

Qoltec®



USER MANUAL

24V VOLTAGE BALANCER

Model: 51078

Introduction

Thank you for purchasing our battery voltage balancer. This product has been designed to ensure the optimal operation of battery banks connected in series by automatically balancing the voltage between 12V batteries in 24V systems. Please read the user manual carefully before using the device to ensure the safe and correct operation of the system. If you have any questions after reading this manual, please contact our Customer Service Department.

About the product

Designed for the automatic equalisation of voltage between two 12V batteries connected in series in a 24V system, in order to maintain a balance of charge and discharge between each of them. The balancer monitors the voltage of both batteries and, if it detects a difference exceeding the permissible threshold, automatically equalises the voltage by transferring current from the battery with the higher voltage to the one with the lower voltage. The battery balancer will detect and equalise/balance the battery voltages when it detects a voltage difference of 20 mV between the two batteries. Using a balancer helps to extend the service life of the batteries, improve the efficiency of the entire system and minimise the risk of damage caused by uneven discharge. When batteries are connected in series, differences in the chemical composition and temperature of the battery cells can lead to variations in the charging and discharging of the two batteries. Even when a battery is idle, varying rates of self-discharge can cause an imbalance between batteries connected in series. The maximum equalisation current is 5A. The unit is fitted with reverse polarity protection, which protects both the equaliser itself and the batteries from damage. The maximum equalisation current is 5A. The unit features an LED display allowing real-time monitoring of the voltage.

- 35 cm extension cable with M8 ring
- High-precision integrated circuits minimise component variations
- LED display
- Fast balancing speed
- Fire-resistant housing facilitates installation
- Suitable for 2 series of 12V lead-acid or lithium batteries

Safety instructions

CAUTION: Please read the user manual before installing the device! Before connecting the battery charger, check the positive and negative terminals of the battery to avoid a short circuit or reverse connection between the charger's terminals.

1. Do not allow the cables to come into contact with each other or with any conductive parts. This may lead to a short circuit and damage to the system.
2. Before starting installation or maintenance of the battery equaliser, disconnect the batteries from the system.
3. The battery equaliser is not designed to operate with damaged, deformed or very low-voltage batteries.
4. It is designed to operate with 12V AGM GEL lead-acid batteries connected in series. Do not use it with other voltages or types of batteries unless recommended by the manufacturer.
5. Install the equaliser in a dry, clean and well-ventilated place, away from water, oils and dust.
6. Do not open the casing or attempt to repair the unit yourself. In the event of damage, contact the service department.
7. The device should operate within the temperature range specified by the manufacturer. Avoid installing it in locations with high temperatures or without adequate ventilation.
8. The device operates automatically – do not attempt to manually force voltage changes or interfere with its operation.
9. Check the condition of the cables, connections and battery voltages from time to time to ensure the system is working correctly.
10. Please read the user manual before installing the device! Before connecting the battery charger, check the positive and negative terminals of the battery to avoid a short circuit or reverse connection between the charger's terminals.

Technical specifications

Feature	Value
Nominal battery voltage	2 x 12V
Optimisation current	0-5A
Standby current	<3mA

Low-voltage cut-off	10V
Dimensions	70x70x27mm

Installation

5 tips before connecting the battery charger

1. Fully charge the battery
2. Use the same type of battery
3. Ensure all batteries in the battery bank have the same capacity
4. The voltage difference between each battery should be less than 0.2 V.
5. Before starting the installation, ensure that the batteries are correctly connected in series and that the total voltage is approximately 24V

Connecting the equaliser cables

Black cable: 24 V negative terminal

Red cable: 24 V positive terminal of the entire battery pack

White cable: to the centre between the batteries, the negative terminal of battery A or the positive terminal of battery B

Once connected, the device will start operating automatically – LEDs A and B indicate that equalisation is in progress.

How it works

For a 24V system, 1 balancer is sufficient; for 36V, you need 2; and for 48V, you need 3.

24V: Requires 2 x 12V cells (2 x 12V), giving a total of 6 cells (2 x 6 x 12V cells). In this case, 1 balancer is sufficient to monitor and balance the voltage in the 24V system.

36V: This system comprises 3 groups of 12V cells, totalling 18 cells (3 x 6 12V cells). In this case, 2 balancers are required to balance the voltage in the 36V system.

48V: A 48V system consists of 4 groups of 12V cells, totalling 24 cells (4 x 6 12V cells). In this case, 3 balancers are required to monitor and balance the voltage.

Figure 1 in the appendix

Maintenance

1. Use a dry cloth or compressed air to clean dust and dirt from the device. Avoid using damp materials, which may cause a short circuit or damage the electronics.
2. The device should be used in well-ventilated areas.

3. Avoid charging the batteries at extremely low or high temperatures.
4. Check the cables and connectors regularly for damage.

Disposal

Dispose of the end-of-life device at an e-waste collection point. Do not dispose of the device with household waste.

Warranty

The device is covered by a 24-month warranty from the date of purchase, which covers repairs or replacement in the event of manufacturing defects. To claim under the warranty, you must present proof of purchase (receipt or invoice). The warranty does not cover damage resulting from misuse, incorrect installation or tampering by unauthorised persons. Should you require servicing, please contact an authorised customer service centre, which will provide professional diagnosis and repair. All servicing work should be carried out exclusively by qualified personnel to ensure the safety and proper functioning of the device. If you have any questions regarding the warranty or servicing, please contact our customer service department.

Attachment

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