

FSE Fully Sealed Car Charger

--CE Certified

EP chargers are specially designed for FSE (Formula Student Electric) vehicles and new energy vehicles, which comply with both FSE rules and CE standard.

I、Appearance of Charger:



II、 Introduction of Charger Function:

1. CAN Communication Function: communicating with BMS through built-in CAN, can use BMS to control the working status of charger and adjust its charging current.

2. Working Mode: the charger is in constant current charge when start charging, it switches to constant voltage charge when reaches the voltage that set by BMS, the charging current will gradually decrease at the moment. When charging current decreased to certain level, charging is completed, and the high voltage output of charger automatically turn off as well.

3. High Voltage Terminal Lock: when high voltage output plug not plug into high voltage output socket of charger, the charger terminal that connect to SHUTDOWN of battery box doesn't have +12v output, and the high voltage terminal of charger also doesn't have high voltage output at the moment.

Unplug high voltage output plug from high voltage socket during charging process, the charger immediately cuts off the +12V output that connect to SHUTDOWN of battery box, and also cuts off the high voltage output of charger.

4. Emergency Stop Switch: after pressing the emergency stop switch, both the +12V power supply (that power the SHUTDOWN of battery box) and HV output was cut off.

5. IMD Alarm Signal (introduced from built-in Bender module of battery box):

- A. When IMD alarm occur in the battery box, the corresponding IMD alarm lamp of charger is on, and the +12V power supply (that power the SHUTDOWN of battery box) was cut off.
- B. The charger equipped with IMD alarm reset switch, the IMD alarm was reset when press the IMD reset switch.

C. This alarm has hold function. Once IMD alarm occur, the IMD alarm can only be reset by pressing the IMD alarm reset switch or restarting the power of charger, the +12V power supply (that power the SHUTDOWN of battery box) restore at the same time.

6. BMS alarm (the BMS alarm signal is introduced from the battery box):

A. When BMS common alarm occur in the battery box, the corresponding BMS common alarm lamp of charger is on, and the +12V power supply (that power the SHUTDOWN of battery box) was cut off.

B. The charger equipped with reset switch of BMS common alarm, the BMS alarm was reset when press the common alarm reset switch of BMS.

C. This alarm has hold function. Once BMS alarm occur, the BMS alarm can only be reset by pressing the BMS alarm reset switch or restarting the power of charger, the +12V power supply (that power the SHUTDOWN of battery box) restore at the same time.

7. Voltage / Current Indicator Meter: the charger equipped with voltage/current indicator to display the output voltage and charging current of charger.

8. High & Low Voltage Separate Design: adopting high and low voltage separate design, the high voltage and low voltage adopt different connectors, which make the charger safe and reliable.

9. High Voltage Discharge Circuit: the charger equipped with high voltage discharge circuit. Whenever high voltage was cut off, the internal discharge circuit will quickly release the stored electric energy of capacitive components of charger, it will make the output residual voltage of charger lower than 10% of the normal working voltage within 5 Seconds.

10. High Voltage Detection Point & Ground Detection Point:

The charger equipped with high voltage detection point and ground detection point.

The high voltage detection points lead high voltage to TS+ TS-high voltage detection point through safety resistor. The ground detection point is used to complete the auxiliary measurement.

The safety resistance value of 440 type charger is 15kΩ, and the 600 type charger is the same.

11. Socket of Ground Point: the charger equipped with ground wire socket, which used to connect the ground wire of charger to battery box and on-site safe ground wire.

III、Parameters of Charger:

1. 440 Type Charger:

Input	Range of Input Voltage	AC 90~265V
	Range of Input Frequency	45-65Hz
	Maximum Input Current	16A
	Power Factor	≥0.99 Above Half Load
	Maximum Efficiency	≥94.2%
	Standby Power Consumption	≤5W

Main Output	Output Method	Constant Voltage(CV)/Constant Current(CC)
	Range of Output Voltage	110~440V
	Output Current	10A Max
	Output Power	3300W@220VAC 1600W@110VAC
	Precision of Constant Voltage	±1%
	Precision Of Constant Current	±2%
	Voltage Ripple Factor	<5%

12V Voltage Output	Output Method	constant voltage/constant current(can connect with 12V lead acid battery)
	Output Voltage	12V~13.8 V
	Rated Current	5A
	Precision of Constant voltage	±2%
	Maximum Current	5.5A±0.5A
	Output Power	≥62.5W
	Voltage Ripple Factor	≤1%

2. 600 Type Charger:

Input	Range of Input Voltage	AC 90~265V
	Range of Input Frequency	45-65Hz
	Maximum Input Current	8~16A
	Power Factor	≥0.99 Above Half Load
	Maximum Efficiency	≥94.2%
	Standby Power Consumption	≤5W
Main Output	Output Method	Constant Voltage(CV)/Constant Current(CC)
	Range of Output Voltage	163~ 645V
	Output Current	6A Max
	Output Power	3300W@220VAC 1600W@110VAC
	Precision of Constant Voltage	±1%
	Precision Of Constant Current	±2%
	Voltage Ripple Factor	<5%

12V Voltage Output	Output Method	constant voltage/constant current(can connect with 12V lead acid battery)
	Output Voltage	12V~13.8 V
	Rated Current	5A
	precision of Constant voltage	±2%
	Maximum Current	5.5A±0.5A
	Output Power	≥62.5W
	Voltage Ripple Factor	≤1%