

# PROFESSIONAL BATTERY CHARGER

CBC-9000 SERIES



This pro charger is designed for applications that demand adaptive charging for Lead Acid based and LiFePO4 (LFP) batteries. Battery can be connected to the charger all the time and the charger will keep on monitoring the battery .

## Adaptive Charging Management

### Lead Acid Battery

There are 5 Stage Charging for LEAD ACID based batteries namely:

Soft-Start/ Bulk/ Absorption/ Float/ Standby

When battery is deeply depleted (battery voltage is less than 12V) soft-start charging is activated with half rated charging current until battery voltage rises to 12.4V then normal bulk charge with full current will kick in. Both soft-start and bulk charges are in constant current without exerting high voltage to the battery. When the battery voltage rises to a preset value then constant voltage charge occurs with decreasing current which leads float charging with lower constant voltage to keep the battery ready and light refill for any self-discharge or light load.

The charger will enter into an energy conservation (Standby) stage with lower Float Voltage after long period of inactivity of 8 hours or more has been detected. This Standby stage also helps to reduce grid corrosion.

Charger will automatically give a refreshing cycle charge (fast bulk & absorption, float) at 7 days interval of inactivity. This is to keep the electrolyte and the cells of the lead acid battery in good working condition.

There is a manual equalization mode for lead acid batteries either in plate or cylindrical cells subject to the recommendation of manufacturer.

### LiFePO4 (LFP)

There is a special charge algorithm and treatment for Lithium Ion Phosphate (LFP) batteries to ensure safe and optimal charging adaptive to the special chemistry of the battery which is quite different to Lead Acid battery. There are only two active charging stages namely Bulk and Absorption, at the end of Absorption is the inactive (no charging current) Standby Stage. There is no Float and no automatic refreshing cycle charge for LFP.

### Battery with load

A load can be connected to the battery during charging as long as the load is not larger than the rated output of the charger.

The charger can be used to power up dc load when not connected to battery.

## Construction, Misc. Features & Protection

The charger is housed in a robust anodized Aluminum body completed with Poly carbonate end caps.

- Battery temperature sensor is supplied as standard accessory
- Front Exhaust design with temperature control variable speed fan for cool and quiet operation.
- 8 hour sleep Mode or the Half Power Mode with half power presents noiseless operation.
- Half Power Mode for batteries with low Ah ( less than 100Ah)
- Temperature compensated charging & Battery Protection:

When connected to the supplied battery temperature sensor, the charging voltages changes with the battery temperature such that charging voltage decreases with rise of temperature and increases with drop of battery temperature.

When battery temperature is over 60°C, the charger will shut down.

### \*Over Temperature Protection of charger:

At high operating temperature charger will gradually decrease the output power to protect the electronic components from further thermal stress and at the same time keeps a safe and continuous charging until the high limiting temperature 60°C is reached, charger will then shut down and self restart when charger cools down.

- Output short circuit protection.
- Output reversed polarity protection with thermal fuse.
- 7 LED with 4 dual mode plus 3 for indications of charging status and battery selection.
- Single Set Button Setting with intuitive setting procedure

\* All values are based on the Standard ambient Temperature 25°C and Pressure 0.1Mpa.

\* SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

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## Specifications

Models	CBC-9120	CBC-9130	CBC-9140
AC Input Voltage	190-260VAC 50Hz~		
AC Input Current @ Full Load	≤3.5A	≤4.0A	≤5.0A
No Load Input Current	≤120mA		
Output (Charge) Voltage Selections			
Mode	Absorption	Float	
Lead	14.4V	13.6V	
AGM	14.7V	13.6V	
LiFePO4	14.2V	N/A	
Equalization for Lead	16.2V / 3A		
DC Source Mode	13.5V / 13A	13.5V / 20A	13.5V / 26A
Standby Voltage for Lead/ AGM	13.2V		
Minimum Battery Voltage	3V		
Recycle Day	7 days		
Remote Battery Temperature Sensor (supplied accessory)	Yes, -20mV/ °C		
Maximum Output Charge Current	20A	30A	40A
Soft Start Bulk Charge Current	10A	15A	20A
Low Mode Charge Current	10A	15A	15A
Optimal Efficiency	92%		
Recommended Battery Capacity Range	65-200AH @ 20A 35-100AH @ 10A	100-300AH @ 30A 50-150AH @ 15A	130-400AH @ 40A 70-200AH @ 20A

Models	CBC-9210	CBC-9215	CBC-9220
AC Input Voltage	190-260VAC 50Hz~		
AC Input Current @ Full Load	≤3.5A	≤4.0A	≤5A
No Load Input Current	≤120mA		
Output (Charge) Voltage Selections			
Mode	Absorption	Float	
Lead	28.8V	27.2V	
AGM	29.4V	27.2V	
LiFePO4	28.4V	N/A	
Equalization for Lead	32.4V / 1.5A		
DC Source Mode	26V / 6.5A	26V / 10A	26V / 13A
Standby Voltage for Lead/ AGM	26.4V		
Minimum Battery Voltage	3V		
Recycle Day	7 days		
Remote Battery Temperature Sensor (supplied accessory)	Yes, -40mV/ °C		
Maximum Output Charge Current	10A	15A	20A
Soft Start Bulk Charge Current	5A	7.5A	10A
Low Mode Charge Current	5A	7.5A	10A
Optimal Efficiency	92%		
Recommended Battery Capacity Range	35-100AH @ 10A 16-50AH @ 5A	50-150AH @ 15A 25-75AH @ 7.5A	70-200AH @ 40A 32-100AH @ 20A

## General Specifications

Protections	Short Circuit protection, self-recoverable Over temperature protection, 3 steps decrease of output power, self-recoverable Battery over temperature protection, with battery remote sensor, self-recoverable Reverse Polarity(fused) (Replace by 30A fuse for 9120, 40A fuse for 9130, 25A fuse x2 for 9140, 15A fuse for 9210, 20A fuse for 9215, 25A fuse for 9220)
Cooling Method	Thermostatically Controlled Variable Low Speed Fan (0 to full speed)
Operating Temperature	-10°C to +50°C (Maximum Output up at 40°C)
Back Drain Current	Less than 1Ah/ month
Remote Control	Optional Accessory CBR-9100
Wireless Remote Control	WiFi Models only, Remote control by PC software/ Smart Phone APPS
Approval	CE EN 61000, 60335, 55014, 62233
Dimension (LxWxH)	223x135x73 mm 8.8x5.3x2.9 inch
Weight	1.8 kg 4.8 lbs

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