

Operating manual

solar battery station 12 V/ 24 Ah



Customer support:

If you have problems or questions regarding this product, simply contact us!
Monday to Friday 8 am to 12 noon and 1 pm to 4 pm.
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.: 101729

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.

1. Introduction

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

This product fulfills 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 pump kit.

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 accumulator station can be universally used in order to supply the pumps Rimini, Palermo, Verona, Toscana, Napoli, Siena, Garda, the air pump Solar Air or other 12 Volt devices (e.g. illumination, radio, etc.) with energy.
- The accumulator station has 4 switchable outputs with different voltages.
- Via controller, the output 4 may be adjusted between 12 and 18 V. It is possible to activate a timer function.
- The accumulator station may be switched on or off via a switch. However, the charging is continued.
- The integrated accumulator is protected against deep discharge, overcharging and short circuit.
- LEDs inform the user about the state of charge and charging of the accumulator as well as the status of the outputs.
- The system is plug-in-ready and set up within minutes.

Note: The accumulator station must not be set up in the blazing sun or in the water. It is constructed in IP 44 (splashproof).

Mode of operation:

The accumulator station is interconnected between the solar module(s) and the corresponding devices.

With solar radiation, the solar module generates electric energy and charges the installed accumulator. The connected consumers are switched on if the accumulator voltage is within its operative range. The LED „SYSTEM“ will inform the user about the state of charge of the accumulator.

The electronics protects the accumulator against deep discharge, overcharging or short circuit.

The charging of the accumulator has always priority over the operation of the consumers.

4. Assembly/installation and start of operation

4.1 Connection of the solar module

A maximum power of the solar module of 50 Wp may be connected to the accumulator box. The module has to be connected to the socket „INPUT DC 18V“ on the back side of the accumulator box.



Depending on the type/version, you will have one or two solar module(s) with the matching plug in the set. One solar module may directly be connected to the accumulator box. If you have two solar modules (e.g. each 25 Wp), it is required to use an Y-manifold.

Included in the delivery is a 5 m extension cable. If required, it is possible to connect another 5 m extension cable (esotec Art.-No: 101736).

As soon as the solar module is connected and the solar module is exposed to sunlight, the LED „Charging“ will be illuminated. The accumulator is fully charged if the LED is flashing.

Please note that the solar modules have to be set up in a shadow-free place oriented towards the south and that they have to be mounted stably.

The cap nut of the plugs has to be screwed tightly.

Attention: The electronics in the accumulator box will be destroyed if a solar module power of more than 50 W is connected!

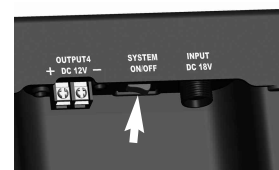
4.2 Main switch „SYSTEM“

The toggle switch „SYSTEM ON/OFF“ is mounted on the back side of the accumulator box. If this switch is switched off, then the outputs are deactivated. However, the charging of the accumulator is continued.

In position „ON“, the LED „SYSTEM“ will be illuminated red or green.

A **green** LED means that the accumulator is sufficiently charged and the outputs may, as required, be operated via the buttons on the lid of the box.

A **red** LED means that the outputs are deactivated (switched off) and that the accumulator has to be charged until the LED is illuminated in green.

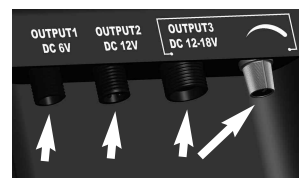


4.3 Connection of the consumers

The accumulator box has 4 outputs. Those outputs may be switched on or off via the „ON/OFF“ buttons. The green LED above the button will be illuminated in green if the output is active.

All outputs are protected against short circuit. In case of a short circuit, the corresponding green LED of the output will flash until the short circuit is eliminated.

Below, every output will be described individually. All outputs are equipped with a protective cap. Those caps have to be removed before you connect anything.



- Output 1:

Output voltage: 6 VDC, max. current load: 1 A

For the connection of esotec pump „Rimini“ (Art.-No.: 101750), esotec pump „Palermo“ (Art.-No.: 101756) or pond aerator „Solar Air-S“ (Art.-No.: 101871).

- Output 2:

Output voltage: 12 VDC, max. current load: 1 A

For the connection of esotec pump „Napoli“ (Art.-No.: 101757), esotec pump „Siena“ (Art.-No.: 101758), esotec pump „Verona“ (Art.-No.: 101752) or esotec pump „Toscana“ (Art.-No.: 101754).

- Output 3:

Output voltage: 12-18 VDC, max. current load: 1 A

For the connection of esotec watercourse pump „Garda“ (Art.-No.: 101760). The output voltage may be adjusted between 12 V and 18 V by means of the control dial.

The timer operation is activated by pressing the button „Timer“. That means that every hour the output „OUTPUT 3“ is each activated for approx. 10 minutes. This operation mode is particularly useful in case of insufficient solar radiation.

- Output 4:

Output voltage: 12 VDC, max. current load: 4 A

For the connection of various consumers such as e.g. LED lamps, radio, etc. Those devices are connected by means of screw-type terminals on the back side of the box.

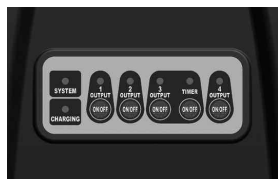


Note: The outputs 1 through 3 are connected by means of system plugs. Corresponding manifolds are available as accessories. The protective caps have to be tightened firmly. Not used outputs have to be closed by means of the corresponding protective caps. The plugs are protected against reverse polarity. Please do not apply force when inserting the plugs!

5. LED Displays

- „SYSTEM“

This display is illuminated in green if the accumulator is ready for operation. Is illuminated in red if the accumulator is exhaustively/deeply discharged and the outputs are switched off.



- „CHARGING“

This display is illuminated in yellow if the integrated accumulator is charged. This LED flashes if the accumulator is fully charged and is on trickle charging.

- „OUTPUT 1 - 4“ and „Timer“

This display is illuminated in green if the output is activated. In case of a short circuit, the corresponding green LED will flash and the output will be switched off until the short circuit is eliminated.

6. Exchange of the accumulator

We recommend an exchange of the accumulator approx. every 2 to 3 years. A new identical in construction accumulator is available from the manufacturer or dealer.

Proceed as follows if you want to exchange the accumulator:

1. Set the main switch (**SYSTEM ON/OFF**) on the back side of the accumulator box in into the position „OFF“ and unplug all connectors/plugs.
2. Turn the accumulator station upside down and loosen the bottom four screws.
3. Then turn the accumulator box around again and carefully remove the lid.
4. Loosen the + pole and - pole connection on the accumulator using suitable tools.
5. Remove the accumulator from the box and insert the new identical in construction accumulator.
6. Reattach the cable lugs on the accumulator using suitable tools. In doing so, please pay attention to the cable color: positive pole (brown) and negative pole (blue).
7. Close the box in reverse order.

Note: Please only use an identical in construction accumulator with identical voltage and capacity.

Note: The old accumulator has to be disposed of in an environmentally sound way. For this purpose, please contact you local authorities, public collection points or your dealer.

7. Overwintering

Fully charge the accumulator in the accumulator box. For this purpose, use a sunny day and switch off the switch „SYSTEM ON/OFF“. Store the accumulator box over the winter only in a fully charged status in a frost-free room. At sunny days, you may occasionally connect the accumulator box to the solar module for charging purposes. This will ensure an as long as possible service life of the accumulator.

8. Troubleshooting

LED is not illuminated green in spite of solar radiation but the yellow LED is illuminated.

1. The accumulator has not yet been charged sufficiently and the restart threshold is not reached. The charging process may take several hours in case of insufficient solar radiation.
2. Accumulator is exhausted! The accumulator should be exchanged approx. every 2 years. Please see item 6 of this instruction.

The LED is not illuminated green in spite of solar radiation when switching-off and on again of the switch “System ON/OFF”, the pump starts to work and the green LED is illuminated

1. The accumulator has not yet reached its restart threshold. The electronics is reset after the deactivation and activation of the system and the connected consumers are supplied with energy without waiting for the restart threshold. This is a normal process and does not indicate any defect.

A green LED above an output flashes.

1. There is a short circuit on the output. Please check the connected device and all plug-in connections (particularly those of the pumps and the LED illumination) for tightness.
2. Check the cables for damages of animal bites.

The yellow LED „CHARGING“ is illuminated, nothing else works.

1. Has the switch „SYSTEM ON/OFF“ been switched on (position ON)?
2. If yes, then please switch off the switch „SYSTEM ON/OFF“ for approx. 1 minute and switch it on again.

9. Technical data:

Max. connectable module power (input):	50 Wp
Protection class:	IP 44
Accumulator voltage:	12 V
Accumulator capacity:	24 Ah
Overcharge protection:	approx. 13,8 V
Deep discharge protection:	approx. 11,8 V
Voltage threshold for restart:	approx. 12,65 V
Outputs:	
- Output 1:	DC 6 V/ 1 A
- Output 2:	DC 12 V/ 1 A
- Output 3:	DC 12 - 18 V/ 1 A
- Output 4:	DC 12 V/ 4 A

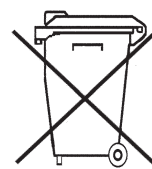
WARNING of trip hazard! Please lay the connection cable so that it does not constitute a trip hazard!

Disposal:

Dear customer,
please cooperate in avoiding waste. When you intend to dispose of the product in future, please consider that it contains valuable raw materials suited for recycling. Therefore, do not dispose it of with domestic waste but bring it to a collection point for the recycling of waste electrical and electronic equipment.
Thank you very much for your cooperation!

Battery take-back

- Batteries must not be discarded into domestic waste.
- The consumer is legally required to return batteries after use, e.g. to public collecting centers or to battery distributors.
- Contaminant-containing batteries are labeled with the sign “crossed-out trashcan” and one of the chemical symbols. Used batteries should be disposed environmentally friendly and should not be discarded into domestic waste. Your dealer is legally required to take back old batteries.



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