

**CME-LUX OY**

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**SMART CHARGER**  
**User's Manual**

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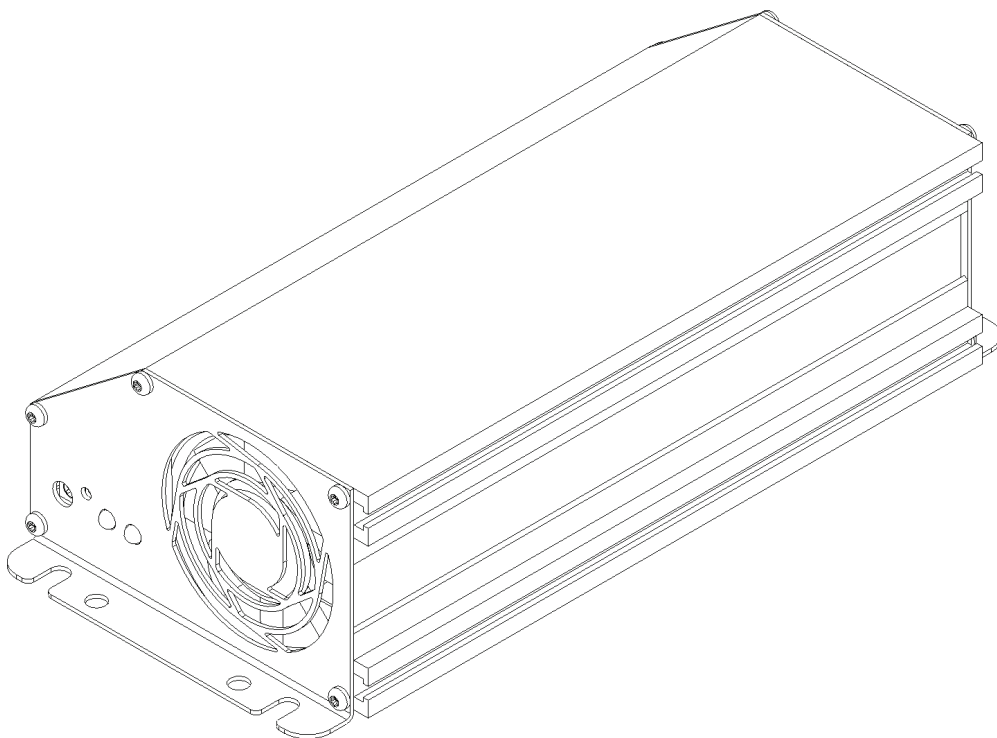
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# CME-LUX OY

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## USER'S MANUAL FOR:

- **SMART CHARGER 600**
- **SMART CHARGER 800**



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## 1 SMART CHARGER

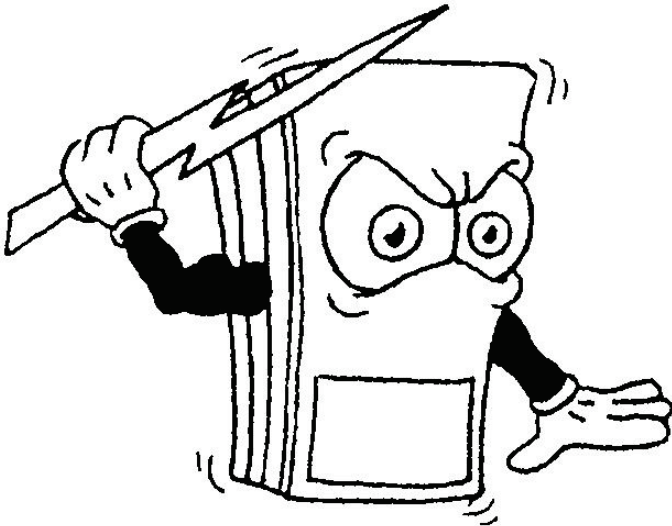
SMART CHARGER models are battery chargers that use modern switching technology. Their intelligent microcontroller extends the life of the battery by controlling the charging process. The equipment is small, light and meets the safety and EMC requirements established by the EU.

You will be satisfied with the reliable and easy to use SMART CHARGER.

Keep this manual at hand for future reference.

## 2 GENERAL

SMART CHARGER are available for a variety of battery types. The charger type is indicated on the label attached to the side of each charger.



Be sure to always use the correct type of charger. The charger type should correspond to the construction of the battery (sealed, vented, etc.).

Attempting to charge a battery with the wrong type of charger may result in considerable damage.

Check your battery to make sure that its "five-hour capacity" (in amp-hours, Ah5) is between 5 and 14 times greater than the nominal current (in amps) of the charger. For example, a 10A charger is suitable for charging batteries with a five hour capacity of 50A to ~140A.

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## 3 INSTALLATION

When choosing a location for the charger, please note the following:



1. The location must be dry, dust-free, and indoors. The acceptable temperature range for operation is  $-20^{\circ}\text{C}^*$  to  $+40^{\circ}\text{C}$ . A higher ambient temperature will limit the current supply, see appendix A. CAUTION: The charger is not waterproof. Keep it dry and away from areas of high humidity to avoid the risk of electrical shock and damage to the charger.
2. The equipment may be installed either vertically or horizontally, but recommended installation position is horizontal and at least one meter height from wall.
3. To ensure sufficient ventilation, leave approximately 10 cm of space around all sides of the charger. Do not cover the equipment.
4. The charging process generates explosive hydrogen gas. Keep the area well ventilated. Never use an open flame or equipment that produces sparks near the charger.
5. If charger is installed vertical so that cable plate is down, then the floor and all below charger must be non burning material. If material type below the charger is unknown, then vertical assembling position is prohibited.

Plug the main power cord into an earthed electrical socket. If the mains socket is without protection earth terminal, charger can be connected to unearthed terminal as well.

\* The standard power cord may break if bent in temperatures below  $-5^{\circ}\text{C}$ .

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## 4 OPERATION

Read these instructions carefully prior to charging. Familiarize yourself with the safety instructions in Section 5.

To charge a battery with SMART CHARGER, follow these instructions:

1. Ensure that the charger is switched off and that the work environment meets the conditions described in Section 3.
2. Connect the charger cables to the battery terminals: the positive (+) cable to the positive (+) terminal and the negative (-) cable to the negative (-) terminal. The positive cable of the charger is red and marked with a yellow ring and a + symbol. The negative cable is black. The positive battery terminal is commonly marked with red.

**WARNING:** Because some sparking may occur as the cables are connected to the battery, the battery should be placed as far from the charger as possible and the charger's cables extended to reach the battery.

**WARNING:** Wrong polarity (connecting positive to negative) will damage the charger!

3. Turn the power on by turning the switch to the I position. The fan will usually not operate when you first turn on the charger. The charger constantly monitors its own temperature level and reacts by controlling the charging current and fan speed. Under normal conditions the charger will not overheat.

If the charger is programmed for constant voltage charging, go to step 9.

6. During the charging process the STATUS light will show constant orange. If the STATUS light shows a constant red light instead of orange, the battery voltage is either too low or too high, or the battery is not connected to the charger. Turn off the power by turning the switch to position O and make sure

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the battery is suitable for the charger. The battery voltage should be 8-16 volts for a 12 volt charger and 16-32 volts for a 24 volt charger. Check the cable connections and return to step 3.

7. The battery is fully charged when the STATUS light is green.
8. About 16 hours after you begin charging, SMART CHARGER will switch to maintenance charging. Should the battery not be fully charged when SMART CHARGER switches to maintenance charging, the process will terminate and the STATUS light will blink red. This may occur if the battery is faulty or if the battery and the charger are incompatible (see Section 2).
9. This step applies only to chargers programmed for constant voltage charging. During the charging process the STATUS light will show a constant orange light. The charger does not check the cable connections but starts charging immediately after the power is switched on.

8. Always turn the power off before disconnecting the cables by turning the switch to the O position. This avoids heavy sparking.

## **CAR USE:**

When connecting the cables (step 2), first connect the charger cable to the terminal of the battery which is not connected to the vehicle chassis. Then connect the other cable to the car chassis far away from any fuel lines and from the fuel induction ie. carburator.

When finished charging (step 7), disconnect the cable connected to the chassis of the vehicle first (after turning off the charger).

## **5 SAFETY INSTRUCTIONS**

In addition to the safety measures in Section 3, the following personal precautions should be taken whenever charging batteries:

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1. For emergency situations ensure in advance that help will be available in time of need.
2. Batteries contain acid that is harmful to eyes, skin and clothes. Always wear overalls and safety goggles. Never touch your eyes with unwashed hands after handling batteries.
3. Ensure that a working, fresh water outlet is available. If acid gets into your eyes or on your skin, immediately flush the area with plenty of water for several minutes. If visible injury occurs, contact a physician immediately. In the case of eye injuries, always consult a physician.
4. The charging process generates explosive hydrogen gas. Do not smoke or otherwise bring burning or sparking matter to the vicinity of the charger when it is operating.
5. If a short circuit occurs, the battery may explode or the item causing the short may melt. Keep the work area clear of tools and debris. Remove jewelry, watches, etc. before working with the battery.



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## 6 TROUBLESHOOTING AND REPAIR

The most common faults are described in Section 4 of the operating instructions.

If the charger does not come on when the switch is turned on, there may be a fault in the fuse, power cord or plug. Check that the equipment is plugged in and that the fuse is not burned out. Call an electrician or service repair technician if there seems to be a problem with the cord or with the plug.

If the cause of malfunction cannot be found, contact your retailer or the manufacturer.

The charger should be repaired by authorized personnel only.

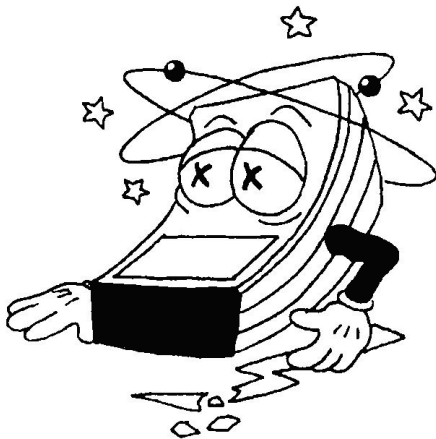
## 7 WARRANTY

The equipment has a warranty of one year from the date of purchase. The warranty covers manufacturing and component failures. The warranty is valid only when the equipment is installed and used according to the instructions provided in this manual.

Keep the receipt as evidence of the date of purchase.

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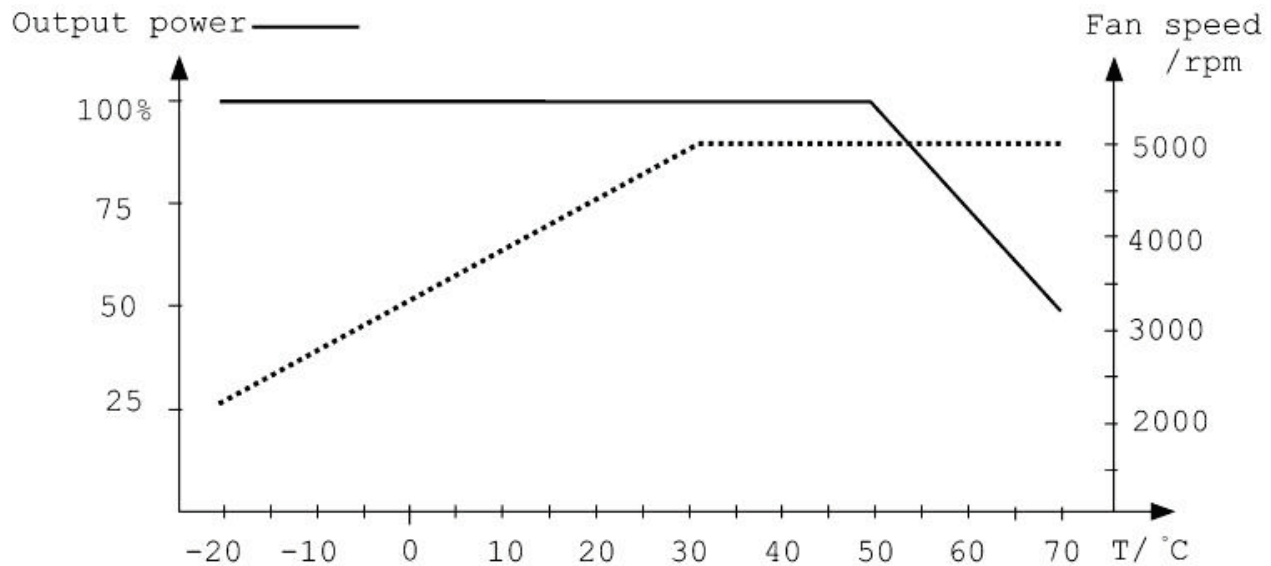
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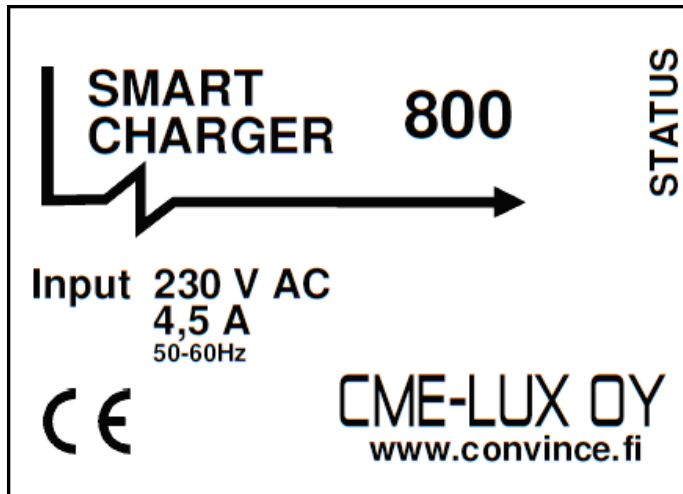
## 8 APPENDIX

Appendix A. The effect of ambient temperature to output power and fan speed and the effect of input voltage to output power.

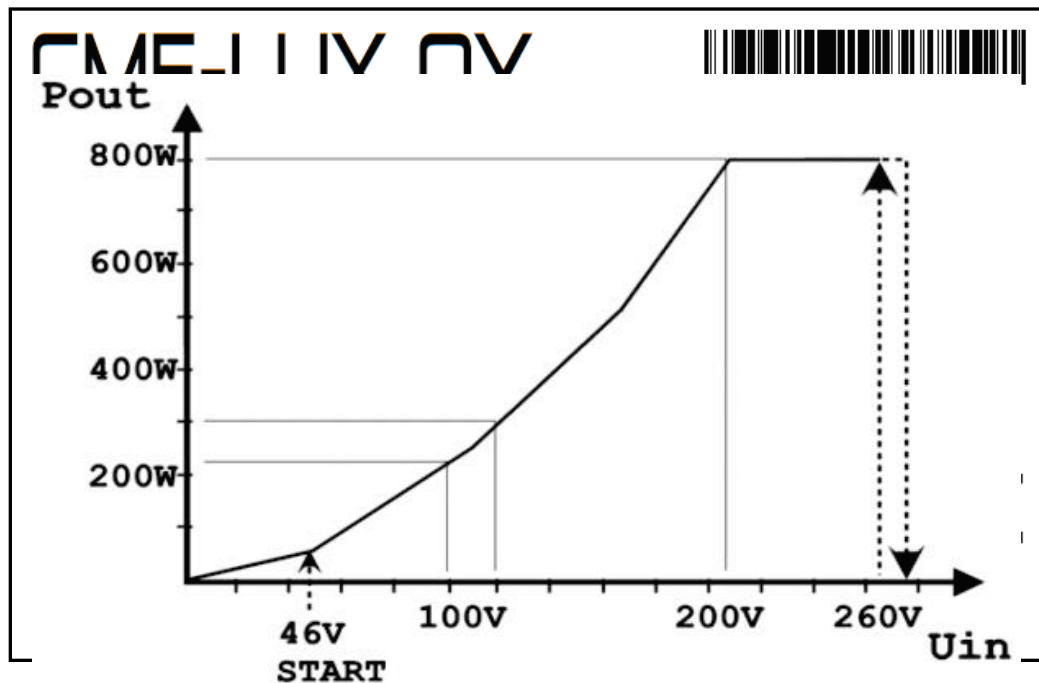


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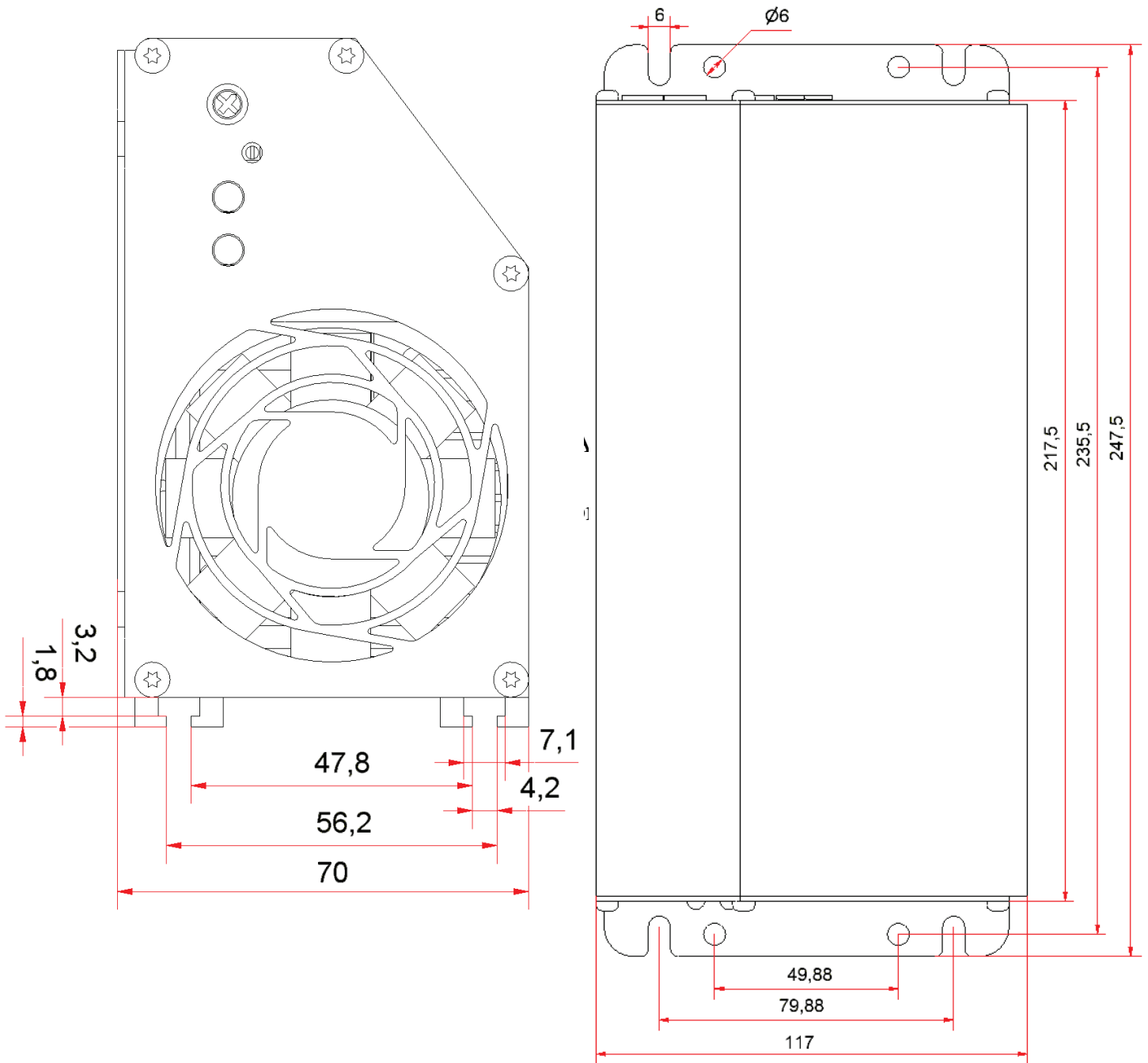
Appendix B. Example of the front label.



Appendix C. Instruction label on top of the charger.



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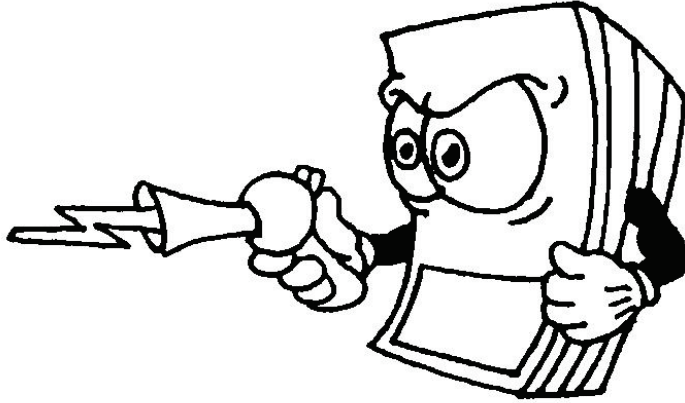
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