

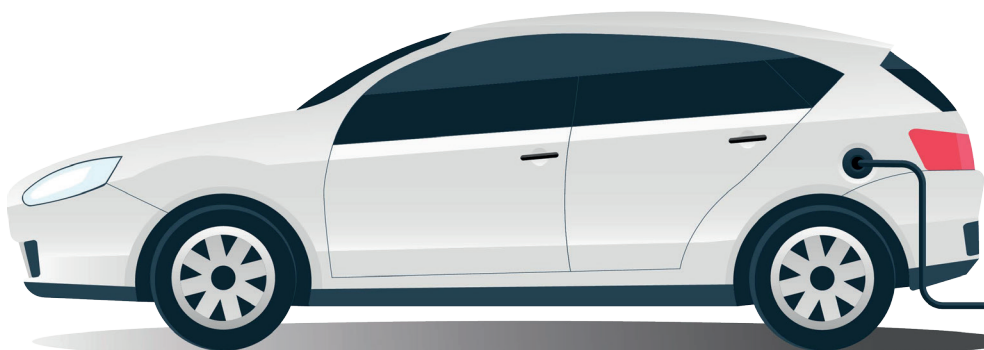


# Zmartgear EV charger 16A 230V

**WARNING!**  
only use 6A in regular  
household power outlets

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**ZMG060**



# MENU

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## Safety Guidance

- Persons who install and use chargers must observe the principles and regulations to ensure safety. Before using charger, the electrical infrastructure should be checked by qualified electrician for suitability. Electrical infrastructure must comply with the charger specifications.
- Before turning on the unit, make sure that the unit is properly grounded to avoid unnecessary accidents.
- Do not use wire extensions or adapter/convertors.
- Before charging always carry out a visual inspection for damage. The contact area of the charging plug should be free from dirt and moisture, the charging cable should not have cuts or abrasions of the insulation and the cable outlet of the charger must be checked to ensure that it is firmly seated.
- Unauthorised modifications, changes or repair of the charger is strictly prohibited and it leads the immediate exclusion of the warranty.
- The charger must not be used in the vicinity of volatile gases or flammable objects.
- Strictly forbidden for children to touch or use the device. Do not let children get close when using it.

- Disconnect the charger only by the plug and not by the cable.
- Do not disconnect the charger during the charging.
- Only remove the charging label by the plug and not by the cable of the power outlet.
- Only change the accessory adapters when the power supply is disconnected.
- Stop using the device immediately when charging failure or abnormality occurs. Strictly forbidden to use the equipment in thunder and lightning weather.

Protect from moisture, rain, sunlight and corrosive environment.

Strictly forbidden to submerge AC charging device in water.

This product is only used for charging electric vehicles, not for other purposes.

## Product Overview

**Zmargear** portable EV charger is a household charging device for electric vehicles. Its appearance is shown in Figure 1 and its plug options is shown in Figure 2. The product meets the requirements of IEC 61851-1:2017 and IEC/EN 62752:2016 Mode 2 AC charging system. One end is an AC charging connector that meets EN 62196-2:2017 and SAE J1772, the middle is an control box on the cables, and the other end is a power plug.

## 1.1 Product Appearance



**Figure 1:** Portable EV charger

## 1.2 Reference Standard

NO.	Standard No.	Statement
1	IEC 61851-1:2017	Electric vehicle conductive charging system – Part 1: General requirements
2	IEC/EN 62752: 2016	In-cable control and protection device for mode 2 charging of electric road vehicle (IC-CPD)
3	EN 62196-2:2017	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
4	SAE-J1772-2017	SAE Electric Vehicle and Plug in Hybrid Electric Vehicle Conductive Charge Coupler

## 1.3 Product Specification

Subject	Specification	
Item No.	TS-PEC-002	
Product	Portable EV Charger	
Specification	Power plug	Schuko/UK/AU/NEMA/CEE or customized
	Power side cable L1	Length 1000 mm,Specification 3*2.5mm²/3*6mm²
	Control box on cable	IEC 61851-1:2017 & IEC/EN 62752: 2016 Control box size: 255mm (H) x109mm(W)x55mm(D)
	Car side cable L2	Length: 4500mm or customized SIZE: 3*2.5mm²+2*0.5mm²/3*6mm²+2*0.5mm²
	Car side plug	16/32A,TYPE1/2,Meet EN 62196-2:2017/SAE_J1772-2017
	Total cable Length	5.5M or customized
Weight	≤3.6kg	
Note: Actual size is subject to the actual product		

## 1.4 Product Package

Five-layer corrugated carton packaging is used to fit the charger measured 410mm (L) x 350mm (W) x 80 mm (H) for 1 pc.  
Outer package 1 PCS/CTN (425mm x 365mm x 95mm) or 7  
PCS/CTN (600mm x 435mm x 410mm) .

## 1.5 Charging Principle

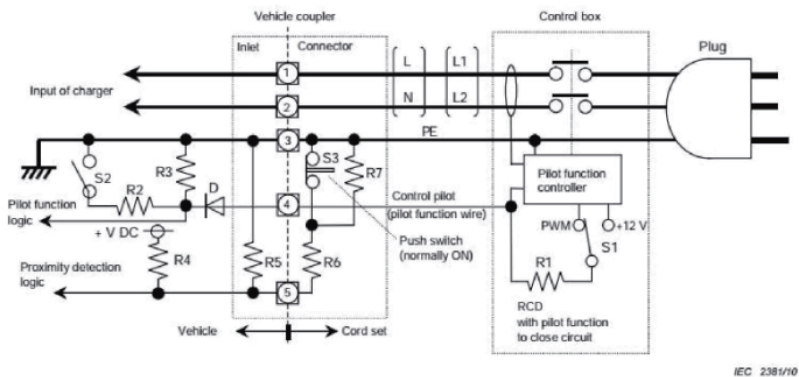


Figure 2: Charging Principle

Charging status	Charging connection connected or not	S2	Successful charging or not	CP signal voltage①	Explanation
Status1	No	disconnect	No	12±1V	Fail to connect to the vehicle
Status2	Yes	disconnect	No	9±1V	S1 switches to the PWM connected state, and R3 is detected.
Status3	Yes	connect	Yes	6±1V	Both OBS and power supply are in working condition

Figure 3: CP signal control

**Note :** ① According to IEC 61851-1: 2017, high level maximum error  $\pm 1V$ ;



# Technology Index

## 2.1 Environmental Performance

Article	Specification
Working temperature	-30 C ~ 60 C
Storage temperature	-40 C ~ 70 C
Working humidity	5% ~ 95%, No condensation
IP level	Control box IP67
	Plug on car (Unconnected) IP54
	Plug on car (connected) IP55
Altitude	≤ 2000m
Salt spray test	MEET IEC/EN 62752:2016
Atmospheric pressure	80kPa ~ 101kPa
Temperature and humidity cycle	MEET IEC/EN 62752:2016
<b>Note:</b> Avoided being used in the environment of corrosive liquids, flammable dust, strong corrosive environment.	

## 2.2 Electrical Properties

Article	Specification	
Rated voltage	254V AC	
Operating Voltage	120/230V	
Rated frequency	50/60Hz	
Rated current	16/32A	
Control Pilot	IEC/EN 62752:2016	
	Duty Ratio	53.3%
	Frequency	1000Hz
Leakage Protection	Type A+DC (Type B)	
	AC leakage	30mA
	DC leakage	6mA
Insulation Resistance	> 10MΩ	

## 2.3 Mechanical Properties

Article	Specification	
Life of plug-in and plug-out	CEE 16/32A PLUG	5000 times
	AC charging plug	10000 times
Flammability	Control box	Meet: UL94 LV: V-0
	EV Charging Plug	Meet: UL94 LV: V-0
	EV Charging Cable	Meet: UL1581 LV: VW-1
EV rolling test	Meet: IEC/EN 62752:2016	
Cable Deflection	Meet: IEC/EN 62752:2016	
Drop	Meet: IEC/EN 62752:2016	
Note: Plug-in and plug-out test is under no-load condition		

## 2.4 Product Function

Article	Specification
Output current	6A/8A/10A/13A/16A/20A/32A
Leakage Protection (AC 30mA+DC 6mA)	Support
Under voltage protection	Support
Over voltage protection	Support
Over temperature protection	Support
Over current protection	Support
Short circuit protection	Support
Screen display	Support
Schedule charging	Support
Surge protection	Support
EFT	Support

## Instructions and Status Display

### The operation steps are as follows:

**Step 1:** Connect with the power, the control box starts to be energized, the blue light bar is always on, and the screen will display the gear and status.

**Step 2:** Press the “Ampere button” to set charging current.

**Step 3:** Schedule charging function

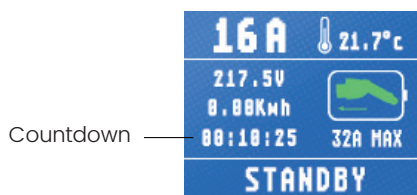
1) If you need to use the scheduled charging function, press the button for 3 seconds to enter the scheduled charging interface when it's in

standby status. Also press button for 3 seconds to exit the scheduled charging interface.

2) After entering the scheduled charging interface, press the button once to reserve one hour, and accept Max 8hours scheduled time . After confirming the appointment time, stop the button operation and the system will automatically enter the countdown state. Then insert the plug to the vehicle to wait charging .



Ampere button



Countdown

3) If you need to terminate the appointment status, pull out the power supply and power on again!

**Step 4:** Connect the vehicle and insert the plug into the vehicle socket. The control panel will automatically detect the connection status of the vehicle. After the connection is successful, the connection indicator (green) will be turned on and kept constant, and the screen will display the insertion status.

**Step 5:** Start charging and establish communication with the vehicle. Vehicles confirm the control box on the cable by detecting the duty ratio of PWM signal Maximum power current, charge indicator (green) breathing, screen will switch cycle display power, electricity, temperature and charging time.

**Step 6:** Monitoring the charging process. During the charging process, the current, leakage current and temperature of the cable control box during charging process are monitored. If a fault occurs, the cable control box cuts off the power supply, stops charging, the indicator (red) flickers, and the screen will display the fault name.

**Step 7:** Charging is over. The control box on the cable cuts off the power supply and stops charging. Disconnect the power plug from the outlet (socket). Disconnect the plug from the vehicle inlet.

LCD Status	
Waiting for charging indicator	Blue light is on constantly
Connection indicator	Green light is on constantly
Charging indicator	Green light breathes
Fault notification	Red light flashes

LCD display instruction	
Status of Standby	<p>Thermometer Icon</p> <p>Real time current — 0.0A — Temperature — 21.7°C</p> <p>Real time voltage — 217.5V</p> <p>Power consumed — 0.00Kwh</p> <p>Charging time or scheduled time — 00:10:25 — 32A MAX — The Max working current</p> <p>Charging status — STANDBY</p>
Statue of Connecting	<p>Thermometer Icon</p> <p>Real time current — 0.0A — Temperature — 21.7°C</p> <p>Real time voltage — 217.5V</p> <p>Power consumed — 0.00Kwh</p> <p>Charging time or scheduled time — 00:10:25 — 32A MAX — The Max working current</p> <p>Charging status — CONNECTING</p>
Status of charging	<p>Thermometer Icon</p> <p>Real time current — 16A — Temperature — 21.7°C</p> <p>Real time voltage — 217.5V</p> <p>Power consumed — 0.00Kwh</p> <p>Charging time or scheduled time — 00:10:25 — 32A MAX — The Max working current</p> <p>Charging status — CHARGING</p>

**Product warranty does not include the following :**




1. All man-made damage or damage to transport.
2. Users and unauthorized service agencies to dismantle and repair their own products.
3. Demolition of the standard, the use of improper use, such as damage caused by the appearance of the product.
4. In the non-product under the provisions of the work environment caused by the failure or damage, including beyond the workload.
5. Due to improper custody of the user caused by the failure and damage.



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**CEPELO A/S**  
**Fredrikstadvej 15**  
**9200 Aalborg SV**  
**Denmark**  
**+4598180900**  
**info@cepel.dk**  
**www.cipeltools.dk**





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Waterproof IP67
-   
Stop Switch



LCD DISPLAY  
MONITOR 

16A	
217.5V	
0.26Kwh	32A MAX
00:10:25	
CHARGING	

STATUS BAR

