



eSMART QUAD CHARGER

**4 bay desktop smart battery simultaneous charger
with *Active Thermal Management***

Version 1.0

Created : 27/10/2018

The eSMART QUAD CHARGER is a rugged and fully featured smart battery charger. The unit is powered directly through mains AC and features a 160×128 pixels OLED screen and PWM controlled fan.

This charger is compatible with our eSMART Li-98Wh and Li-49Wh li-ion batteries. Similar batteries from third party vendors are also compatible with this unit.

Thermal behavior of the charger is automatically monitored and controlled through an Active Thermal Management system. This system uses fan speed or charging current to ensure the quietest and coolest operation possible. When users choose fan based cooling its speed is automatically slaved to the charger's internal temperature. Users can disable the fan with a switch located on the charger's front panel. Once the fan is disabled, the integrated micro-controller will adapt the charger's maximum charging current to reduce heat generation inside the unit.

- Maximum charging current per bay : 2.0A
- 160×128 pixels full color OLED screen
- Ultra quiet (10dBA min / 28dBA max) ON/OFF switchable and PWM controlled fan
- All anodized aluminum CNC machined and extruded enclosure with laser engraving
- 90-240V AC input / 150W
- IEC C14 power input connector
- Weight : 1.6Kg
- Dimensions : 270 x 176 x 53mm

Warning

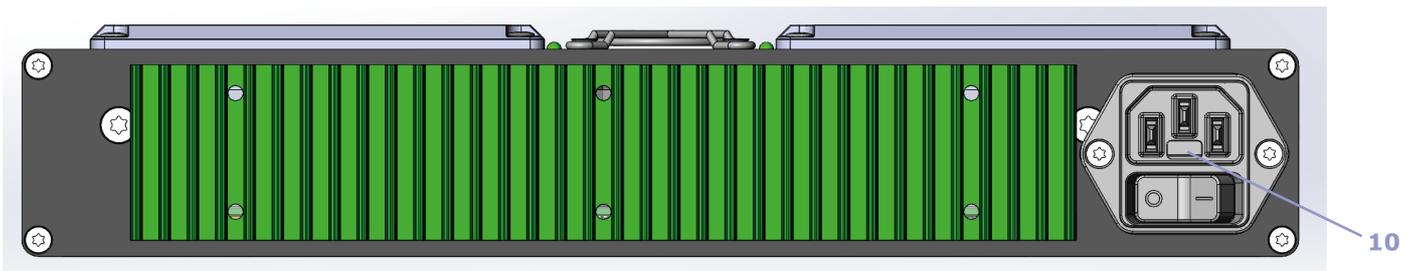
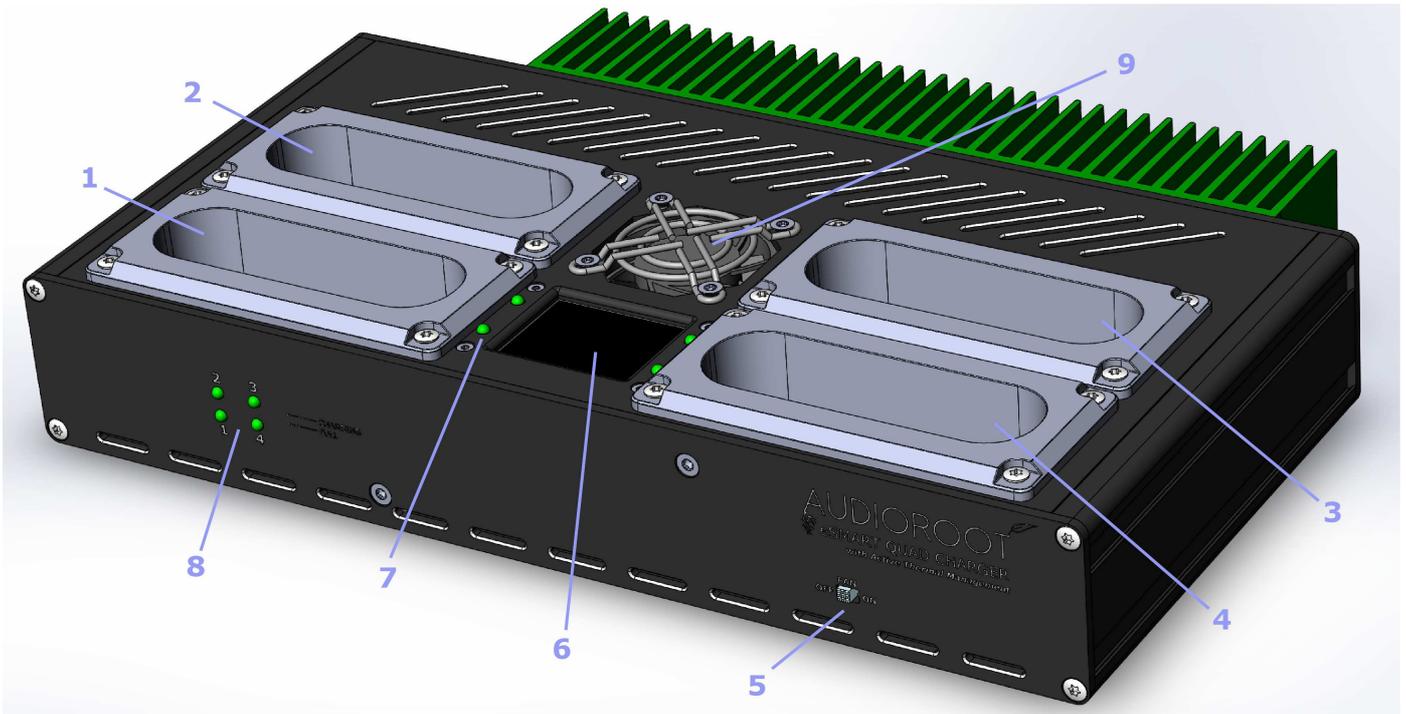
Do not try to repair this product or replace any of its elements if this user manual does not give specific instructions on how to do so. This equipment was built with surface mount components and needs special tooling for repair. The removal of the electronic PCB needs special technical skills.

UNPACKING AND INSPECTION

The eSMART QUAD CHARGERS are carefully checked for good condition before being shipped from the factory. Despite the protective carton and rugged design, shipping may damage the unit. Check for possible carton damage when unpacking the unit.

Please save the carton for return shipment if necessary. AUDIOROOT does not warrant against damage caused by returning products in other cartons than the original ones or improperly packing the products. If shipping damage is evident, notify the transportation company immediately. Only the consignee can file a claim with the carrier for shipping damage. AUDIOROOT will fully co-operate in such an event. Be sure to save the carton for the shipper to inspect.

UNIT CONNECTIONS AND CONTROLS:

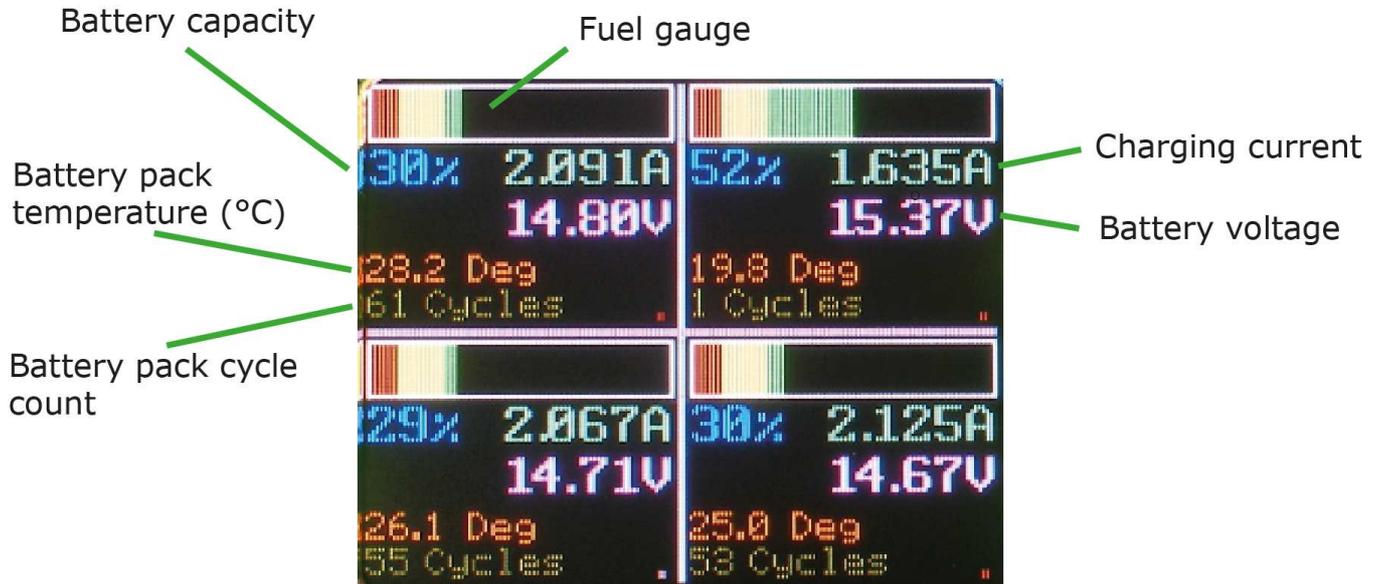


1. Battery charging bay #1
2. Battery charging bay #2
3. Battery charging bay #3
4. Battery charging bay #4
5. Fan ON/OFF switch. This switch enables or disables the integrated fan.
When set to ON the fan will spin if at least one battery is charging. The fan will stop if no battery is present or if all batteries are fully charged. The fan is PWM regulated and slaved to the charger's internal temperature.
When set to OFF the fan is fully disabled. The charger's micro controller will adapt the maximum charging current to avoid over-heating of the unit.
We recommend to set the switch to the ON position whenever possible (i.e when the fan noise is not an issue).
6. OLED display
 - This display shows all the needed information regarding the SoC (state of charge) of each of the 4 batteries. See the "OLED DISPLAY" section of this manual for more information.
7. Top panel status LEDs. Each battery bay has a LED which shows the charging status :
 - **green flashing** : the battery is charging
 - **green solid** : the battery is fully charged
 - **led off** : no battery present in the charging bay

8. Front panel status LEDs. These LEDs operate in the same way as the top panel status LEDs.
9. PWM controlled FAN. This fan is enabled/disabled with its dedicated switch as described above in item #5.
10. IEC C13 mains input socket with ON/OFF switch.

OLED DISPLAY :

The 160x128 pixels OLED display located on the charger's top panel shows valuable information about each battery connected to the charger as shown below.



The OLED display will show SoC information for a battery only if it is inserted in a charging bay or if it is actually charging. If no battery is present inside a charging bay, the corresponding SoC portion of the display will stay blank. If all batteries are fully charged or if all of the charging bays are empty the OLED display will stay off.

During battery charging, a color changing cross will be drawn every 2-3 seconds in the middle of the display. This animation is purely esthetic and has no technical function other than dividing the screen in 4 equal areas. The blinking dots located at the bottom right of each display areas are for debugging purposes only.

BOX CONTENTS :

1. 1 x eSMART QUAD CHARGER
2. 1 x AC cord (EU, US, UK or AU depending of your region)
3. 1 x user manual

SAFETY PRECAUTIONS :

- Do not expose the charger to liquids. The aluminum enclosure is not water resistant.
- Do not open the charger – no parts are user accessible and high AC voltage is present inside the unit.
- Do not cover the air vents, fan or heatsink. Do not obstruct the airflow, this will cause overheating.
- Place the charger in a cool spot, away from direct sunlight or any external heat sources.

CHARGER OPERATION :

To operate the battery charger proceed as follows :

- Place the charger on a flat level surface away from sources of heat and moisture.
- Plug the supplied AC cord to the IEC C13 socket located on the charger's rear panel.
- Plug the other end of the AC cord to a compatible wall socket.
- Turn the charger ON with the main switch located on the unit's rear panel.
- Insert one or multiple batteries in the charging bays, ensuring that the 5-way connector is fully seated.
- The status LEDs and OLED display will provide status information and the charger will automatically begin charging.
- Once the batteries are full, the charging will automatically stop and the OLED display and fan will shut off.

CHARGING TIMES :

The following values are given for a full charge from 0% to 100% state of charge.

- eSMART Li-49Wh : 2.5 hours (@1500mA charging current)
- eSMART Li-98Wh : 3.5 hours (@2000mA charging current)

SUPPORT :

Please contact us directly via email at audioroot@audioroot.fr for more support.