

20KW Portable EV DC Charging Station

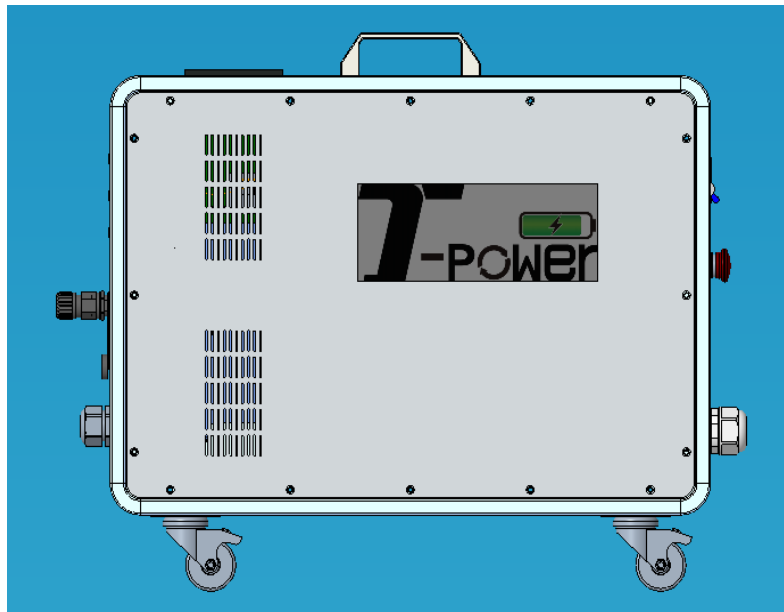


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Chapter 1: Product Overview

- Utilizing a high-power power module platform with nuclear safety-level standards, ensuring enhanced safety and reliability.
- Employing a novel and efficient three-phase PFC circuit topology, with a power factor greater than 0.99 and low harmonic distortion ($\leq 5\%$).
- The high-frequency switched power module incorporates a full-bridge phase-shift soft-switching technology, achieving high execution efficiency.
- Advanced digitalized current-sharing technology, effectively enhancing current-sharing accuracy and resistance to interference.
- Pioneering module sleep and rotation technologies to ensure efficient system operation.
- Intelligent charging process control, comprehensive charging process monitoring, and protection, featuring user-friendly operation.
- Supporting various charging modes such as timed charging, quantity-based charging, amount-based charging, and automatic full charge.
- Real-time display of charged quantity, charging time, current electricity price, charging cost, and operational status.
- Module hot-swapping technology for easier maintenance.

Chapter 2: Protection Functions

- Electrical isolation between the input and output of the charging station.
- Implementation of a device preventing the charging station from charging the filter capacitors of the battery pack, avoiding momentary high current at the output terminal when connecting to the battery pack.
- The charging station's withstand voltage level, insulation level, and EMC comply with the relevant provisions of the international standard "GB_T 20234.3-2011 Electric Vehicle Conductive Charging System." The design is by the requirements of Q/GDW485-2010 "Technical Conditions for DC Charging Piles for Electric Vehicles" and NB/T 33001-2010 "Technical Conditions for Non-Vehicle Conductive Charging Piles for Electric Vehicles," concerning specific functions outlined in the "Typical Design of Electric Vehicle Charging Facilities." This product fully meets the construction requirements of electric vehicle charging stations and has been operational for several years in cities such as Shenzhen, Beijing, Shijiazhuang, Chengdu, Guangzhou, Xi'an, Kunming, Zhanjiang, Zhuhai, and others.

Chapter 3: Scope of Application

- DC charging stations are suitable for urban dedicated charging stations catering to public vehicles such as buses, taxis, government vehicles, sanitation vehicles, and logistics vehicles.
- Urban public charging stations for private cars, commuter vehicles, and buses.
- Various public places with electric vehicle parking spaces, including urban residential areas, shopping malls, and electric utility business premises.
- Intercity highways and expressway charging stations require fast DC charging, particularly well-suited for rapid deployment in space-constrained environments.

Chapter 4: Product Parameters

Capacity	20Kw
INPUT	
Voltage	380VAC \pm 20%
Current	0~32 A
Frequency	45Hz – 65Hz
Power (MAX)	\geq 0.99 APFC
Current (THD)	\leq 5%
OUTPUT	
Voltage	200-750VDC
Current	0~50A
Voltage Regulation Accuracy	$\leq \pm 0.5\%$ FS(FS Resistor Load)
Current Regulation Accuracy	$\leq \pm 1\%$ FS(FS Resistor Load)
Ripple	$\leq 0.2\%$
Power Adjustment Rate	$\leq \pm 0.1\%$ FS
Protection Level	Indoor IP30
Efficiency	$\geq 96\%$
Voltage and Current Data Sampling Cycle	<100ms
Protection	<ol style="list-style-type: none"> 1. Input Over/Under Voltage Protection; 2. Output Overcurrent/Short Circuit Protection; 3. Battery Reverse Connection, Overheat, Lightning Protection, Communication Interruption, Moisture Prevention, Salt Spray Prevention, Mildew Prevention, Rust Prevention, and other protective measures.

Module Communication Interface	CAN 2.0B
Controller Communication Interface	CAN 2.0B
Charging Method	Touchscreen Charging Display
Cooling Method	Forced Fan Cooling
Operating Environment	-20+50°C
Temperature	-30~50°C
Humidity	5%~95%

Chapter 5: Physical Dimensions

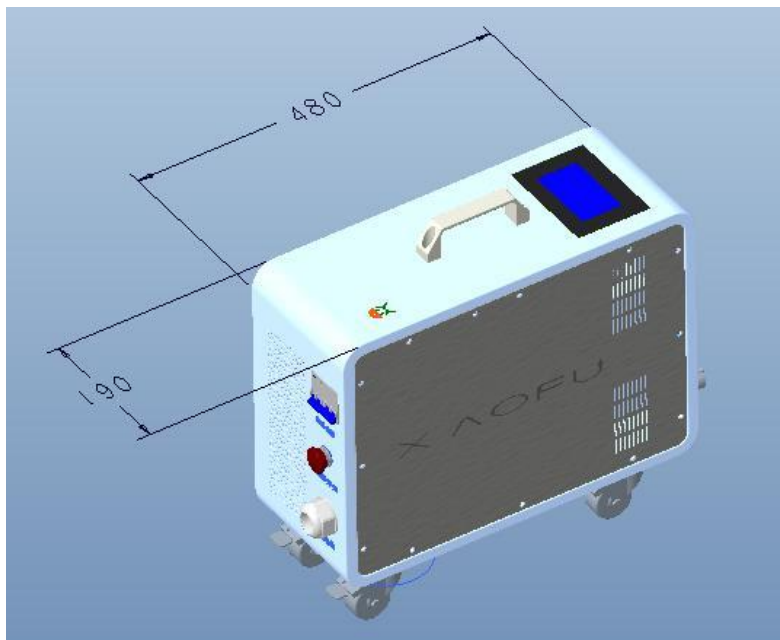


Figure 5-1-1

Chapter 6: Operating Instructions

6.1 operating instructions

- 1) In the standby state of the charging station, prompt the user with 'Please scan code or click charge,' as shown in Figure 6-2-1.

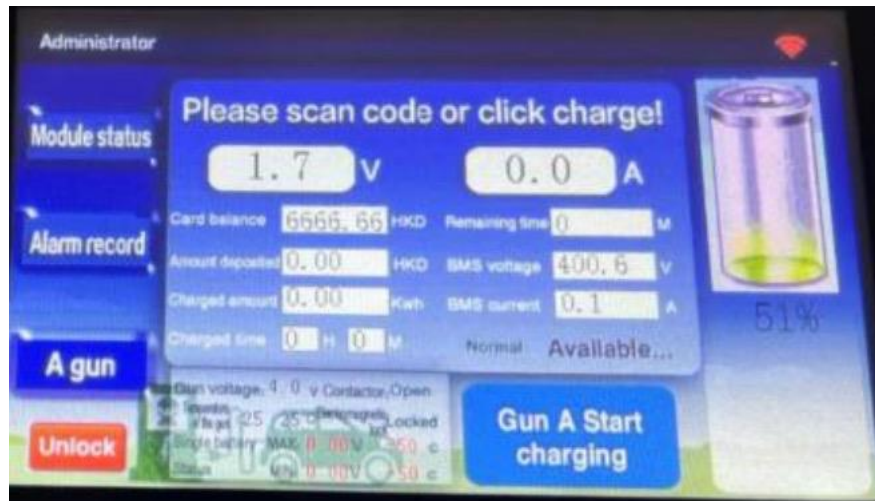


Figure 6-2-1

- 2) After the user successfully connects the charging station to the electric vehicle, click 'Gun A Start charging.' This action will navigate to the charging mode selection page. Click 'Automatic filling,' and the display screen will transition to the charging information interface. The charging station will commence operation, as illustrated in Figure 6-2-2.



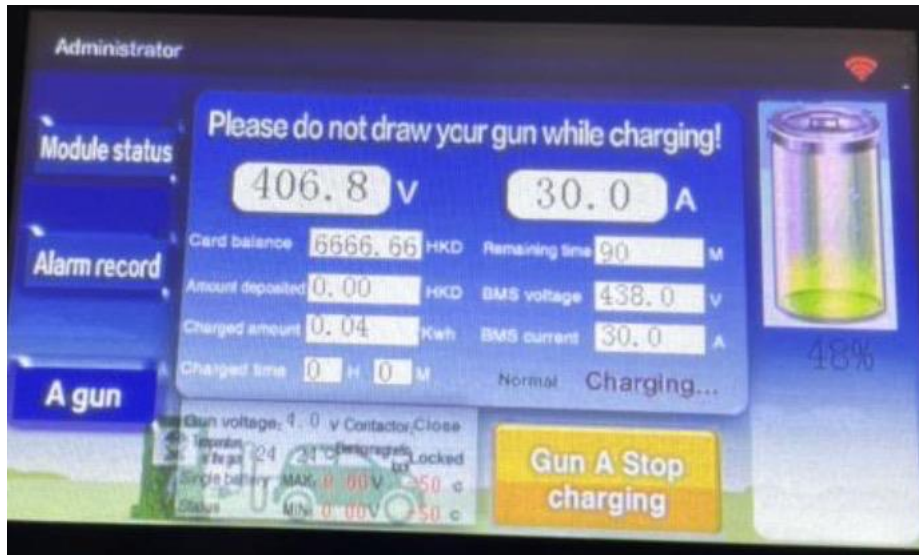


Figure 6-2-2

- 3) While in the charging state, clicking the "Gun A Stop charging" button on the display screen concludes the charging operation. When the battery is fully charged, the charging station automatically stops the charging process. The settlement interface after ending the charging is depicted in Figure 6-2-3.

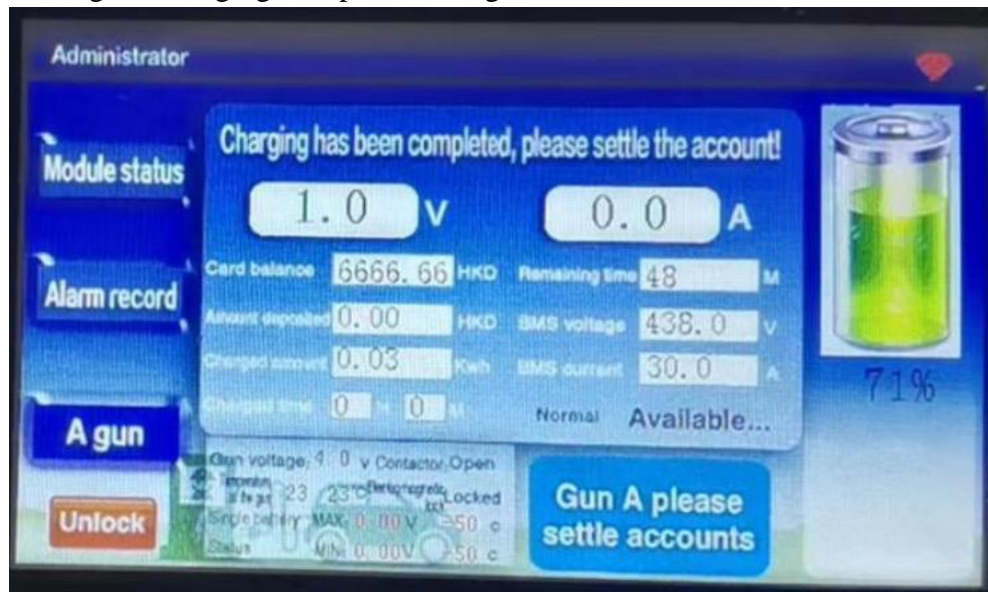


Figure 6-2-3

- 4) During the charging process, in case of an emergency shutdown, press the emergency stop button. The charging station indicator light will turn red, and the display screen will show the prompt "Fault, please turn stop button!" as illustrated in Figure 6-2-4.

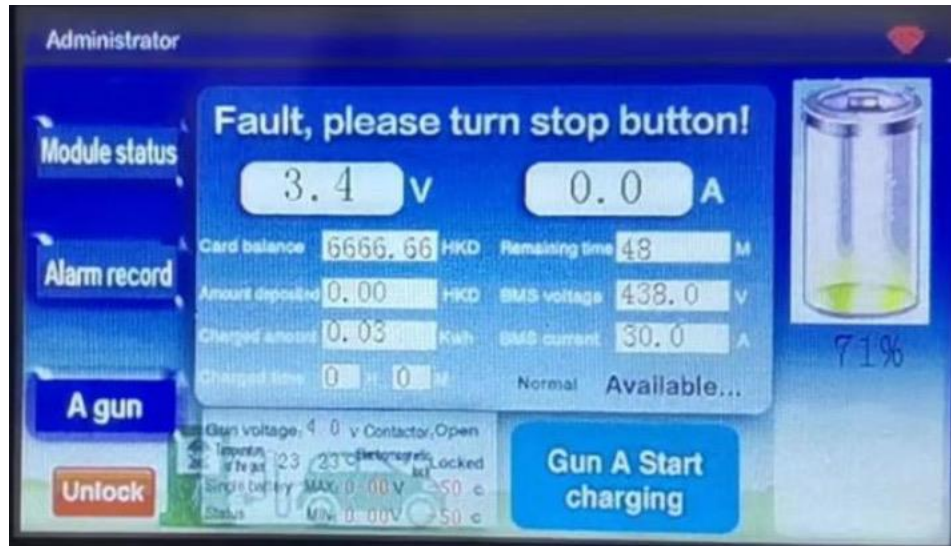


Figure 6-2-4

- 5) To conclude the charging, the charging station indicator light will turn off. Simply disconnect the charging gun, as shown in Figure 6-2-5.

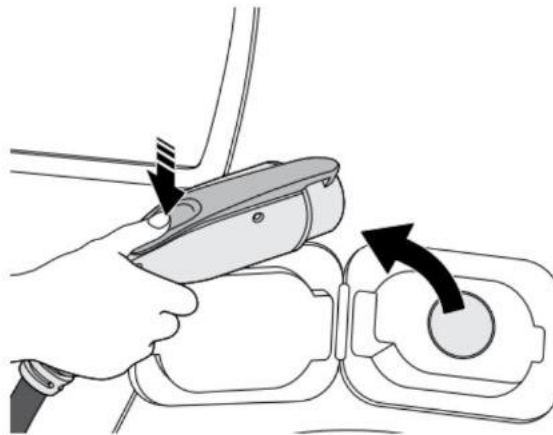


Figure 6-2-5

Chapter 7: Storage and Transportation

7.1 Equipment Storage and Transportation

During transportation, the charging station body should be securely packaged in a sturdy wooden crate with clear markings indicating the loading and unloading direction. It is strictly prohibited to transport the charging station inverted. Adequate fastening measures should be implemented during transportation to prevent strong vibrations and shocks that could damage the equipment's external packaging. Upon arrival, a thorough inspection should be conducted for any

damages. In the event of transportation damage, the resolution should be negotiated with the transport provider and our company. After unpacking, immediately verify whether the contents match the packing list.

Packaged equipment should be stored in an indoor environment with a relative humidity of $\leq 80\%$ and a surrounding air temperature of -10°C to $+40^{\circ}\text{C}$. The storage area should be dry, clean, well-ventilated, and protected against the intrusion of various harmful gases. It is strictly forbidden to store equipment in the same location as corrosive substances.

Note: Non-professionals are strictly prohibited from disassembling equipment components.

Chapter 8: Maintenance and Care of Charging Stations

8.1 Maintenance and Care

- The chassis should be securely fixed using ground bolts to prevent tilting or shaking due to external or human factors.
- Provide shading and rain protection measures for the charging station; outdoor installations are recommended to include rain shelters.
- Regularly inspect all bolts inside the charging station for tightness, check for loose or insecure connections, and address any issues promptly.
- Check for short circuits.
- Verify the availability of the emergency stop button.
- Pay attention to lightning protection, ensuring effective shielding and reliable grounding of the charging station.
- During usage, attempt to control the output voltage and current of the charging station within the specified range to ensure optimal efficiency.
- When the station is not in use, stop the charging output first, then neatly wind up the cables and return them to their original position.

Note: During transportation, securely package the charging station with clear markings indicating the loading and unloading direction. Avoid inverting the charging station during storage and transport. Implement appropriate fastening measures to prevent strong vibrations and shocks that could damage the equipment's external packaging.