

# SmartGen

MAKING CONTROL SMARTER

## BAC2410D

## BATTERY CHARGER

## USER MANUAL



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Table 1 Software Version

Date	Version	Note
2024-01-08	1.0	Original release.

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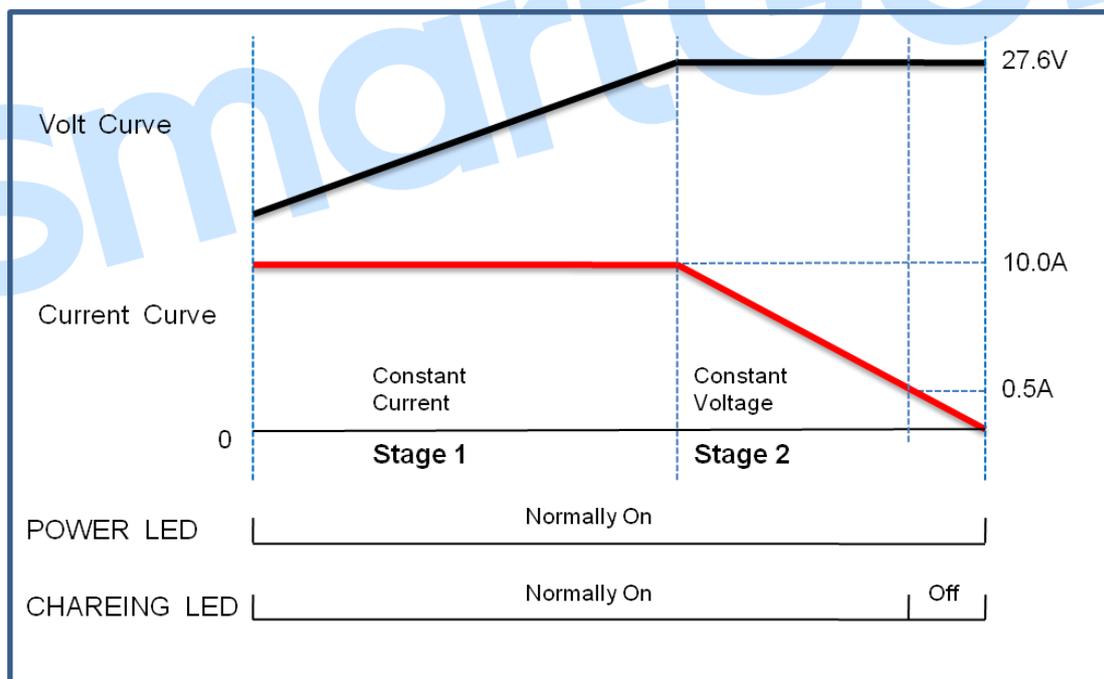
## 1 OVERVIEW

Fit with up-to-date power supply device, float charger BAC2410D is specially designed for meet the charging characteristics of the lead-acid engine starter batteries and can be used for long-term float charging of 24V lead-acid batteries.

## 2 PERFORMANCE AND CHARACTERISTICS

- a) Switch power supply structure, wide input alternating voltage range, small size, light weight, high efficiency rate;
- b) 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;
- c) Built-in PFC circuit can calibrate the power factor above 0.99;
- d) 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;
- e) Suitable for 24V storage battery and the rated current is 10A;
- f) LED display: Power indication (Green light) and charging indication (Red light).
- g) Monitoring display: Digital tube circularly display the current charging voltage and charging current.

## 3 CHARGING PRINCIPLE



**Fig.1- Two-stage Charging Method**

Charging is performed according to the battery charging characteristics using two-stage method.

- 1) The first stage is named as 'constant current': when the battery terminal voltage falls below the pre-set value;
- 2) The second stage is named as 'constant voltage': when the battery terminal voltage exceeds the pre-set value, charging current will decrease with the rising of terminal voltage until the pre-set current value is reached; then Chargers automatically return to float mode. As soon as charging current value falls below 0.5A and the constant voltage value is reached, the battery is basically charged (charging indicator will extinguish). After that charging current will only neutralize the

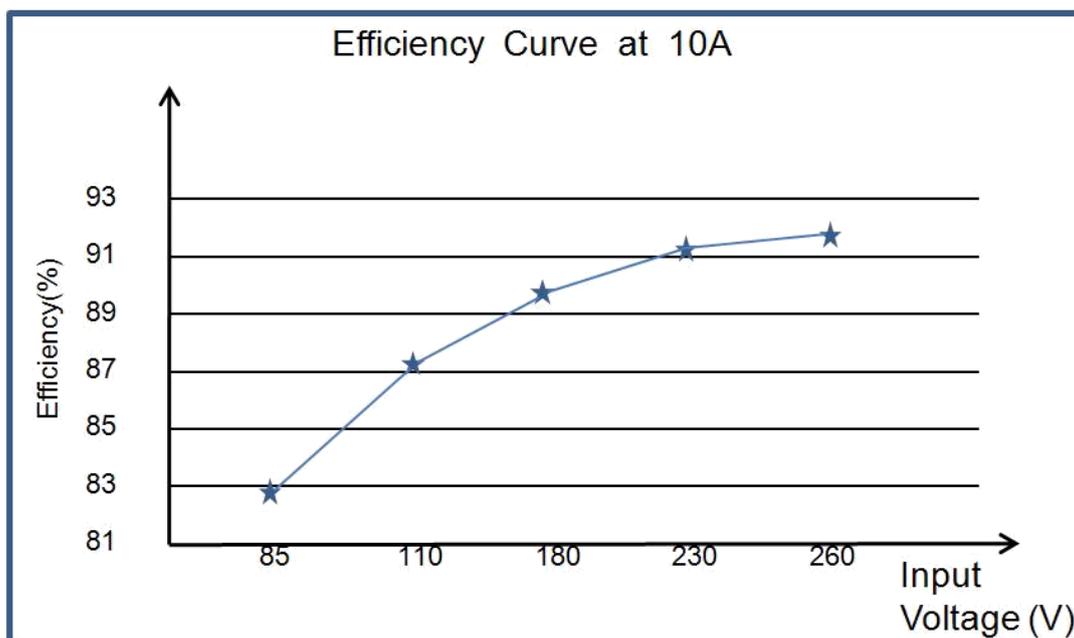
battery self discharge. Even long-term charging cannot harm the battery, as charger can keep the battery fully charged and so guarantee long lifetime of the battery.

## 4 SPECIFICATION

**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. On-load Current	340W		
	Max. Current	4A		
	Efficiency	AC 110V	AC 110V	AC 220V
		>86%	>86%	>88%
Power Factor Calibration	AC 110V	AC 110V	AC 220V	
	>0.99	>0.99	>0.95	
Output Characteristics	No-load Output Voltage	27.6V, error±1%		
	Rated Charging Current	10A, error±2%		
	Max. Output Power	290W		
Display Data	Charging Voltage	Resolution 0.1V, error±1%		
	Charging Current	Resolution 0.1A, error±1%		
Insulating Property	Insulating Resistance	Between input and output, input and shell, output and shell are: RL≥500MΩ		
	Insulating Voltage	Between input and output, input and shell both are: AC1600V 50Hz 1min Leakage current: $I_L \leq 3.5\text{mA}$ Output and shell: AC500V 50Hz 1min Leakage current: $I_L \leq 3.5\text{mA}$		
Working Condition	Working Temperature	(-30~+55)°C		
	Storage Temperature	(-40~+85)°C		
	Working Humidity	20%RH~93%RH (No condensation)		
Shape Structure	Weight	1.15kg		
	Dimension	205.5mm*131mm*55mm (length*width*height)		

## 5 EFFICIENCY CURVE



**Fig.2- Efficiency Curve**

## 6 OPERATION



**Fig.3- BAC2410D MASK**  
**Table 3 Connection Description**

Terminal	Function	Description
L	AC Terminals	Connect terminals L and N to AC voltage (100~240)V using greater than BVR 1.5mm <sup>2</sup> multi-strand copper line.
N		
PE	GND Terminals	Connect to shell internally.
B-	Battery Negative	Connect to battery negative using greater than BVR 2.5mm <sup>2</sup> multi-strand copper lines.
B+	Battery Positive	Connect to battery positive using greater than BVR 2.5mm <sup>2</sup> multi-strand copper lines.
POWER	Green LED Indicator	Power Indicator
CHARGING	Red LED Indicator	Charging Indicator
V	Charging Voltage Indicator	Digital tube displays the present voltage value.
A	Charging Current Indicator	Digital tube displays the present current value.

LED digital tube displays voltage and current in real-time, when the voltage indicator is illuminated to circularly display the current voltage and the current indicator is illuminated to circularly display the present current

**▲ NOTE:**

- 1) Because there is diode and current-limiting circuit inner the charger, it can be used together with charging generator, 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.

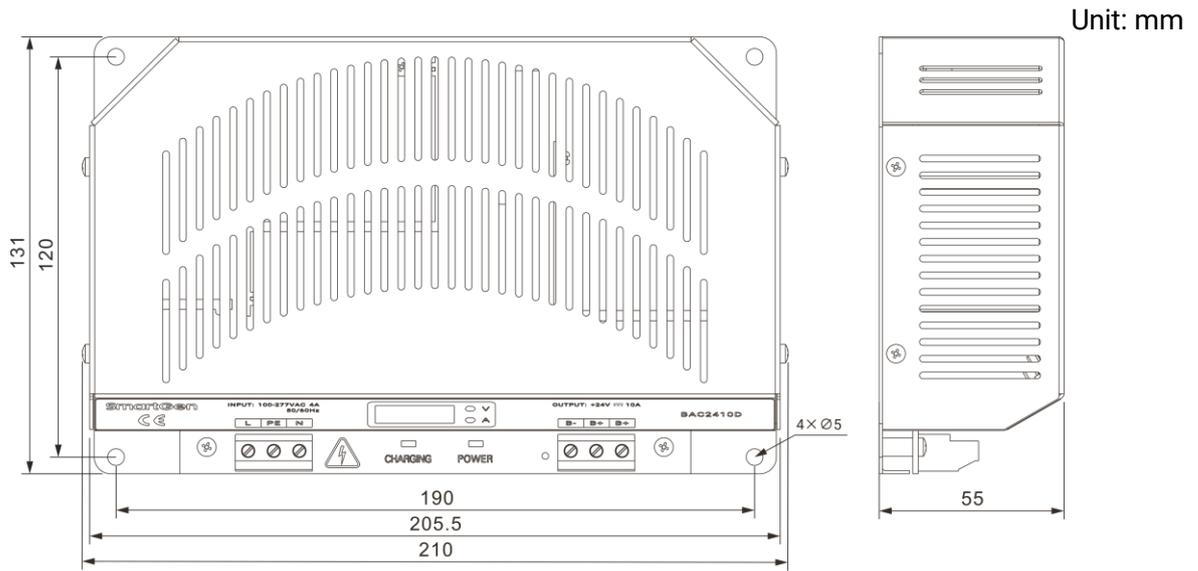


Fig.4- BAC2410D Case Dimensions

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