Prian AC SMART EV Charger

Product Identification

‘ZIPPY’ 22kW Smart AC Fast Charger

Manufactured in India by:
Prian EMobility Pvt. Ltd., PUNE – 411057, India.

NOTE:

- ✔ *This user manual describes the installation, use and maintenance of AC EV Charging station. This manual is intended for installation and maintenance personnel.*
- ✔ *Failure to read this manual carefully before installation, maintenance and operation may lead to improper operation.*
- ✔ *Failure to follow the safety notes may lead to a danger of death, injury and damage to the device, WeiYu cannot accept any liability for claims resulting from this.*
- ✔ *This document is property of prian energy, any information contained herein, without prior written permit of WeiYu Electric, shall be neither copied or disclosed to any third party in any form, nor applied completely or partially in any form for any other purpose*

Key Features:

- Compact – User-friendly – SMART EV Charger
- Up to 32A @240V Charging
- Max. Output power: 22kW
- Type 2 (IEC62196) Plug & Cable
- Access through Smart Card (RFID), Mobile App, Wireless Remote.
- OCPP 1.6 Compliant.

Applications:

Home & Offices | **Multi-storied Complexes** | **Vehicle Parkings** | **Petrol Pumps** | **Restaurants & Hotels** | **Shopping Malls**

Please read the instruction manual carefully before use to understand the correct use of the device. After reading the operating instructions, please keep them for future reference.

CONTENTS

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1. ABBREVIATIONS

S/N	Abbreviations	Description
1	IEC	International Electrotechnical Commission
2	EV	Electrical Vehicle, this can be BEV (battery EV) or PHEV (plug-in hybrid EV)
3	EVSE	Electric Vehicle Supply Equipment **[IEC61851-1]**
4	kW	Kilo Watt (unit of Power)
5	A	Ampere (unit of Current)
6	V	Volt (unit of Voltage)
7	Hz	Hertz (unit of Frequency)
8	LCD	Liquid Crystal Display
9	LED	Light-emitting Diode
10	RFID	Radio Frequency Identification
11	CMS	Central Management System, *Manages EVSE and has the information for authorizing users for using its EVSE.*
12	OCPP	Open Charge Point Protocol *A standard open protocol for communication between EVSE and a Central System and is designed to accommodate any type of charging technique.* (www.openchargealliance.org)
13	IP	Ingress Protection
14	PE	Protective Earthing
15	HMI	Human-Machine Interface

16	RCCB	Residual Current Circuit Breaker
17	MCB	Miniature Circuit Breaker
19	MCCB	Moulded Case Circuit Breaker

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Preface

Thank you for your support for our products, Our Company focuses on the field of new energy and is committed to providing customers with excellent chargers and complete solutions. The EV chargers have the characteristics of advanced function, steady performance, wide application range and strong practicality, gaining a good reputation in the industry.

1. SAFETY NOTES

1.1. Safety signs

1.1.1. The following warning, command and information signs are used in the user manual and in the PEM_ ZE _ EV charging station:

CAUTION: Warning of electrical hazards.

This sign is intended to alert the user that serious injury or substantial property damage may result if the equipment is not operated as instructed.

ATTENTION: Warning of a dangerous place or situation.

This sign is intended to alert the user that minor injury or property damage may occur if the equipment is not operated as instructed.

CAUTION: Warning of electromagnetic field.

CAUTION: Warning of combustion.

.1.2. Prohibiting signs

No access for unauthorized persons

No access for persons wearing pacemakers

1.1.2. Warning Signs

1.3. Mandatory signs

Use protective footwear

Must wear a safety helmet

Must wear a Electrical safety gloves

1.4. Environment

The EV charging station should be installed on non-combustible material such as metal; otherwise, dangerous fires may occur.

The EV charging station should not be installed in an area where explosive gases are present; otherwise, dangerous explosions may occur.

Do not leave flammable or explosive substances near the charging station, otherwise dangerous explosions may occur.

The EV charging station should be installed in a place where there is no conductive dust and insulation-damaging gasses or vapors.

The EV charging station should be installed in a place where there are no strong vibrations and shocks; for good ventilation, the charging station should be mounted vertically.

The installation foundation must be higher than the ground level and a drainage trench must be made around the charging station, otherwise the equipment may be damaged.

1.5. Installation



Safety protection must be done when installing the EV Charging station.

Before wiring, make sure that the power supply is completely disconnected; otherwise, a dangerous electric shock may occur.

Installation and wiring should be carried out by professionally qualified personnel, otherwise dangerous electric shocks may occur.

The ground terminal of the EV charging station must be safely grounded; otherwise, a dangerous electric shock may occur.

The cable nose of the charging station must be securely fastened, otherwise there is a risk that the device will be damaged.

Do not allow metals such as screws or gaskets to enter the interior of the charging station, otherwise dangerous explosions and fires may occur.

The main connection of the EV charging station must be firmly connected to the cable ends, otherwise property damage may occur.

Bare parts of line ends of electrical cables must be wrapped with insulating tape; otherwise, dangerous fires and property damage may occur.

1.6.Operating

Forced charging is strictly prohibited in case of failure of the electric vehicle or charging station.

To prevent injury, minors or persons of limited capacity are strictly prohibited from approaching the charging station.

In the event of an emergency (e.g., fire, smoke, unusual noise, water intrusion, etc.), to ensure personal safety, press the red "Emergency Stop" button on the charging station at all times and stay away from the charging station immediately. And then contact the supplier.

It is strictly prohibited to use the charging station if the charging adapter or charging cables are defective, cracked, worn or broken, or if the charging cables are exposed. If you find such defects, please contact the supplier in time.

EV can only be charged with the engine off and stationary.

Do not charge in rainy and thunderous weather.

1.7. Maintenance

Person must always use protective footwear when maintenance work.

Accessory replacement must be done by qualified personnel, thrums or metals are prohibited to be left in the controller; otherwise, hazardous blast and fire may Result

After replacing main PCBA, parameters must be adjusted and matched before operation; otherwise, property loss may result.

It is recommended that routine safety inspection visits to charging station be conducted at least once a week.

Keep the charging connector clean and dry and wipe with a clean, dry cloth if soiled.

2. STANDARDS

2.1. Reference standard

The AC EV charging station is designed according to IEC standards. The standards of this series of products include:

- **IEC 61851-1:2017**, *Electric vehicle conductive charging system - Part 1: General requirements*
- **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 ac. pin and contact-tube accessories*
- **IEC 60364-7-722:2018**, *Low-voltage electrical installations - Part 7-722: Requirements for special installations or locations - Supplies for electric vehicles*

2.2. Charging mode

- According to **IEC 62196-2(3.1.9; 6.2.3)**

> *Mode 3 is a method for the connection of an EV to an AC EV supply equipment permanently connected to an AC supply network, with a control pilot function that*
> *Extends from the AC EV supply equipment to the EV. EV supply equipment intended for Mode 3 charging shall provide a protective earthing conductor to the EV socket-outlet and / or to the vehicle connector.*

- The product is an EVSE that conforms to the Mode 2.

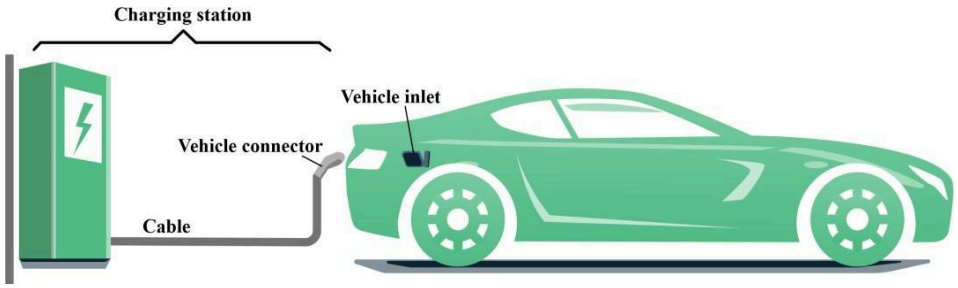


Fig. 1 Schematic diagram of CASE C connection

2.3. Charging connector

- The charging connector of Products meet **IEC 62196-2**, type 2 (Schematic diagram shown as Fig. 3-2).
- The charging object of Products are the electric vehicle with type 2 charging socket (Vehicle inlet) described in **IEC 62196-2**.

(a) type 2 socket (b) 3-phase type 2 plug

Fig. 2 Schematic diagram of Type 2 charging socket and plug

3. PRODUCT INFORMATION

3.1. General

Welcome to use the AC EV Charging station produced by our company Prian E Mobility. The Shape & Dimensions of AC EV charging station shown as Fig. 4-1.

Fig. 3 The Shape & Dimensions of M3W

- AC EV charging station provides a friendly HMI, with the corresponding control, metering and communication functions, belongs to the special AC power supply device for EV.
    - It is widely used in all kinds of household electric vehicle charging, as well as various charging stations, parking lots, community garages and public electric vehicle charging places
- The single-phase AC charger is used for AC charging electric vehicles , with the function of charging by scanning the RFID card. The RFID card is a key component to start or stop charging. The indicator LED on the front panel shows in different colors what is happening with the charger. The protection degree of the charger is high (IP65), with excellent ability to resist water and rust,

3.2. Schematic Diagram

The block diagram of product is shown as Fig. 4-2.

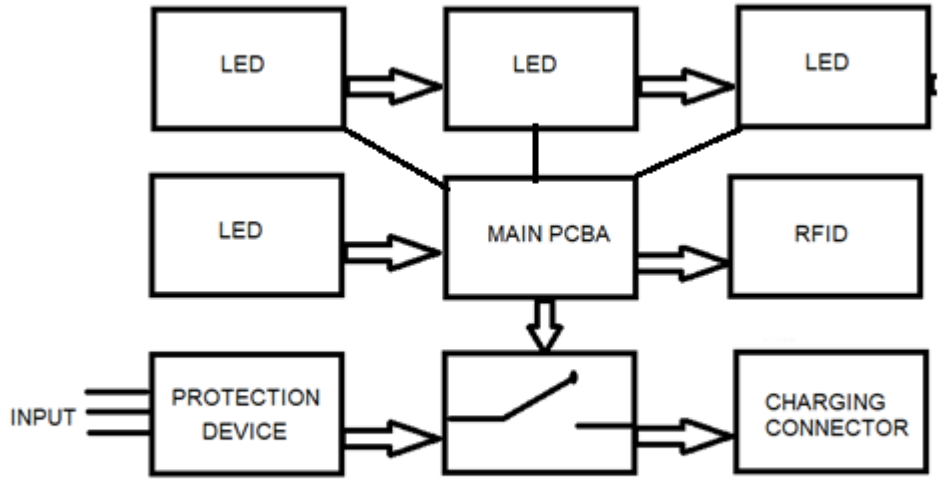


Fig 4 block diagram of product

3.3. Product series

3.3.1. Model definition

ZI	□□	□□□	Batch no
			Year of Establish
			ZI : Wall box shell code

3.4. Technical specifications

ZIPPY : Technical Specification:

- **Product Model** : PEM_T2AC_22kW_TP
- **Charging Gun** : Type 2, Three Phase Tethered Plug (Standard-18ft & 25ft on request)
- **Power Input** : Input Rating: 360-440VAC, Three phase, 32A (Each Phase), 50Hz. Number of Phase/Wire: L1, L2, L3, N, Earth, hardwired with terminal block. Standby Power < 5W
- **Power Output** : 208-240VAC, 32Amax, 50Hz, 7.5kW (each phase) Charging Interface: Type 2 (IEC62196) charging plug, Cable -18ft. standard or 25 ft on request.
- **Protection** : Over current, Under voltage, Over voltage, Residual current, Surge protection, short circuit Ground fault.
- User Interface :Unique Operational Status Visual 3.5" TFT LCD Color Display

3.4.1. Functional description

1	Charging mode	Mode 3
2	Charging control	Local: "Plug-and-charge" or "swipe card-controlled"; Remote: smart phone APP control (Operators build own APP
3	Display screen (if any)	Optional, 4.3-inch LCD screen (display charging current, voltage, Energy, charging time, state & fault information, etc.)
4	Indicator lights	4 LED lights (indicate 4 status include power, connect, charging and fault)
5	Communication protocol	OCPP 1.6
6	Safety protection	Emergency stop button, Surge protection, over temperature, over/under voltage, over current, ground protection

3.4.2. Mechanical parameters

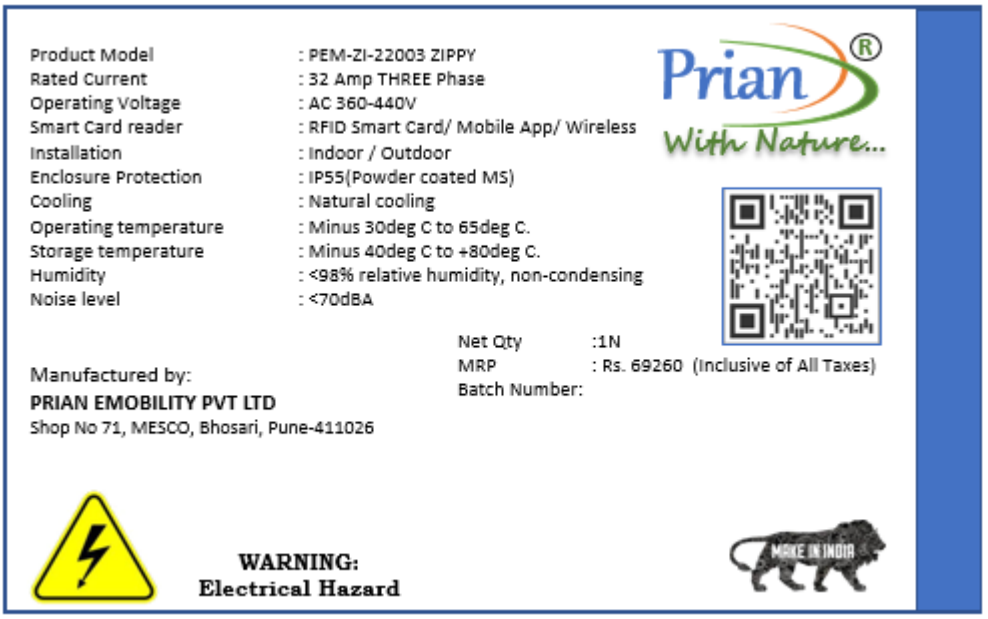
1	Mounting	Wall-mounted
2	Charging connector	: Type 2 Tethered Plug
3	Charging cable length	(Standard-18ft & 25ft on request))
4	Dimension (H×W×D)	mm × mm × mm (as shown in Fig. 3-1)
5	Weight	M3W3: ≤ 10kg
6	Color & Material	Front panel: white, Tempered Glass Back cover: white, Metal Plate
7	Enclosure rated	IP54

3.4.3. Ambient conditions

1	Altitude	≤ 2000m
2	Storage temperature	: Minus 40deg C to +80deg C.
3	Operating temperature	Minus 30deg C to 65deg C.
4	Relative humidity	: Less than 98% relative humidity, non-condensing
5	Vibration	Less than 70dBA
6	Installation location	Indoor or outdoor, good ventilation, no flammable, explosive gases

3.4.4. Name plate

On the housing of the wallbox, there is a nameplate indicating the model and specifications of the charging station (see Fig. 4-3)



4. INSTALLATION INSTRUCTIONS

4.1. Transport or movement

Please observe the following points when transporting or moving to ensure product safety**:**

a) This product is an electrical device. It should be handled with care to avoid strong vibration and shock

b) The front panel of the product is a glass panel that cannot be used as a loaded part for handling.

c) The rear cover of the product is a sheet metal part that should be well protected to avoid shocks.

d) The charging station must not be transported by pulling the charging plug and its charging cable.

4.2. Unpacking

4.2.1. Packing list

In the package, there is a packing list, which includes:

- 1 charging station(PEM_ZE_ wall box),
- 2 RFID cards,

- 1 set of wall-mounting accessories (including screws),
- 1 user manual
- 1 quality certificate.

4.2.2. Inspection & confirm

When unpacking, please carefully confirm the following points:

a) Whether there is any damage during shipment. If any damage or missing parts are found, please do not operate the machine and inform the supplier.

b) Whether the accessories are missing according to the packing list

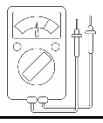
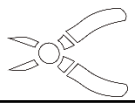
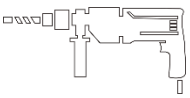
c) Whether the model and specifications on the nameplate of the machine match the requirements of the order.

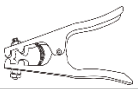
Note:

- Please keep the packing box and packing materials 1 month for future handling.
- If any omission or inconsistency is found, please contact the supplier as soon as possible.
- Do not remove stickers otherwise warranty will expired

4.2.3. Tools for installation

Prepare the following tools at least before installing the AC EV charging station.

Sr No.	Tools' Name	Schematic Picture	Main Uses
1	Multimeter		Check the electrical connection and measure the voltage
2	Diagonal pliers		Cut the cable
3	Wire stripper		Peeling cables
4	Electric Impact drill		Drill fixing holes in the wall
5	Wrench		Fastening bolt

6	Cross screwdriver		Fastening screw
7	Crimping pliers		Pressed cable terminal

4.2.4. Ambient

a) Refer to **2.2** for more safety notes.

b) Refer to **4.4.4** for more ambient conditions.

c) It is recommended to install the charging station in a place with good ventilation, out of direct sunlight and protected from wind and rain.

d) In order to ensure good ventilation condition, you should mount the charging station vertically and leave enough space.

e) Mounted the Product on the wall is shown in Fig. 5-1.

Fig. 5 Mounted the Product on the wall

f) If you purchase products with floor mounted accessories, the installation effect is similar to

That of wall mounted product

4.3. Installation Steps

4.3.1. Step 1: Install the attachment

As the below figure, drill 4 mounting holes of 10mm diameter and 50mm depth at the appropriate height, spaced 382mm×355mm apart, and secure the mounting accessories to the wall with the expansion screw which contain in package.

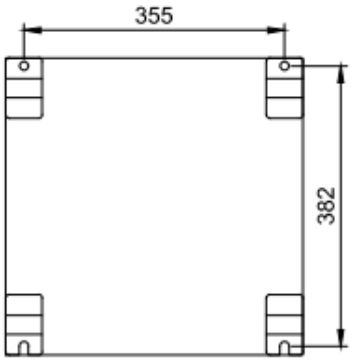


Fig. Install the attachment

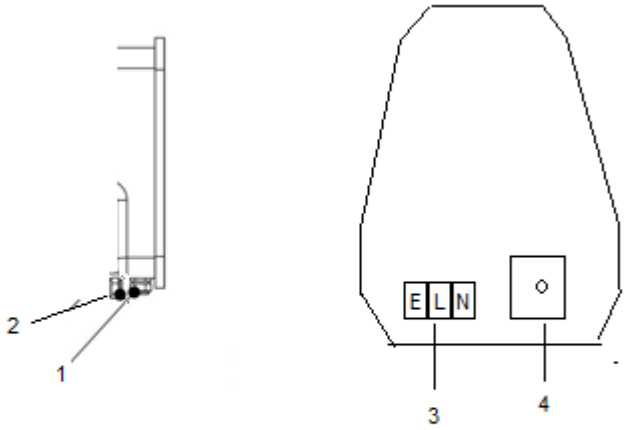
4.3.2. Step 2: Wiring

a) Secure mounting Accessories(④) to the Charging station；

b) Remove the cover of Input Terminal Box(①);

c) Pass the input cable through the Input Cable Interface (②), connect the power cable to the Input Terminal (⑤);

d) Reset the cover of input terminal box(①).



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①:; : Input Cable Interface;
②; Charging adapter interface
③: ; Input Terminal (E/L1/N)
④: MCB (if any);

Fig. 5-3 Wiring

- It is recommended to use flame retardant rubber copper core cable as the input cable, pass the cable through the input interface of the charging station, then fix the Neutral wire, Live wires (L1) and PE wire to the corresponding terminals, and finally fix the cable.
- If the CMS is to be connected through the network cable, put the network cable through the Charging adapter interface (③), then crimp the RJ-45 head, and then insert it into the network cable interface.

Step 3:

Follow the arrow, and hold the wallbox Accessories(④) on the attachment.

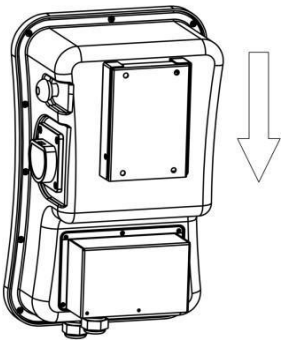


Fig. 5-4 Hang the wallbox on the attachment

1. OPERATION

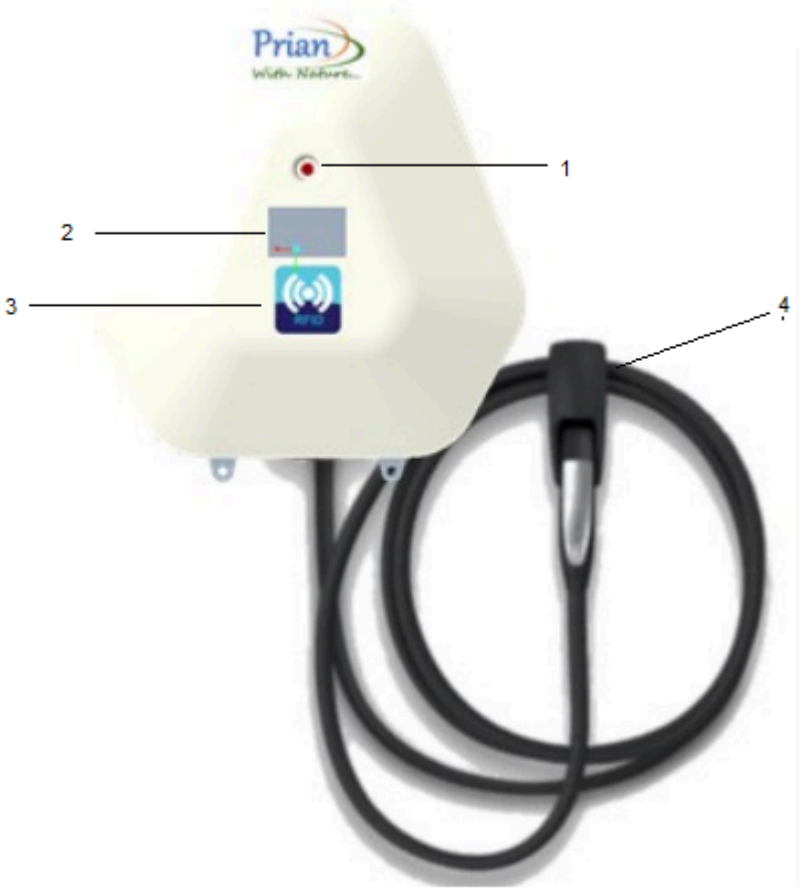
1.1. Power on

After the charging station is installed and confirmed to be correct, switched on the RCCB, and "POWER" indicator light is on, and the charging station enters the standby state.

4.4. Human-machine interface

4.4.1. HMI information

As shown in Fig. 6-1, the Product is configured with multiple human-machine interfaces.



① Emergency stop button
② LCD display
③ RFID reader
④ Empty charging connector socket

Fig. 6-1 HMI of product

4.4.2. LCD (if any)

The LCD with M3W configuration is a 4.3-inch screen, which is mainly used to display various status information of the charging station, shown as Fig. 6-2.

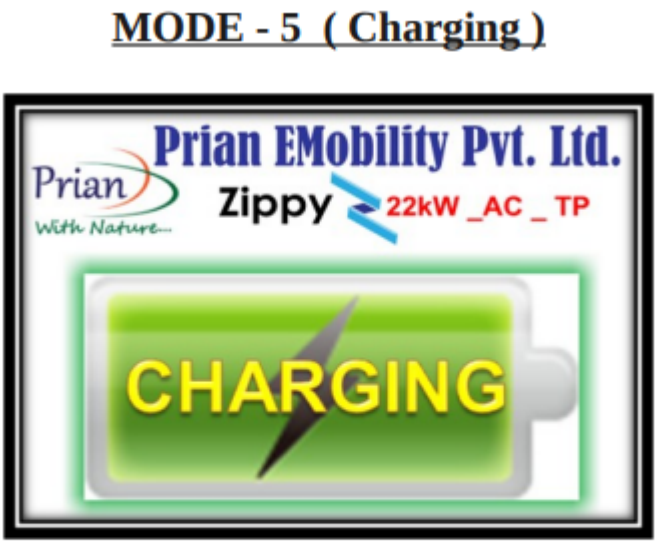
MODE - 1 (Power ON)

MODE - 2 (Access denied – unauthorized smart card)

Fig. 6-2 LCD display

MODE - 3 (Access Granted – Prian authorized smart card)

MODE - 4 (When Plug engaged for charging)



4.4.3. RFID reader

PEM_ZI_23003 is equipped with an RFID card reader by default, and the charging process can be started and stopped using the RFID card (see Fig. 6-3) configured with the host. The special customer-specific function for swiping the card is not described separately here.

Fig. RFID card

4.4.4. Emergency stop button

4.4.5. This button is used to stop the charging process in case of emergency.

In the event of an emergency (e.g., fire, smoke, unusual noise, water intrusion, etc.), please press this button to ensure personal safety and move away from the charging station immediately. Then contact the supplier.

4.4.6. Charging connector & empty socket

- AC EV charging station Config a type 2 charging connector.
  - When the charging station is in standby mode, please insert the charging plug into the empty socket to protect the charging plug.

4.5. Start charging

a) Park the electric car, turn off the engine and brake the car.

b) Remove the charging adapter as shown in Fig.

c) Plug the charging adapter into the AC charging socket of the electric vehicle and the "Connect" lamp of the charging station lights up

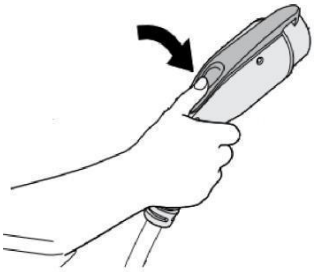


Fig.6-7 Pick off the charging connector

d) For “plug-and-charge” charging station, it will automatically enter the charging process; for “swipe card-controlled” charging station, it needs to swipe card to start; for APP-controlled charging station, it needs to operate mobile phone to start.

e) When the “Charging” light begins to flash, the pile will enter the charging state.

4.6. Normally stop charging

a) There are two normal stoppages for “plug-and-charge” charging station: first, automatic stoppage with full charge, and second, manual stoppage.

b) Manual shutdown: press the unlock button of the electric vehicle's radio key, the vehicle stops charging (requires the support of the electric car), if the charging is not stopped, press the button of the adapter again (as shown in Figure) the charging station
"Charging" indicator will go off, and the charging will stop automatically.

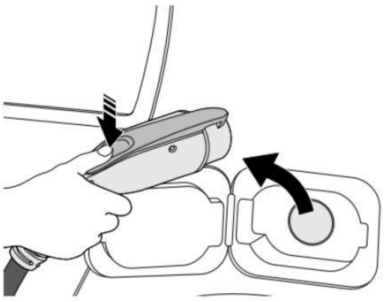


Fig. 6-8 pull adapter out the vehicle

c) Pull the adapter out of the vehicle to complete the charging process. If you cannot pull the adapter out because the vehicle is usually locked, press the unlock button on the vehicle key and the adapter can be pulled out.

Note:

- ✔ **For the "APP -controlled" charging station, please start and stop the charging process via your APP**.
- ✔ **For "card-controlled" charging stations, please start and stop the charging process by swiping your card**

4.7. Abnormally stop charging

a) Emergency stop: In the event of an emergency (e.g. fire, smoke, unusual noises, water ingress, etc.), please press the red "emergency stop" button on the charging station at any time to stop the charging process to ensure personal safety.

b) Forced fault stop: A fault stop initiated by the vehicle's on-board charger.

c) Automatic fault stop：A fault stop initiated by the charging station

5. FAULT HANDLING AND MAINTENANCE

Fault Handling

The charging station is automatically protected in the event of the fault. The fault information and handling methods are as follows.

Fault information	Fault	Handling Method
screen (if present) are not switched on	—	• Check if the branch circuit breaker has tripped and close the breaker after troubleshooting; • Check if the connection is correct, if the cable comes loose, it should be connected properly to tighten the cable; • Check if the branch fuse is fused, and replace it after troubleshooting.
Fault light flash slowly once and fast once.	CP voltage anomaly	Fault code 11: Check that the adapter is properly connected to the electric vehicle, pull and plug the adapter and try charging again.
Fault light flash slowly once and fast twice	Emergency stop	Fault code 12: The E-stop button is pressed, after troubleshooting, rotary the button and reset it, the fault state will exit.
Fault light flash slowly once and fast 3 times	Input a under voltage	Fault code 13: Check that the input cable is reliably connected, that the parent grid is properly connected, and that the grid voltage is abnormal.
Fault light flash slowly once and fast 4 times	Input over voltage	Fault code 14: Check whether the input cable is connected correctly; Whether the grid voltage is abnormal.
Fault light flash slowly once and fast 5 times	Over-temperature protection	Fault code 15: Check whether the charging station is covered or installed in a high temperature environment.
Fault light flash slowly once and fast 6 times	Metering fault	Fault code 16: Power off and restart the device.
Fault light flash slowly once and fast 7 times	Leakage protection	Fault code 17: Check whether the charging adapter and its cable are damaged or wet. Recover after pulling out the adapter.
Fault light flash slowly once and fast 8 times	Output shortage	Fault code 18: Check whether the charging adapter and its cables are damaged or wet.
Fault light flash slowly once and fast 9 times	Output over current	Fault code 19: Check whether the charging adapter is correctly connected to the car, and check whether the on-board charger is normal

Fault light flash slowly twice and fast once	Electric vehicle response timeout	Fault code 21: Make sure that the charging adapter is properly connected to the car, pull out and retry, or the car is full charge.
Fault light flash slowly twice and fast twice	No diode at EV end	Fault code 22: This EV does not meet the IEC standards and cannot be charged
Fault light flash slowly twice and fast three times	Relay sticking	Fault code 23: The device is damaged and needs to be returned to the factory for repair
Fault light flash slowly twice and fast four times	Leakage detection circuit fault	Fault code 24: The device is damaged and needs to be returned to the factory for repair
Fault light flash slowly twice and fast five times	Earth fault	Fault code 25: Charging station is not grounded; input power cable needs to be checked

5.1. Maintenance

To ensure the long-term stable operation of the device, please service the device regularly (usually every month) according to the operating environment.

a) The equipment is maintained by professionals.

b) Check that the device is well grounded and safe

c) Check whether there are potential safety risks in the vicinity of the charging pole, e.g. whether there are objects with high temperature, corrosion or flammable and explosive substances in the vicinity of the charging station.

d) Check if the connection point of the input terminal has a good contact and if there are any anomalies. Check if other connection points are loose.

WARRANTY AGREEMENT

1. The scope of warranty refers to the product itself.
2. The warranty period is 12 months. During the warranty period, the company will repair the product free of charge in case of failure or damage (determined by the company's technical personnel) under normal use.
3. The starting time of warranty period is the date of product manufacture.
4. Even in the warranty period, a certain maintenance fee will be charged in case of the following situations.
   - ① Equipment failure caused by not following the user's manual.
   - ② Equipment damage caused by fire, flood, abnormal voltage, etc.
   - ③ Equipment damage caused by using the product for abnormal functions.
   - ④ Equipment damage caused by foreign matter entering.
   - ⑤ Equipment damage caused by other human external factors.
5. The service fee shall be calculated according to the actual cost. If there is another contract, the contract shall prevail.
6. Please be sure to keep this card and show it to the maintenance personnel during the warranty period.
7. If you have any questions, please contact the agent or our company directly.

After sales service center

____ Electric Co., Ltd

DECLARATION OF CONFORMITY(DOC)

We, ____ Electric Co., Ltd., hereby declare that the construction of the device described in the following complies with the relevant stated below.

Relevant EC directives: Directive 2014/53/EU on radio equipment and telecommunications terminal equipment (RED Directive 2014/53/EU).

Harmonized EN basic and engineering standards: IEC 61851-21-2, EN 301489-1/-17, EN 300328, EN 300330, EN 61000-3-11/-12.

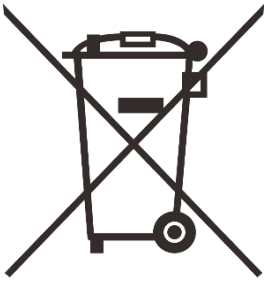
CE

Manufacturer:

Address:

COMPLIANCE STATEMENT OF WEEE

This product cannot be discarded at will when it is abandoned. It must be collected separately for special treatment.



Manufacturer: ____ Electric Co., Ltd.

Address: The Northeast Corner of Minshan Road and Tumenjiang Road, Economic and Technological Development Zone, Deyang, ____, P. R. CHINA