

# AUTOMATIC CHARGER

## AL 300pro



Art.-No.: 1 24 82 17

With the **Automatic charger AL 300 pro** all 2, 6 and 12 Volt lead acid batteries can be charged automatically. When the connected battery is completely charged, the current will be reduced to prevent overcharging. Due to the automatic voltage and current control the connected battery will always stay completely charged and at the same time the overcharging as well as the gas development will be prevented.

### Features

- For 2 V, 6 V and 12 V lead batteries
- Electronic charge regulation
- Lead acid, gel, AGM and MF batteries
- Charging with IU characteristic
- Appropriate for constant charging
- Limited time short circuit and wrong polarity prevention
- Constant final charging voltage
- Optical display for charging and wrong polarity
- Adjustment of the charge voltage with slide switch

This article has been checked and manufactured according to EU-regulations 89/336/EWG (EMVG, 09.11.1992) and is according to law requirements. The changing of the switch or the usage of other components as indicated will make this approval invalid.

### Technical data

- Main voltage: 230 Volt ~
- Final charging voltage 2,3V for 2V batteries  
6,9V for 6V batteries and  
13,8V for 12V batteries
- Charging current: max. 300 mA
- Dimensions (L x W x H) 91 x 54 x 40 mm

## WARNINGS AND SAFETY INSTRUCTIONS

This product has left our company in a technical perfect status. To retain this status and for safe operation of this product the user has to pay attention to the safety remarks and warnings included in this manual.

**Please read this manual carefully.** It contains important information on the commissioning and handling of the product. Please bear this in mind, even if you pass it on to other people! The law requires that this manual contains important information for your safety and describes how the unit can be used safely, avoiding damages to the unit and other installments. This manual is a part of the device and should be kept in a safe place for future reference. For defects, which occurred due to not following the manual, the guarantee will not apply. Therefore for any such defects the manufacturer shall not accept any product liability! To avoid malfunctions and damages, please pay attention to the following safety instructions:

- Repairs of the unit should only be performed by a specialist!
- Dispose of the packaging material that is not needed. Children might play with the plastic bags and risk suffocation.
- The unit and its components should not be handled by children and infants.



**Danger!** The unit should only be opened by a specialist. Detach the device from the mains before opening it. Opening the device will reveal components which have a live current and can be hazardous to your health when touched.

## 1. INTENDED USE

The correct usage of the product is exclusively for charging 2–6–12 Volt lead acid and maintenance-free batteries (gel/AGM). Any other usage is not permitted.

## 2. SAFETY

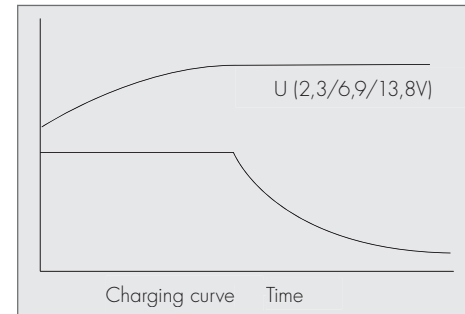
Usage conditions:

- This product can only be connected to 230V/50Hz.
- The operation of the product is only allowed with the stated voltage the positioning of the product is free.
- The surrounding temperature (room temperature) has to be between  $-5$  degrees C and  $+40$  degrees C.
- Ventilation slits are preventing an excessive rise of the operating temperature and must therefore not be covered or blocked. Especially easy flammable products, like clothes and paper, have to be kept away from the charger.
- The product is for use in dry and proper kept rooms only.
- In case of the occurrence of condense water an adjustment period of up to 2 hours has to be given.
- The operation of the product outside of buildings and in wet rooms is not allowed.
- This product must be kept away from humidity, water and excessive heat.
- Only 2, 6 or 12 Volt lead acid batteries can be charged.
- By no means are dry batteries allowed to be connected to the charger.
- The product must not be used together with easy inflammable and burnable liquids.
- This product is not suitable for children under the age of 14.
- The product is only to be used under the supervision of an adult or an expert.
- In working areas the accident prevention information local authorities have to be observed.
- In schools, education centers and hobby working places the use of the product has to be supervised by educated staff.
- Don't use the product in an environment with burnable gases, steams or dust.
- In case of repairing the product use only original spare parts. The use of other substitutes can lead to serious defects.
- Repairing of the product has to be done by experts.
- After using the product always unplug it from the mains.

- First disconnect the unit, then disconnect the battery.
- If a non-commercial and/or non-technical minded end consumer does not understand the electrical specifications he/she must contact an expert for advice.
- Prior to using the appliance it has to be checked whether it is suitable for the intended application. In case of doubts an expert has to be contacted.

## 3. OPERATING INFORMATION

In contrast to simple chargers the charging current of this automatic charger is not constant and depends on some components, for example the actual charging level of the battery, the age of the battery, the type of the battery and the capacity. Also it is important how much the battery has been discharged before. If the battery had been discharged with high currenxy then there will be in the beginning of the charging a high current (max. 0.3A), which decreases after a short period. This means that with rising voltage the charging current decreases. The following diagram shows this behavior:



For the charging itself it is not important if the battery is partly or completely discharged. The battery can stay connected to the charger for a long period, the surrounding temperature should be in the range of  $-25^{\circ}\text{C}$  to  $40^{\circ}\text{C}$ . In case the battery has been connected to the charger with the wrong polarity then this will be indicated through a red light („Verpolt“). Disconnect the battery from the charger immediately.

## 4. OPERATION

### 1. Choose the proper charging voltage

Choose your charging voltage: 2, 6 or 12 Volt.

Attention: the wrong charging voltage can destroy this product or the battery.

### 2. Connection to the battery

First connect the charger to the batterie. Then clamp the red terminal clamp of the charger to the positive terminal (+) of the battery and the black terminal to the negative terminal (-) of the battery.

### 3. Connection to 230V AC

Connect the charger to the 230 V plug, the green charging control LED „Laden“ LED will be illuminated.



**Notice!** The product is temporarily short-circuit-proof. Longer lasting short circuits longer than 1 min.) must be prevented under all circumstances, otherwise parts of the charger or the power electronics might be overloaded. The green „Laden“ LED is only lit, if charging-current > 70 mA is present!

## ATTENTION!

- While charging the battery please pay attention to the right polarity!
- To prevent defects to the battery make sure to never deeply discharge the battery!
- Make sure to have an adequate ventilation of the room!
- Open the cells of the lead acid battery before charging!
- Check the acid of the battery before longer charging!
- Check the acid of the battery in between!
- Fire, smoking, naked lights, explosive gases, flames, embers and sparks pose a lethal hazard when handling batteries (danger of explosion due to gas).
- Always check the charging instructions of the battery manufacturer (normally printed on the battery).

## 5. MALFUNCTIONS

If it can be assumed that the charger cannot be operated anymore without any danger, the charger has to be taken out of operation and it has to be made sure that it cannot be operated unintentionally.

This applies when:

- the product shows obvious defects.
- the product doesn't function any more.
- parts of the product are loose.
- connecting cables show defects.

In case of repairing the product use only original spare parts. The usage of other substitutes can lead to serious defects. Repair of the product has to be carried out by experts.

## 6. GENERAL NOTICES AND INFORMATION

### Maintenance

The Automatic Charger is virtually maintenance free. As with all security products, the correct function should be checked from time to time. Check the device for damage before use! If you discover signs of damage do not use the device but get it repaired at a qualified specialist workshop .

### Cleaning

Clean the device with a dry cloth only. If it is very dirty use a slightly dampened cloth. Do not use any solvent based cleaners. Detach the device from the mains before cleaning it.

## Warranty

We grant warranty of 2 year for this product. The warranty includes the repair of defects which result clearly from incorrect materials or manufacturing mistakes. For damages caused by not following the instructions the warranty will be stated void. For consequential damages resulting thereof, no liability can be taken! For safety and licensing reasons (CE) the unauthorized conversion and/ or modification the device is forbidden. Further claims are excluded.

In the event of defects which occur as of delivery within the legal guarantee period of two years, you have the legal right of subsequent fulfillment (either: rectification of the defect or delivery of a new product) and – if the legal prerequisites are met – the legal rights of reduction or withdrawal and additionally compensation for damages. Detected deficiencies are to be reported immediately. Proof of purchase must be provided. For reasons of safety and licensing (CE) it is not allowed to modify the unit. Any additional claims are excluded

We accept neither responsibility nor liability for any damages or consequential damages in connection with this product. We reserve the right to repair, supply spare parts or return the purchase price.

In case of the following criteria the warranty does not apply neither will we repair the product:

- changing and own repairing of the product
- changes of the switches
- during the construction not planned outsourcing of components
- destruction of the PCB and soldering spots
- overcharging of the product
- defects resulting from operations of external persons
- defects resulting from not paying attention to the manual or drawings
- connection to wrong current
- connection to wrong polarity
- wrong operation or defects from misuse
- defects due to wrong or manipulated fuses
- using components other than the original components

In all these cases the device will be returned at your expense.

## 7. ENVIRONMENTAL PROTECTION

### Disposal of used batteries/chargers



As an end consumer you are obliged by law (battery regulation) to return all used batteries and accumulators. A disposal through household waste is not permitted.

### Device



This product must not be disposed of through normal household waste at the end of its durability, but handed in at a collecting point for recycling of electrical and electronic devices. This is shown by the picture on the product, the manual or the packaging. The materials are recyclable according to its labeling. By doing this you are making an important contribution to the protection of our environment.

### Packaging

When disposing of the packaging, please follow the laws that apply to environmental protection and waste disposal. The disposal of packaging is possible through the normal household waste disposal. If you want to dispose of the device, please follow the laws that apply to the disposal of electronic waste.

This manual is a publication of H-TRONIC GmbH, Industriegebiet Dienhof 11, 92242 Hirschau, Germany. All rights including translation reserved. Information provided in this manual may not be copied, transferred or put in storage systems without the express written consent of the publisher. Reprinting, also for parts only, is prohibited. This manual is according to the technical data when printed. This manual is according to the technical status at the time of printing and is a constituent part of the device. Changes in technique, equipment and design reserved.

© Copyright 2012 by H-TRONIC GmbH