SmartGen

MAKING CONTROL SMARTER

BAC1205N/BAC2403N

BATTERY CHARGER

USER MANUAL

郑州众智科技股份有限公司

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
2018-04-21	1.0	Original Release
2022-09-02	1.1	Update company logo and manual format.

CONTENT

1. OVERVIEW

BAC1205N/2403N battery charger, adopts the latest switch power components, is specially designed for charging lead-acid starting battery according to its property. This charger is suitable for lead-acid battery long-term supplementary charge (float charge).

2. PERFORMANCE AND CHARACTERISTICS

Product with the following characteristics,

- Designed in switching power structure, wide range of AC voltage input, small volume, light weight and high efficiency;
- Two-stage charging method (constant current firstly and then constant voltage), fully considering charging property of the lead-acid battery, can avoid overcharging and extent extend the battery life to the fullest;
- With short circuit and reverse connection protection;
- Suitable for charging 12V or 24V batteries with corresponding model BAC1205N or BAC2403N;
- LED display: charging indication and full charged indication;
- Easy installation: guide-rail way installation, screw mounting installation;
- Built-in terminals, flame retardant plastic shell.

3. CHARGING PRINCIPLE

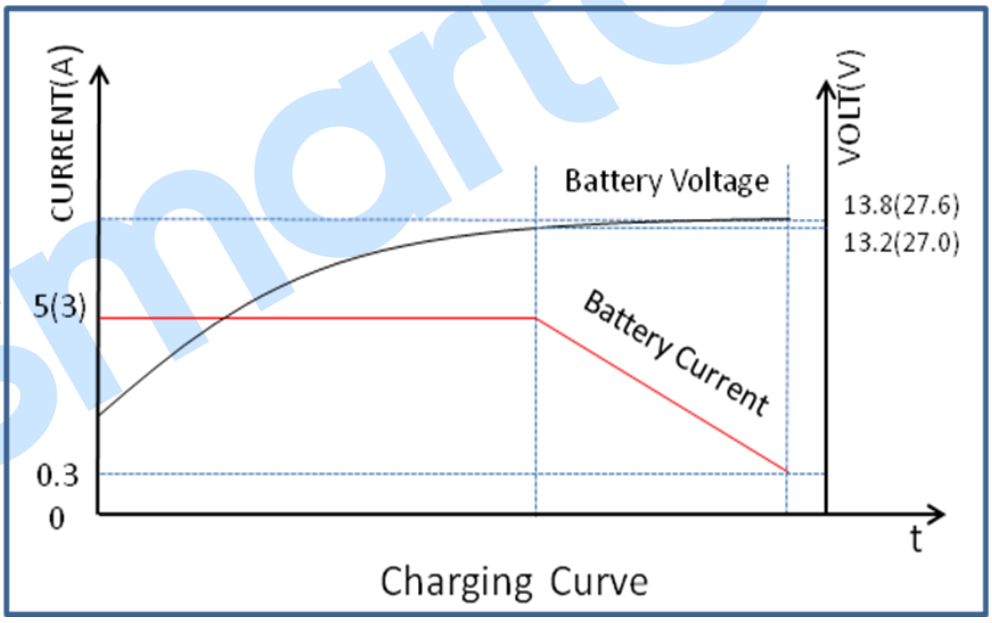

Fig.1 – Charging Curve

According to charging property of the lead-acid battery, BAC1205N_BAC2403N battery charger uses 2-stage charging method and charge mode is “constant-current”. When battery voltage is under the threshold, it is charging in constant-current mode; when the battery voltage is higher than the threshold, the charging current is decreasing as the battery voltage is rising until it reaches the set voltage, and then charge mode is turned into “float charge”. Charge current is gradually reducing and battery voltage is rising up to the set value. When charging current is lower than 0.3A, the battery is basically fully charged (charging indicator eliminates). Afterwards, charging current will offset self-discharge of the battery. Thus the charger can maintain a full charged condition and extend the battery life.

4. PARAMETERS SPECIFICATION

Fig.2 – Parameters Specification

Items		Parameters	
		BAC1205N	BAC2403N
Input Characteristics	Nominal AC Voltage	AC (100~277)V	AC (100~277)V
	Max. AC Voltage	AC (90~305)V	AC (90~305)V
	AC Input Frequency	50/60Hz	50/60Hz
	Max. Active Power	84W	100W
	Max. Input Current	1.5A	1.7A
Output Characteristics	Battery Voltage	12V	24V
	No-load Output Voltage	13.8V, Error±2%	27.6V, Error±2%
	Rated Output Current	5A, Error±5%	3A, Error±5%
	Max. Output Power	69W	85W
	Max. Efficiency	84%	87%
	No-load Loss	<3W	<3W
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 are: AC3000V 50Hz (DC4200V) 1min Leakage current: IL≦3.5mA Between output and shell is: AC3000V 50Hz (DC4200V) 1min Leakage current: IL≦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	0.45kg	
	Dimension	95mm×149mm×61mm (length×width×height)	

5. OPERATION

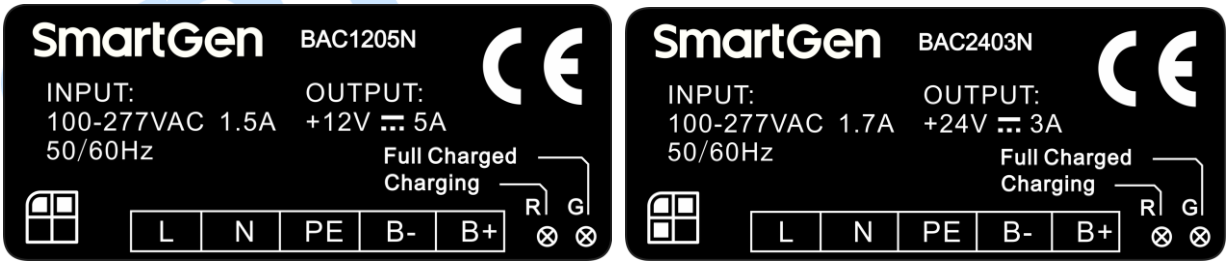

Fig.2 – BAC1205N (left) & BAC2403N (right) Panel Drawings

BAC1205N series panel drawing description:

— Connect terminals L and N to alternating voltage (100~277)V using BVR 1mm^2 or above multi-strand copper line.

— Connect B+ and B- to battery positive and negative using multi-strand BVR1.5mm^2 or above copper wires.

— Charging: charging indicator (Red), illuminating when charging current exceeds 0.5A.

— Full Charged: full charged indicator (Green), illuminating when charger is no-load or battery is full charged.

⚠NOTE:

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

6. CASE DIMENSIONS AND INSTALLATION

Installation 1 (screw fixed installation):

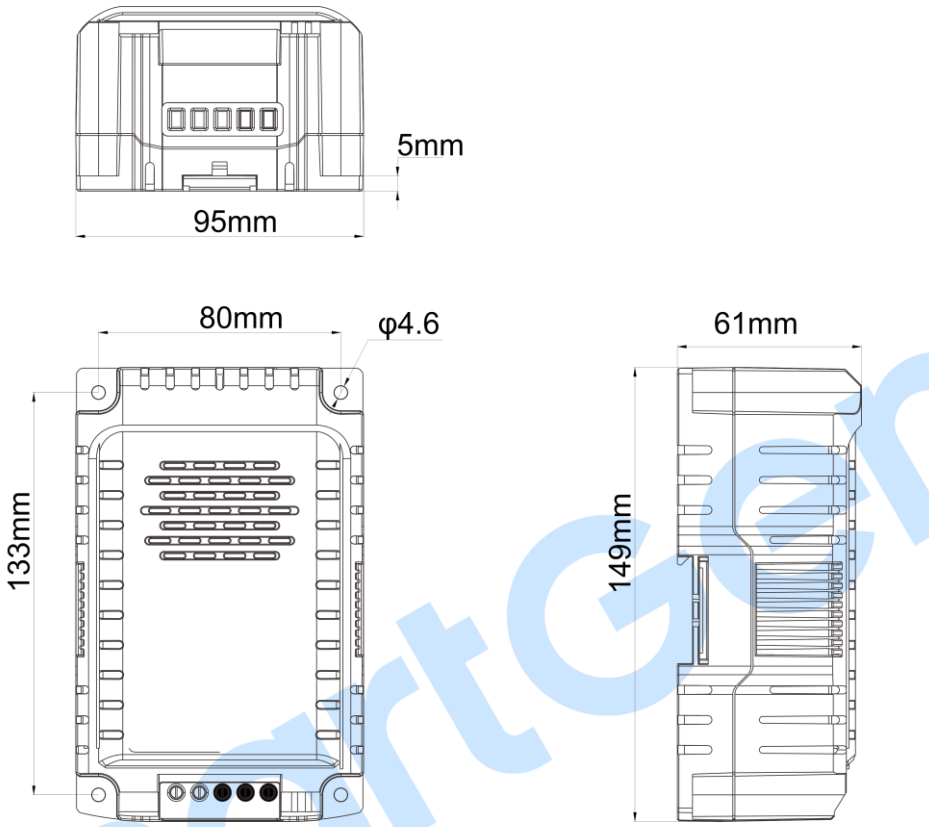

Fig.3 – Screw Fixed Installation

M4 screw is recommended.
Installation 2 (guide-rail installation):

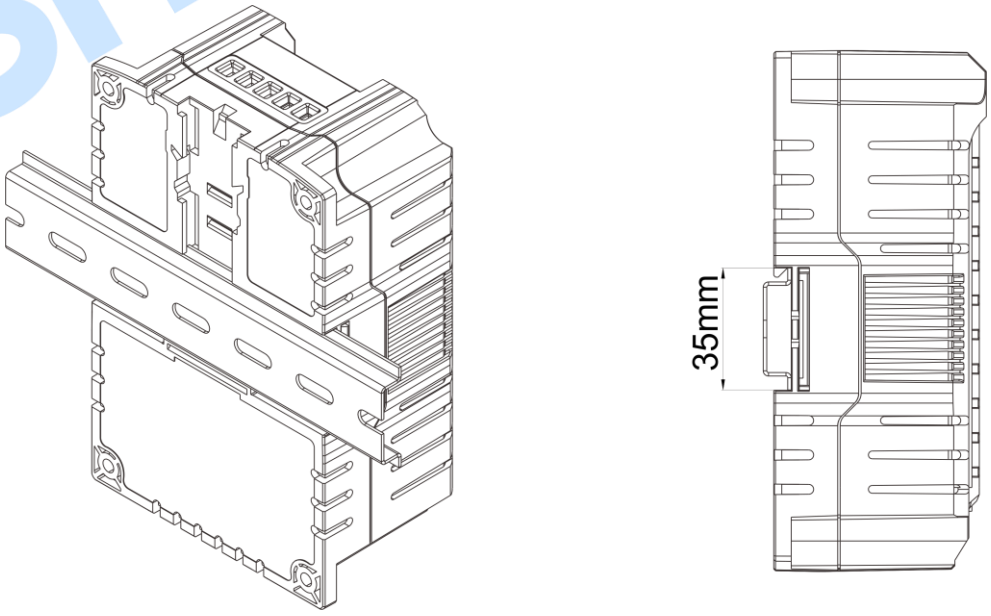

Fig.4 – Guide-rail Installation

7. BATTERY TYPE SELECTION

There are two types of battery for choose:

— BAC1205N is designed for 12V battery with the maximum output current 5A.

— BAC2403N is designed for 24V battery with the maximum output current 3A.

Please pay attention to the charger model when place orders.