

# CURTIS

## *Rialto* *Battery Charger*



### INSTALLATION AND OPERATING INSTRUCTIONS

**240 Volt Standard Supply** (AP070 control card)

**110 & 240 Volt Dual Supply** (AP063 control card)

TÜV-GS certified No. Z1A 02 07 15042 115

The CURTIS Rialto battery charger carries the " CE " mark  
as required by the European Directives:

- \*89/336/EEC ( Electromagnetic Compatibility )
- \*73/23/EEC ( Low Voltage and Safety electrical appliances )

**IMPORTANT - read the instructions carefully before connecting the charger to the mains and before operating.**

## A) INSTALLATION AND SAFETY WARNINGS

**Read the manual carefully before connecting charger to mains and battery.**

- Skilled and authorised personnel only shall be allowed to open the charger.
- Before setting the charger at work, the insulation of mains connection cable and battery connection connectors has to be checked.
- The electrical appliances have to be operated by skilled personnel only.
- Disconnect from mains before connecting or disconnecting battery.
- **WARNING:** Batteries produce explosive gases while being recharged, therefore there must be neither flames nor sparks near the charger while it is in operation. Keep the charger far away from other appliances, which may endanger people and objects.
- The charger contains electric components, which may produce voltaic arcs and sparks, therefore if it is used in a closed environment it has to be installed in a proper site. The standard charger (IP 20) is to be used in closed and ventilated environments only and not exposed to rain nor splashed with water. It has to be positioned onto solid and levelled floors, far away from dust, water, heating and moisture. The charger has not to be positioned onto supports and/or shelves of wood or other inflammable materials. Do not stock materials near the charger and do not place any objects and fluid containers on the top of the charger.
- Ensure that an adequate earth connection is made to prevent risks of electrocution. The charger has to be connected to a mains supply of standards corresponding to the power of the charger and has to be protected through an adequate electrical device conforming to European Standards (fuses or automatic cut-outs). The protection has to have a at least 10% higher setting than the power absorption of the device; furthermore the device has to be protected from a too high contact voltage, according to the provisions by local Authorities.
- It is recommended to use bipolar standard connectors which do not allow a polarity reversal on battery; check the proper connection of cables in the contacts of the connectors (bad conditions of the connectors due to the oxidation of the electrical contact may produce dangers like sparks or fires).
- Do not use additional cables to prolong the existing electrical connections.
- Check regularly the condition of the battery. It is recommended to use batteries in good state.
- Do not tamper with the charger and in particular the safety systems.
- Problems in the electrical components have to be removed by skilled personnel only. Defective parts have to be replaced with other components with the same features and have to be authorised by the manufacturer.
- Check regularly all internal electrical connections. Make sure that cables and terminals have not been damaged by overheating due to a bad contacts ; remove dust (in particular from the contactor and the mobile parts).
- The **CURTIS** battery chargers do not need any special maintenance, apart from the usual cleaning which has to be performed regularly depending on the installation site. Before cleaning the charger, disconnect it from mains and battery.

## B) CONNECTION TO MAINS

### **MAINS SUPPLY 240-Volt Standard (AP070 control card)**

- Connect the charger to a suitable rated mains supply. See rating label on side of charger for details. The equipment must be earthed.
- Single phase chargers are pre-set for 240 volt operation.
- Should the mains voltage differ from the rated value, the charger transformer tappings on the terminal board should be adjusted to suit. The auxiliary transformer must also be adjusted on the three phase equipment.
- The mains supply should allow for a 20% safety margin above the rated input for the charger to allow for potential overloads. As chargers present an inductive load to the mains, the supply should be protected by either slow acting class 4 or class D magnetic breakers or thermal circuit breakers or motor start fuses.

**MAINS SUPPLY 110 & 240-Volt Dual Supply (AP063 control card)**

- The charger is suitable for operation from either a 110 or 240-volt supply with the appropriate supply being set by the internal selection switch.
- Chargers are supplied set for 240-volt operation and are fitted with a 240-volt AC plug.
- The mains selection switch should be set to the required voltage and the appropriate AC connector fitted to the AC input cable. Equipment should be isolated from both battery and mains before removing the cover.
- After setting connect the charger to a suitable rated mains supply. See rating label on side of charger for details. The equipment must be earthed.
- Should the mains voltage be higher or lower than 110 or 240 volts the charger transformer tapings on the terminal board should be adjusted to suit.
- The mains supply should allow for a 20% safety margin above the rated input current for the charger to allow for potential overloads. As chargers present an inductive load to the mains, the supply should be protected by either slow acting class 4, class D magnetic breakers, thermal circuit breakers or motor start fuses.

**C) DC CONNECTION**

- Connect the DC output cables of the charger to the appropriate style DC connector ensuring correct polarity is maintained and the charger is correctly matched to the battery (see Charger Selection Table at the end of the manual).

**D) MAINTENANCE**

- As with all chargers, an excessive build up of dust may create a fire hazard. It is therefore advised that the charger should be “blown-out” with an air line or equivalent at least once a year.
- Servicing and/or repairs should only be carried out by **CURTIS** approved service engineers.

**E) OPERATION**

- Connect the battery, the **green LED** “discharged” battery symbol will illuminate on the front control panel, if the **red LED** fault symbol flashes, this indicates that there is no mains supply present.
- With mains supply present, all LED's and symbols on the display will flash, to indicate the controller is performing a diagnostic self-test.
- The charger is set to start charging automatically after a 5-second delay after which the **green led** will flash and charging will commence.
- To stop the charging at any time press the green stop/start button.
- After the initial charge stage and provided that the average cell voltage has reached 2.4 Volts (adjustable value), the **yellow LED** “80% charged battery” symbol will illuminate. Gassing charge then takes place. The period of time for the gassing stage will be proportional to the state of discharge of the battery.
- When the gassing charge time expires, the charger automatically switches off, which is shown by the illumination of the **green LED** “fully charged battery” symbol.

**F) EQUALIZATION**

- Equalisation will start automatically after each normal charging cycle, but can be deactivated if required. Contact **CURTIS Instruments** for assistance.
- It is performed after the normal charge: after **T. Pause (min.)**, **T. ON charging pulses are delivered, which alternate with T. OFF (see table)**.
- These pulses are performed during the **Active cycle**, followed by a **Stop cycle**.
- **This equalisation system has no time limits and it is stopped only on battery disconnection. This system is useful also during holidays and week-ends, since it makes it possible to keep battery charged while preventing overcharging, overheating and/or water consumption.**

Card model	SW version	T. Pause (min)	T. On (min)	T. Off (min)	Active cycle (hours/N)	Stop cycle (hours)	Note	Safety timer
AP063	1.4	60	5	55	48h (2 days)	120h (5 days)	week-end cycle	10h
AP070	1.4-1.5	60	5	55	48h (2 days)	120h (5 days)	week-end cycle	11h

### G) SAFETY DEVICES

- Fast blow fuse on mains input.
- DC output fuse, protection against battery polarity reversals and/or overloads.
- The electronic control card is equipped with 1 safety timer which stops the charging process if the battery voltage does not reach 2.4 V/cell by that time.
- If a power failure takes place during the charging process, the electronic card switch off. When power is re-established, on power-fail restart, the charging process automatically continues from the point reached before the power failure.

### H) PROPORTIONAL CHARGING

The **CURTIS Rialto** range of battery chargers are programmed to compensate for partially discharged batteries.

### I) GUARANTEE

- The charger is guaranteed for 5 years from the date of despatch against all proven defects in components, assembly and construction.
- Any incorrect installation or incorrect use of the equipment will invalidate the guarantee, as does any unauthorised tampering.
- In case of difficulties please contact **CURTIS Instruments**.

**For further assistance or information on the full range of CURTIS products please contact:**

**Curtis Instruments (UK) Limited**  
**5 Upper Priory Street**  
**Northampton**  
**NN1 2PT**

Tel: +44 (0) 1604 629755      Fax: +44 (0) 1604 629876  
E-mail: [e-mail@curtisinst.co.uk](mailto:e-mail@curtisinst.co.uk)      Web site: [www.curtisinst.com](http://www.curtisinst.com)