

ETEC



User's Manual of EKEC series AC electric vehicle charging pile

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Preface

This product is designed and manufactured according to the IEC61851 & SAEJ1772 international standards.

Operating Environment:

The operating environment of this charging station :Altitude < 2000m,-40°C ~45°C, relative humidity < 85%.

If you need to use in more harsher environments please provide us the special instructions .



Safety precautions and dangers

Safety precautions: Please comply with the safety instructions and legal notes.

This device will be installed in different countries, regions and jurisdictions, the installer must ensure that the installation meets the legal installation requirements.

1)Do not bring any flammable, explosive or combustible materials, chemicals, flammable vapors and other dangerous articles near the charging station .

2)Keep the charging plug head clean and dry. If it was dirty, please wipe it with a clean dry cloth. It is strictly prohibited to touch the charging plug core with hands when it is charging.

3)It is strictly prohibited to use the charging station when the charging plug or the cable has defects, cracks, abrasion, exposure, etc. If you find any problem, please contact the staff in time.

4)Please don't attempt to disassemble, repair,or modify the charging station.

If there is a need for maintenance or modification,please contact the staff.

Any improper operation may cause some problems such as damage ,water leakage , electricity leakage etc.

5)In case of rain and thunder ,please charge carefully.

6)In order to avoid injury,children should not approach or use the charging station when it is charging.

7)The vehicle is prohibited from driving when it is charging and only can be charged when it is stationary.

Please turn off the hybrid electric vehicle before charging.



Danger: voltage hazard

If you touch the internal parts when it is working, it will cause serious injury.

Please disconnect the working power after use.



Repair

Repair is not allowed, and the defective device shall be disposed (discarded) under the condition of meeting the environmental protection requirements.



Warning: opening the device without permission will cause danger.

Opening the device without permission will cause harm to the user or cause significant damage or property loss.



Attention: illegal modification of the device will invalidate the manufacturer's warranty.

It is not allowed to modify the device in violation of regulations.

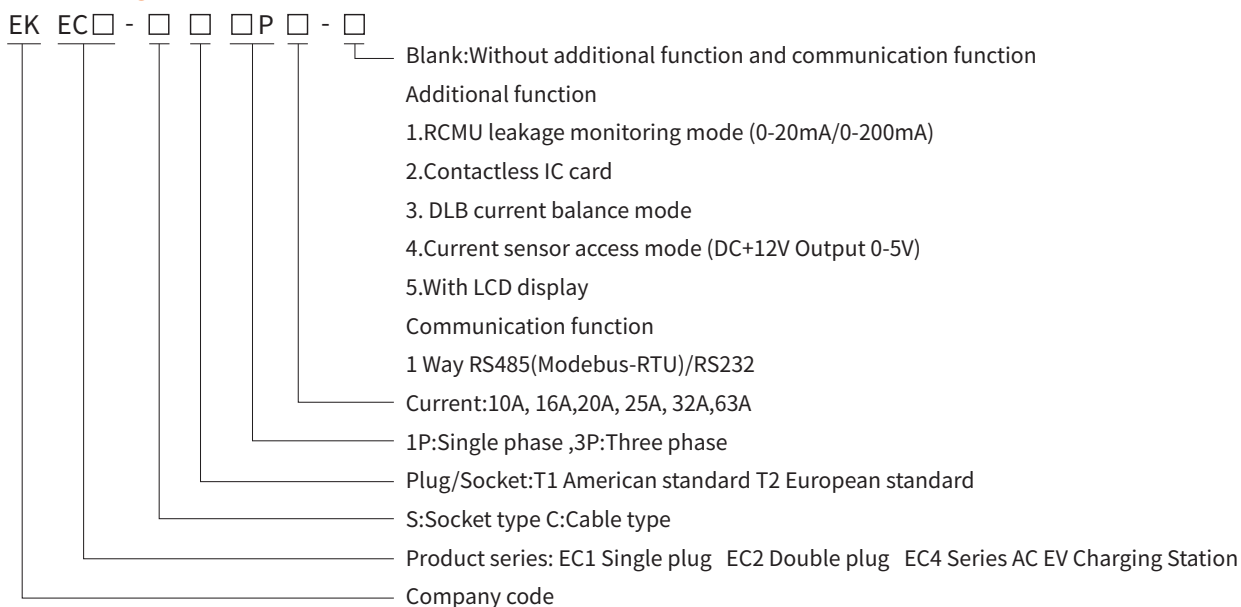
If you don't comply with this requirement , the manufacturer's warranty will be revoked.

Product description

1.1 Product brief introduction

This product is a single or three-phase AC charging pile, which is mainly used for AC charging of electric vehicles. The equipment adopts industrial design principles. The protection level of the whole machine reaches IP55, with good dustproof and waterproof functions, and can be safely operated and maintained outdoors. The AC charging pile is divided into two categories: with cable version and without cable version.

1.2 Naming rules

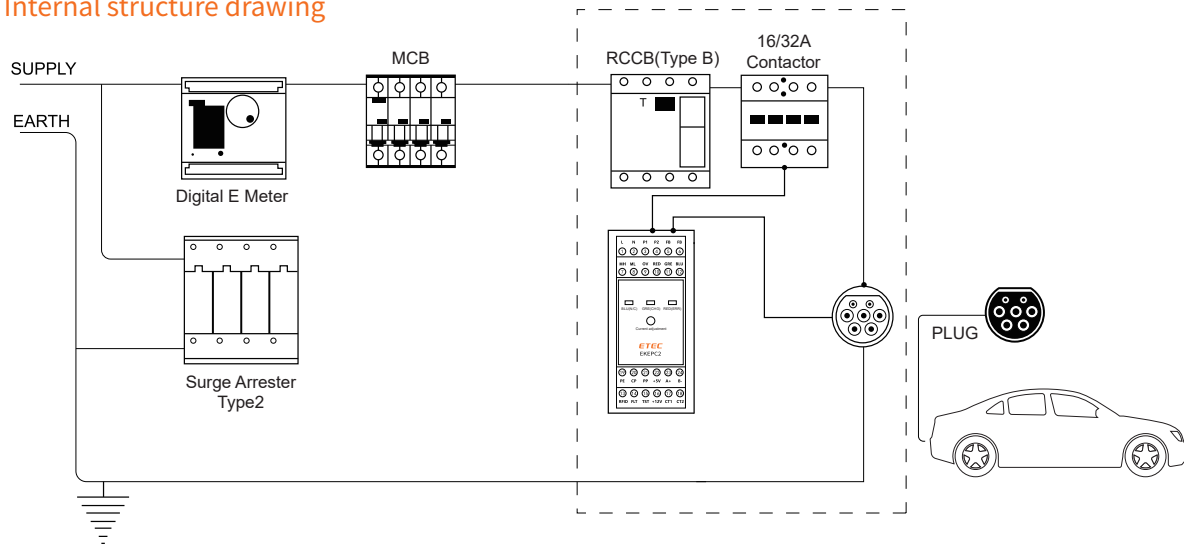


1.3 Technical data

Technical data	Cable type		Socket type	
	EKEC1-C-T1/T2-1P	EKEC1-C-T1/T2-3P	EKEC1-S-T1/T2-1P	EKEC1-S-T1/T2-3P
Power mode	1P+N+PE	3P+N+PE	1P+N+PE	3P+N+PE
Operation voltage	AC230V±10%50Hz	AC400V±10%50Hz	AC230±10%50Hz	AC400V±10%50Hz
Output current	10A、16A、20A、25A、32A、63A			
Output voltage	AC230V±10%50Hz	AC400V±10%50Hz	AC230±10%50Hz	AC400V±10%50Hz
Output power	7.3KW/14.5KW	22KW/43.5KW	7.3KW/14.5KW	22KW/43.5KW
Cable length	5m	5m	-	-
Plug/socket standard	(American standard / European standard)Type1/Type2			
Additional function (Optional)	1.RCMU leakage monitoring mode(0-20mA/0-200mA) 2.Non-contact IC Card 3.DLB current balance mode 4.Current sensor access mode(DC+12V Output 0-5V) 5.With LCD display			
Communicationfunction(optional)	1 way RS485(Modebus-RTU)/RS232			
Ambient temperature	-40°C ~+50°C			
Humidity	≤ 85%			
IP degree	IP55			
Cooling method	Natural cooling			
Installation method	Portable type / wall mounted type / Column type			
Weight				
Overall dimension	357*245*123	357*245*123	357*245*123	357*245*123
Installation dimension	180*280	180*280	180*280	180*280

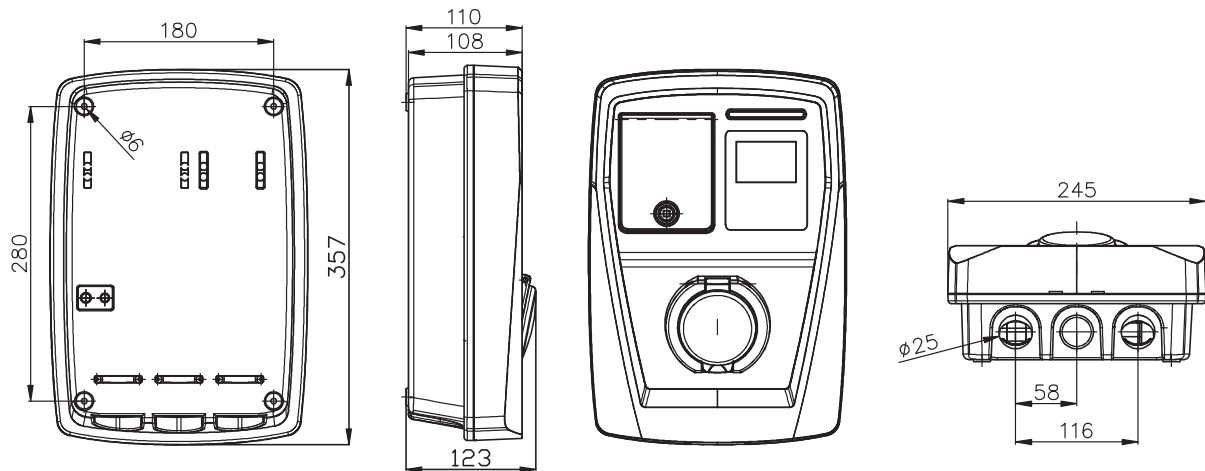
2 Mechanical and electrical installation

2.1 Internal structure drawing



2.2 Installation

A、Overall dimension and installation size



EKEC1

B、Drill 4xø6 35mm counterbore holes on the wall with the size of the mounting holes, insert the expansion screw plastic tube, and then screw in the M4x30 self-tapping screws from the internal mounting holes of the charging pile.

C、The power cord is connected to a type B leakage circuit breaker, the single-phase charging pile is connected to N and L, and the three-phase charging pile is connected to N\L1\L2\L3,

The ground wire (PE wire) is connected to the yellow and green two-color terminals, the schematic diagram is as follows:



Recommended cable section:

Current value(A)	10	16	20	32
Wire area(mm ²)	2.5	2.5	4	6

EKEC4 Series AC EV Charging Station

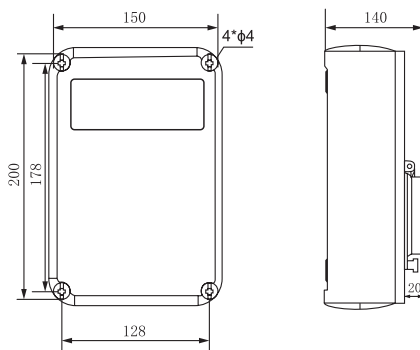


Product description

1.1 Technical date

Technical date	Cable type		Socket type	
	EKEC4-C-T1/T2-1P	EKEC4-C-T1/T2-3P	EKEC4-S-T1/T2-1P	EKEC4-S-T1/T2-3P
Power mode	1P+N+PE	3P+N+PE	1P+N+PE	3P+N+PE
Operation voltage	AC230V±10%50Hz	AC400V±10%50Hz	AC230±10%50Hz	AC400V±10%50Hz
Output current	10A、16A、20A、25A、32A、63A			
Output voltage	AC230V±10%50Hz	AC400V±10%50Hz	AC230±10%50Hz	AC400V±10%50Hz
Output power	7.3KW/14.5KW	22KW/43.5KW	7.3KW/14.5KW	22KW/43.5KW
Cable length	5m	5m	-	-
Plug/socket standard	(American standard / European standard)Type1/Type2			
Additional function (Optional)	1.RCMU leakage monitoring mode(0-20mA/0-200mA) 2.Non-contact IC Card 3.DLB current balance mode 4.Current sensor access mode(DC+12V Output 0-5V) 5.With LCD display			
Communicationfunction(optional)	1 way RS485(Modebus-RTU)/RS232			
Ambient temperature	-40°C ~+50°C			
Humidity	≤ 85%			
IP degree	IP55			
Cooling method	Natural cooling			
Installation method	Portable type / wall mounted type / Column type			
Installation dimension	128*178	128*178	128*128	128*128
Overall dimension	150*200*140	150*200*140	150*200*140	150*200*140
Weight	2.6kg	2.9kg	1.4kg	1.5kg

1.2 Overall installation drawing



3 Fast Debugging

3.1 Inspect before operation

Before operation, please check carefully and make sure the following items :

The installation position of the AC charging station must be convenient for operation and maintenance.

The AC charging station and its accessories must be correctly connected and installed firmly.

Reasonable selection of the protection switch for the AC input end.

Don't leave external objects or components on the top of the AC charging station.

3.2 Power on the device

- a. Make sure that the above inspection items meet the requirements before operation.
- b. Switch on the power input end residual current circuit breaker.
- c. After the AC charging station is connected to the power supply: there is about 7 seconds power-on self-test time, and the indicator lights will display red, blue, and green alternately.
- d. After the power on self-test is completed, the blue indicator flashes at 1Hz.

3.3 Get started

- a. Remove the charging gun head cable from the charging pile and correctly insert it into the AC charging terminal block (cable version) on the vehicle end. Or plug one end of the charging gun cord into the socket of the charging pile, and plug the other end into the AC charging terminal block on the vehicle end (socket version).
- b. At this time, the AC charging pile will automatically exchange data with the vehicle and automatically start the charging process. For the status indication status during the operation of the AC charging pile, please refer to the next 3.4 indicator and working status description.
- c. If the AC charging pile fails, please refer to the next 3.4 indicator and working status description for its failure status.

3.4 Indicator light and working status description

No.	State Code	LED Color	LED State	PE、CP、PP state	Controller state	Remark
0	K	Red	5Hz flashing	Power self detect failed	Fault--1#	Power self-check failed! Please turn the power back on!
1	A	Blue	1Hz flashing	CP disconnection	Ready	
2	I	Blue	2Hz flashing	Waiting for IC card	RFID Waiting	
3	B	Blue	Stabilization	CP connect to diode+2.7KΩ	Connected	
4	B	Blue	Stabilization	CP connect to diode+1.3KΩ	Connected	
5	C	Green	Green brightening	CP connect to diode+2.7KΩ parallel connect 1.3KΩ	Charging	
6	D	Red	Stabilization	CP connect to diode+2.7KΩ parallel connect 1.3KΩ parallel connect 270R or CP connect to diode+270R Or CP connect to diode+270R parallel connect 2.7KΩ Or CP connect to diode+270R parallel connect 1.3KΩ	Fault--2#	Need Ventilation!
7	F	Red	1Hz flashing	CP line short circuit with PE line	Fault--3#	CP- PE short circuit! Please check the CP line
8	H	Red	5Hz flashing	RCMU occurs residual current or self detect failed	Fault--4#	RCMU leakage or self-inspection failure
9	E	Red	2Hz flashing	Diode short circuit (Requirement waiting the CP disconnected)	Fault--5#	EV-Charging Socket Fault
10	G	Blue+Red	2Hz flashing	PP line disconnection	Fault--6#	SPLIT PP wire, Please check the PP line
11	J	Red+Green+Blue	2Hz flashing	Electromagnetic Lock failed	Fault--7#	Electronic Lock Disabled
12	L	Blue	5Hz flashing	IC card failed	Fault--8#	RFID card is not valid
13	M	Red+Green	1Hz flashing	Circuit overload, DLB Mode activated	Fault--9#	Circuit overload, DLB Mode activated

Communication function

RS485 Communication description(Modbus-RTU model , Baud rate: 38400, fixed , address: 1-255 default : 255(Broadcast address))

Register address number	Data description (power failure protection)	Read and write	Type of data	Defaults
100	(Device address number)	Read and write	16-bit integer	255
101	DLB maximum starting current	Read and write	16-bit integer	9000
102	DLB maximum current (100.00A)	Read and write	16-bit integer	10000
103	Reference current: DLB/current transformation ratio (100.00A)	Read and write	16-bit integer	10000
104	Reference current calibration value input	Read and write	16-bit integer	1270
105	Charging pile current transformation ratio 50-200A	Read and write	16-bit integer	
106	Charging pile current value correction 0-100.0A	Read and write	16-bit integer	
107	Charging pile voltage value correction 0-500.0V	Read and write	16-bit integer	
108	Charging pile power value correction 0-22000W	Read and write	16-bit integer	
109	Maximum output PWM duty cycle of charging pile	Read and write	16-bit integer	90%
110	RCMU function selection 0 disabled 1 enabled, other values are selected by DIP switch	Read and write	16-bit integer	3
111	RFID function selection 0 disabled 1 enabled, other values are selected by DIP switch	Read and write	16-bit integer	3
112	Lock function selection 0 disabled 1 enabled, other values are selected by DIP switch	Read and write	16-bit integer	3
113	Cable function version selection 0 disable 1 enable, other values are selected by DIP switch	Read and write	16-bit integer	3
114	DLB function selection 0 disable 1 enable, other values are selected by DIP switch	Read and write	16-bit integer	3
115	PID control parameter P of DLB	Read and write	16-bit integer	100
116	PID control parameters of DLB I	Read and write	16-bit integer	1
117	DLB PID control parameter D	Read and write	16-bit integer	100
118-119	Controller ID number up to 9 digits	Read and write	32-bit integer	
120-139	spare	Read and write		
140	Software version	Read only	16-bit integer	1002
141	Current working status: Corresponding status 0-13	Read only	16-bit integer	
142	PWM value of cable specification	Read only	16-bit integer	
143	RCMU status 00 Not selected 01 Normal operation 02 Self-check failed 03 There is leakage in the charging circuit	Read only	16-bit integer	
144	RFID status 00 not selected 01 IC card not operating 02 IC card closed 03 IC card open	Read only	16-bit integer	
145	Lock status 00 not selected 01 locked 02 unlocked 03 fault	Read only	16-bit integer	
146	The current current, the decimal place is determined by the value of the reference current	Read only	16-bit integer	
147	Current value of charging pile 0-200.0A	Read only	16-bit integer	
148	Current voltage value of charging pile 0-500.0V	Read only	16-bit integer	
149	Current power value of charging pile 0-22000W	Read only	16-bit integer	
150	Calibration value AD value of reference current	Read only	16-bit integer	
151	The PWM duty cycle corresponding to the current set by the rotary switch	Read only	16-bit integer	
152	Current output PWM duty cycle	Read only	16-bit integer	
153-160	spare	Read only	16-bit integer	

4 Warranty Agreement

1) The warranty period of this product is 36 months (it is subject to the barcode information of the product). During the warranty period, if the product has malfunction or damage under normal use according to the manual, we can provide free maintenance for you.

2) During the warranty period, if the damage is caused by the following reasons, it will need to charge repair fee:

A The damage which is caused by mistaken use , unauthorized repairs and modifications;

B The damage which is caused by fire, flood, abnormal voltage, and other natural disasters, secondary disasters, etc.

C Hardware damage caused by falling and transportation after purchase;


D The damage which is caused by not operation in accordance with the user manual ;

3) If you have any questions during the service process, please contact us or our agent in time;

4) The right to interpret this agreement belongs to our company.

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