

TSE-Q2 1.5-2kw charger

instruction manual



Top Systems

1. Overview

TSE-Q2 1.5-2kw Fully enclosed frequency conversion pulse charger is specifically designed for electric vehicle power batteries according to the national standards for chargers. This product has the advantages of high efficiency, small size, high stability, long life, etc., and the full waterproof technology has the characteristics of safe operation, high reliability, complete protection and other characteristics under the protection level of IP66. The built-in thermal sensor of the charger can work reliably under the condition of -35 °C-+ 85 °C; it has overheat protection function, it can work reliably under the condition of -35 °C-+ 85 °C, and it can recover automatically.

2. Parts product model

Input voltage range	Input current	Output Rated voltage	Max charging voltage	Max output current	Power factor	Efficiency
AC 90~265V	16A	12V	66V	35A	≥0.99	≥93%
		24V	66V	35A		
		36V	66V	35A		
		48V	66V	35A		
		60V	82.5V	30A		
		72V	99V	20A		
		96v	108V	17A		
					Half load	Full load

3. Electrical parameters

Input	Frequency rate	45-65Hz
	Standby power consumption	≤ 6W
Main output	Output type	Constant pressure/current
	Output power	2000W@220VAC
	Precision of constant voltage	±1%
	Precision of constant current	±1%
	Ripple voltage coefficient	5%
Low voltage output	Output type	Constant pressure
	Output voltage	13.8V
	Rated current	5A
	Precision of constant voltage	±2%
	Max current	5.5A±0.5A
	Output power	≥ 69W
	Ripple voltage coefficient	1%
Communication function	CAN communication	Yes
	Baud rate	125Kbps、250Kbps、500Kbps
	Terminating resistor	No

4. Protection function

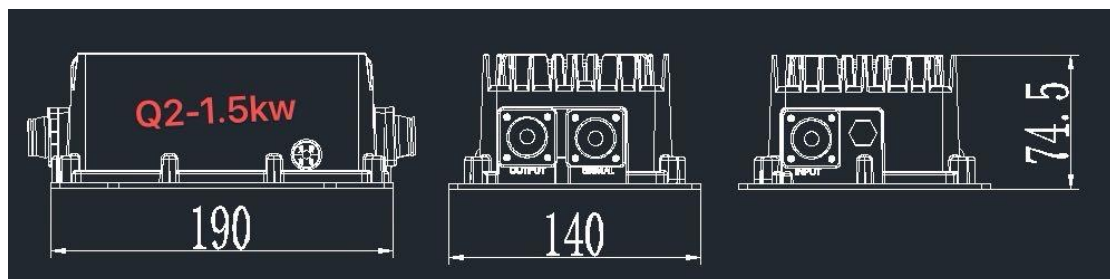
Protective function	Input over-voltage protection	AC270V±5V
	Input under-voltage protection	AC±150V
	Output over-voltage protection	Exceed max output voltage +1% ,stop the output.
	Output under-voltage protection	Below min output voltage -5% ,stop the output..
	Output over-current protection	Exceed max output current +1% ,stop the output.
	Over temperature protection	At 85°C the temperature starts to drop, At 90 °C the output stops.
	Short circuit protection	Stop output
	Reverse battery protection	Stop output
	Ground protection	≤ 100mΩ
	C A N Communication protection	Automatically stop output when CAN communication fails
Power failure protection	Yes	

5. Safety specifications and others

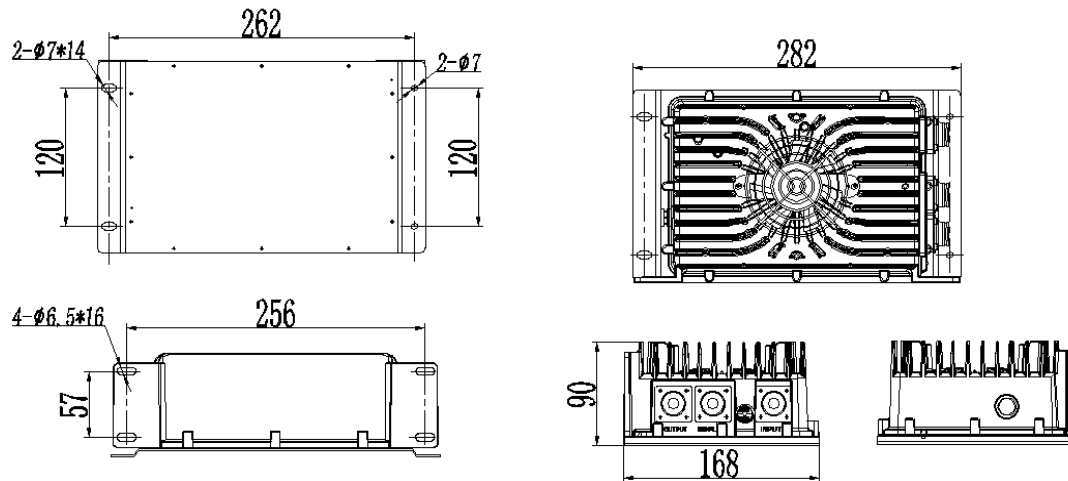
Withstand pressure	Input to output: 2000VAC≤ 10mA ,Input to ground: 2000VAC≤ 12mA Output to ground: 2000VAC≤ 10mA, All are 1 minute
Insulation resistance	Input, output, signal end to shell ≥ 10MΩ , Test voltage 1000VDC
Electromagnetic immunity	Satisfy GB/T 18487.3-2001 11.3.1

Electromagnetic disturbance	Satisfy GB/T 18487.3-2001 11.3.2
Harmonic current	Satisfy GB 17625.1-2003 6.7.1.1
Current rise time	$\leq 5S$, Overshoot $\leq 5\%$
Off response time	100% to 10% $\leq 50mS$, 100% to 0% $\leq 200mS$
Protection level	IP67
Vibration resistance	10—25Hz Amplitude 1.2mm,25—500Hz 30m/s ² , each direction 8 hours
Noise	$\leq 60dB$ (Class A)
MTBF	150000H
Working environment	Relative temperature 5% -95% without condensation
Operating temperature	-35°C ~ +85°C
Storage temperature	-55°C ~ +100°C

6. Shape and size



Horizontal mounting size within Q2-1.5KW



Horizontal mounting size within Q2-2KW

7. Indicator status definition

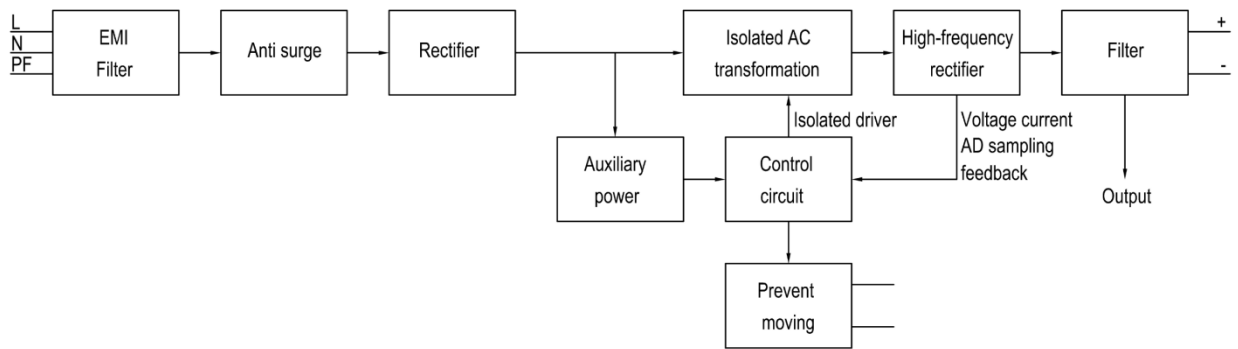
(1) No alarm

- a. The power is less than 90% : The red light flashes at 1s intervals, and the green light is off.
- b. The power is between 90% and 100%: The green light flashes at 1s intervals, and the red light is off.
- c. Charging completed: The green light is always on and the red light is off.

(2) With alarm

- a. Hardware failure or DC12V failure: red ____, green, ____, ____, __.
- b. Battery is not connected: The red light flashes for 3 seconds, the green light is off.
- c. Battery temperature and CPU temperature protection: The green light flashes for 3 seconds, the red light is off.

8. Functional block diagram



9. CAN communication protocol

Protocol type	Motorola
Baud rate	250K
Charger receives CAN ID	0x1806E5F4
Charger emits CAN ID	0x18FF50E5
Description	Standard Communication Protocol

Message description:

Message1

OUT	IN	CANID	Cycle (ms)
BMS	Charger	0x1806E5F4	1000
Data			
Location	Data name		
BYTE1	Maximum allowable charging terminal voltage high bytes		0.1v/bit offset : 0 case: Vset=3201, Corresponding voltage is 320.1V.

BYTE2	Maximum allowable charging terminal voltage low bytes	
BYTE3	Maximum allowable charging current high bytes	0.1A/bit offset: 0 case: Iset=582, Corresponding current 58.2A.
BYTE4	Maximum allowable charging current low bytes	
BYTE5	Control	0: Turn on the charger and start charging ; 1: Battery protection, charger turns off output .
BYTE6	Control	0: Charging mode; 1: Heating mode.
BYTE7	Keep	
BYTE8	Keep	

STATUS	Mark	Description
Bit0	Hardware failure	0: Normal ;1: Hardware failure.
Bit1	Charger temperature	0: Normal ;1: Charger over temperature protection.
Bit2	Input voltage	0: The input voltage is normal;1: The input voltage is wrong and the charger stops working.
Bit3	Start status	0: Battery connection is correct; 1: The battery is not connected or battery is reversed.
Bit4	Communication status	0: Communication is normal;1: communication reception timeout.
Bit5		
Bit6		
Bit7		

10.Way of working

BMS sends control information (message 1) to the battery at a fixed interval of

1s. After the charger receives the message, It will Stream settings to work through the received voltage and current . If no message is received within 5 seconds, it enters a communication error state and turns off the output. Charger sends broadcast information (message 2) every 1s,The display meter can display the status of the charger according to the information.

11.Product appearance

- (1) The outer surface should be flat, without obvious defects such as scratches and deformation. The surface coating should be uniform.
- (2) The nameplates and signs are firmly installed and the handwriting is clear.
- (3) The parts and components shall be fastened and reliable, and shall be free from defects and damages such as rust, burr and cracks.
- (4) Each product shall be marked with a product logo, including part number, product trademark, product model, production number, production company name, warning instructions, etc., at obvious locations.

12.Packaging, transportation and storage

Packaging: Product name, model, specification, name of manufacturer are printed on the label . The box contains the product manual.

Transportation: It is suitable for transportation by car, boat and airplane. It should be protected from sun, moisture and civilized transportation during transportation.

Storage: When the product is not in use, it should be stored in a packing box.

It should be kept in a clean, dry and well-ventilated environment at 5 °C ~ 40 °C. Avoid exposure to sunlight, fire and water. The product has a shelf life of 2 years (from the manufacturer, from the date of storage), if the storage time is too long (more than 2 year), it should be tested by professional before use.