



**MCB 12V-8A**  
**MCB 24V-5A**  
**Battery charger**  
**User Manual MCB-V2.3**  
[www.bernini-design.com](http://www.bernini-design.com)

## Summary

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## 1.0 Description

The MCB is an automatic, microcontroller based, Battery Charger designed for permanent connection to an automotive Lead-Acid battery. The maximum current is adjustable, by a trimmer, from 1,5A to 5A (8A). The BOOST MODE mode can also be initiated by pressing an external push button. After BOOST MODE, MCB enters the TRICKLE MODE providing a current of 200mA. If the voltage of the Battery rises above limits, the MCB disables the TRICKLE MODE. Typical applications of MCB include standby generators & AMF panels. MCB is available for 12V (order code MCB12-8) and 24V batteries (order code MCB24-5).

## 2.0 Characteristics

**MAX DC OUTPUT:** 14,4V (12V battery) or 28,8V (24V battery), **TRICKLE CURRENT:** 200mA approx.

**OUTPUT CURRENT** (adjustable): 1,5A - - - - 5A (24V battery) / 8A(12V battery)

**AC INPUT:** 180V-250V/45-66Hz. **ALARM OUTPUT:** RELAY SPDT (5A / 30VDC; 8A ext. Fuse is mandatory).

**PROTECTION:** Short Circuit, Reverse Polarity, Over Current / Over Voltage / Over Temperature.

**FUSES:** 2A (Slow Blow for AC INPUT); 10A (for 12V battery) / 8A (for 24V battery)

**CONNECTORS:**

- AC inputs: 3 poles Male/Female connectors
- BOOST PUSHBUTTON: 2 poles screw terminal block
- BATTERY: 4 poles screw terminal block
- SERIAL INTERFACE: 4 poles Male/Female
- ALARM OUTPUT: 3 poles screw terminal block

**DIMENSIONS:** 124 (W) x 171 (L) x 103 (H) (without connectors)

**ENCLOSURE:** Extruded Aluminium (base) / Black Coated Steel (cover)

**WEIGHT:** ~2.8 Kg

**MOUNTING:** wall screws mounting with 4 screws M4

**TEMPERATURE RANGE:** -25 ÷ 70°C

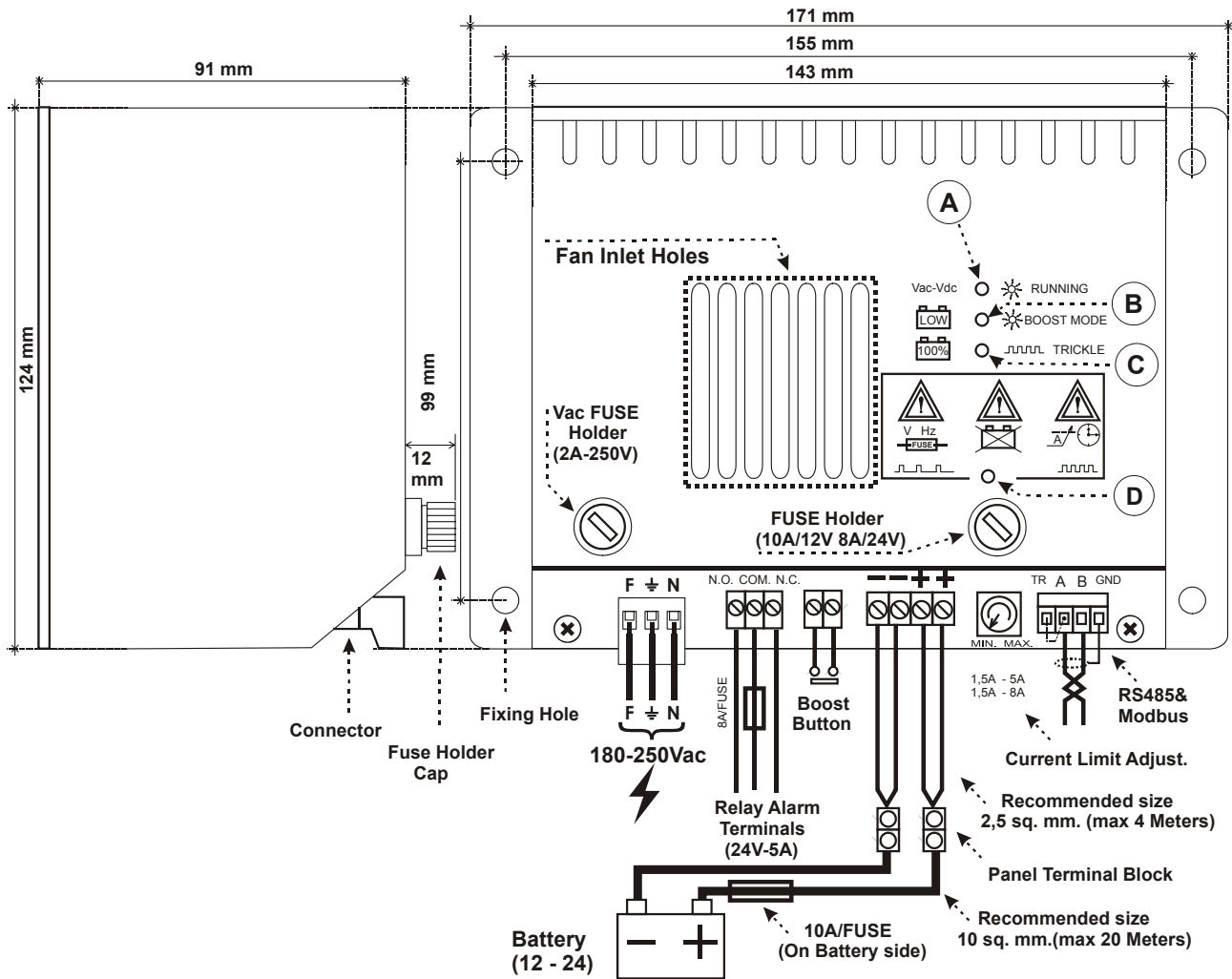
## 3.0 Alarm Output Relay

The MCB features a relay alarm. The relay turns on when there are no alarms (normal condition). The relay turns OFF (and simultaneously the red indicator turns ON) in case one of the following condition is met:

Vac Supply over 260Vac	Reverse Polarity	Overload/Overcurrent	Internal Damage
Vac Supply below 160Vac	24h Charge Timeout	AC or DC Fuse Open	No charge current
Frequency > 66 Hz / <45Hz	Short Circuit	Over temperature	Battery Failure

**Note: to prevent false operations of the relay, the alarms are ignored for a reasonable time (from 20 to 90 seconds depending on the type of alarm). When you remove the alarm, the MCB will turn on the relay (indicating 'no-alarm') after maximum 90 seconds.**

### 4.0 Typical wiring diagram



### WARNING !

- Disconnect any power source/supply before making any connection to the MCB charger.
- If you suspect the power failure may last longer than 48 hours, disconnect the Battery.
- Boost button mode must be used in accordance to battery manufacturer's recommendations.
- Replace blown fuses by the same type only (see wiring).
- Work on the battery must be carried out by qualified personnel on

### 5.0 LED indicators true table

LED	STATUS OF THE CHARGER				
	BOOST CHARGE	TRICKLE CHARGE	VAC SUPPLY FAILURE	BATTERY or CHARGER FAILURE	BATTERY CHARGER TIMEOUT or OVERLOAD
A (GREEN)	ON	ON	ON	X	X
B (YELLOW)	ON	OFF	X	OFF	X
C (GREEN)	OFF	BLINK	OFF	OFF	X
D (RED)	OFF	OFF	BLINK SLOWLY	ON (PERMANENT)	BLINK FAST

X = Don't care