

# USER MANUAL



**Product Name: 3.3KW On Board Battery Charger**

### 1. Overview

HK-J series 3.3KW charger was specially designed, by Hangzhou Tiecheng Info&Tech Co., Ltd for supplying the electricity for electric vehicle's power battery, on the basis of the national standards for the charger. This product has the advantages of not only high efficiency, small size, high stability, long lifespan, but also high protection grade, and high reliability and complete protection function, etc. It's definitely an ideal charging power supply for electric vehicles.

This charger has built-in heat-sensing device and can automatic recover through the thermal protection. Fully sealed potting process and up to IP67 protection level ensures no causing trouble in any complex environment.

Main Feature: Fully Sealed, Enforce air Cooling/Liquid Cooling (Module Optional)

Reliable working under -35°C- +85°C

Internal temperature sensor

Shut off inside temperature over 90°C

IP67 Protection Level

Working well in immersion shortly

### 2. Essential Parameter

Hardware	DC output Voltage Range	Max Output Current	Power Factor	Full Load Efficiency
48V40A	18-68VDC	40A	≥0.99 (Half-Load more)	≥93%
72V40A	25-99VDC	40A	≥0.99 (Half-Load more)	≥93%
96V32A	34-132VDC	32A	≥0.99 (Half-Load more)	≥93%
144V23A	50-198VDC	23A	≥0.99 (Half-Load more)	≥93%
312V10A	110-440VDC	10A	≥0.99 (Half-Load more)	≥93%
540V06A	170-650VDC	6A	≥0.99 (Half-Load more)	≥93%

### 3. Features

Items		Data
Input	AC Input Range	AC 90~265V
	Frequency	45-65Hz
	Input Current	≤16A

	Power Factor	≥0.99 Half loading
	Efficiency	≥93% Full loading
	Standby Consumption	≤10W
Main Output	Output Mode	CV / CC
	Output Voltage	3300W @ 220VAC ; 1600W@110VAC
	CV Accuracy	±1%
	CC Accuracy	±2%
Low Voltage Output	Ripple Voltage Coefficient	5%
	Output Mode	CV
	Output Voltage	13.8V/27.6V
	CV Accuracy	±1%
	Nominal Current	5A
	Max Current	5.5A±0.5A
	CC Accuracy	±2%
CAN Communication	Ripple Voltage Coefficient	1%
	CAN Communication	Optional
	Baud Rate	125Kbps、250Kbps、500Kbps
	Terminal Resistance	NO

#### 4. Protection Feature

Protection	Input Over-voltage Protection	AC285±5V
	Input Under-voltage Protection	AC85±5V
	Output Over-voltage Protection	Stop the output when exceeds + 1% of the maximum output voltage
	Output Under-voltage Protection	Stop the output when below -5% of the minimum output voltage
	Output Over-current Protection	Stop the output when exceeds + 1% of the maximum output current
	Over-temperature Protection	Power down from 85 °C and shut off at 90 °C
	Short-circuit Protection	Stop Output
	Battery Reverse Connect Protection	Fuse Burned-out
	Ground Protection	≤100mΩ
	CAN communication Protection	Automatically stop the output when CAN communication fails
	Power-off Protection	YES

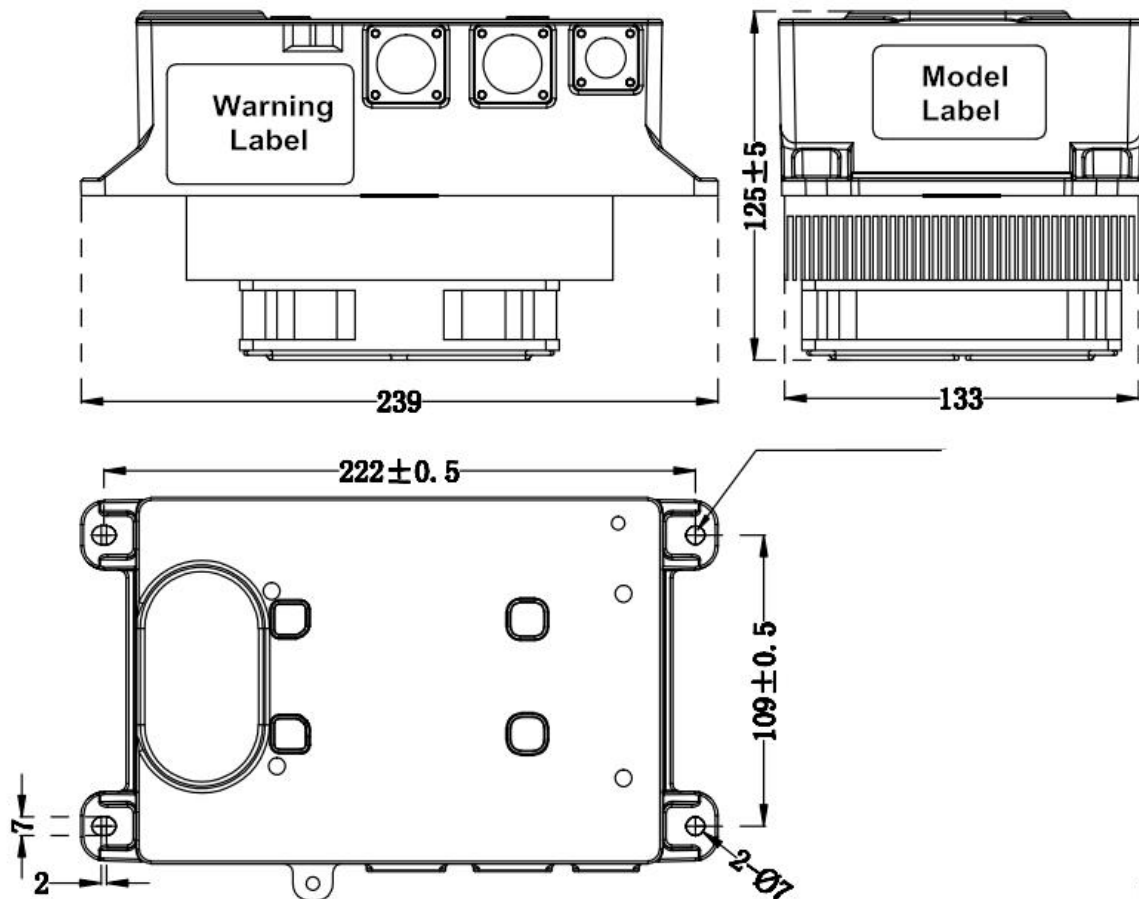
#### 5. Safety and others

Safety&Others	Withstand Voltage	Input to Output: 2000VAC≤10mA Input to Ground: 2000VAC≤12mA Output to Ground: 2000VAC≤10mA, all 1min
	Insulation Resistance	Input, output, signal terminal to casing≥10MΩ Testing Voltage 1000VDC
	Electromagnetic Immunity	GB/T 18487.3-2001 11.3.1
	Electromagnetic Abusive	GB/T 18487.3-2001 11.3.2

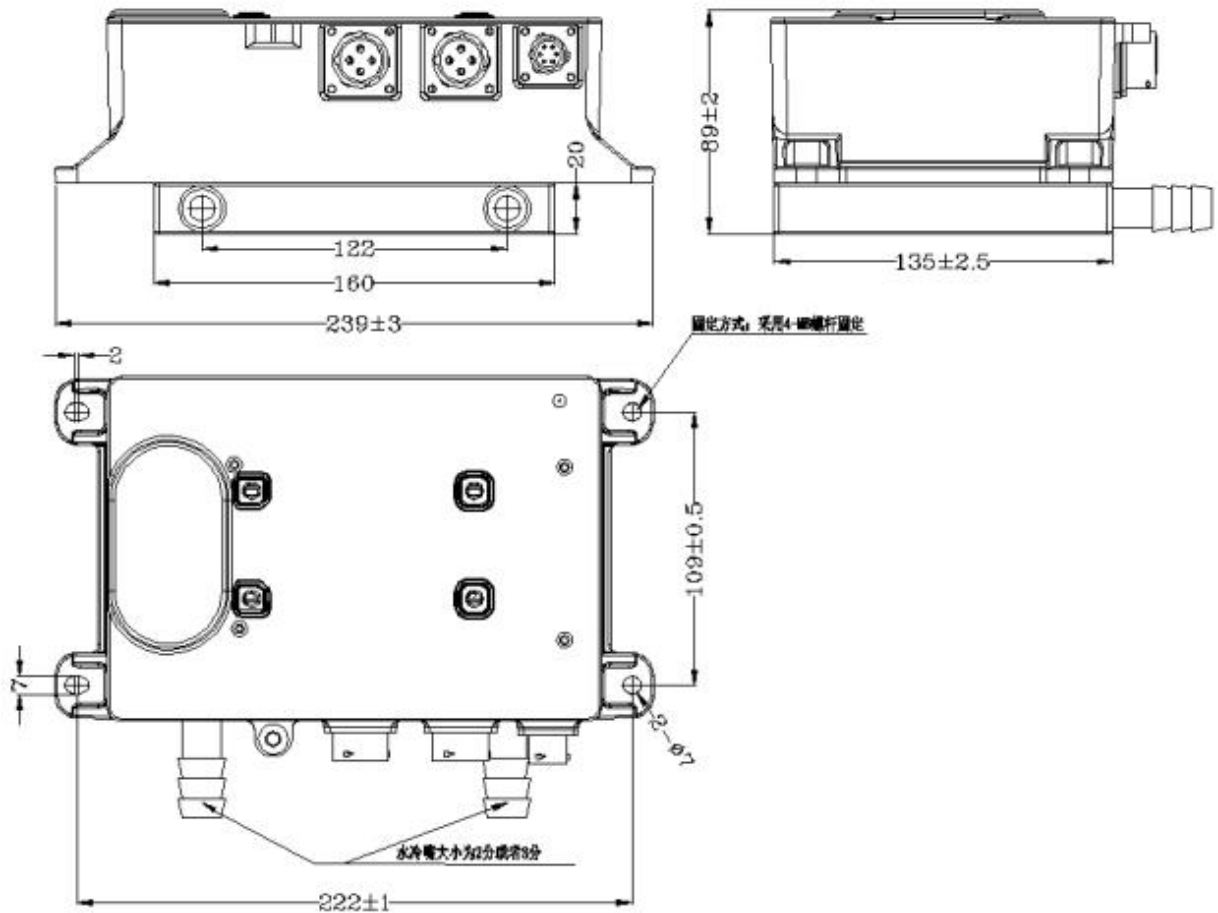
Harmonic Current	GB 17625.1-2003 6.7.1.1
Inrush Starting Current	≤24A
Current-rise Time	≤5S, Overshoot≤5%
Close Response time	From 100% to10%≤50mS, From 100% to 0%≤200mS
Anti-Vibration	10—25Hz Amplitude1.2mm, 25—500Hz 30m/s2, 8hrs per direction
Noise	≤60dB(Class A)
MTBF	150000H
Work Environment	Relative Temp 5%-95% No condensation
Working Temperature	-35℃ ~ +85℃
Storage Temperature	-55℃ ~ +100℃

## 6.Installation Dimensions and Connector Definition

### 6.1.1 Installation Dimensions (Enforce Air Cooling)



### 6.1.1 Installation Dimensions (Liquid Cooling)



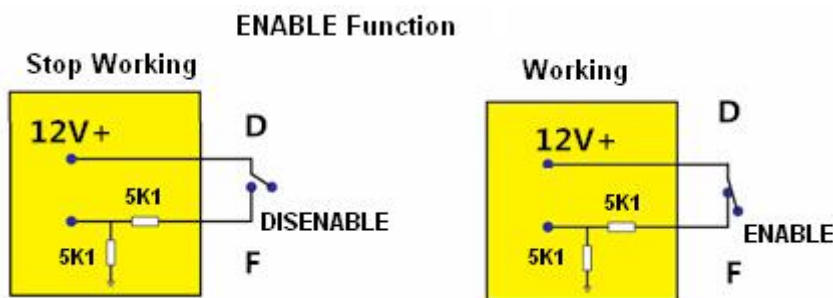
### 6.2 Interface Definition(for 72v,96v,144v)

S. N.	Terminal Name	Terminal Definition	Male Connector	Female Connector	Ver.
1	Charger's AC Input	A-Null line, B-Fire Line, D-GND	XXC103-EV-P4ZA	XXC103-EV-S4TA	XINXI
2	Charger's DC Output	A.D-Positive B.C-Negative	XXC103-EV-P4ZB	XXC103-EV-S4TB	XINXI
3	Signal Control	A-CANL, B-CANH, C-CANGND, D-12V+, E-12V-, F-Enable.	XXC103-EV-P6ZC	XXC103-EV-S6TC	XINXI

### 6.3 Interface Definition(for 312v, 540v)

S. N.	Terminal Name	Terminal Definition	Male Connector	Female Connector	Ver.
1	Charger's AC Input	A-Null line, B-Fire Line, D-GND	XXC103-EV-P4ZA	XXC103-EV-S4TA	XINXI
2	Charger's DC Output	A.-Positive B.-Negative	XXC103-EV-P4ZB	XXC103-EV-S4TB	XINXI
3	Signal Control	A-CANL, B-CANH, C-CANGND, D-12V+, E-12V-, F-Enable.	XXC103-EV-P6ZC	XXC103-EV-S6TC	XINXI

### 6.4 Enable Control



### 7.LED Status

#### 1). Initial State

Red Off Green Off Red Off Green Off Red Off Green Off Red Off Green Off

#### 2). Charging State

Red Off Red Off Red Off Red Off Red Off Red Off Red Off Red Off

#### 3). Stand-by State

Green Off Green Off Green Off Green Off Green Off Green Off Green Off Green Off

#### 4). Fault State

Red Green Red Green.....Other error status word error

Red Green.....Wrong Battery

Red Green Red.....Wrong Communication

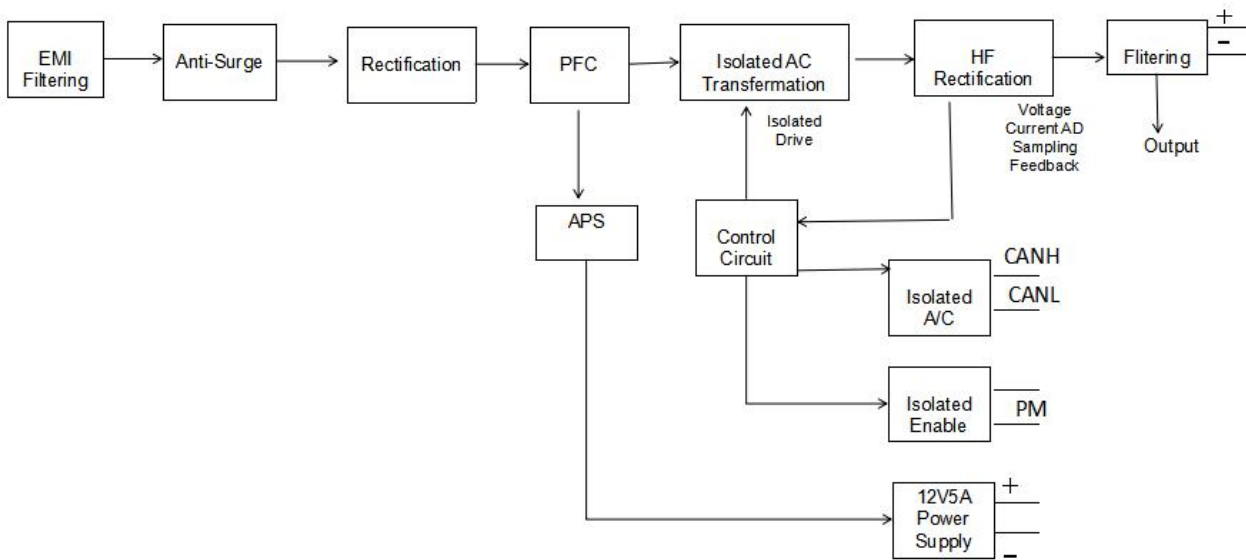
Green Red.....Wrong Input Voltage

Green Red Green.....Internal Temperature Protection

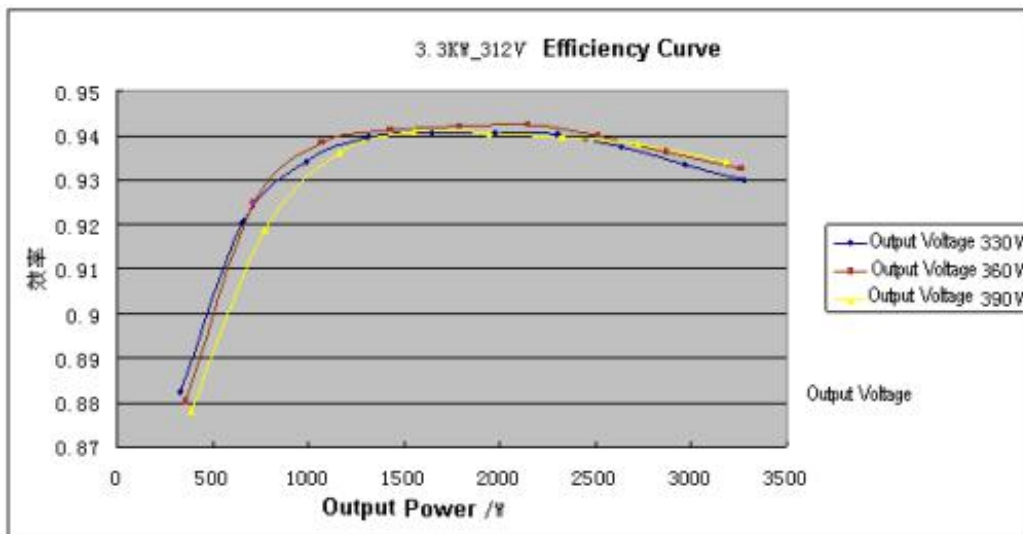
Green Red Green Red.....Wrong Hardware

## 8. Schematic diagram and the efficiency curve

### 8.1 Schematic Diagram



### 8.2 Efficiency Curve



## 9. Appearance Requirements

- 1). Outer surface should be smooth without obvious defects such as scratch, deformation. Surface coating should be uniform.
- 2). The nameplates and signs should be installed firmly with the neat handwriting.
- 3). Spare parts should be fastened reliably without rust, burrs, cracks and other defects and damage.

- 4). Each product should be marked with product identification in obvious place, including part number, product brand, product type, production number, name of production enterprises, the warning message, etc

## **10. Packaging, Transport and Storage**

### **1). Packaging**

On the packing box, there are product name, product part number, product brand, product type, production number and name of manufacturer; In packing box, along with the technical documents, it includes packing list, quality certificate, product specification.

### **2). Transportation**

Suitable for cars, boats, aircraft, transportation. The products have to be prevented against sunshine and moisture and in a civilized transportation.

### **3). Storage**

Product should be stored in the packing box when it is not used and be maintained in a 5 °C to 40 °C clean, dry and well-ventilated environment. It should not be stored together with chemicals, acid and alkali substances etc,. Should avoid storing in the sun, fire, water and avoid storing with corrosive substances. The storage period is 2 years (from the inventory date of the factory). After the 2 years of storage period, the products should still comply with the provisions of the relevant standards.