

Qoltec[®]



USER MANUAL

Pulse battery charger with regeneration function

Model: 52514

Introduction

Thank you for your trust and for choosing our battery charger. We are confident that this product will meet your expectations and prove to be an indispensable tool in your daily work. This user manual has been prepared to assist you with the installation and use of the device. It includes detailed steps and guidelines on the correct use of our product. If you have any questions after reading this manual, please contact the NTEC sp. z o.o. service department.

About the product

Pulse charger with regeneration function and digital display

A smart, microprocessor-controlled charger with two operating ranges: 12V 25A and 24V 12A. It supports batteries with capacities ranging from 20Ah to 300Ah, including AGM, GEL, SLA (VRLA), WET (conventional flooded) and Calcium (Ca-Ca) types. The microprocessor automatically selects the parameters to suit the battery type and condition. In addition, the unit features a repair function that enables the regeneration of sulphated or long-unused batteries.

Important safety instructions

WARNING: Before using the charger, read this manual carefully and follow the instructions contained herein.

1. The 12V24V charger is designed for charging 12V and 24V lead-acid batteries with a capacity ranging from 20Ah to 300Ah.
2. Before using the charger, check the battery manufacturer's specifications.
3. Explosive gases may be released from the battery during charging. Ensure adequate ventilation and protect the surrounding area from fire and sparks.
4. Do not expose the charger to direct sunlight or high temperatures.
5. Battery acid is corrosive – in the event of contact with the skin or eyes, rinse immediately with water.
6. Do not charge frozen or damaged batteries.
7. Do not charge batteries that are not rechargeable.
8. Do not place the charger directly on the battery whilst charging.
9. Take particular care not to drop metal objects onto the battery – this may cause a short circuit, sparks or even an explosion.

10. Before working with the battery, remove any personal metal items such as rings, bracelets, necklaces or watches.
11. Do not smoke or allow fire or sparks to occur near a battery that is being charged.
12. To reduce the risk of electric shock, disconnect the charger from the mains before carrying out any maintenance or cleaning.
13. This product should not be used by children or anyone who is unable to use the charger safely – unless they are under adult supervision.

Precautions:

- 1. Do not use to charge lithium iron phosphate (LiFePO₄) batteries or any other lithium batteries.**
2. Always select the correct battery type before starting to charge.
3. When charging a vehicle battery, remove it from the vehicle and charge it in a safe indoor location.
4. Use of the repair mode requires the presence of a supervisor – monitor the battery's condition and stop charging if the battery becomes hot.
5. This product is intended for indoor use only – protect it from damp and rain.
6. Use only in well-ventilated areas.
7. Do not drop the charger.
8. In the event of a fault, the product may only be repaired by the manufacturer or a qualified service centre.
9. Always disconnect the AC power supply before connecting or disconnecting the battery.
10. Read the instructions carefully before use. Use the product safely and for its intended purpose.

Charger settings

Factory settings:

When the power is connected:

- The display and the 12V indicator light come on.
- The fan starts running.

Values displayed without load:

- Voltage: 14.4V (±0.2V) in Auto mode (standard battery).
- Voltage: 14.6V (±0.2V) in AGM mode (battery with start-stop system).
- Voltage: 15.4V (±0.2V) in Repair mode.

- Current: 0A
- The battery symbol shows 100%.

Polarity identification:

- The red terminal indicates the positive terminal.
- The black terminal indicates the negative terminal.
- When the clamps are connected to the correct battery terminals and the charger is switched off:
 - The 12V indicator light will come on if a 12V battery is detected.
 - The 24V indicator light will come on if a 24V battery is detected.

Charger functions

1. Battery voltage monitoring. The charger checks the voltage of the connected battery, which allows it to determine its condition and start the appropriate charging process.
2. Smart charging in Auto mode (automatically adjusts the charging voltage and current to the battery's condition; charging stops automatically once the battery is fully charged).
3. Repair mode is used to attempt to restore the performance of batteries that are deeply discharged, have not been used for a long time, or are sulphated. This function may improve the battery's performance to a certain extent, but it will not restore the performance of batteries that are mechanically damaged, significantly worn out, leaking electrolyte or have a faulty cell.

How to use the charger

1. Checking the battery voltage: There is no need to connect the charger to the mains. Connect the red and black clamps to the positive and negative terminals of the battery respectively. The current battery voltage will appear on the display. (Note: if the battery voltage is below 8V, the charger will not detect it and the screen will remain off).
2. Automatic charging (Auto Smart Charging): First, make sure that your battery type is compatible with the selected mode and the charger's requirements. Then connect the red and black clamps to the positive and negative terminals of the battery. Select the appropriate mode (Auto or AGM) according to your battery type. Wait until the charging process is complete.

3. If you have a standard 12V car battery, select Auto mode. If you have a 12V AGM car battery (with a Start/Stop system), select AGM mode.
4. When the display shows no load (current 0A) or the charging current drops below 0.3A (which may happen with a battery that has not been used for a long time), you can assume that the battery is fully charged and stop charging.

6-stage battery charging

The charger provides a 6-stage charging process. Each stage is controlled by an electronic circuit, allowing the device to adjust the voltage and current to the battery's current condition.

1. Diagnosis – the charger analyses the battery's condition,
2. Constant-current charging (Bulk Charge) – intensive charging at a constant current of 5A until the nominal voltage is reached,
3. Constant Voltage Charging (Absorption) – the voltage is maintained at a constant level, whilst the current gradually decreases to prevent overcharging,
4. Float Charge – the charger maintains a float voltage, preventing the battery from self-discharging,
5. Trickle Current (pulse charging) – gentle recharging in cycles using a low current, which stabilises the voltage and prevents degradation during long periods of inactivity,
6. Monitoring (Stand-by / no load) – once fully charged, the battery enters standby mode, where it is periodically monitored and recharged as required.

Battery regeneration/repair

First, check the battery voltage. It should be at least 10.8V. Next, connect the charger clamps to the corresponding battery terminals and connect the power supply. Select **Repair** mode.

1. The repair process takes approximately 30–60 minutes, after which the charger will stop. Then disconnect the power supply and remove the clamps from the battery.
2. Leave the battery for about 30 minutes, then check the voltage again:
 - If the voltage has increased, you can continue the regeneration in **Repair** mode until it reaches 12V, then switch to **Auto** mode to complete the charge.

- If the voltage has not increased, it is recommended that you replace the battery.

Additional information:

- It is normal for the battery to heat up slightly during repair. If it becomes very hot, stop charging immediately – it is best to replace the battery.
- The repair process **requires supervision**.
- ‘Repair’ mode is designed to improve the condition of a worn-out battery – it **does not** restore it to its factory condition.

Tips

1. If the battery voltage is higher than 12V, select Auto mode (intelligent charging).
2. If the battery voltage is between 10.8V and 12V, first select Repair mode, then switch to Auto.
3. If the battery voltage is below 10.8V, it is recommended that you replace the battery.
4. Batteries naturally discharge. If the charger remains connected after the battery is fully charged, it may detect a drop in voltage and automatically switch to trickle charging mode. This is normal behaviour and does not harm the battery. Low-current trickle charging is safe and beneficial for the battery.

Troubleshooting

Problem	Possible cause	Solution
Why does the screen not light up when checking the battery voltage ?	When the battery voltage is below 8V, the charger will not detect it and the screen will remain off.	Test the charger with another battery.
Why isn't the charger supplying any current?	1. The battery is already fully charged. 2. The charger's terminals have been connected the wrong way round. 3. The battery is faulty.	– Check whether the battery is already fully charged. – Make sure the battery terminals are connected correctly. – Check the overall condition of the battery.

Why is the charging current not reaching its maximum value?	The charger uses intelligent pulse charging technology with an advanced MCU circuit. It analyses the battery's condition (capacity, charge level, internal resistance, wear) and adjusts the charging voltage and current accordingly. As the battery charges, the charging current gradually decreases.	
Why does charging take too long or never seem to finish?	This may be due to low battery voltage caused by sulphation, capacity loss or a lack of electrolyte. In such a situation, the charger may remain in a continuous charging state.	Check whether the battery needs its electrolyte topped up (if possible). First, try using Repair mode. If the repair is unsuccessful, it is recommended that you replace the battery.

Technical specifications

Model	52514
Output voltage	220–240 V AC , 50/60 Hz
Power	300W
Charging voltage	13.6V–15.6V; 27V–29V (Permissible measurement tolerance: +/-0.3 V)
Output voltage	12V, 24V
Charging current	0–25A (12V battery) 0–12A (24V battery)
Operating temperature	-20°C to +45°C
Cooling	1x fan
Battery type	All types of 12V and 24V batteries: AGM, GEL, flooded (wet), calcium, deep-cycle, VRLA, maintenance-free, lead-acid
Battery capacity	20Ah – 300Ah

Dimensions	18.8 × 13.3 × 7.6 cm
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Maintenance, disposal and servicing instructions

1. Before cleaning or maintenance, disconnect the charger from the mains and from the battery.
2. Use a dry cloth for cleaning; do not use solvents, detergents or corrosive substances.
3. If you notice a burning smell, smoke, unusual noises or deformation of the casing, immediately disconnect the power supply and stop using the device.
4. Repairs to the device may only be carried out by a qualified service centre.
5. The device must be taken to an appropriate collection point for waste electrical and electronic equipment (WEEE Directive 2012/19/EU). Batteries used with the charger must also be taken to designated collection points.

Warranty

The device is covered by a 24-month manufacturer's warranty. If you experience any problems with the charger, please contact an authorised service centre or point of sale.