BCC10A BATTERY CHARGER
USER MANUAL

Software Version

No.	Version	Date	Note
1	V1.0	2023-12-15	Original release.
2	V1.1	2024-04-01	Increase 12V Related Parameters

Chongqing Mebay Technology Co.,Ltd
Add: No6-2,Building 4, Gangan Rd, Jiangbei District, Chongqing.
Tel：+86-23-6869 3061
Fax：+86-23-6765 8207
Web：http://www.mebay.cn
http://www.cqmb.cn
E_mail：sales@mebay.cn

Symbol Description

Symbol	Description
 Note	Remind operators to operate correctly, otherwise it may cause the equipment not to work correctly.
 Be care	It is indicated that potential hazards can damage equipment without proper precautions.
 Warning	It is indicated if appropriate preventive measures are not taken, potentially dangerous situations may result in death, serious personal injury or significant property losses.

Warning

1. The installation of this equipment must be carried out by professionals.
2. When installing and operating the Charger, please read the entire instruction manual first.
3. Any maintenance and commissioning of the equipment must be familiar with all the equipment, safety standards and precautions in advance, otherwise it may cause personal injury or damage to related equipment.
4. This product is specially designed for charging lead-acid batteries. Because of the output contains impulse components, it can not be directly used as a power supply for electronic equipment without lead-acid batteries. Otherwise, it may cause interference or even damage to electronic devices.

Be Care

1. Please pay attention to prevent water or other liquid from being sprinkled on this charger.
2. When using this charger, we should pay attention to ventilation and heat dissipation and keep away from high temperature and heat radiation.

Catalogue

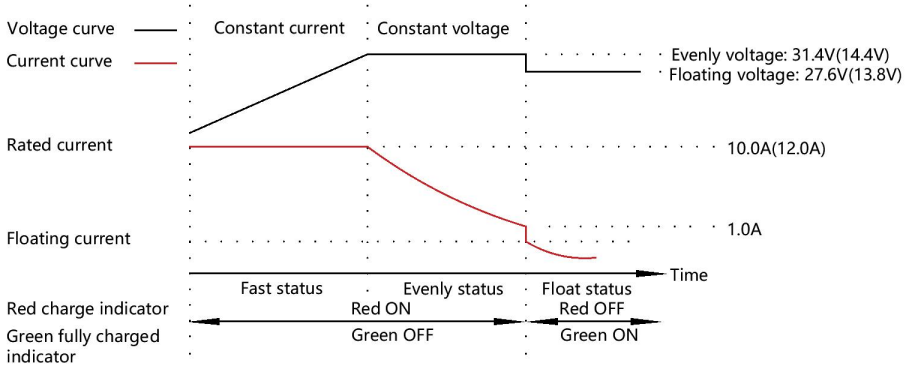
1. Summary

The charger is specially designed for the lead-acid battery used in the engine. It adopts the three-stage intelligent control mode of constant current fast charging, constant voltage evenly and trickle floating charging. It can be charged for a long time without damage to the battery. It can maintain the full state of the battery and ensure the service life of the battery. The charger can be used in parallel with the engine charging generator without disconnecting the charger during the operation of the engine.

2. Main Features

- ◆ The use of aluminium for heat dissipation, good heat dissipation and high interference resistance.
- ◆ Using advanced switching power supply mode, wide AC input voltage range.
- ◆ Two-stage charging method or three-stage charging method can be used automatically according to needs to maintain battery power automatically.
- ◆ Three-stage: BOOST and B- are short circuited; Two-stage: BOOST is hung up.
- ◆ Build-in PFC circuit, automatic adjustment of calibrated power factor.
- ◆ Build-in current protective circuit, which can give effective protection when overcurrent output, short circuit, or reverse connection occurs, and can recover output when above circumstances are eliminated.
- ◆ Applicable for 24V/12V battery pack charging, rated charging current 10A/12A.
- ◆ It has LED led, Green means full power indication; Red means charging indication.

3. Charging Principle



Three-stage Charging Curve

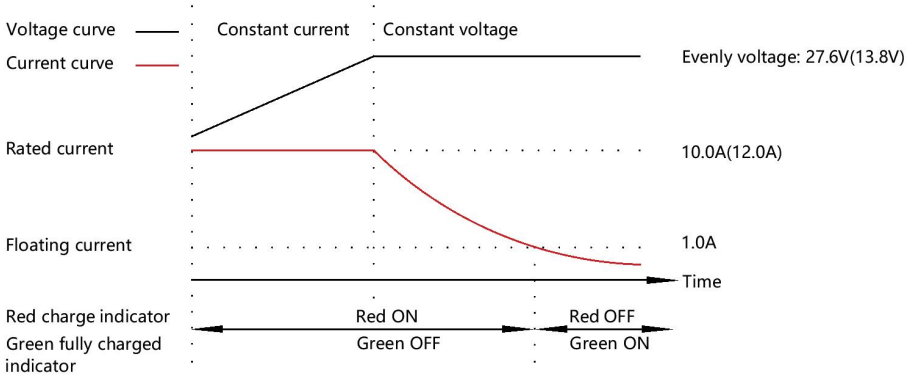
The charger adopts a three-stage intelligent control mode in accordance with the characteristics of lead-acid batteries.

The first charging mode is "constant current mode", when the battery voltage is lower than the preset value, it is a constant current charging stage; the charging current is rated at 10.0A(12.0A) , the high current charging makes the battery power rise rapidly, the rising process is a fast charging state, the performance is character by the red charging indicator light is always on.

The second stage of charging mode is "constant voltage mode", when the battery voltage rises above the preset value soon after charging in constant current mode, the charging current decreases as the battery voltage rises, the charger maintains constant voltage output at this time, the charging current decreases slowly and the terminal voltage of the battery is slowly stabilised at the average charging voltage value, during this process the red The charging indicator lights up. The internal timer starts timing when the evenly state is reached and the charging current drops below 1.0A to float charge mode;

The charger enters an evenly charge state: when the charging current is greater than 1.0A and less than10.0A(12.0A).

The third stage of charging mode is "float mode", after the battery has been charged in both modes, the battery is basically full, the charger output voltage automatically switches to the float voltage of 27.6V(13.8V), the charging current drops to 1.0A, the performance characteristics of the red charging indicator goes out. The float mode charging current offsets the self-discharge of the battery and maintains the battery in a fully charged state without the need to disconnect the charger and has no effect on battery life.



Two-stage Charging Curve

The charger adopts a two-stage intelligent control mode in accordance with the characteristics of lead-acid batteries.

The first charging mode is "constant current mode", when the battery voltage is lower than the preset value, it is a constant current charging stage; the charging current is rated at 10.0A(12.0A) , the performance is character by the red charging indicator light is always on.

The second stage of charging mode is "evenly charge mode", when the battery voltage rises above the preset value soon after charging in constant current mode, the charging current decreases as the battery voltage rises, the charger maintains constant voltage output at this time, the charging current decreases slowly and the terminal voltage of the battery is slowly stabilised at the average charging voltage value, during this process the red the charging indicator lights up， reached evenly state. the charging current drops to 1.0A, the performance characteristics of the red charging indicator goes out. The float mode charging current offsets the self-

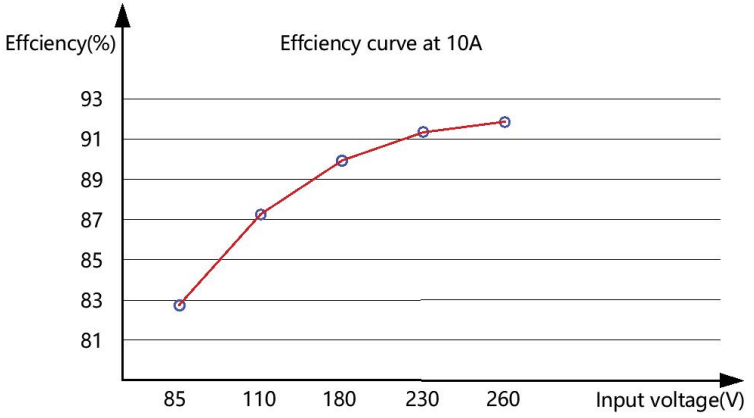
discharge of the battery and maintains the battery in a fully charged state without the need to disconnect the charger and has no effect on battery life.

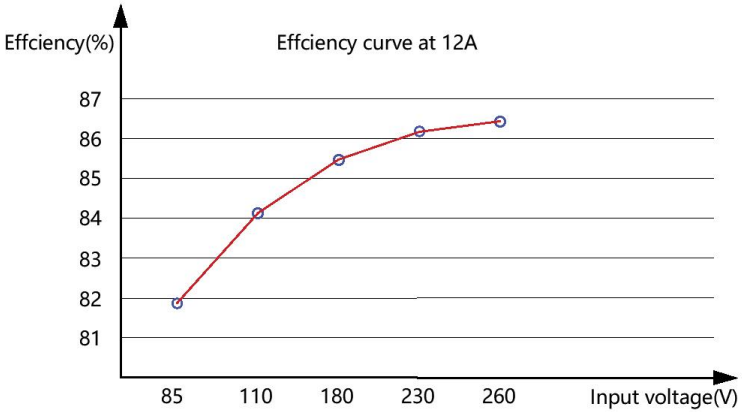
4. Specification

Category	Items	12V Parameters		24V Parameters	
Input	Nominal AC Voltage	AC 95~280V			
	Max. AC Voltage	AC 90~305V			
	AC Frequency	50Hz/60Hz			
	Max. Input Current	2A		4A	
	Max. Efficiency	AC 110V	AC 220V	AC 110V	AC 220V
		>81%	>86%	>82%	>90%
	Power Factor Calibration	>0.99	>0.95	>0.99	>0.95
Output	Charging Current	12.0A,(Error±2%)		10.0A,(Error±2%)	
	No-load Output Voltage	13.8V(Error ±1%)		27.6V(Error ±1%)	
	Max. Output Power	170W		310W	
	No-load power consumption	<3W(Error ±1%)			
Insulation	Insulation Resistance	Between input and output, input and BOOST and B- short circuited, input and shell, output and shell are: RL≥500MΩ			
	Insulation Voltage	Between input and output, input and shell both are: DC 1500V 1min Leakage current: I<3.5mA.			
Working Condition	Working Temperature	-30-55°C			
	Storage Temperature	-40-85°C			
	Working Humidity	20%RH-93% RH(No condensation)			
Profile	Dimension	205mmx130mmx56mm(Length*Width*Height)			
	Mounting hole distance	191mm×118mm(Length*Width)			
	Weight	1.2kg			

5. Operation instruction and efficiency curves

◆ **Charge voltage regulation:**



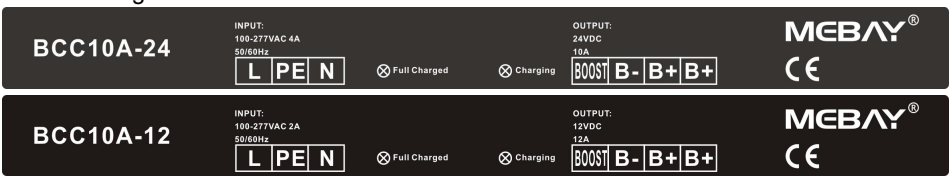


Note: Because there is diode and current-limiting circuit inner the charger, it can be used together with charging generator, and there is no need to disconnect the charger when cranking.

Note: During gen-set 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. Panels and instructions

◆ Panel diagram



◆Descriptions of terminal connection

No.	Function	Description	Cable cross sectional area
L	AC input L	AC input, MAX AC95-280V.	1.5mm^2
N	AC input N		1.5mm^2
PE	GND connected terminal	Internally connected with shell.	1.5mm^2
BOOST	Mode Selection	3-stage: BOOST and B- are short circuited; 2-stage: BOOST is hung up.	1.5mm^2
B-	Battery B-	Charger output negative.	2.5mm^2
B+	Battery B+	Charger output positive.	2.5mm^2

◆ Indicator function description

Indicator	Status	Function
FULL CHARGED	ON	◆ Charger full state, output current <1A;
	OFF	◆ Charger charging current >1A;
CHARGING	ON	◆ Charger in charging state, output current > 1A;
	OFF	◆ Charger in float state, output current <1A;

7. Overall Dimension and Terminal connection

◆ **Overall Dimension:**

◆ The battery charger is installed by four screws with the diameter of 4MM.

◆ Installation size as below :L191mm * W118mm