

Operating Manual

Battery Box LiFePO₄ 6,4 V / 3 Ah



These instructions relate **ONLY** to this product and contain important information for using the product for the first time. Please keep these instructions for later reference and should always accompany the product in the event of transference to a new user.

Customer support:

If you have problems or questions regarding this product, simply contact us!
Internet: www.esotec.de
By phone: +49 9605-92206-0
By e-mail for ordering spare parts: ersatzteil@esotec.de
By e-mail for questions about the product: technik@esotec.de
Product: Manufacturer Item No.: 101823

1. Introduction

Dear Customer,
Thank you for purchasing the solar light. With this solar light you purchased a product manufactured according to the current state of technology.



This product fulfils all requirements of the valid European and national regulations. The conformity was proved. The relevant declarations and documentation are deposited with the manufacturer.

To maintain this state and guarantee a safe operation, you as the user will have to follow this operating manual!

2. Safety Instructions



- In case of damages caused by not following this operating manual, the warranty rights will expire! We exclude liability for any consequential damages!
- We exclude liability for property or personal damages caused by inappropriate handling or not following the safety instructions.

- In these cases any guarantee rights will expire.

Due to safety and admission reasons (CE) it is not allowed to arbitrarily reconstruct and/or change the solar light.

Therefore, please keep to the operating manual.

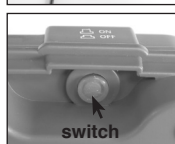
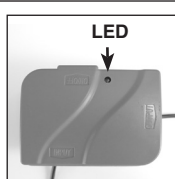
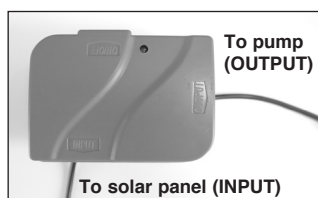
The accident prevention rules of the association of the industrial trade cooperative association for electric plants and working material are to be considered in industrial environments.

3. Intended Use

- The battery box is designed in protection class IP 44 (splashproof) and may therefore be used outdoors. However, under no circumstances may it be placed in water.
- A solar module with 16 cells and a max. capacity of 8 W may be used for the charging.
- At the output, it is possible to connect devices with an operating voltage of 6 VDC and a maximum power consumption of 330 mA (2 W).
- **Direct insolation is required for the optimal function of the battery box.**
- **The integrated battery pack may be partially discharged when first starting the device. Please charge the batteries for one day when the sun is shining. In doing so, please leave the output switched off.**
- **On average, the battery pack will have to be replaced by a new identical in construction battery pack every two years.**

4. Assembly and Start-up

1. Now connect the plug of the consumers with the socket „**OUTPUT**“ on the battery box and firmly screw on the swivel nut.
2. Unroll the cable on the battery box (**INPUT**) and insert the plug into the socket of the solar module. Firmly screw on the swivel nut.
3. Then put the switch (ON/OFF) into position „**I**“ (ON) and the consumers starts to work and LED lights green. When it lights red please read point 5.
4. The battery box is now ready for operation.



- LED Display

- | | |
|----------|---|
| red = | battery discharged and the pump is switched off |
| orange = | charging phase (duration approx. 120 min) |
| green = | battery ready for operation and the pump is running |

Note: The output (**OUTPUT**) is switched off if the switch on the battery box is in position „**0**“ but the battery is still charged.

Note: Force must not be used when inserting anything. The front side of the solar modules is fragile.

5. Function and Charging of the Battery Box

The battery box is an integral element of the pump system. The following information has to be taken into account:

Charging:

The storage battery in the battery box is charged via the solar module. A LiFePO₄ battery pack with 6,4 V/ 3 Ah is used as battery. In order to enable the longest possible service life for the battery pack it is protected against deep discharge and overcharging. The LED will shine **red** in order to indicate any deep discharge.

A timer is automatically started if the end-of-charging voltage is reached during the next charging process. That means that the battery pack is charged for another 120 minutes and that the output is **only activated after this period of time**. The timer function is indicated by the **orange lighting** LED. Thus, it is ensured that the battery pack has an as long as possible lifetime and that an as long as possible runtime is achieved in case of a cloudy sky or in the evening.

Lifetime:

Li-Fe batteries usually have a lifetime of 1000 cycles. That means an average lifetime of approx. 2-3 years. In order to achieve or even exceed this time, please note that the battery box including battery is stored inside during the winter and that the battery is fully charged.

Function:

In the morning, the battery in the battery box is first charged with the energy generated by the solar module. Depending on the insolation, this may take up to several hours. The LED on the battery box will continue to shine **red**. The output is switched off during this process because the charging of the batteries has priority now.

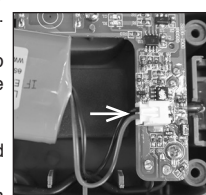
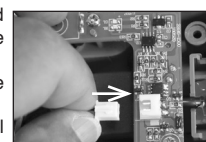
The timer for the full charging will be activated as soon the end-of-charging voltage is reached. That means that the battery is fully charged for another 120 minutes to the highest possible state of charge. During this time the LED lights **orange**!

The output is activated after those 120 minutes and the connected consumer is switched on. The LED shines **green**. In case of shadow or in darkness, the connected consumer is supplied with energy via the battery box. If the battery voltage should drop to a critical value, then the output is switched off in order to protect the battery. The LED shines **red**.

6. Exchange of the Battery Pack

The capacity of the battery pack will become weak after one to 2-3 years. The pack has to be exchanged. The battery pack is available from your local dealer or the manufacturer.

1. Switch off the battery box via the switch „**I**“ and disconnect the box from the solar module and the water pump.
2. Unscrew the 4 screws on the bottom side of the battery box and remove the cover.
3. Unplug the battery pack and replace it by an identical in construction pack. The battery pack is available from your local dealer or the manufacturer (www.esotec.de - Art.-No: 901018).
4. Re-insert the socket on the cable of the battery into the plug in the battery box **with correct polarity** (see illustrations).
5. Close the housing in reverse order.
6. Re-connect the battery box with the solar module and the water pump.
7. Now put the switch on the battery box into position „**I**“ (ON).



Note: Used batteries have to be disposed of in an environmentally sound way and do not belong into the household waste. Your dealer is required by law to take back old batteries.

7. Troubleshooting

Connected consumer does not work:

- **LED display red?** Wait for sunshine and charge! Solar module free from shadow. South side!
- **LED display orange?** Timer for the full charge phase active. The output is activated after 120 minutes.
- **Connected consumer ok?** Check plug connection at the cable!
- **Battery pack older than 2-3 years?** Exchange battery pack!
- **Battery box switched off?** Switch on battery box!

8. Technical Data

Battery box:

- Input: max. 8 Wp solar module with 16 cell (nominal voltage approx. 8 VDC)
- Output: 6 VDC max. 330 mA (2W)
- Operating voltage: 6 V DC
- Protection type: IP 44
- Protection class: III
- Operating temperature range: -5 °C to +40°C
- Battery pack: LiFePO₄: 6,4 V / 3 Ah

Spare parts:

- Battery pack: LiFePO₄: 6,4 V / 3 Ah Art.-No: 901018

9. Safety Note:

DANGER for children! Keep your children away from the swallowable small parts (standpipe and sprinklers) and the packaging material. Danger of suffocation!
WARNING: tripping hazard! Lay the connecting cable so that it won't constitute any tripping hazard!

CAUTION material damages! If you set up the solar module without module retainer, please pay attention to adequate stability! The solar module may be damaged by toppling over or impacts of foreign bodies.

Manufacturer / Importer

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Tel.-Nr: +49 9605-92206-0 - Fax.-Nr: +49 9605-92206-10 - Internet: www.esotec.de

10. Rechargeable battery notes

- Rechargeable batteries should not be played with by children. Never leave rechargeable batteries lying around; they could be swallowed by children or pets.
- Rechargeable batteries must never be short-circuited, disassembled or thrown into fire. This leads to a danger of explosion!
- Leaking or damaged rechargeable batteries can cause chemical burns when they come into contact with skin. For this reason, please make use of suitable protective gloves.
- Rechargeable batteries should only be replaced by structurally identical rechargeable batteries from the same manufacturer. Normal batteries must not be used since these are not rechargeable.
- Make sure the rechargeable batteries are inserted with the correct polarity.
- For long periods of time of non-use (for example, storage), remove the inserted rechargeable batteries to avoid damages via the leaking rechargeable batteries.

11. Disposal

a) Product



Electronic devices are recyclable waste and must not be disposed of in the household waste.

At the end of its service life, dispose of the product according to the relevant statutory regulations.

Remove any inserted rechargeable batteries and dispose of them separately from the product.

b) Rechargeable batteries



You as the end user are required by law (Battery Ordinance) to return all used rechargeable batteries. Disposing of them in the household waste is prohibited. Contaminated rechargeable batteries are labelled with this symbol to indicate that disposal in the domestic waste is forbidden. The designations for the heavy metals involved are: Cd = Cadmium, Hg = Mercury, Pb = Lead, Li-Fe=Lithium iron phosphate (name on rechargeable batteries, e.g. below the trash icon on the left).

Used rechargeable batteries can be returned to collection points in your municipality, our stores or wherever rechargeable batteries are sold.

You thus fulfil your statutory obligations and contribute to the protection of the environment.