

SmartGen

MAKING CONTROL SMARTER

BAC1210 BATTERY CHARGER

USER MANUAL



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SMARTGEN(ZHENGZHOU)TECHNOLOGY CO.,LTD.

SmartGen众智 Chinese trademark

SmartGen English trademark

SmartGen – make your generator *smart*

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Table 1 Software Version

Date	Version	Note
2015-03-09	1.0	Original release
2020-04-01	1.1	Changed cover photo, mask and writing format.
2022-05-25	1.2	Updated the manual format and the logo of SmartGen.

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1. OVERVIEW

Fit with up-to-date power supply device, battery charger BAC1210 is specially designed for meet the charging characteristics of the lead-acid engine starter batteries and can be used for long-term float charging. It suits 12V battery pack.

2. PERFORMANCE AND CHARACTERISTICS

It has following characteristics:

- 1) Switch power supply structure, wide input alternating voltage range, small size, light weight, high efficiency rate;
- 2) Automatic two-stage charging process (first constant current, then constant voltage) carried out according to storage battery charging characteristics to prevent overcharging and significantly prolong battery lifetime;
- 3) Built-in current protective circuit, which can give effective protection when output over current, short-circuit or reverse connection occurs. Regard power lamp or charge lamp fast blinking as alarm.
- 4) Suitable for 12V storage battery and the rated current is 10A;
- 5) External LED display: Power indication (Green light) and charging indication (Red light).

3. CHARGING PRINCIPLE

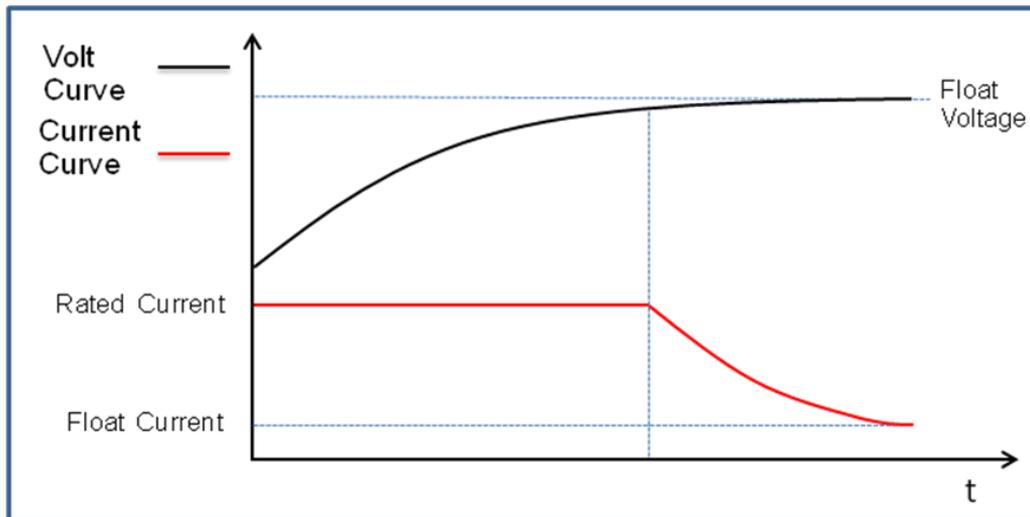


Fig. 1 Charging Principle

Charging is performed according to the battery charging characteristics by using two-stage method. Charging type of first stage is 'constant current type' which means that when the battery terminal voltage falls below the pre-set value, charging current will be constant; Charging type of second stage is 'floating type' which means when the battery terminal voltage exceeds the pre-set value, charging current will decrease with the rising of terminal voltage; At this time charging turns to floating charging. As soon as charging current value falls below 0.5A and battery terminal voltage reaches up to the pre-set constant voltage value, the battery is basically full-charged (charging indicator will extinguish). After that charging current will only neutralize the battery self discharge. Even long-term charging cannot harm the battery, as charger can keep the battery fully charged and also guarantee long lifetime of the battery.

4. SPECIFICATION AND PARAMETERS

Table 2 Product Parameters

Items	Contents	Parameters	
Input Characteristics	Nominal AC Voltage	AC (100~277)V	
	Max. AC Voltage	AC (90~305)V	
	AC Frequency	50Hz/60Hz	
	Max. Input Current	3A	
	Efficiency	AC 110V >81%	AC 220V >83%
Output Characteristics	Rated Charging Current	10A (Error±1%)	
	Max. Output Power	135W	
	No-load Output Voltage	13.8V (Error±1%)	
	No-load power consumption	<3W	
Insulating Property	Insulating Resistance	Between input and output, input and shell both are: DC500V 1min $R_L \geq 500M\Omega$	
	Insulating Voltage	Between input and output, input and shell both are: AC1500V 50Hz 1min Leakage current: $I_L \leq 3.5mA$	
Working Condition	Working Temperature	(-30~55)°C	
	Storage Temperature	(-40~85)°C	
	Working Humidity	20%RH~93%RH (No condensation)	
	Storage Humidity	10%RH~95%RH (No condensation)	
Shape Structure	Weight	0.8kg	
	Dimension	145.5mm*131mm*55mm (length*width*height)	

5. EFFICIENCY CURVE

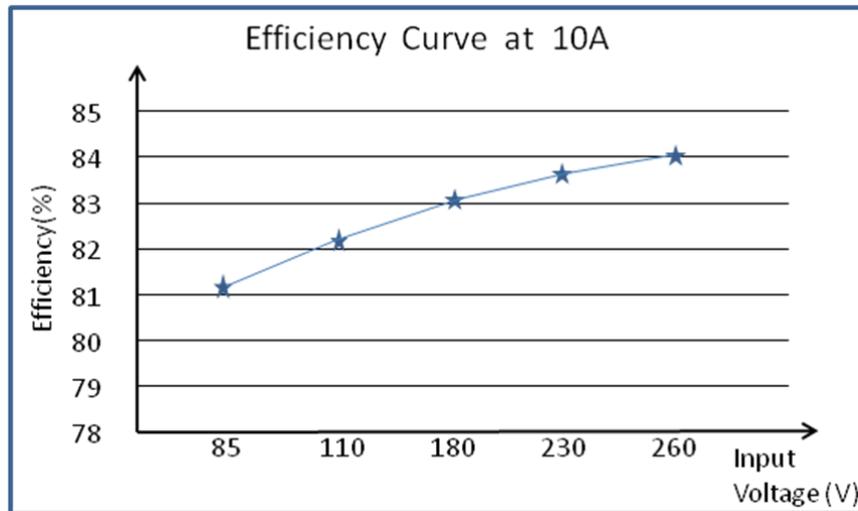


Fig. 2 Efficiency Curve

6. OPERATION



Fig. 3 BAC1210 Panel Mask

- 1) Connect terminals L and N to alternating voltage (100-277)V using BVR 1mm² multi-strand copper line.
- 2) Connect B+ and B- to battery positive and negative using BVR 2.0mm² multi-strand copper line.
- 3) PE terminal inside has already been connected to shell, which is earth terminal.
- 4) FULL: full charging indicator, it is illuminated when battery is fully charged.
- 5) CHARGING: charging indicator, illuminated when charging current exceeds 0.5A, extinguished when charging is completed.

NOTES:

- 1) Because there is diode and current-limiting circuit inner the charger, it can be used together with charging generator in parallel, and there is no need to disconnect the charger when cranking.
- 2) During genset is running, high current will cause voltage drop in charging line, so recommend separately connecting to battery terminal to avoid disturbance on sampling precision.

7. CASE DIMENSION

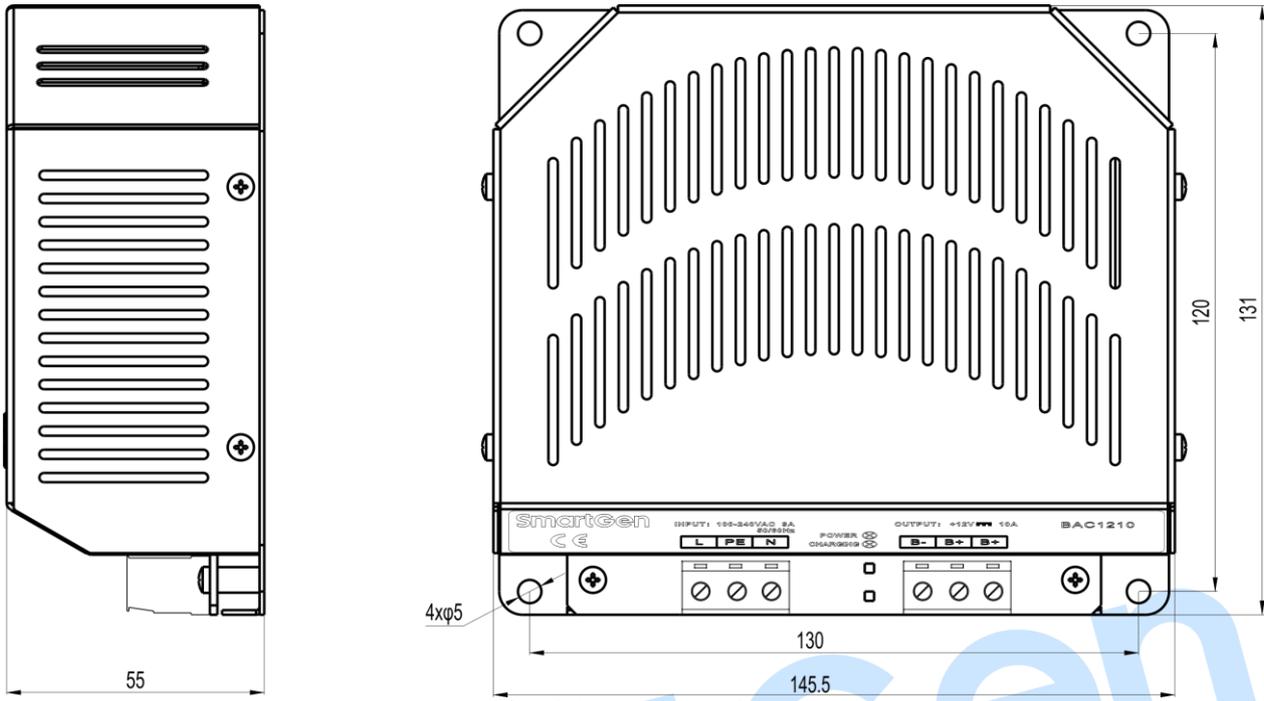


Fig. 4 Case Dimension