



# Specification of Intelligent 3-Phase Charger

Model No. : RT02D-120030

## SPECIFICATION FOR APPROVAL

**CUSTOMER :** \_\_\_\_\_

**Customer No.:** \_\_\_\_\_

**TYPE : Intelligent 3-Phase Charger**

**Model No.: RT02D-120030**

**RBD No.:** \_\_\_\_\_

**Revision: 0.1**

**Total page: 7**

**Date : 2012-2-4**

APPROVAL		
SIGNATURE	CHECKED BY	APPROVED BY

- Remark: 1). Please approve and sign back to RBD Technology .  
2). If there is no signing back, this Approval will be regarded as being approved automatically once the first P.O. of the model specified in the sheet is issued.

SUPPLIER		
Prepared By	Checked By	Approved By

**ADD: Fuqiao Industrial Area(No.2 Area North),Qiaotou Village,Fuyong Town,  
Bao an Area,SHENZHEN,CHINA**



# Specification of Intelligent 3-Phase Charger

Model No. : RT02D-120030

TEL : ( 0755 ) 33850603

FAX : ( 0755 ) 29912756

## 1. Input Data:

### 1.1 Input Voltage & Frequency:

The range of input voltage is from 100Vac to 240Vac. ,

The range of input frequency is from 47Hz to 63Hz;

### 1.2 Efficiency:

The efficiency (watts out / watts in) is more than 75% typical while measuring at nominal line and rated load.

### 1.3 Input current:

The maximum input current is 1,5A at 100Vac at standard load 3,0A.

### 1.4 Input Surge Current:

When Voltage is 240VAC, Input Surge current is less than 80A, cold start, 25°C;

### 1.5 Input Current Leakage:

when voltage is 240VAC, leak current is less than 0.25mA;

### 1.6 NO LOAD POWER:

The charger loss at no load operation shall be less than 1,0W at any input voltage.

### 1.7 Turn on delay :

During turn on and turn off, no voltage shall exceed its nominal voltage by more than 10% and no output will change its polarity with respect to its return line. All output shall reach their steady state values within 30 seconds of turn on.

## 2. Output Data:

### 2.1 Output Charging Voltage:

Maximum charging voltage: DC 14,7±0,2V, float charging voltage DC13,7±0,2V

### 2.2 Output Charging Current (limited current):

Rating charging current is DC3,0A , in range DC 2,7A---3,3A;

Charged in range DC 0,65A---0,95A;

### 2.3 LED Display:

LED: Red: Charging ; Green: Charged

### 2.4 Static DC Load (CV domain):

Nominal Voltage (V)	Load Current(A)		Regulation
	MIN.	MAX.	
13,7	0	3,3	13,7±0.2V

### 2.5 Static DC Load (CV domain)

Nominal Current	Load Voltage (V)	Regulation
-----------------	------------------	------------

(A)	MIN.	MAX.	
3,0	9V	14,9V	2,7A-3,3A

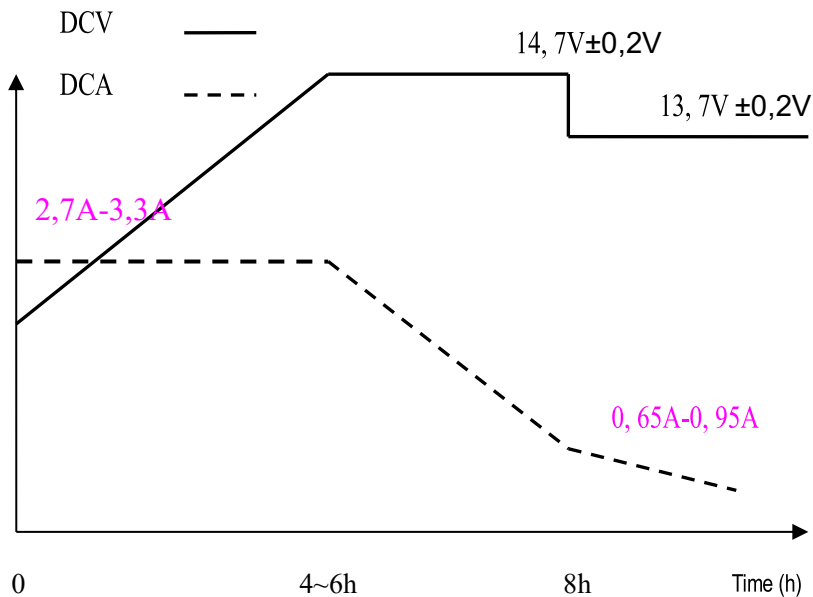
## 2.6 Ripple and Noise

The ripple and noise of the outputs shall be measured at the load end if the output cables when terminated to a load impedance as specified in paragraph 3.3.

Output voltage		Ripple & Noise (P-P)	
<13,7 In CC mode	V	1500	mV
>14,7 In CV mode	V	500	mV

## 2.7 Output Charging Characteristic:

Relation between output voltage, current and time is as following chart:



**Note:** this chart is for 12V20AH battery, 2pcs use, for other 12V battery, the charging time should be adjusted accordingly.

## 2.8 Over Temperature Protection

When the inside temperature of charger rise to 90~130 degree C, the charger will shutdown and latch off until the temperature of charger decline to 60~100 degree C,

## 2.9 Short Circuit Protection :

No damage to the Charger shall be sustained when operating into a short

circuit condition for an indefinite period of time. The Charger shall be self – recovering when fault condition removed.

## 2.10 Over power protection:

The Charger shall provide over power protection on output. Maximum power inception point of output shall be Hiccup mode.

## 2.11 Over voltage protection:

The Charger shall provide over voltage protection on output. Maximum voltage inception point of output shall be Hiccup mode.

## 2.12 Stability of Circuit:

within the input voltage range, the charger will keep a stable performance whilst under any load;

## 2.13 Caution:

Should be reverse polarity protected i.e the charger or battery will not be damaged if the +ve and -ve wires are connected reversely to the battery terminals

## 2.14 The leakage current

less than 1mA current drain from the battery when charger is connected to battery with AC Off.-There is output voltage on DC wires when charger is with AC On and not connected to the battery

## 3.0 ENVIRONMENTAL CONDITIONS

### 3.1 Operating

The power supply shall be capable of operating continuously in any mode without performance deterioration in the following environmental conditions.

3.1.1 Ambient Temperature: 0-40°C

3.1.2 Relative Humidity: 20% ~ 90%

3.1.3 Vibration: 1.0mm, 10 –25Hz, 15 minutes per cycle for each axis (X, Y, Z)

### 3.2 Non - operating:

The power supply shall be capable of standing the following environmental conditions extended periods of time, without sustaining electrical or mechanical damage and subsequent operational deficiencies:

3.2.1 Ambient Temperature:-20°C ~ 70°C

3.2.2 Relative Humidity: 20% ~ 90%

3.2.3 Vibration: 1.0mm, 10 –25Hz, 15 minutes per cycle for each axis (X, Y, Z)

### 3.3 Dropping Test:

Charger dropped from 1.0m height to a 10mm pine board, repeat it for 4times



# Specification of Intelligent 3-Phase Charger

Model No. : RT02D-120030

with charger each side;Result: no crack / break, no parts become flexible or not fastened; all related data remains correct.With the height of 1.0m, charger fall off to 10mm pine board, 4 times/ each face;

## 4.0 RELIABILITY AND QUALITY CONTROL

### 4.1 MTBF

When the power supply is under normal operation within the limits of this specification the MTBF shall be at least 10,000 hours at 25°C.

### 4.2 Burn-In

The power supply will be burn-in for a minimum 4 hours at room temperature under full load.

### 4.3 Temperature Raising

Input voltage is AC 100V +/-10%, AC 240V +/-10%; output current is3.0ATest the case surface temperature raising. Need pass the following requirement: case surface part temperature is less than 80 Degree C at the ambient temperature 25 Degree C .

### 4.4 Loading Consecutive Operation

When the unit is left with input voltage is AC 100V +/-10%; AC240V +/-10%. And the output voltage loading 3.0A. No special temperature raising and need pass item 2.0 specification.

## 5.0 SAFETY STANDARD

### 5.1 Safety

The power supply must be certified under following international standards:

Mark	Certified	Standard
CE	MEET	EN60335 latest amendment (reference)

### 5.2 EMC standards

The power supply meets the radiated and conducted emission requirements for EN55014-1 、 EN55014-2

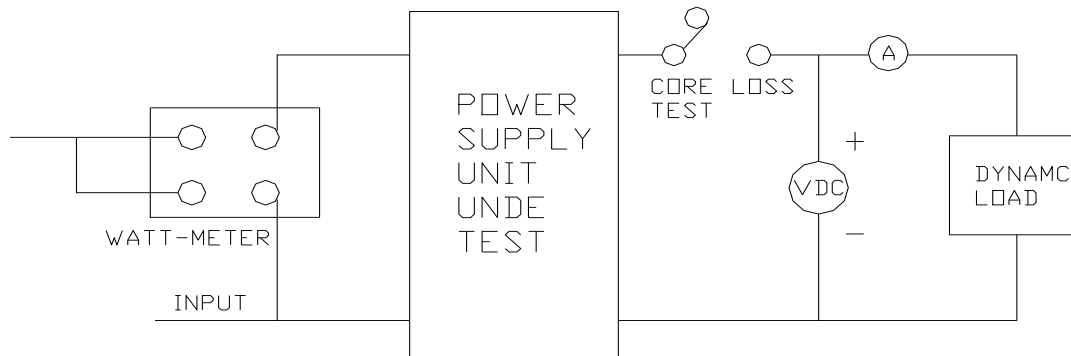
### 5.3 Insulation resistance

Input to output: minimum 100M OHM at 250 VDC.

### 5.4 Dielectric Strength (Hi-Pot)

Primary to Secondary: **AC 3000 Vrms, 10 mA, 1 minute** for type test, **3 seconds** for production test.

## 6.0 Test Circuit



## 8. Mechanism Characteristic:

- 3.1 Plastic enclosure: With ULPC+ABS.
- 3.2 Physical Size: 118mm(L)\*60mm(W)\*38mm(H).
- 3.3 DC cord:1200mm. Red and black. 20AWG
- 3.4 Outlook Dimension





# Specification of Intelligent 3-Phase Charger

Model No. : RT02D-120030

## 9.0 Attachment

- 9.1 Testing data(it is for sample only);
- 9.2 Load regulation(it is for samples only).

## 10.0 Design Modification History List

Part No.:

Model Name: RT02D-120030

Item	ECN No.	Details of the Modification	Date	Revision	Remark
<b>1</b>		<b>First release</b>	Feb 04 2011	<b>0.1</b>	



# Specification of Intelligent 3-Phase Charger

Model No. : RT02D-120030

---