

fosera EVO

USER MANUAL



Engineered
in Germany

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Rev01

Introduction

The Fosera EVO will provide you with years of reliable electrical energy. Fosera systems have been developed according to German engineering standards to meet your daily energy needs.

The Fosera EVO system uses:

- Smart SHS function for optimal power and load management.
- High quality lithium iron phosphate batteries managed by our intelligent battery charger to ensure a long battery life.
- A solar panel, designed to withstand adverse weather conditions.
- Fosera lamps that use bright and highly-efficient LED lights for low energy consumption and have a very long life-span.
- A very easy to install configuration that allows anyone to install the system without technical skills.

Please read and follow the instructions carefully before using the product.

Package content for installation



Optional appliances (not included)



Recycling information

Do not throw any of the components or the controller box into the regular trash when discarding. Please recycle to help minimize pollution and to protect the global environment. All Fosera components used for manufacturing the system are recyclable. For more information on the Waste from Electrical and Electronics Equipment (WEEE) regulations, please visit the following webpage:

http://ec.europa.eu/environment/waste/weee/index_en.html



Warranties

We trust in the quality of our products. All Fosera battery boxes, PV modules and lighting products come with 3 years warranty. During this period, we guarantee that our products are free from defects in material or workman-ship. The remote control within PAYG systems comes with a 1 year warranty.

Please contact your dealer or local Fosera sales agent if you experience any problems with the product. Your local dealer will then assess the defect and decide whether the product can be repaired or has to be replaced. Fosera shall not be responsible for any consequential damage or damage that exceeds the value of the product. A warranty repair does not extend the warranty period.

Appliances, like radio, TV or fans are not included in the overall Fosera warranty for electronic components and may have different warranty terms.

The warranty becomes invalid if the device is used other than intended by the manufacturer. This warranty does not cover failures caused by wrong installation or set up or unusual use. The warranty is also void in case of repairs by any unauthorized or untrained person.



Warranty card

Name of the product:

Date and place of purchase:

Name and contact of local retailer:

For support please contact your local retailer or our headquarters via service@fosera.com.

Security advice/ maintenance



Do's:

- Place the solar panel in direct sunlight for maximum efficiency.
- Clean the solar panel from time to time to ensure proper power output.
- Keep all Fosera products in a safe place and make sure the panel is installed securely, so it can not fall down.
- Protect the battery box, the appliances and the PAYG remote from rain and direct sunlight. Indoor use only.
- Keep the battery box and the appliances clean.
- The ideal temperature for the functional capability of all fosera products is between 0°Celsius and 50°Celsius.

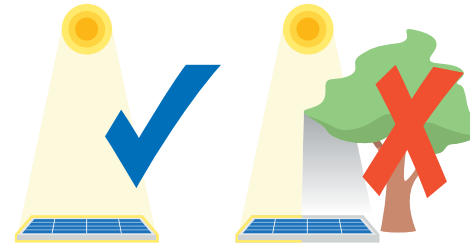


Dont's:

- Do not expose the system to any liquids or rain.
- Do not open or repair any component of the solar system by yourself.
- This should be only done by an authorized technician. Otherwise the warranty will be void.
- If the cables are damaged, make sure that they are repaired or replaced.
- Do not use loads and appliances that are not designed or certified for the system by Fosera (except for the USB port).
- Only use the provided panels to charge the battery. Other panels or chargers will harm the system and therefore result in a loss of warranty.
- The system components, including the solar panel, are not fire resistant.
- Keep away from fire.
- The battery contains a high amount of electrical energy. It is important that all short circuits are prevented.

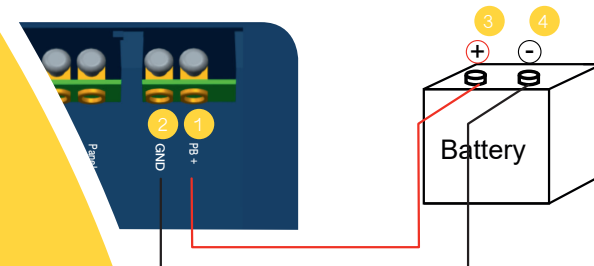
Installation

- 1 Place the solar panel in direction of the sun for maximum performance.



- Avoid any shading of the panel.
- The angle should be at least 15 degrees to ensure that the rain can wash dirt from the panel.
- Make sure that the solar panel is securely mounted to withstand heavy winds and storms.
- Clean the panel regularly.

- 2 Mount the Fosera EVO on the wall with the screws and wall plugs provided. Alternatively it is possible to place the Fosera EVO on the floor. **Indoor use only!**
- 3 Set the Fosera EVO to installation mode: Turn the until menu installation mode is shown. Push the to activate the options. Then turn the until the display shows 'Load off'. Press the or the to quit the menu.
- 4 Place the appliances at your desired location and use the hook screw, which is included in your Fosera EVO package. Make sure the cable is not pulled too tightly. If you need to extend the cable please use a cable provided by Fosera.
- 5 Connect the solar panel to the screw clamp labeled with panel. As soon as the Fosera EVO is connected to the solar panel, press the . The display will indicate, that the systems battery is charging and is well connected to the solar module.
Connect the cable of the Fosera appliances up to 3 A to the blue sockets of the Fosera EVO and higher load appliances to the screw clamp outputs.
- 6 If using, connect the lead-acid battery to the screw clamp labelled with PB. Make sure to connect first only the wires 1 and 2 to the Fosera EVO system, and once you have tightened the screw on the Fosera EVO system, connect the wires 3 and 4 to the lead-acid battery, this step is very important to avoid a short circuit for the lead-acid battery while connecting it to the system.
Make sure to connect only small loads on Fosera EVO Fosera jacks (3A) and bigger loads to EX1 or EX 2 (10A). The biggest load connect to "Load" clamp (15A).



- 7 Switch off the installation mode.

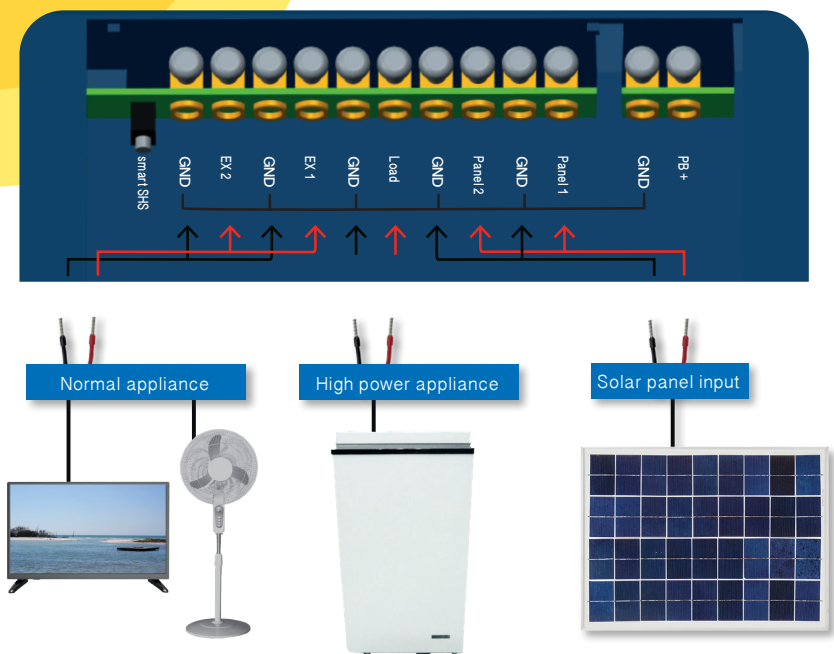


Contact

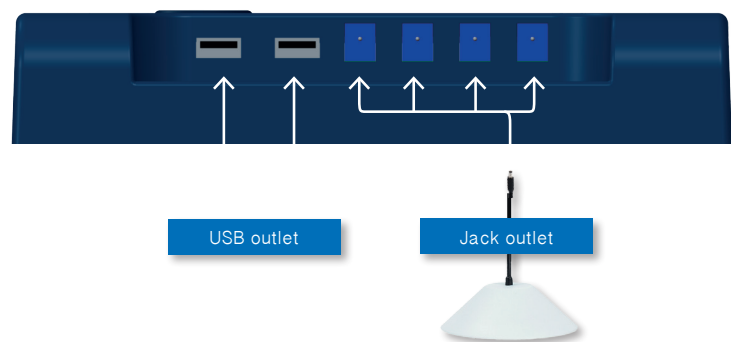
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Back Outlets



Side Outlets



Fosera appliances are designed to last a long time and are extremely efficient. The appliances can therefore be used for many hours every day. Fosera appliances can operate at any voltage of the system and in a wide range of temperatures.

All appliances are designed for indoor use with the exception of the solar panel. Protect them from rain and direct sunlight.

Technical data

Fosera EVO	80	160	240	320	Unit
Nominal system voltage	12.8 V				
Lithium capacity (built in)	7.6	15.2	22.8	30.4	Ah
Recommended lead capacity	10-20	15-35	30-50	40-60	Ah
Battery type	LiFePO ⁴				
Nominal system output	77	154	192	192	W
Max. load output current	6	12	15	15	A
Max. PV open circuit voltage	25 V				
Max. charging current	6	12	15	15	A
Integrated USB outlet	2 x 5 V / 1 A				
Outlet connectors	2 x USB, 4 x Fosera Jack, 1 screw terminal load, 2 screw terminal special outlets				
Connectors	1 screw terminal lead acid battery, 2 x PV module				
Max. cable cross section	16 mm ²				
Ambient temperature	0-50°C, max. battery lifetime at 15-25°C				
Protection functions	Overcurrent, shortcircuit, overload, temperature protection				
Compatible external lead batteries	Every 12 V lead acid battery (gel, AGM, open, sealed)				
Storage time of battery*	2 years				

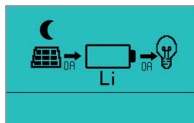
*At 50% state of charge and temperature below 25°C.

If the system is stored longer than the rated maximum storage time, it has to be recharged regularly with the solar panel. Please note that battery failures caused by inappropriate system storage are not covered by warranty.

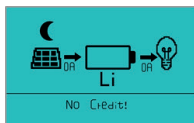
PAYG operation

The Pay As You Go (PAYG) function in your system will switch off the power of your system once it is out of credit. With a purchased token from your distributor and your IR remote control you can add credit to your system for several days. The PAYG status is illustrated by a message on the bottom of the screen.

• Indication messages



No message on the screen: The system has plenty of credit.

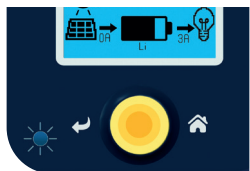


"No Credit!" The system is out of credit and power supply is switched off. User needs to charge with credit.

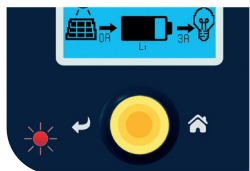
• Recharging credit:

Once the credit of the system is low or empty you need to purchase new credit from your distributor.

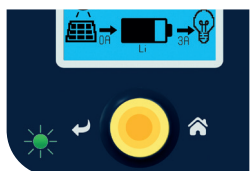
Once you received your token (e.g. *0123456789) you need to enter the token into your remote to recharge your system. While entering the token in your remote you need to point it towards your system. The system gives the following feedback via a LED indicator (PAYG indicator):



PAYG indicator is blinking blue by pressing: The entered digit, hash or star is accepted by the system.



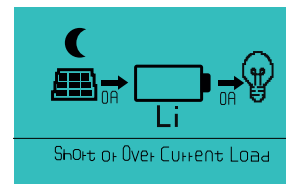
Typed in code, red blinks repeatedly for some time, code is incorrect or code has not been accepted.



Type in code, PAYG indicator blinks green 3 times, code has been accepted.

Error Indication

● Over current / short circuit:



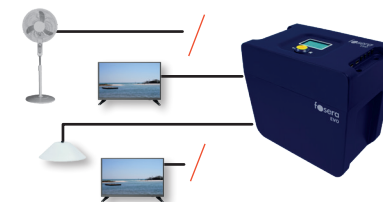
If the bottom of the display shows the error 'short circuit or over current', then too many 'high consumption appliances' are connected to the system or there is a short circuit.

→ Solution for over current:

Disconnect one or more appliances from the system and wait for 30 seconds. If the error remains, continue to disconnect loads.

→ Solution for short circuit:

Set the system to the installation mode while accessing the screw clamps.



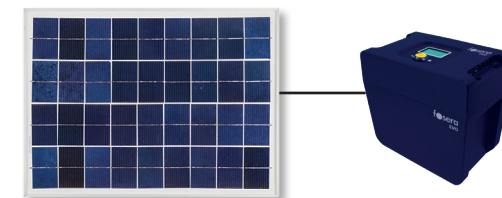
● Deep Discharge:

Li-Battery has low charge.
Please charge the battery.

If the battery sign shows a completely empty battery or the message: 'Li-Battery has low charge', the battery has a low state of charge.

→ Solution:


Connect the solar panel to the Fosera EVO.



● USB is not working :

USB does not charge the phone.


→ Solution:

Press the  and check if the battery has still some charge left.

Check if the USB sign in the top right corner is active.

Operation











Box mode

During and after delivery or storage the system is in box mode where all functions and outlets are switched off. The box mode will be also engaged if the system is not used for 1 day, this means there is no charging, discharging or buttons pressed. The USB port is switched off after 24h of not being used. To activate the system to normal operation simply charge the system with the solar module or by pressing the .



System status

Check the status of the system by pressing the  if the display is turned off.



- 1  → The system is charging.
- 2  → The system is not charging.
- 3  → Input current.
- 4  → State of charge of the battery. If the system is hybrid then two batteries will be displayed.
- 5  → Output current.
- 6  → USB output is on.
- 7  → Return button.
- 8  → Rotateable & pushable sunbutton.
- 9  → Homebutton.
- 10  → PAYG indicator

USB ports

The USB automatically turns on if the system is operating (panel connected, loads connected, the  pushed). If the system is not in use, it automatically turns off after 24 hours. To restart the system, press the  or charge the system.

Battery status



Navigation

Turn the  to switch between the menus.

Menu 1: Battery voltages

1. Battery Voltages	
Li-Battery 1:	3.3V
Li-Battery 2:	3.3V
Li-Battery 3:	3.3V
Li-Battery 4:	3.3V
Li-Battery T.:	13.3V
Pb-Battery:	0V

This menu shows the connected batteries, their voltages and the total stack voltage. If a lead acid battery is connected, it will also show the lead-acid battery voltage.

Menu 2: Current menu


2. Current	
Panel:	0A
Load:	3.4A
Ex 1:	0.3A
Ex 2:	0.3A
Jack 1:	0.5A
Jack 2:	0.5A
Jack 3:	0.5A
Jack 4:	0.5A

This menu shows the current of each output.

Menu 3: Outlet settings

3. Outlet Settings	
Ex 1:	Normal
Ex 2:	Normal
Jack 1:	Normal
Jack 2:	Normal
Jack 3:	Normal
Jack 4:	Normal

This menu allows to set the EX1/EX2 and the Jack outputs to the different modes.

To set the mode repeatedly press the  until the arrow on the right points to the needed outlet. Then turn the button until the desired mode is reached.

Press the  to switch to the next output or press the  to exit the switching mode.

Normal outlet: The outlet acts like a normal outlet and provides power as long as there is energy in the battery.

Night light: The outlet switches on as soon as it gets dark outside. During daytime the outlet is switched off. This outlet can be used to power a security light during the night.

Priority outlet: When the battery is nearly empty the outlet switches off automatically. This outlet can be used to power low priority loads like a TV and in case of a low power battery, there is still energy left for light.

Excess outlet: This outlet is always on when the battery is fully charged.

Menu 4: Battery settings

4. Battery Settings	
Please select type of the connected Lead-acid battery	
◀ Sealed ▶	

In this menu the connected lead-acid battery can be selected.

For optimal system performance and charge method of the lead acid battery, different lead acid battery types can be chosen. You can select between Sealed, Flooded, Gel, AGM lead acid battery.


If you are not sure which type of battery you have, please contact the manufacturer of the battery.

If you are using the system without a lead acid battery this setting can be ignored.

Menu 5: Installation mode

5. Installation Mode	
Please turn the Installation Mode on while accessing the screw clamps	
◀ OFF ▶	

This menu allows switching off all in and outputs in order to prevent a short circuit while connecting appliances, batteries or the solar panel to the system.

 Always first connect the cable to the screw clamps on the Fosera EVO and then to the lead acid battery. Please note, that even in the installation mode, when the acid battery is connected, the acid battery screw clamps should not be shorted.