port before setting up a charging schedule for the first time. 2. Insert the EV charging connector after the schedule is set up.
3	Ground fault	<ol style="list-style-type: none"> 1. Verify the proper functioning of the charger's electrical protection ground wire. 2. Install the charger's protective ground wire correctly. 3. Install the grounding conductor for the charger's power network correctly.
4	Relay adhesion fault	<ol style="list-style-type: none"> 1. Check whether the relay contacts are normal or not. 2. Adjust the power supply current manually if it's necessary. 3. Replace the relays if it's necessary. 4. If the problem persists, stop using the device and contact customer support or the local representative for the first time.
5	Over-voltage	Please use the multi meter to check if the voltage input from the power grid is too high. If the voltage is higher than the rate of 15 %, contact the local power grid supply company for technical support.
6	Under-voltage	Please use the multi meter to check if the voltage input from the power grid is too low. If the voltage is lower than the rate of 15 %, contact the local power grid supply company for technical support.
7	Overheating	<ol style="list-style-type: none"> 1. Check whether the operating temperature is within the specified range on the product label. 2. Check whether the EV charging cable connection has loosened. 3. Please stop and restart the charger until it is operation temperature reaches the special range.

Item	Faults	Solutions
8	Current leakage detected	<ol style="list-style-type: none"> 1. Remove the vehicle connector and plug in again. 2. If the problem persists, contact customer support or the local representative for the first time.

9	Bluetooth connection failed	<ol style="list-style-type: none"> 1. Check whether Bluetooth is enabled on your mobile device and whether the charger is powered on and working successfully. 2. Check whether the charger is in the Bluetooth settings on your mobile device and pair the charger to your device via Bluetooth again. 3. If the problem persists, contact customer support or the local representative for the first time.
10	Update failure via Bluetooth	<ol style="list-style-type: none"> 1. Make sure the charger is working properly. 2. Make sure the Bluetooth connection is working properly. 3. If the problem persists, contact customer support or the local representative for the first time.
11	Internet connection failed	<ol style="list-style-type: none"> 1. Try to access the same Internet to another device, verifying whether the Internet connection is working properly or not. 2. If the problem persists, contact customer support or the local representative for the first time.
12	EV charging cable failure	<ol style="list-style-type: none"> 1. Check whether the electric vehicle charging cable has been damaged or frayed. 2. Replace the EV charging cable if it's necessary.

8 Regulations Compliance

8.1 EMC Regulatory Conformance

This charger complies with Class B of the EMC Regulations IEC 61851-21-2. The operation of the charger meets the following conditions:

- This charger will not release harmful interference signals when it is working, and these interference are harmless to human health.
- This charger must receive and withstand any interference signals, including interference signals that may cause abnormal operation or abnormal occurrence.

In addition, you should still read and pay attention to the following terms:

This charger has been tested to meet the limitations of Class B digital devices in accordance with the relevant provisions of Class B. These limitations are intended to provide reasonable protection for residential installations against harmful interference.

This charger generates and radiates radio frequency (RF) energy during work. While these emissions have a very low energy level, if not installed and used by the instructions, they may cause harmful interference to radio communications. However, this does not guarantee that interference will not occur in the specific installation and environment. If this charger does cause harmful interference to radio or television reception, which can be

determined by turning the charger off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the charger and receiver.
- Connect the charger to the outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for technical support.



CAUTION:

The manufacturer is not responsible for interference with radio communications or television signals caused by any unauthorized modification of the charger, and such incorrect modification may damage the charger or void the user's operating permission.

8.2 Radiation Frequency (RF) Exposure

The charger meets radiation exposure limits for uncontrolled environments. It must not be co-located or operating in conjunction with any other transmitter or receiver when installing and using the charger.

8.3 Service and Support

For assistance, please get in touch with customer support or the representatives of your local dealer, and provide the following information while applying for service & support:

- The equipment's nameplate information and series number.
- Charger fault information or code(View through the App).
- The damaged or malfunctioning equipment.

INVT provides complete technical support to our customers. Customers can reach us through the local offices or dealer representatives. Or contact our technical support directly.

Contact information:

Website: www.invt-ev.com

Phone: 0086755-23535207

Email: evsupport_us@invt.com.cn

Address: 3F, Bldg B, INVT Guangming Technology Building, Songbai Road, Matian Street, Guangming District,
Shenzhen, China 518106

