

**EVC16 Series European Standard AC EV Supply
Equipment User Manual**

EVC16-AW7KGP1UE

EVC16-AW11KGP1UE

EVC16-AW22KGP1UE



Version V1.1

Revision History

NO.	Revision	Revise the reason	Artificial	Approval	Date
1	V1.0	/	Hongqi.Fang	Raylei	2022.03
2	V1.1	Fix APP URL	Hongqi.Fang	Raylei	2022.05
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Foreword

Thank you for your trust and support for this product. The company focuses on the field of new energy electric vehicle charging and is committed to providing customers with excellent charging equipment and complete charging station operation solutions.

The electric vehicle charging pile developed and produced by our company has advanced functions, stable performance, wide range of use and strong practicability. It has mature solutions for charging station construction and operation, and has a good reputation in the industry.

About the manual

This manual is applicable to the installation, commissioning and maintenance of EVC16 series 7kW, 11kW and 22kW integrated AC EV supply equipment.

This manual will provide detailed product information and installation instructions for users who use the equipment.

Please read this manual carefully before using this product, and store this manual in a place that is easy for installation, operation and maintenance personnel to obtain.

This product must be installed by professional electrical personnel certified by relevant departments. By reading this manual, the installer can quickly and correctly install the AC EV supply equipment, perform troubleshooting and communication system construction.

If there is any problem during the installation process, the installer can log in to our official website to leave a message or call the 7*24-hour customer service hotline.

Safety Notice



EVC16 series AC EV supply equipment is designed in strict accordance with the relevant safety standards of the IEC 61851 series, but the safety of power electronic equipment is not only affected by the safety and quality of the equipment itself, but also related to operations such as handling, installation, trial operation, operation, maintenance, and so on. Improper use or mishandling can lead to the following risks:





- Risk of electric shock, open circuit, fire, explosion and severe burns.
- Danger to the life and safety of the operator or third parties.
- Damage the product, or at the same time cause damage or destruction of other property.

In order to avoid the occurrence of safety accidents and ensure the personal and property safety of users when using this product, the following safety precautions must be strictly observed during installation and maintenance:

- Pre-installation preparation, installation, movement, maintenance, and disassembly must be completed by qualified professional technicians. Do not install or disassemble without authorization.
- Professional and technical personnel have relevant qualifications and have been trained on the structure and operation skills and knowledge of charging piles.
- Before using this product, please read this manual carefully and grasp the relevant precautions. If you need to maintain the product, please contact our local after-sales service personnel.

The symbols that may be used in this manual are listed below. Please read them carefully to make better use of this manual.

	<p>DANGEROUS</p> <p>If the charging gun or charging cable is damaged:</p> <ul style="list-style-type: none"> • Please stop using. • Contact electrical professionals or operation personnel immediately.
	<p>WARNING</p> <p>In case of an emergency:</p> <ul style="list-style-type: none"> • Please press the emergency stop button. • Contact charging operation staff immediately. • Take action according to the emergency measures of the owner or charging operator.

	<p>WARNING</p> <p>If operating after injury, accident, typhoon, accident or disaster, observe:</p> <ul style="list-style-type: none"> • Whether there is fire or smoke inside or outside the product or accessories. • Whether the product has been soaked in water, and whether there are other liquids and traces inside. • Whether the product is damaged by other external factors • The electronic lock of product charging gun is damaged <p>If any of the above symptoms occur, contact local after-sales service personnel or charge operation personnel immediately.</p>
	<p>WARNING: High voltage hazard</p> <ul style="list-style-type: none"> • Product operation involves electric shock hazard. Only professional personnel should install and maintain the product.
	<ul style="list-style-type: none"> • After the AC EV supply equipment are disconnected from the power grid, contact the live part of the ac charging pile at least five minutes later.
	<ul style="list-style-type: none"> • Pay attention to grounding, in order to protect personal safety and prevent electric shock, please connect the grounding wire well.

Chapter 1 Product Introduction

1.1 Product Introduction

EVC16 series AC EV Supply Equipment products, divided into two types, floor and wall, for small electric car with a car charger for the power supply of the power electronic equipment, this series of products using industrial design principles, with automatic charging, status display, charging protection, network operation, remote upgrade, and other functions, the machine protection grade product design to IP54, with good dustproof, waterproof function, adapt to the outdoor environment.



Figure 1-1 Product outline drawing

1.2 Product function schematic block diagram

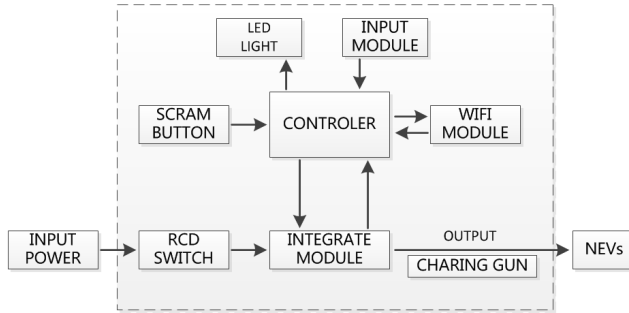


Figure 1-2 Functional principle block diagram

1.3 Product technical parameters

Electrical parameter index					
Model		EVC16-AW7 KGPIUE	EVC16-AW1 1KGP1UE	EVC16-AW22 KGPIUE	Comment
Input parameters	Input mode	Single-phase three-wire	Three-phase five-wire		Note: The products are suitable for T-N system.
	Voltage range	230Vac±10%	400Vac±10%		Note: The products works normally within this voltage range.
	Frequency range	45~65 Hz			-
	Rated frequency	50/60 Hz			-
	Rated voltage	230Vac	400Vac		-
	Rated current	≤32A*1	≤16A*3	≤32A*3	-
Output	Rated	230Vac	400Vac		Note: The output

parameters	voltage				voltage varies with the input voltage.
	Rated current	≤32A*1	≤16A*3	≤32A*3	-
	Rated power	7 kW	11 kW	22 kW	-
Power factor		≥0.99			Rating condition
Efficiency		≥99.5%			Rating condition
Standby power consumption		≤5 W			Rating condition
Current measurement range		10mA~50A; ±0.5%	10mA~25A; ±0.5%	10mA~50A; ±0.5%	-
Accuracy class		Level 1.0			-
Input protection type		Type A RCD;≤30mA			-
Protective function		Leakage current protection; Overcurrent protection; Short circuit protection; Detection gun disconnection protection; Grounding protection, over-voltage and under-voltage protection; Load imbalance protection(only applies to three-phase five-wire).			Note: Lightning protection for its own control core.
Input connector		3 Pin terminal	5 Pin terminal		Note:8~10 AWG
Charge interface	Qty	one			-
	Length	Charging gun plug , total length 4m(including 0.3m)			-
	Type	EN IEC 62196-2016 : AC Type 2			-
Insulation resistance	Input to Output	Under normal atmospheric pressure, in the environment of relative humidity ≤ 90%, the insulation resistance between each live circuit and between the live circuits and the ground is not less than 10MΩ at 1000V DC voltage.			-
	Input to PE				
	Output to PE				
Withstand	Input to	AC2500V/1min/10mA			-

voltage	Output		
	Input to PE	AC2500V/1min/10mA	-
	Output to PE	AC2500V/1min/10mA	-
	Leakage current	<5mA (230Vac/400Vac、50/60Hz input)	-
System parameters			
Soft start time		3~8 S	-
Shell Material		Plastic (ABS+PC)	-
Panel Material		Plastic (ABS+PC)	-
Appearance Size		width* height*depth:230*375*115(mm)	Note: There is a tolerance of ±2mm.
Network communication type		2.4G WIFI Network	-
Networking Protocols*		Customizable OCPP1.6	-
Custom features*		Dynamic power distribution function; UV proof design	-
Start-up method		Swipe card to start, network to start (mobile APP)	-
charging method		Full of intelligence	-
Card reader		ISO 15693 and ISO 14443	-
Cool-down method		Natural cooling	Intelligent air cooling
LED signal indication	Green	Green light is on during power-on standby	-
	Yellow	When the product is charging working status normally, the yellow light is on.	-
	Red	When the system is abnormal, the red light is on.	-
CP PWM standards		± 12V,1kHz, Duty can change(optional)	
Safety Standards		EN/IEC 61851-1;	Note: See Appendix A for implementation standards.
EMC Standards		EN 61000-4-2; EN 61000-4-3; EN 61000-4-6; EN 61000-4-34; BS EN/IEC 61851-21-2	

EMC class level	Class B			
IP protection level	IP54			
MTBF	$\geq 100,000$ hours			
Applicative Env.	Indoor and outdoor parking charge			
Weight	About 4kg	About 4kg	About 5kg	
Installation	Wall mounted installation; column type(option)			
Accessories list	1. The host; 2. User manual; 3. Factory test report; 4. User card; 5. Wall hanger (optional: column)			
Note: Three-phase products are also suitable for single-phase, but the power is reduced by two thirds.				

1.4 Product performance and characteristics

- System uses STM32 or GD32 processing chip, high reliability, flexible configuration, easy maintenance, support remote upgrade.
- The system has a number of protection functions: over/under voltage protection, leakage protection, grounding protection, equipment protection function is complete, to ensure personal safety.
- The system supports multiple charging functions: automatic charging, time-sharing, mobile phone remote charging and so on.
- The whole machine has IP54 protection grade, suitable for outdoor environment.
- The equipment is designed according to EN/IEC 61851 series standards.

1.5 Working environment

- Altitude ≤ 2000 meters, air relative humidity: 5%~95%;
- Operating ambient temperature of the equipment: - 25°C ~ 55°C;
- Indoor/outdoor installation, tilt not more than $\pm 5\%$;
- Keep away from inflammable and explosive objects around installation.

Chapter 2 Operation instructions

2.1 Installation

2.1.1 Checking

After the equipment arrives at the site, please carefully check the following items:

Check appearance: whether the equipment has collision damage appearance, if any damage, please inform our after-sales personnel.

Check list: check whether the items on the attached list are neat or not. If any attachment is found missing or damaged, please make on-site records and inform our after-sales staff.

2.1.2 Installation preparation

Power supply and communication (networking mode) Recommended cable specifications are as follows:

Name	Cable specifications	Length	Remark
Power Cable	10 AWG or higher cables	actual usage prevails	-
Communication line	Shielded Network Cable (Category 5)	actual usage prevails	Networking mode
Communication line	Four-core shielded wire (dynamic distribution module)	actual usage prevails	Modbus RS485

Note: The communication signal cable is used for charging pile networking mode, which is not required for 4G mode, WIFI mode and offline mode.

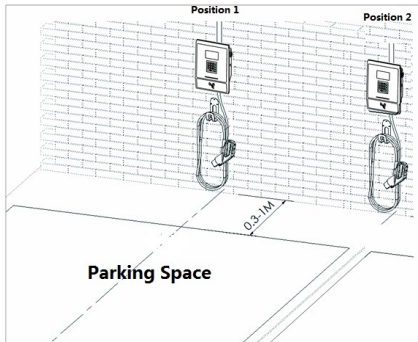
2.1.3 Field Installation Process

Installation steps:

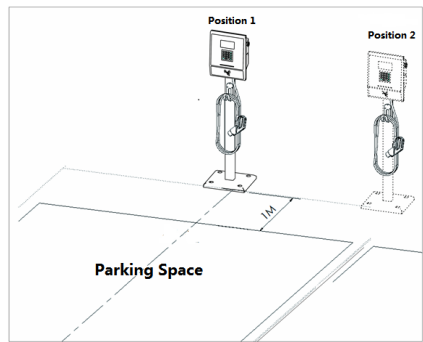
- 1) Preprocessing main line and signal line;
- 2) Electrical wiring;
- 3) Install equipment components (column support or wall support);
- 4) After installing and fixing the equipment, wiring the equipment;
- 5) Conduct electrical testing to ensure no short circuit phenomenon;
- 6) On-site construction environment treatment.

1) Product Installation Diagram

Wall-mounted installation:



Floor mounted:



2) Installation Precautions

Charging pile, cable trough and cable hook are all installed in the corresponding position of the center line of the parking space (such as position 1), or in the middle position of two parking Spaces (Position 2).

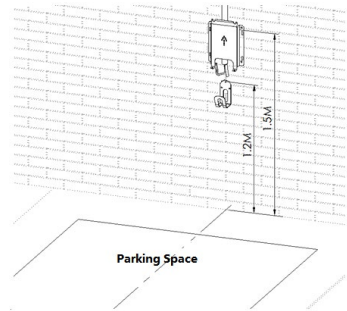
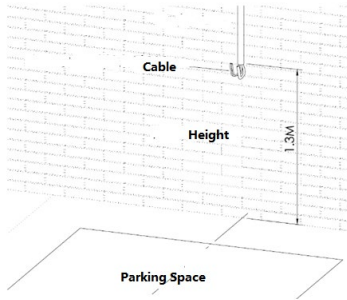
The distance between the fixing screw hole above the charging pile backplane and the ground is 1.5m (± 0.1 m).

3) Wiring

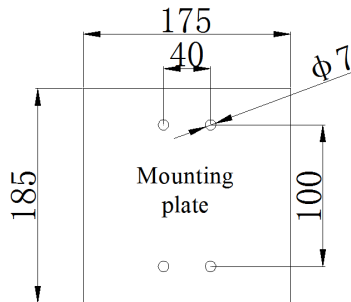
Main points of wall-mounted wiring:

- Communication line, power line from the top into the line, fixed by the line trough.
- The line slot is located in the center line of the parking space or the middle of two parking Spaces.
- The bottom of the cable trough is 1.3 meters above the ground, and the outstretched cable trough of communication cables and power cables is more than 0.3 meters.
- The screw holes above the backplane are 1.5 meters above the ground, and the screw holes above the hook are 1.2 meters above the ground.
- The backplane and hook are located at the center line of the parking space.

Schematic diagram of wall - mounted wiring

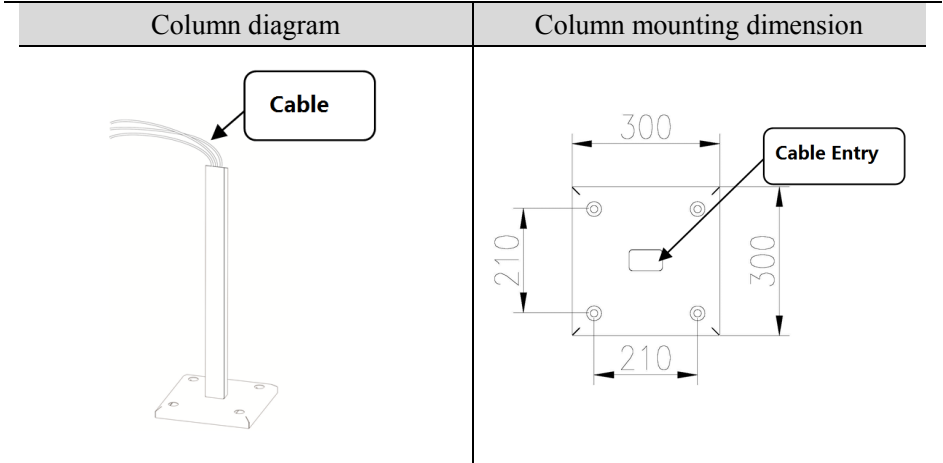


Hole size of mounting plate



Floor type wiring points:

- Communication line, power line buried line, from the ground through the column.
- Determine the position of the floor post, in the center line of the parking space or the middle of two parking spaces.
- Communication line, power line out of the ground more than 1.3 meters.



4) connection

Route the signal cable and power cable through the corresponding waterproof head and connect the signal cable and power cable to the corresponding terminal. When connecting the signal cable, distinguish the phase sequence.

2.2 Checking device Power-on

2.2.1 Pre-operation check

Before the device is installed and running, check the following items:

- The installation position of the equipment is convenient for operation and maintenance.
- The equipment and accessories are correctly connected and firmly installed.
- Equipment inlet end cable selection is reasonable.
- No external objects or parts left on top of the equipment.

2.2.2 Device is powered on

- 2.2.1 Check items all meet the requirements before operation.
- Close the device residual current action protector (RCD).
- After the power-on is complete, observe the LED indicator status:

Device standby is normal	Green LED indicator is steady on. The device can be charged
Device is faulty	Red LED indicator is steady on. The device cannot be charged

Chapter 3 Operation of equipment

3.1 Charging connection and disconnection

1) Connect charging gun

Before using the product to charge the electric vehicle, the owner will put the electric vehicle into the park and park it, remove the charging gun from the device and insert it into the charging seat of the electric vehicle, and carefully check whether it is inserted in place to ensure reliable connection.

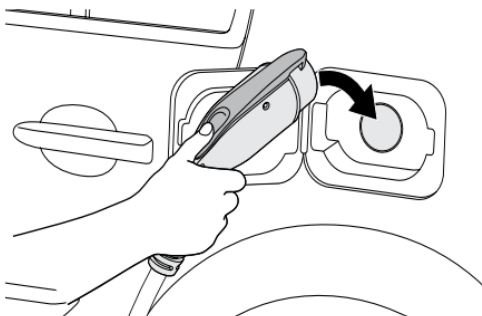


Figure 3-1 Connecting charging gun

2) Disconnect charging gun

After charging, in order to ensure the personal safety of the owner, before pulling out the charging gun, confirm whether the charging process is finished normally. If it is, pull out the charging gun normally. If the fault is abnormal, remove the charging gun and place it in the specified position.

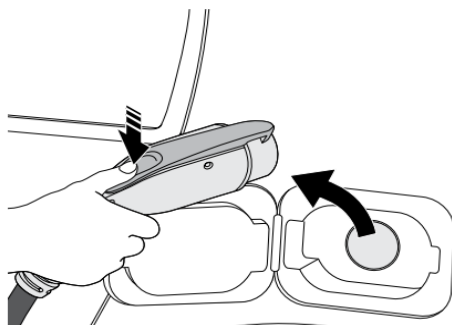


Figure 3-2 Disconnecting charging gun

3.2 IC card operation

In the EVC16 series of products, the most direct and widely used way is to use the user administrator card or the operation station management card to charge, which is generally divided into the following steps:

Step 1 Insert the gun

After removing the charging gun from the pile and connecting it to the electric vehicle, wait for 5 seconds until the communication at the vehicle end is complete and S2 switch is closed, charging can be started.

Step 2 A credit card

The charging IC card operated by the user or the charging station is kept close to the card swiping area for about 1 ~ 2 seconds. After the IC card information is read, the product begins to charge the electric vehicle.

Step 3 Charging

After entering the charging state, the yellow LED lamp is in the steady state.

Step 4 Ending

In the charging process, there are two ways to end the charging pile: 1. 2. Manually swipe the card to finish charging. At the end of charging, the yellow LED indicator light is off. At this time, you can pull out the charging gun and return to the original position.

3.3 APP Introduction

1)APP Software download

The EVC16 series products of our company have WIFI LAN function, supporting mobile phone local control (access to mobile phone local) and network remote control (access to Internet). Mobile APP can be downloaded in the following ways:

- Go to the APP website to download(Android,Applicable to China):

<http://iot.invt.com:21000/upload/app/charge-pile.apk>

- Mobile APP store(Google App Store and iphone Store) search APP name download: **Pile Charge**

2)APP Function of the term

Mobile apps have powerful functions. To ensure that users can use apps normally, please read and understand the common terms in the following apps carefully:

Remote charging module		
	term name	explanation of term
	Sweep code binding	Bind by scanning the product QR code
	Manual binding	You can manually set the device pile number for binding
Local charging plate		
Charging control options	Equipment serial number	Displays the ID of the device to which the mobile phone is connected
	Gun serial number	Number of charging gun connected to electric vehicle (gun A by default)
	state	Equipment working state: charging and standby
	Charging voltage	Current charging voltage of the device (unit: V)
	Charging current	Current charging current of the device (unit: A)
	Charging the battery	Current charged electric quantity of the device (unit: kWh)
	amount of money	Current charging cost (operating version only)
	Charging time	Current charging duration (unit: min)
	CP/CC voltage	Voltage of CP signal line (unit: V)
	Current user power	Charging power of the device

		(unit: W)	
Parameter Configuration Options	Equipment serial number	Displays the ID of the device to which the mobile phone is connected	
	Network Settings	WIFI Name	Displays/sets the name of the WIFI LAN to which the device is connected
		WIFI password	Displays/sets the device's secret key for accessing the WIFI LAN
		Domain name	Displays/sets the domain name for the device to access the Internet server
		Port number	Displays or sets the port number for connecting the device to the Internet server
	Feature set	Offline charging	Enable/disable the offline charging function of the device (Enabled by default)
		Over-current detection	Turn on/off the device overcurrent protection function (Enabled by default)
		Over-voltage detection	Enable/disable the overvoltage protection function (Enabled by default)
		Grounding detection	Enable/disable the grounding detection (Off by default)
		Dual meter mode	Turn on/off device dual meter mode (default off)
	Parameter	Minimum	Set the minimum output voltage

	Settings	voltage per gun	allowed by the device
		Maximum voltage of single gun	Set the maximum output voltage allowed by the device
		Minimum current per gun	Set the minimum output current allowed by the device
		Maximum current of one gun	Set the maximum output current allowed by the device
		Maximum power of whole pile	Set the maximum output power allowed by the device
		Customer power distribution	Set the maximum input power for the user (For dual meter mode only)
	Other Settings (Pile Number)	Set the pile number of the device (only supported after access, it is not recommended to change this option)	
Local upgrade	After downloading the offline upgrade package, upgrade the software of the previous version of the device		

Personal center

Recharge record	Query the current charging record
Member	You can manually add/delete family members
Change password	Change password
Problem of feedback	In this option you can feedback your valuable suggestions

multilingual	Setting APP language
Downloading the Upgrade Package	In this option you can download the software version of the released version

3)WIFI Function introduction

The WIFI module of EVC16 series AC EV Supply Equipment of our company has two modes of communication, namely STA (English: Station) model and AP (English: Access Point) model. Only one model can be operated at a certain time. The differences between the two modes are as follows:

A) STA Model

STA mode is called site mode. Each device with WIFI function can be called a site terminal after it is connected to wireless LAN. In this mode, the pile-end device can access the server through WIFI LAN, and can conduct data interaction and upload data to the cloud.

When the "Allow offline function" of the device is turned off, the WIFI module of the device runs in STA mode. In the mode, press the emergency stop button to switch to AP mode within 10 seconds, and then switch to STA mode after releasing the emergency stop button for 10 seconds.

B) AP Model

AP mode is called hotspot mode or wireless access point mode, in which the device is the creator of a wireless network and the central node of the network. In this mode, devices with WIFI function (such as mobile phones) can access the device, but are not connected to the Internet.

When the "Allow offline function" of the device is enabled, the WIFI module of the device runs in AP mode. The mobile phone can access the device through its own WIFI function and then start the mobile APP to control and monitor the device.

3.4 APP Operation introduction

Before using the APP, please be sure to read the detailed explanation in Chapter 3.3 of the APP. After downloading the APP, users are required to register

an individual user account and log in with the account. After logging in, they can perform various operations of the APP.

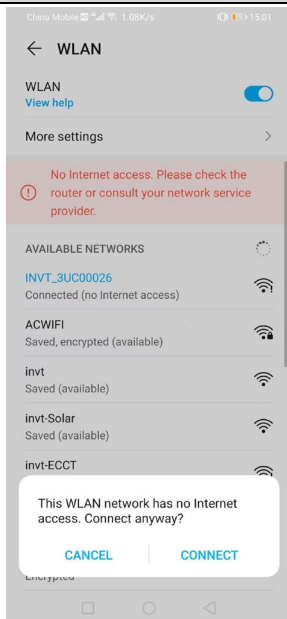
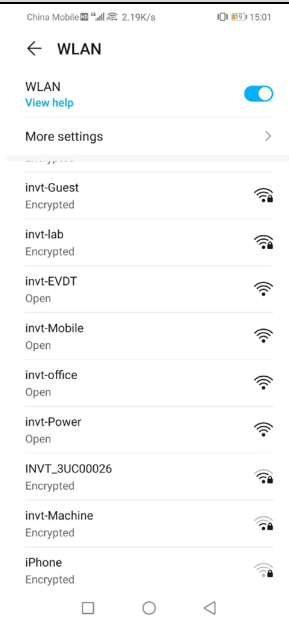
Before using the mobile APP to connect the product device for the first time, the device needs to be set up before it can be used normally. The setting steps are as follows:

Step 1 First connecting

After the product device is powered on and normal, press the emergency stop button on the upper right of the product, and the WIFI function will be started after the device completes the decision procedure. At this time, turn on the WIFI function by using the mobile phone, and the WIFI hotspot generated by the product device will be searched. The default naming rule of the hotspot is "INVT" + "_" + "NO", and enter the password:12345678, you can connect to the device hotspot.

For example, the hotspot generated by device 3UC00026 is named INVT_3UC00026 and its password is 12345678.

WIFI Connection Operation



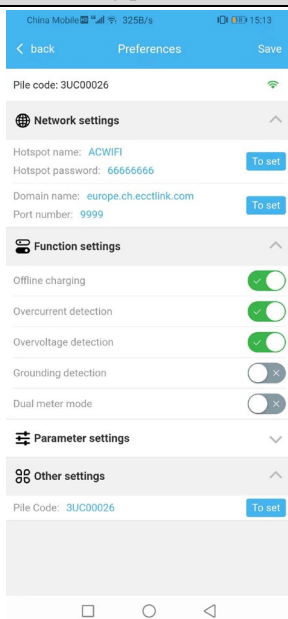
Note: After successfully connecting to the WIFI hotspot of the device, the product device cannot connect to the Internet. When the mobile phone sends the message "The current WLAN cannot access the Internet, do you need to use this WLAN urgently?", please select "Yes", otherwise, the communication between the mobile phone and the device cannot be established.

Step 2 Configuration Settings

After the WIFI hotspot is normally connected to the product device, return to the mobile phone APP, enter the parameter configuration section of the local charging module, and configure various parameters. The following parameters must be correctly configured, and the default Settings for other options are ok:

WIFI setting: This option takes effect only when the offline charging function is turned off. This function is used to access WIFI hotspots that can connect to the Internet for cloud data interaction.

Example: If the name of the WIFI hotspot to be connected to the product is ACWIFI and the password is 66666666, set the following parameters on the APP.



Offline charging mode setting: This function is particularly important. If this function is enabled, the WIFI hotspot of the product device will always work in AP mode. In this mode, the mobile APP can be used to operate the device after the mobile APP is used to get close to the product device and actively connect the device. If this function is turned off, it will run in STA mode, and the product device will actively search and connect to the set WIFI hotspot to connect the device to the Internet. In this mode, the device can be operated remotely using mobile APP.

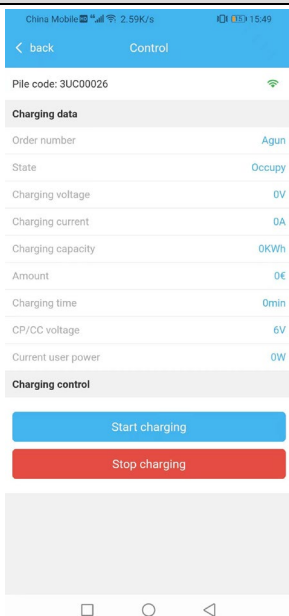
You can set the above two functions according to the actual situation. For other functions, such as overcurrent detection, overvoltage detection, grounding detection, and protection parameter setting, you can use the default Settings or set them according to the requirements of users.

Note: In order to improve the user experience, it is recommended to turn off the offline charging mode function and run it in STA mode if the user conditions permit.

Step 3 Charging operation

After setting according to Steps 1 and 2, enter the charging control option, in which you can view the current working status of the device. You can Start charging by pressing the "Start Charing" button and "Stop Charing" button. The operation interface is as follows:

Charge control interface



Note: Before this operation, please connect the charging gun correctly to the electric vehicle!

3.5 APP Remote upgrade

On products is conducted by using a mobile phone APP can remote software version upgrade, in the center of the individual APP, can search and download EVC16 series products under the latest software version firmware, software package after the download is complete, enter the local upgrade option, choose the need to upgrade the corresponding software packages, click on the upgrade, the mobile phone APP can upgrade automatically.

Note: To use the local upgrade function, switch to AP mode first. During the upgrade, keep the mobile phone screen steady on; otherwise, the upgrade may fail or be abnormal.

Chapter 4 Troubleshooting common faults

In normal use of products, common fault codes and corresponding troubleshooting measures are as follows:

Fault Name	Debugging Suggestions
The indicator goes off after the power is switched on	Check the RCD(QF) on the side by turning it from OFF to ON
Charging gun is not connected	Check that the charging gun is fully inserted into the car charging dock.
Scram fault	The emergency stop button is pressed, please reset the emergency stop button.
Start charging timeout	Swipe card to start charging, CP signal vehicle end S2 switch is not closed within 3 seconds, charging response timeout.
Charging gun is improperly connected	The charging gun is disconnected during charging.
Over current	The current charging current is too large, please check whether the vehicle load matches.
Overvoltage	The current charging voltage is too high. Check whether the device power input meets the operating voltage range
Under Voltage	The current charging voltage is too low. Check whether the device power input meets the operating voltage range.
Swipe abnormal	If the IC card is not correctly identified or locked, please contact our after-sales service or operation station personnel

Chapter 5 Quality Assurance

5.1 Guarantee period

The warranty period of this product shall be subject to the warranty period stipulated in the contract.

During the warranty period, the customer shall take the initiative to show the invoice of the purchased products to the service personnel of our company, and the

nameplate on the products shall be clearly visible, otherwise the customer has the right to refuse the maintenance.

5.2 Warranty conditions

During the warranty period, our company will repair or replace the same type of products free of charge if the faulty products are not damaged by human:

- The faulty machine after replacement shall be owned by our company;
- The customer should give us a certain amount of time to repair the faulty machine.

5.3 Liability waiver

The company reserves the right not to guarantee quality in the following cases:

- Products and accessories not identified by our company.
- The product or component has exceeded the warranty period stipulated in the contract.
 - Failure or damage caused by failure to comply with the operating environment specified in the manual or incorrect installation, storage and use (such as high temperature, low temperature, too wet or dry, too high altitude, unstable voltage or current, etc.).
 - Failure or damage caused by installation, repair, change or disassembly by non-our after-sales service personnel, except those entrusted by our after-sales service.
 - Failure or damage caused by using parts not belonging to our company.
 - Failure or damage caused by accident or human cause (operation error, scratch, handling, bump, improper voltage connection, etc.).
 - Failure or damage caused by force majeure factors such as earthquake, lightning strike and fire.

5.4 Declaration of responsibility

The copyright of this manual belongs to our company. Without the written permission of our company, any unit or individual shall not extract or copy part or all of the contents of the manual, and shall not spread in any form (including materials and publications).

Due to the continuous upgrading of the product, the contents of this manual will be revised and adjusted from time to time without prior notice. Our company has the right of final interpretation of this manual, infringement will be prosecuted.

5.5 Contact us

If you have any questions about our products, please contact the local supplier of the products or our company. When querying information or applying for service support, please provide the following product information:

Nameplate information and SN number of the device.

Error message code or name of the product device (can be viewed through APP).

We provide our customers with full technical support, you can contact our local office or call our customer service center hotline.



INVT Electric Vehicle Drive Technology (ShenZhen) Co.,Ltd.

Address: Room301, Building2, INVT Guangming Technology Building, Shutianpu
Community, Matian Street, Guangming District, ShenZhen, China

Customer Service Center Hotline: 400-700-9997

Company Web Site: www.invt.com.cn

Annex 1: Design Standards

EN 60038:2011	《IEC standard voltages》
EN 60068-2-1:2007	《Environmental testing – Part 2-1:Tests – Test A: Cold》
EN 60068-2-78:2013	《Environmental testing – Part 2-78:Tests – Test Cab: Damp heat, steady state》
EN 60309-1:1999;+A1:2007; +A2:2012	《Plugs, socket-outlets and couples for industrial purpose – Part 1: General requirements》 ;+A1(mod)+A2
EN 60309-2:1999;+A1:2007; +A2:2012	《Plugs, socket-outlets and couples for industrial purpose – Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories》 ;+A1(mod)+A2
IEC 60364-4-41:2017	《Low-voltage electrical installations – Part 4-41:Protection for safety – Protection against electric shock》
IEC 60364-5-54:2017	《Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors》
EN 60664-1:2007	《insulation coordination for equipment within low-voltage system – Part 1: Principles, requirements and tests》
EN 60898-1:2019	《Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 1: Circuit-breakers for a.c. operation》
EN 60947-2:2017	《Low-voltage Switcher and controller Part 2: Circuit-breakers》
EN 61000-3-2:2014	《Electromagnetic compatibility (EMC) – Part 3-2:Limits – Limits for harmonic current emissions (equipment iuput current ≤ 16A per phase)》
EN 61000-3-3:2013	《Electromagnetic conpatibility (EMC)-Part 3-3:Limit – Limiation of voltage flucations and flicker in public low-voltage supply systems,for equipment with rated current ≤ 16A per phase and not subject to conditional connection》
EN IEC 61000-3-11:2019	《Electromagnetic conpatibility(EMC)-Part 3-11:Limit – Limiation of voltage flucations and flicker in public low-voltage supply systems,for equipment with rated current ≤ 75A per phase and not subject to conditional connection》
EN 61000-3-12:2011	《Electromagnetic compatibility (EMC) – Part 3-2:Limits –

	Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current $> 16A$ and $\leq 75A$ per phase》
EN 61000-4-2:2008	《Electromagnetic compatibility (EMC) – Part 4-2 : Testing and measurement techniques – Electrostatic discharge immunity test》
EN 61000-4-3:2006;+A1:2008; +A2:2010	《Electromagnetic compatibility (EMC) – Part 4-3 : Testing and measurement techniques – Radiated, radio-frequency electromagnetic field immunity test》 ;+A1+A2
EN 61000-4-4:2012	《Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test》
EN 61000-4-5:2014;+A1:2017	《Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test》
EN 61000-4-6:2014	《Electromagnetic compatibility (EMC) – Part 4-6 : Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields》
EN 61000-4-8:2010	《Electromagnetic compatibility (EMC) – Part 4-8 : Testing and measurement techniques – Power frequency magnetic field immunity test》
EN 61000-4-11:2004;+A1:2017	《Electromagnetic compatibility (EMC) – Part 4-11 : Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests》 ;+A1
EN 61000-4-34:2007;+A1:2009	《Electromagnetic compatibility (EMC) – Part 4-34 : Testing and measurement techniques –Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase》 ;+A1
EN IEC 61000-6-1:2019	《Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity standard for residential, commercial and light-industrial environments》
EN IEC 61000-6-3:2021	《Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emissions standard for residential, commercial and light-industrial environments》
EN IEC/TS 61439-7:2018	《Low-voltage switchgear and control gear-assemblies – Part

	7: Assemblies for specific applications such as marinas, camping sites, market squares, electric vehicles charging stations》
EN IEC 61810-1:2015	《Electromechanical elementary relays – Part 1: General and safety requirements》
IEC 61851-1:2017	《Electric vehicle conductive charging system – Part 1: General requirements》
EN IEC 61851-1:2019	《Electric vehicle conductive charging system – Part 1: General requirements》
IEC 61851-21-2:2018	《Electric vehicle conductive charging system Part 21-2:Electric vehicle requirements for conductive connection to an AC/DC supply – EMC requirements for off board electric vehicle charging systems》
BS EN IEC 61851-21-2:2021	《Electric vehicle conductive charging system Part 21-2:Electric vehicle requirements for conductive connection to an AC/DC supply – EMC requirements for off board electric vehicle charging systems》
EN IEC 62196-1:2014	《Plugs, socket-outlets, vehicle connectors and vehicle inlets – Conductive charging of electric vehicles – Part 1: General requirements》
EN IEC 62196-2:2016	《Plugs, socket-outlets, vehicle connectors and vehicle inlets – Conductive charging of electric vehicles – Part 2: Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories》