

**BAC2410**

**BATTERY CHARGER**

**USER MANUAL**



**SMARTGEN (ZHENGZHOU) TECHNOLOGY CO., LTD.**



Chinese trademark

**SmartGen** English trademark

**SmartGen** — make your generator *smart*

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Software Version

| Date       | Version | Note             |
|------------|---------|------------------|
| 2015-11-05 | 1.0     | Original Release |
|            |         |                  |
|            |         |                  |
|            |         |                  |

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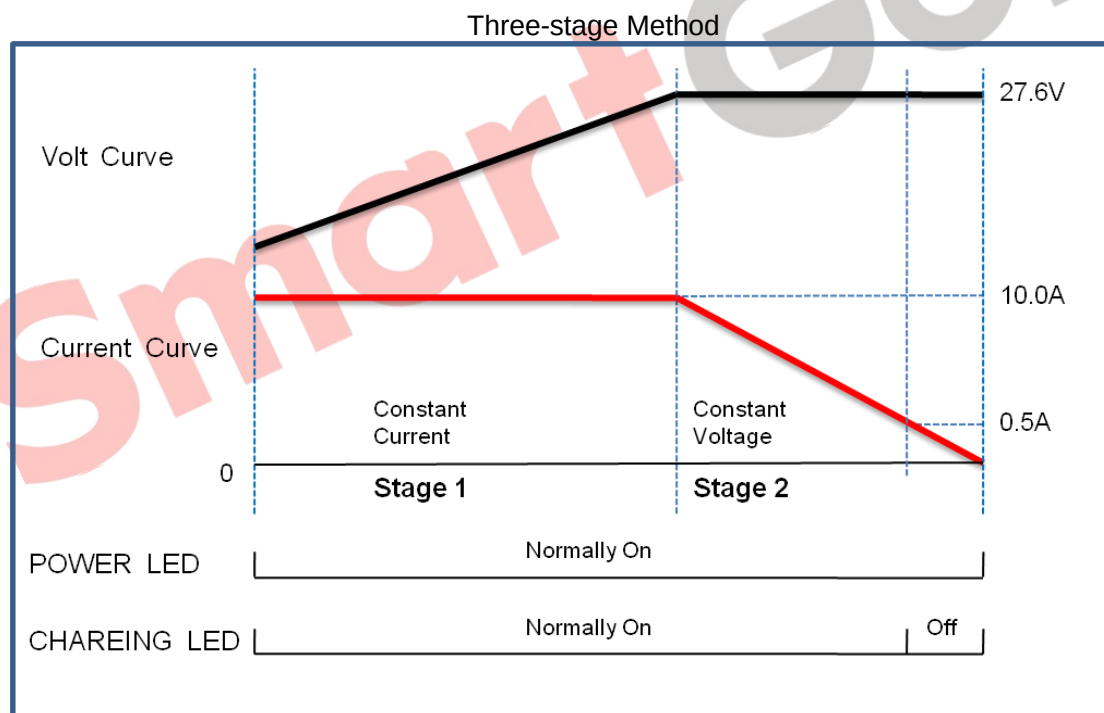
## 1 OVERVIEW

Fit with up-to-date power supply device, float charger BAC2410 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 12V lead-acid batteries.

## 2 PERFORMANCE AND 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 PFC circuit can calibrate the power factor above 0.99;
- 4) 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;
- 5) Suitable for 24V storage battery and the rated current is 10A;
- 6) LED display: Power indication (Green light) and charging indication (Red light).

## 3 CHARGING PRINCIPLE



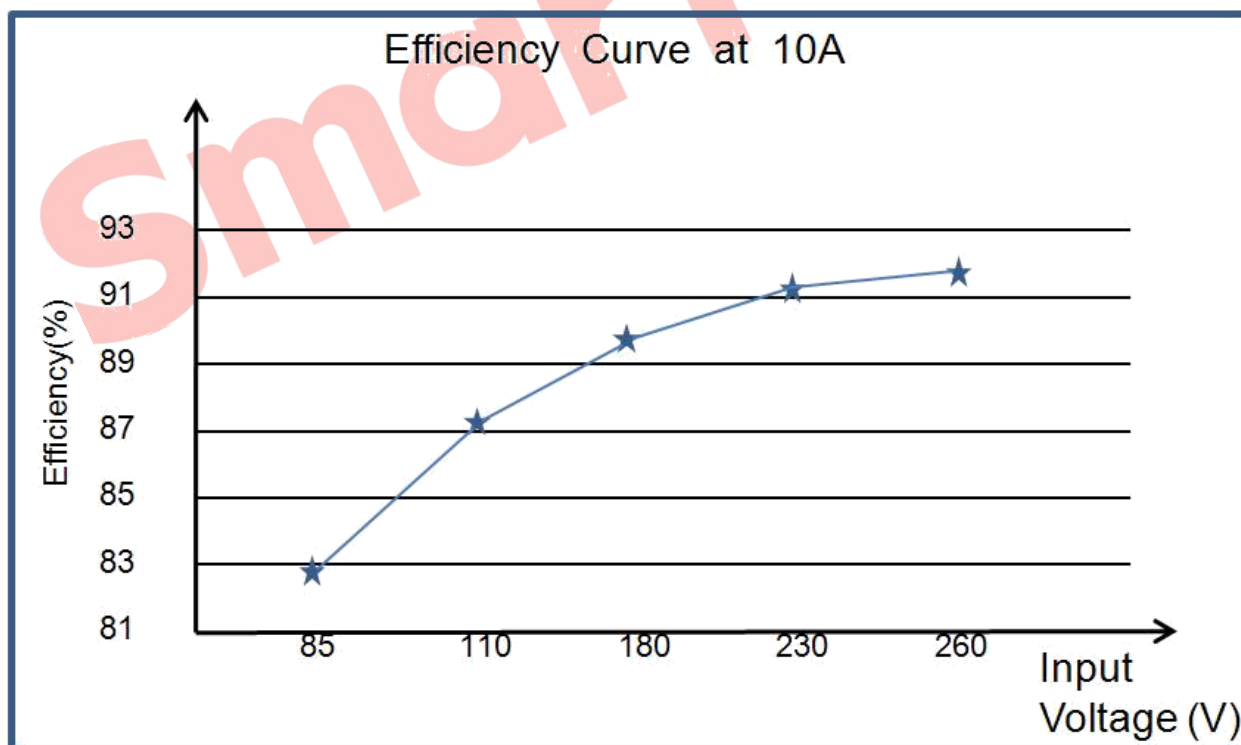
Charging is performed according to the battery charging characteristics using three-stage method.

- 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 PARAMETERS CONFIGURATION

| 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<br>>86%                                                                                                                                                                          | AC 220V<br>>88%  |
|                        | Power Factor Calibration | AC 110V<br>>0.99                                                                                                                                                                         | AC 220V<br>>0.95 |
| Output Characteristics | No-load Output Voltage   | 27.6V, (Error±1%)                                                                                                                                                                        |                  |
|                        | Rated Charging Current   | 10A, (Error±2%)                                                                                                                                                                          |                  |
|                        | Max. Output Power        | 290W                                                                                                                                                                                     |                  |
| Insulating Property    | Insulating Resistance    | Between input and output, input and shell, output and shell are:<br>$RL \geq 500M\Omega$                                                                                                 |                  |
|                        | Insulating Voltage       | Between input and output, input and shell both are:<br>AC1600V 50Hz 1min<br>Leakage current: $I_L \leq 3.5mA$<br>Output and shell: AC500V 50Hz 1min<br>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)                                                                                                                                                            |                  |
| Shape Structure        | Weight                   | 1.15kg                                                                                                                                                                                   |                  |
|                        | Dimension                | 205.5mm*131mm*55mm (length*width*height)                                                                                                                                                 |                  |

#### 5 EFFICIENCY CURVE





## 6 OPERATION



### BAC2410 MASK

| 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 | Full Charged Indicator                                                                                                 |
| CHARGING | Red LED Indicator   | Charging Indicator                                                                                                     |

#### ▲ 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.

## 7 CASE DIMENSIONS

