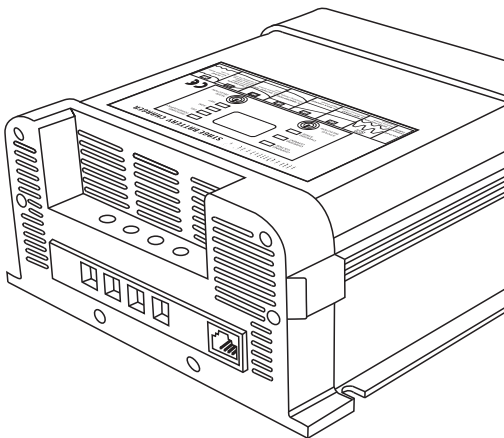


Smart Battery Charger

Automatic 7 stage battery charger with switching mode

**12V 10A, 24V5A, 12V20A, 24V10A, 12V30A, 24V15A,
12V40A, 24V20A, 12V50A, 24V25A,12V60A,24V30A**



※ THE IMAGE SHOWN HERE IS INDICATIVE ONLY, PLS REFER TO THE ACTUAL PRODUCT.

1. Important information

Thank you for purchasing our smart battery charger. Please read this instruction manual carefully before operating the device. Keep this manual in a safe place for future reference. This instruction manual is part of the product. It must be handed over along with the device if it is passed on to a third party.

2. Introduction

This compact smart battery charger uses the latest switch-mode technology and it designed particularly to charge lead-acid batteries in dual battery system to their best level. The automatic 7 stage charging algorithm delivers a much faster, efficiency and full charge without the issue of voltage drops. Thanks to the boost-charging feature, this helps activate the battery status and wake up a weak or flat battery to a suitable recharging level. This also improves the charge delivered to your battery, increasing battery life and saving on premature battery failure.

This smart battery charger can be used charging for GEL/AGM/WET batteries by press the mode selection button. And this smart battery charger can be used as a constant power supply to run accessories that require a stable and clean DC voltage. For safety reasons, the input and output of the charger are completely isolated and the batteries are protected for overcharged.

The cooling fan is thermal & charge current dual controlled, when temperature reach up to 45 degrees or when charge current up to 2A, the cooling fan start to working, it will switch on and off automatically to control the internal temperature of the unit.

Only when this smart battery charger connects to battery, then the charger has DC output start to charge. Note: it is a touch-type battery charger, the first start battery voltage for constant current mode need up to 12.6V.

DC short circuit protection: after short circuit protection, cutoff the DC output, LCD display "- P-", after short circuit release auto. Reset.

Over heat protection: when temperature up to 75 ± 5 °C, the LCD display "-P-", when temperature down auto. Reset.

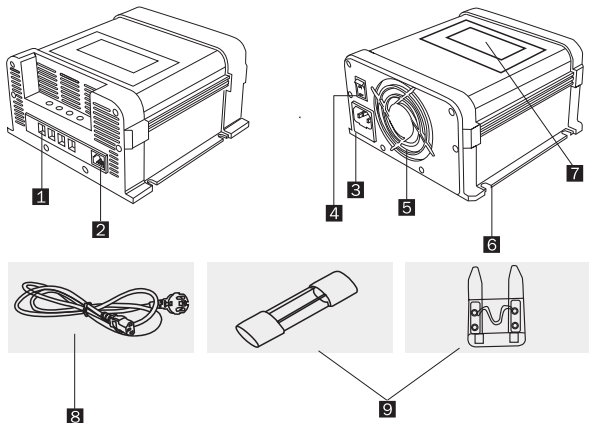
3. Warning

Risk of electric shock! Do not open the device if it has been connected to the AC power source.

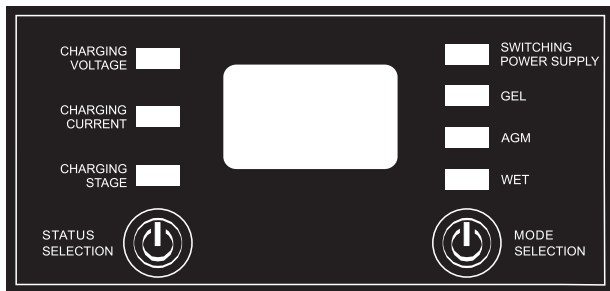
4. This device has been CE tested and conforms to the applicable directives and standards.

5. The battery charger materials list and indication

There are smart charger unit, user manual, AC power cable and spare fuse inside of packing.

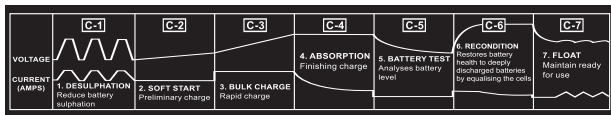


The LCD screen display and button function



- 5.1 Charging voltage LED: if you want to know charging voltage, please press the status selection button until the charging voltage LED light on, then LCD screen display the charger charging voltage.
- 5.2 Charging current LED: If you want to know charging current, please press the status selection button until the charging current LED light on, then the LCD screen display the charger charging current.
- 5.3 Charging stage LED: If you want to know the charger in which charging stage, please press the status button until the charging stage LED light on, then the LCD screen displays the charger in which charge stage. There are total 7 different charge stages.
- 5.4 Status selection button: By long press the "status selection" button to change the LCD screen display the charging voltage, charging current or different charge stages.
- 5.5. Switching power supply LED: if you want to use this charger as a switching power supply unit, please press the mode selection until the switching power supply LED light on. There are three colors in switching power supply mode. Green- 13.2V, red- 13.4V, orange- 13.8V.
- 5.6 GEL/AGM/WET batteries charging LED: by press the mode selection button to setting the battery type.
- 5.7 Mode selection button: by long press this button to change this smart charger to switching power supply function or setting GEL, AGM or WET batteries type.
- 5.8 LCD screen display: it shall display auto.circularly the charging voltage, current and different charging stage by numbers. When overheat and short circuit protection, the LCD displays "-P-". It shall display 60s, and then auto. Off. Press the button, then auto.display.

6. 7-stage automatic charging



This is a fully automatic battery charger with 7 charge stages.

Automatic 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, AGM, WET batteries. They may also help restore drained and sulphated batteries.

The 7 stages are:

Desulphation; Soft start; Bulk charge; Absorption; Battery test; Recondition; Float

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 to battery cells.

Soft start: A preliminary charge processes that gently introduces power to the battery. this protects the battery and increase battery life.

Bulk charge: charging with maximum current until approximately 80% battery capacity.

Absorption: charging with declining current to maximize up to 100% battery capacity.

Battery test: tests the battery whether can save power, if unable battery may need replacing.

Recondition: choose the recond program to add the recond step to the charging process. During the recond step voltage increases to create controlled gasing in the battery. Gasing mixes the battery acid and gives back energy to the battery.

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. The battery charger has an 7-stage fully automatic charging curve, the cycle is repeated infinitely. If the terminal voltage drops below a lower limit, the charger automatically goes back to the beginning of the charging curve.

7. Caution!

- 7.1 The device is for indoor use, do not use the device near flammable materials or in any location that may accumulate flammable fumes or gasses.
- 7.2 Appliance shall only be used with rated voltage and frequency.
- 7.3 Hot surface when operating, especially at full load condition.
- 7.4 Make sure the polarity is correct.
- 7.5 Do not locate the device on the top of the battery. Especially wet type battery. it may generate gas vapor while charging.
- 7.6 Do not charge non-rechargeable batteries.
- 7.7 Use the appliance only in the described manner.
- 7.8 Use the appliance only in the described manner.
- 7.9 Do not expose the device to a heat source, such as direct sunlight or heating.
- 7.10 Store the device in a dry and cool place.
- 7.11 Do not open, No any user serviceable parts inside.

8. Using Steps

- 8.1 First connect to the battery, switching on the charger, then charge start to charge for the battery. It is with 7-stage charge function. The LCD display auto.circularly. When overheat and short circuit protection, The LCD screen display "-P-".
- 8.2 The LCD screen display 60s, then auto. Off. Press the button, then auto.display.
- 8.3 Long press the button" mode selection" to change the mode.
Note: there are three colors in switching power supply mode. Green- 13.2V, red- 13.4V, orange- 13.8V
- 8.4 By press the "status selection" button to change the LCD display.

9. Trouble shooting

Problems and symptoms	Possible cause	Solutions
No DC output or charger cannot startup	No AC input	Check the AC power source
	Overheats shutdown	Allow the device to cool down
	Bad contact of battery terminal	Check the connection between charger and battery
	Output short circuit	
Battery charging not stable	AC input voltage is not stable	Check input AC voltage if it is within the input voltage range
	Not choose the correct battery type	Select the correct battery
Charger cannot switch to float	Battery cable connected to the battery is too thin	Change cable of proper size
	Battery in poor condition	Replace new battery

10. Safety operation!

- 10.1 If cables have to be fed through walls with sharp edges, always use tubes or ducts to prevent damage.
- 10.2 Do not pull on the cables, fasten the device and cable securely. Lay the cable so that it cannot be tripped over.
- 10.3 Ensure the device is standing firmly that it cannot tip over or fall down.
- 10.4 Children should be supervised to ensure that they do not play with the device.
- 10.5 Do not allow water to drip or splash on the device.
- 10.6 Make sure the air inlets and outlets of the device are not covered.
- 10.7 Operate the device only if you are certain that the hosing and connection cables are undamaged.
- 10.8 Do not reverse the polarity of the connection to the battery.
- 10.9 Disconnect the supply before making or breaking the connections to the battery.
- 10.10 Disconnect the supply before making or breaking the connections to the battery.
- 10.11 Warning! Risk of electric shock! Do not open the device if connected to AC power.

11. Specification

Model	EBC1210	EBC2405	EBC1220	EBC2410
Input voltage range	190-265V AC ~ 50Hz			
Bulk/Absorption charging	14.2V/14.6/14.8V DC selectable (12V) 28.4V/29.2/29.6V DC selectable (24V)			
Floating charging	13.2V/13.5/13.8V DC selectable (12V) 26.4V/27V/27.6V DC selectable (24V)			
Max. DC output current	10A	5A	20A	10A
Output voltage	12V	24V	12V	24V
Suggest battery capacity	15~100Ah		25~200Ah	
Output ripple	<50mA at full load			
Efficiency up to	88%			
Load regulation	1.5% at output current; no load t full load			
Operating temperature	0-40℃			
Isolated DC output	2			
Ventilation	Cooling fan ; By thermal & current control			
Dimensions(mm)	176x175x95 (LxWxH)			

Model	EBC1230	EBC2415	EBC1240	EBC2420
Input voltage range	190-265V AC ~ 50Hz			
Bulk/Absorption charging	14.2V/14.6/14.8V DC selectable (12V) 28.4V/29.2/29.6V DC selectable (24V)			
Floating charging	13.2V/13.5/13.8V DC selectable (12V) 26.4V/27V/27.6V DC selectable (24V)			
Max. DC output current	30A	15A	40A	20A
Output voltage	12V	24V	12V	24V
Suggest battery capacity	40–300Ah		50–400Ah	
Output ripple	<50mA at full load			
Efficiency up to	88%			
Load regulation	1.5% at output current; no load t full load			
Operating temperature	0-40℃			
Isolated DC output	2			
Ventilation	Cooling fan ; By thermal & current control			
Dimensions(mm)	226x175x95 (LxWxH)			

Model	EBC1250	EBC2425	EBC1260	EBC2430
Input voltage range	190-265V AC ~ 50Hz			
Bulk/Absorption charging	14.2V/14.6/14.8V DC selectable (12V) 28.4V/29.2/29.6V DC selectable (24V)			
Floating charging	13.2V/13.5/13.8V DC selectable (12V) 26.4V/27V/27.6V DC selectable (24V)			
Max. DC output current	50A	25A	60A	30A
Output voltage	12V	24V	12V	24V
Suggest battery capacity	40~300Ah		80~500Ah	
Output ripple	<50mA at full load			
Efficiency up to	88%			
Load regulation	1.5% at output current; no load t full load			
Operating temperature	0-40℃			
Isolated DC output	2			
Ventilation	Cooling fan ; By thermal & current control			
Dimensions(mm)	226x175x95 (LxWxH)			

Battery type and charging voltage setting

Battery type	Floating charging		Bulk/absorption charging	
	12V	24V	12V	24V
GEL /SLA	13.2V	26.4V	14.2V	28.4V
AGM	13.5V	27V	14.6V	29.2V
WET/calcium	13.8V	27.6V	14.8V	29.6V

12. Warranty

Only covers the cost of parts and labor for the repair service within the warranty period. Warranty will not apply where the device has been misused, altered, neglected, improperly installed, or physically damaged, either internally or externally or damaged from improper use or use in an unsuitable environment. We shall not be liable for damages, whether direct, incidental, special or consequential, or economic loss even though caused by negligence, or other fault. if the device requires warranty service, please return it to the place of purchase along with a copy of the receipt with purchasing date.



Disposal

When the device has become unusable, dispose of it in accordance with the appliance disposal regulations.