

Instruction for

3.3KW HK-J Series Charger

3.3KW HK-J 系列 车载充电机

使用说明书 User Manual



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一、概述

HK-J 系列 3.3KW 充电机是杭州铁城信息科技有限公司根据充电机国家标准，专为电动车辆动力电池补充电能设计的产品。该产品不仅具有效率高、体积小、高稳定度、寿命长等优点，更具有高防护等级、高可靠、保护功能齐全等特点，是电动车辆充电的理想电源。充电机内置热感应器件，具有过热保护功能，可自动恢复。全密封灌封工艺，高达 IP67 的防护等级，可以确保在任何复杂环境下工作而不会导致故障发生。

主要特点：

- 全灌封工艺，风冷散热（模块式可选）
- 能在 -35℃ - +85℃ 条件下可靠工作
- 内置温度传感器
- 可在危险作业条件下（内部 95℃）关断输出
- 防护等级 IP67
- 可在短时浸水工况下安全工作

二、基本参数

输入电压范围	输入电流	输出电压范围	输出最大电流	功率因数	满载效率
AC90~265V	16A	110~440VDC	10A	≥0.99 半载以上	≥93%

型号

硬件	型号
72V40A	HK-J-H99-40-XXCANXXXX/X-001
84V40A	HK-J-H116-40-XXCANXXXX/X-001
92V32A	HK-J-H132-32-XXCANXXXX/X-001
144V23A	HK-J-H198-23-XXCANXXXX/X-001
312V10A	HK-J-H440-10-XXCANXXXX/X-001

三、产品特点

低 压 输 出	输出方式	恒压
	输出电压	13.8V
	额定电流	5A
	恒压精度	±2%
	最大电流	5.5A±0.5A
	输出功率	≥62.5W
	纹波电压系数	1%

输入	频率	45-65Hz
	待机功耗	≤5W
主输出	输出方式	恒压 / 恒流
	输出功率	3300W@220VAC 1600W@110VAC
	恒压精度	±1%
	恒流精度	±2%
	纹波电压系数	5%
通信功能	CAN 通信	有
	波特率	125Kbps、250Kbps、500Kbps
	终端电阻	无

四、保护功能

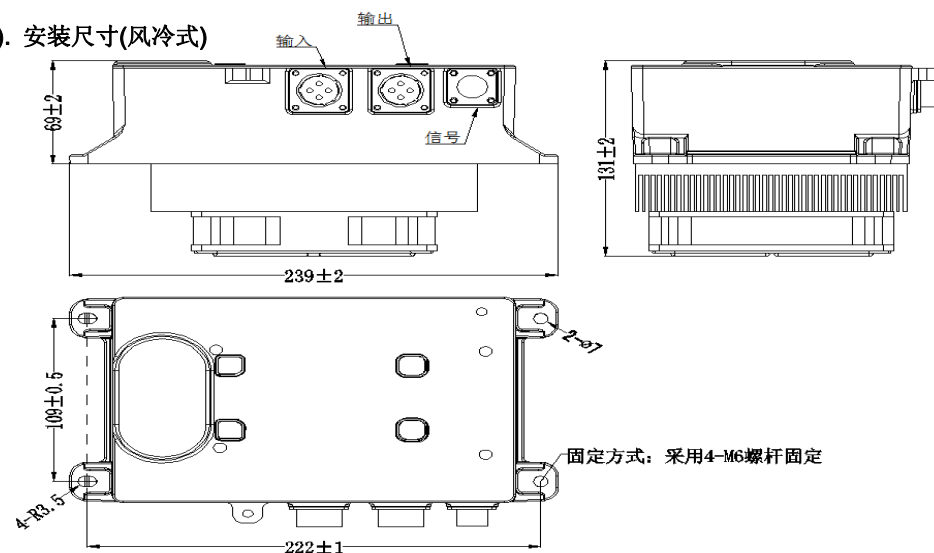
输入过压保护	AC270±5V
输入欠压保护	AC85±5V
输出过压保护	超过最高输出电压+1%时，停止输出
输出欠压保护	低于最低输出电压-5%时，停止输出
输出过流保护	超过最大输出电流+1%时，停止输出
过温保护	85℃开始功率下降，90℃关机
短路保护	停止输出
电池反接保护	保险丝熔断
接地保护	≤100mΩ
CAN 通信保护	CAN 通信失效时自动停止输出
断电保护	有

五、安规和其他

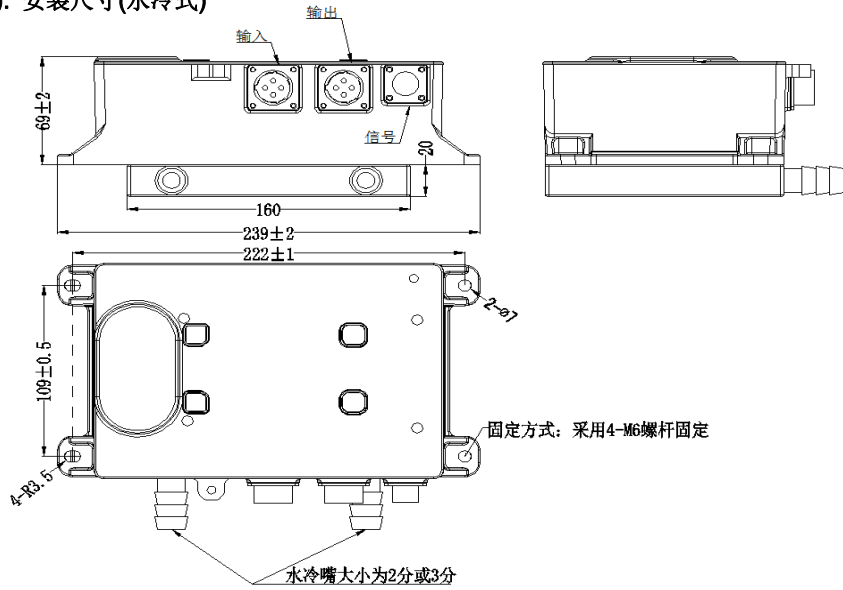
耐压	输入对输出：2000VAC≤10mA 输入对地：2000VAC≤12mA 输出对地：2000VAC≤10mA，均为 1min
绝缘电阻	输入端、输出端、信号端对外壳≥10MΩ，测试电压 1000VDC
电磁抗扰性	满足 GB/T 18487.3-2001 11.3.1 条
电磁骚扰性	满足 GB/T 18487.3-2001 11.3.2 条
谐波电流	满足 GB 17625.1-2003 6.7.1.1 条
启动冲击电流	≤24A
电流上升时间	≤5S，超调量≤5%
关闭响应时间	100%到 10%≤50mS，100%到 0%≤200mS
防护等级	IP67
耐振动	10-25Hz 振幅 1.2mm，25-500Hz 30m/s ² ，每方向 8 小时
噪声	≤60dB(A 级)
MTBF	150000H
工作环境	相对湿度 5%-95%无结露
工作温度	-35℃ ~ +85℃
储存温度	-55℃ ~ +100℃

六、安装尺寸及接口定义

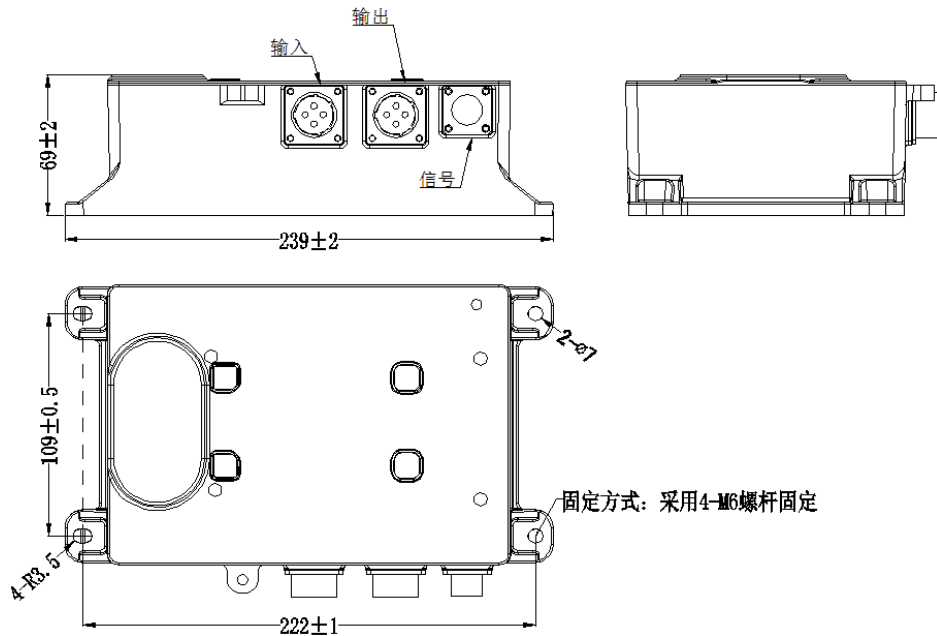
1). 安装尺寸(风冷式)



2). 安装尺寸(水冷式)



3). 安装尺寸(模块式)



接口定义

序号	端口名称	端子定义	连接器型号	对插连接器型号	连接器厂家
1	充电机AC输入	A-零线、B-火线、D-地线	DY7-4ZJN	DY7-4TKP1N	鑫喜
2	充电机DC输出	A-正极, B-负极	DY7-4ZJW75°	DY7-4TKP1W	鑫喜
3	信号控制	A-CANL、B-CANH、C-CANGND D-12V+、E-12V-、F-12V200mA	DY7-6ZJN	DY7-6TKP1N	鑫喜

七、指示灯状态定义

1、初始状态

红灭绿灭红灭绿灭红灭绿灭红灭绿灭

2、充电状态

红灭红灭红灭红灭红灭红灭红灭红灭

3、待机状态

绿灭绿灭绿灭绿灭绿灭绿灭绿灭绿灭

4、故障状态

红绿红绿……………其他错误状态字错误

红绿……………电池错误

红绿红……………通讯错误

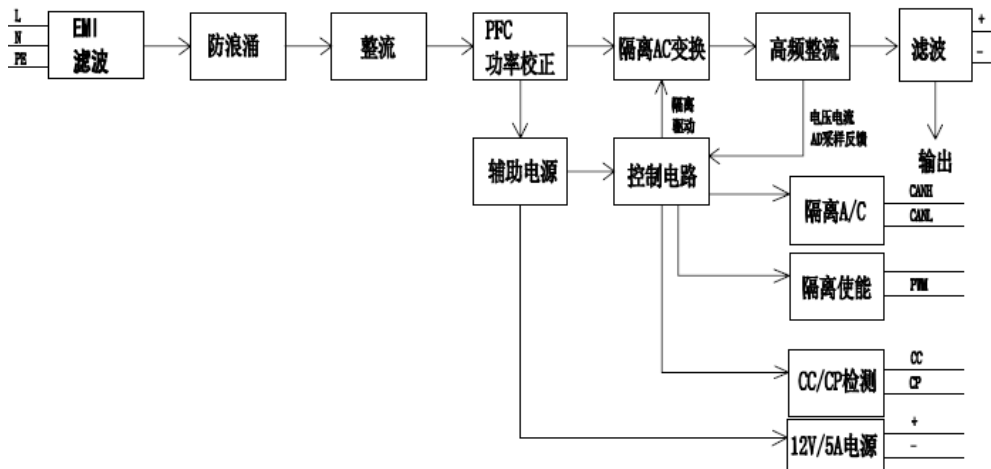
绿红……………输入电压错误

绿红绿……………内部温度保护

绿红绿红……………硬件错误

八、原理框图及效率曲线

1). 原理框图



十、包装、运输、贮存

1、包装

包装箱上有产品名称、产品零部件号、产品商标、产品型号、生产编号、生产企业名称；包装箱中随同产品供应的技术文件应包括装箱单、产品出厂合格证、产品使用说明书。

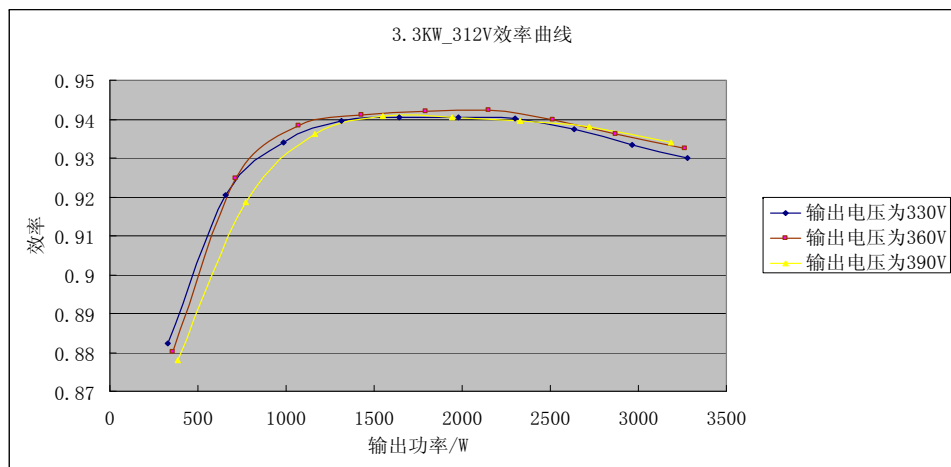
2、运输

适应于车、船、飞机运输，运输中应防晒、防潮、文明运输。

3、贮存

产品未使用时应存放在包装箱内，应保持 5℃~40℃ 的清洁、干燥及通风良好的环境，不应与化学药品、酸碱物质等一同存放。应避免日晒、火烤、水浸、与腐蚀性物质放在一起。产品的贮存期为 2 年（从制造厂入库日期算起），在贮存期满 2 年时，产品仍应符合有关标准的规定。

2). 效率曲线



九、产品外观要求

- 1、外表面应平整，无明显的划伤、变形等缺陷。表面涂镀层应均匀。
- 2、铭牌、标志安装端正牢固，字迹清晰。
- 3、零部件应紧固可靠，应无锈蚀、毛刺、裂痕等缺陷和损伤。
- 4、每件产品应在明显部位标有产品标识，含零部件号、产品商标、产品型号、生产编号、生产企业名称、警示说明等。

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- Web: www.tccharger.com
- Email: charger@tccharger.com

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.

Key Features:

Fully sealed potting process, water cooling (modular optional)	Work reliably under -35°C- +85°C
Built in thermal sensor	Cut off output under dangerous operations conditions (internal 95°C)
Protection level IP67	Work safely in the short-term immersion conditions

2. Essential Parameter

Input Voltage Range	Input Current	Output Voltage Range	Max Output Current	Power Factor	Full-load Efficiency
AC90~265V	16A	110V~400VDC	10A	≥0.99 (half-load more)	≥93%

Models

Hardware	Model
72V40A	HK-J-H99-40-XXCANXXXX/X-001
84V40A	HK-J-H116-40-XXCANXXXX/X-001
92V32A	HK-J-H132-32-XXCANXXXX/X-001
144V23A	HK-J-H198-23-XXCANXXXX/X-001
312V10A	HK-J-H440-10-XXCANXXXX/X-001

3. Features

Low Voltage Output	Output Mode	Constant Voltage
	Output Voltage	13.8V
	Rated Current	5A
	CV Accuracy	±2%
	Maximum Current	5.5A±0.5A
	Output Power	≥62.5W
	Ripple Voltage Coefficient	1%
Input	Frequency	45-65Hz
	Stand-by Consumption	≤5W
Main Output	Output Mode	CV / CC
	Output Power	3300W@220VAC 1600W@110VAC
	CV Accuracy	±1%
	CC Accuracy	±2%
	Ripple Voltage Coefficient	5%
Communication Function	CAN Communication	Yes
	Baud Rate	125Kbps、250Kbps、500Kbps
	Terminal Resistance	N/A

4. Protection function

Input Over-voltage Protection	AC270±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

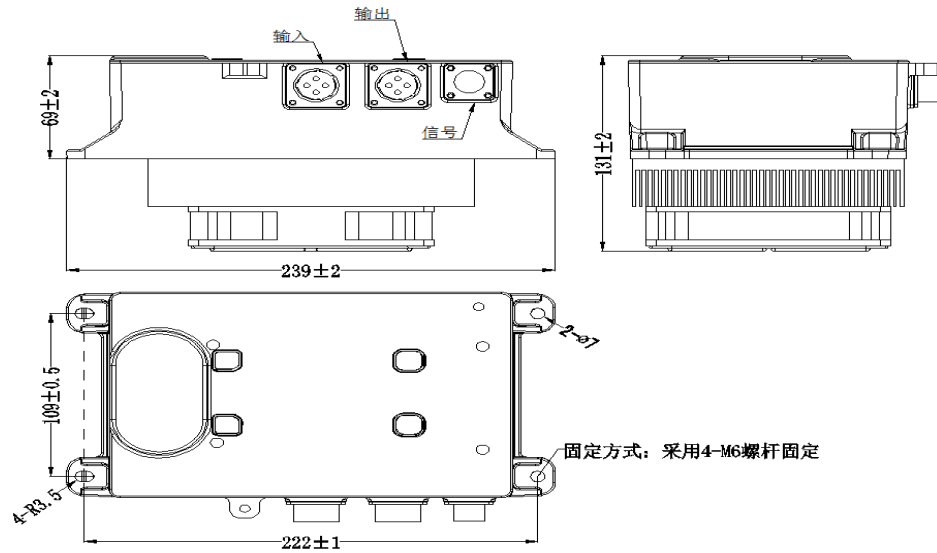
Over-temperature Protection	Power down from 85 °C and turn off at 90°C
Short-circuit Protection	Stop Output
Battery Reverse Connect Protection	Fuse Burn-out
Ground Protection	≤100mΩ
CAN communication Protection	Automatically stop the output when CAN communication fails
Power-off Protection	Yes

5. Safety and others

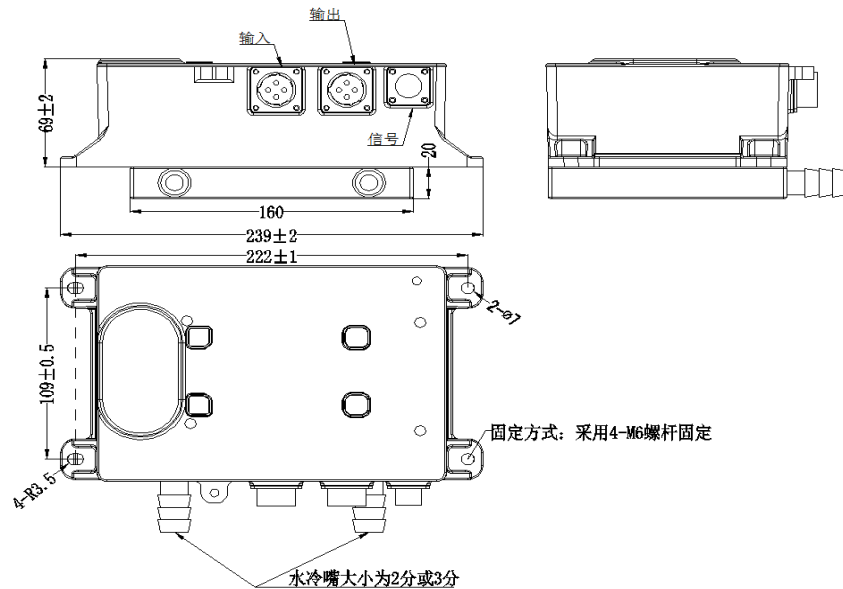
Withstand Voltage	Input to Output: 2000VAC≤10mA Input to Ground: 2000VAC≤12mA Output to Ground: 2000VAC≤10mA, all 1min
Insulation Resistance	Input, output, signal terminal to casing ≥10MΩ Testing Voltage 1000VDC
Electromagnetic Immunity	GB/T 18487.3-2001 11.3.1
Electromagnetic Abusive	GB/T 18487.3-2001 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	100%到 10%≤50mS, 100%到 0%≤200mS
Protection Level	IP67
Vibration Resistance	10—25Hz Amplitude1.2mm, 25—500Hz 30m/s ² , 8hrs per direction
Noise	≤60dB(A 级)
MTBF	150000H
Work Environment	Relative Temp 5%-95% No condensation
Working Temperature	-35°C ~ +85°C
Storage Temperature	-55°C ~ +100°C

6. Installation Dimensions & Interface Definition

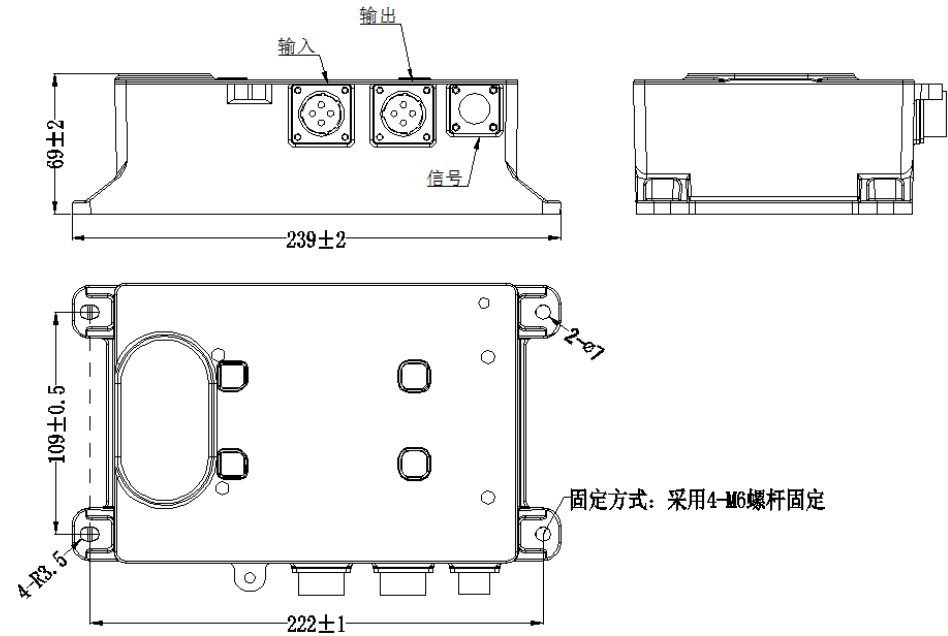
1). Installation Dimensions (Air-cooled)



2). Installation Dimensions (Water-cooled)



3). Installation Dimensions (Module Type)



Interface Definition

S. N.	Port Name	Terminal Definition	Connector Model	Matching Connector	Vender
1	Charger's AC Input	A-Null line, B-Fire Line, D-GND	DY7-4ZJN	DY7-4TKPIN	XINXI
2	Charger's DC Output	A-Positive B-Negative	DY7-4ZJW75°	DY7-4TKP1W	XINXI
3	Signal Control	A-CANL, B-CANH, C-CANGND, D-12V+, E-12V-, F-12V200mA	DY7-6ZJN	DY7-6TKP1N	XINXI

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

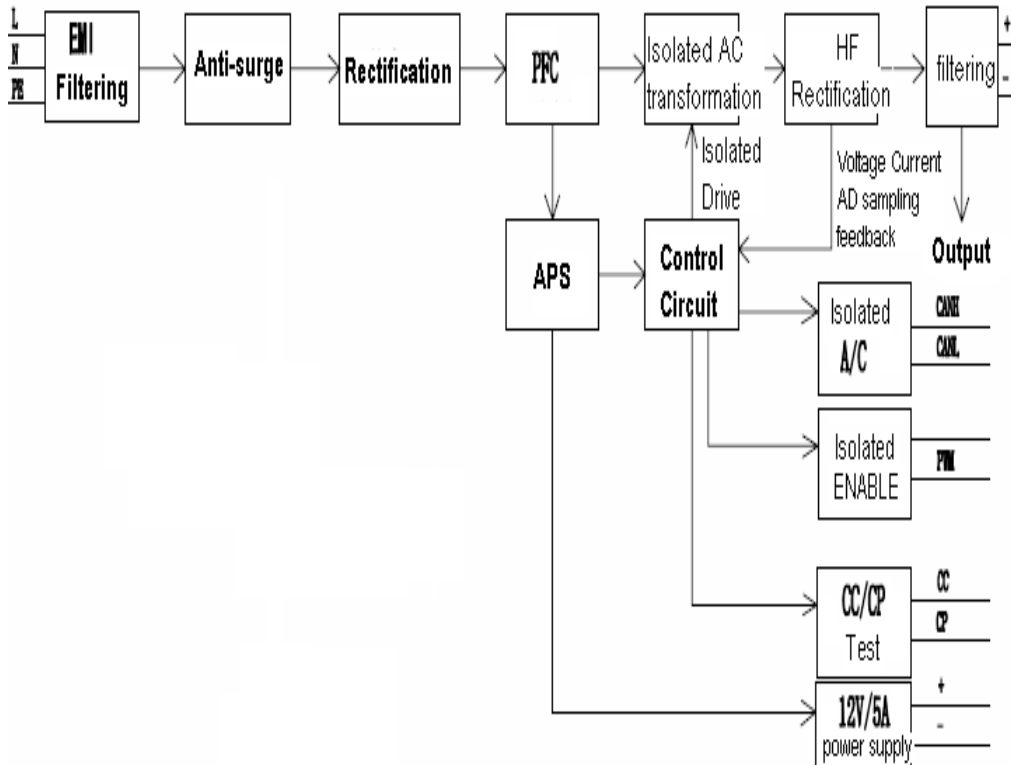
Green Red.....Wrong Input Voltage

Green Red Green.....Internal Temperature Protection

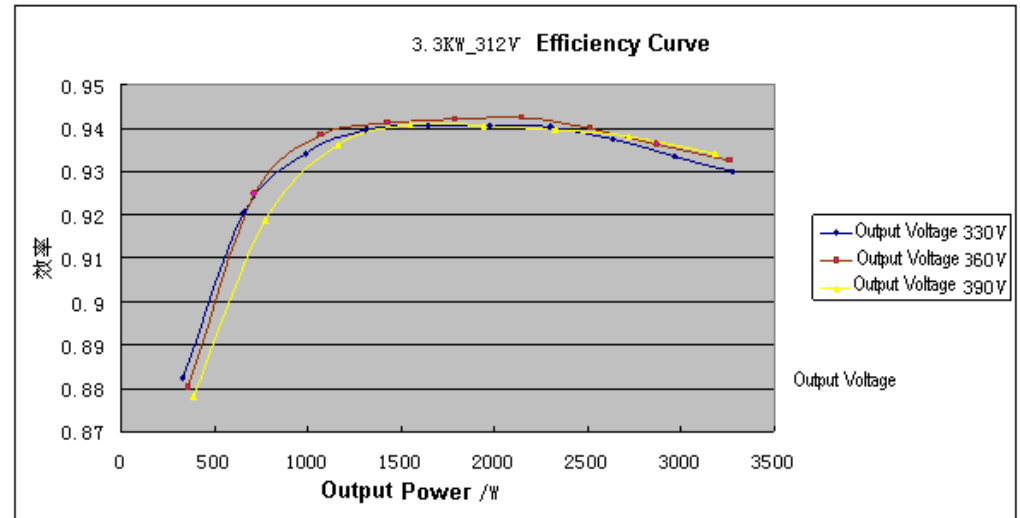
Green Red Green Red.....Wrong Hardware

8. Schematic diagram and the efficiency curve

1). Schematic Diagram



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.