

WARRANTY CARD

10. Warranty and service agreements

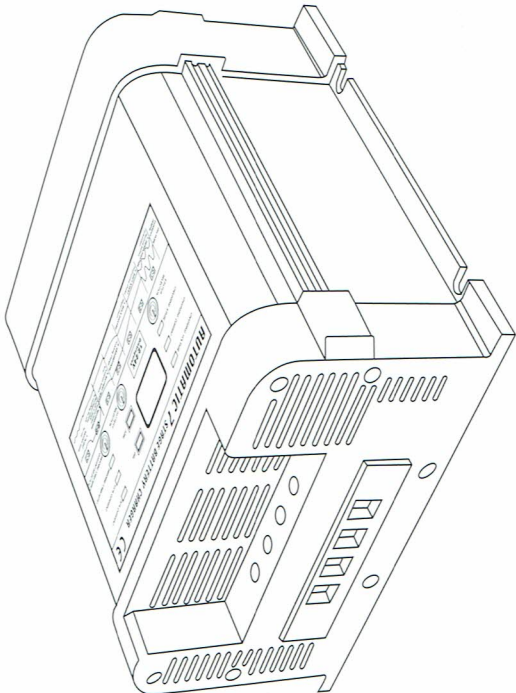
This warranty covers only manufacturing defects. The appliances must not be modified or altered in any way with regards to both form and function. This warranty does not apply in case of improper usage; usage that falls beyond normal use as indicated in the user's manual or if there is damage caused by force majeure (e.g. natural disaster). Only clean and intact appliances will be accepted for warranty and non-warranty repair. The standard warranty period is 24 months starting from the purchase date. In order to make a warranty claim, this warranty card must be submitted along with proof of purchase, including the model number, purchase date and a dealer's stamp.

Model number:
Purchase date:
Dealer's stamp and signature:
Date of warranty claim:
Defect(s) noted:

Specifications are subject to change without prio

AUTOMATIC 7 STAGE
BATTERY CHARGER WITH
DIGITAL DISPLAY 12/24V MODEL

User Manual



NOTE: PLEASE READ THE USER MANUAL CAREFULLY BEFORE USING THE PRODUCT

Automatic 7 Stage Battery Charger with Digital Display

User Manual

Thanks for choosing our newest battery charger, it is designed with digital display and automatic 7 stages charging. It is a "set and forget" automatic charger which can be permanently connected to the battery and with selection function.

1. Warning & Caution

Pay special attention to the two types of notices used in this manual

Warning: fails to heed this warning may cause injury to person and damage to equipment.

Caution: fails to observe this warning may result in damage of equipment and improper functioning of the charger.

1.1 Warning

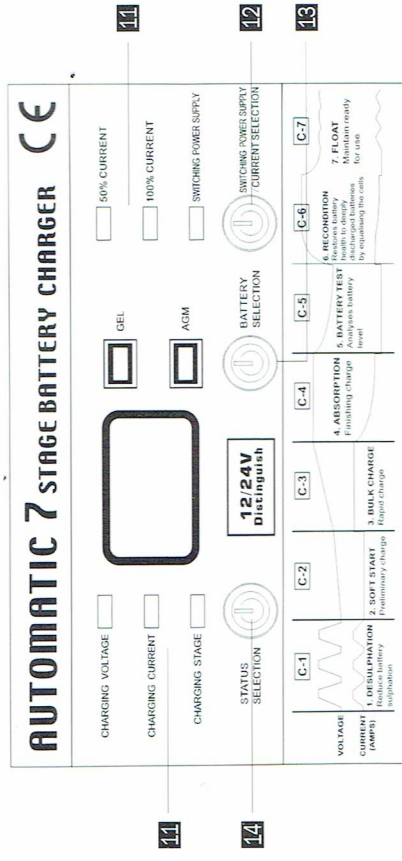
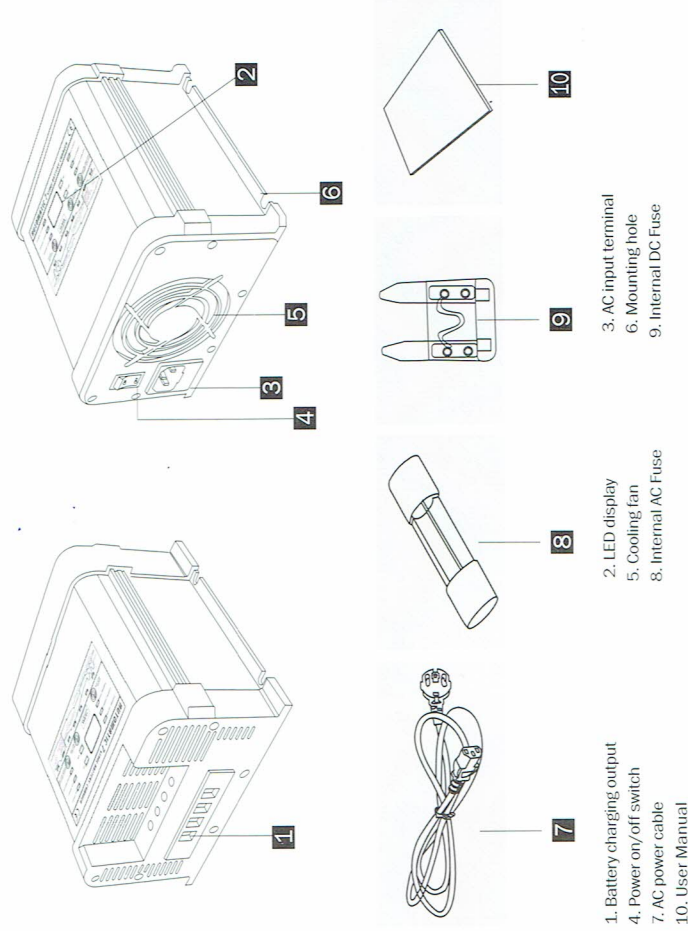
- The charger is designed for in-door use, protect the charger from ingress of water.
- This charger is made to charge properly sized GEL or AGM or Wet or Lithium batteries
- Don't recharging non-rechargeable batteries.
- Do not use the charger if it has been dropped or damaged.
- Do not remove casing of the charger, there is no user-serviceable parts inside.
- Never attempt to charge a frozen battery.
- Do not charge batteries in an enclosure (box in) due to possible explosion of entrapped explosive gas.

2.1 Cautions:

- Use of accessory not recommended may cause the fire and electric shock.
- Disconnect the main supplies before connecting or disconnecting the links to the battery.
- If the charger does not work properly or if it has been damaged, unplug its AC and DC connection.
- Ensure all ventilation ports are not obstructed for efficient fan cooling, keep loosen soft material or paper off at the bottom of the charger.
- During charging, the battery must be placed in a well ventilated area.

2. Products' materials list and indication

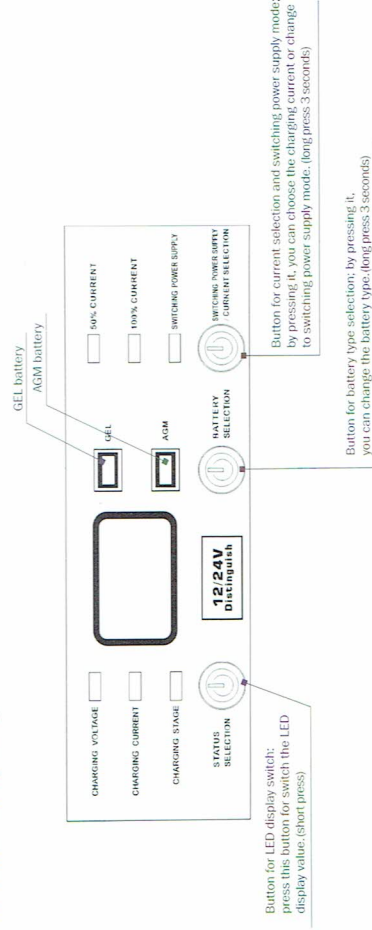
EBC series battery charger



11. LED indicators: ① charging voltage / ② charging current / ③ code for the charging stage / ④ AGM battery / ⑤ GEL battery current / ⑥ 50% current / ⑦ 100% current / ⑧ switching power supply (factory default) or lithium battery(customized) battery current
12. Button for current selection and switching power supply mode
13. Button for battery type selection
14. Button for LED display switching: press this button for switch the LED display value.

3. LED indicators and button explanation

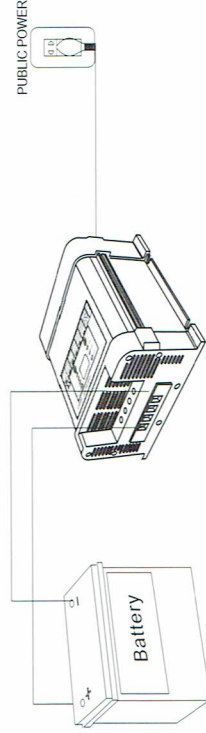
EBC series battery charger



Note: When charger is under switching power supply mode, the LED indicator of battery type and charging stage is off, charging voltage and charging current will switched display by pressing button of "STATUS SELECTION".

4. The installation

Before connecting or disconnect, turn off the switch.



7. Specification

Model	EBC12/24-10	EBC12/24-20	EBC12/24-30	EBC12/24-40	EBC12/24-50	EBC12/24-60
Input voltage	220V AC					
Input voltage range	190~265V AC					
Rated output voltage	12/24V					
LED digital display in turn (after 60s into sleep mode)	U: (battery voltage)					
	I: (charging current)					
	C: (code for the 7 charging stage)					
Absorption(constant voltage)	P: (over heat protection)					
	AGM: 14.4V/28.8V DC					
	GEL: 14.6V/29.2V DC					
Float charging voltage	AGM: 13.8V/27.6V DC					
	GEL: 14V/28V DC					
	10A/5A	20A/10A	30A/15A	40A/20A	50A/25A	60A/30A
Max. charging current	65°C ± 5°C					
Thermal protection(fan on)	Temperature controlled automatically					
Cooling fan	App. 80%					
Efficient	Desulphation, soft start, bulk, absorption, battery test, recondition and float					
The 7 stages	AGM/GEL/lithium battery (customized, please mention before placing order)					
Types of battery	Over voltage, over heat, output short circuit, reverse polarity					
Protection	50% current or 100% current					
Switching power supply output (constant voltage)	10A/5A	20A/10A	30A/15A	40A/20A	50A/25A	60A/30A
Battery selection	LED indicator/ button setting					
LED indicators	charging voltage, charging stage, 50% current, 100% current,					
	AGM battery, GEL battery, switching power supply					
	-3~3.5mV/cell °C ± 10%					
Temperature compensation	22.6° 17.5° 9.5cm					
Fuse AC fuse	3A	3A	6A	6A	6A	6A
DC fuse	20A*1	30A*1	30A*2	40A*2	40A*2	40A*2
Dimension(L *W*H)	17.6° 17.5° 9.5cm					

8. Trouble shooting

Problem	LED indication	Possible causes	Suggest solution
charger not work	all LED not lit	No AC power, the AC fuse of charger blown	1. check if the charger is connected properly 2. Replace the AC fuse
Charger not charge	LED digital display"P"	overheat protection	after cool down, charger starts to working again automatically
Battery can not fully charge	LED lit	not set the charger with correct battery type	long press the button 3 seconds to change the battery mode
Charger not charge	LED digital display" ---"	reverse polarity connection, DC fuse blown	replace the DC fuse

9. Disposal instructions

Home electronic equipment: If you no longer wish to use this appliance, please take it to the applicable collection point or deliver it to a public recycling location for old electronic equipment. Electronic equipment shall under no circumstances be disposed of in the same manner as normal household waste (see the crossed-out garbage can symbol above). Further disposal instructions: hand over the appliance in a condition that will allow for safe recycling and disposal. Remove all batteries from the appliance in advance and prevent any liquid containers from being damaged. Electronic equipment may contain harmful substances. Improper use or malfunction caused by damage may adversely affect human health and harm the environment during recycling.



- 5.1. Firstly to connect the battery, red clips to Positive (+), black clips to Negative (-). Make sure all the connections are secured and well tighten up, double check the correct polarity.
 - 5.2. Plug into the grid power.
 - 5.3. Switch on the charger
- After connection finished, choosing the right battery type through the "BATTERY SELECTION" button, the corresponding LED indicator will be on.

5. 7stage automatic charging

The 7 stages are: desulphation, soft start, bulk, absorption, battery test, recondition and float.



This is a fully automatic battery charger with 7 stages. Automatically charging protects your battery from being overcharged. So you can leave the charger connected to the battery indefinitely. 7-stage charging is a very comprehensive and accurate charging process that gives your battery longer life and better performance compared to using traditional chargers. 7-stage chargers are suitable for most battery types including GEL and AGM batteries. They may also help restore drained and sulphated batteries.

C-1 — Desulphation: The desulphation stage may break down sulphation that occurs in batteries that have been left flat for extended periods of time, returning them back to full charge. Sulphation occurs when lead sulphate hardens and clogs up the battery cells.

C-2 — Soft Start: A preliminary charge processes that gently introduces power to the battery. This protects the battery and increases battery life.

C-3 — Bulk (Constant Current): bulk mode charges the battery at the maximum rate (constant current) putting a large amount of power into the battery in a short amount of time. This stage will charge the battery to approximately 80%, until the voltage reaches 14.4 volts for 12V battery or 28.8volts for 24V charger.

C-4 — Absorption(Constant Voltage): the charge rate slows down, so the battery can absorb more power and reach 100% charge. The voltage remains at a constant 14.4 volts for 12V charger or 28.8 volts for 24V charger while the current is gradually reduced until no more power can be added without over-charging the battery.

C-5 — Battery Test: an automatically battery test is conducted immediately after the absorption stage. The test monitors the voltage for 90 seconds to determine if the charge was successful.

C-6 — Recondition: The battery reconditioning function is initiated automatically in the case that the battery fails the battery test (stage 5). Failing the battery test indicates that the absorption stage was unable to fully charge the battery. The recondition mode will then begin to introduce a low constant current for a period of 4 hours. Then the charger will go into the float charging mode. This recondition stage can recover batteries from a deeply discharged state increasing performance and battery life.

C-7 — Float: the float stage maintains the battery at 100% charge without overcharging or damaging the battery. This means the charger can be left connected to the battery indefinitely.

6. Protection function

- Reverse polarity connection protection: if wrong connection, the fuse blow and charger shutoff the output, the LED digital display shows — (---)
- Short circuit protection: if short circuit happens, charger shutoff output automatically and LED digital display shows — (---)
- Over charging protection: current limit
- Over heat protection: the charger shutoff the output and LED digital display shows "P"
- Internal temperature compensation to adjust the charge current according to different temperature to ensure the charger perfect performance.