fosera®

PSHS PAYG with angaza))⟨

Li-Ion Solar Home System

User Manual

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

PSHS PAYG Angaza V6

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Introduction

The fosera Li-Ion Solar Home System PSHS PAYG 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 PSHSPAYG system uses:

- High quality lithium iron phosphate batteries managed by our intelligent battery charger to ensure a long battery life.
- The solar panel is designed to withstand adverse weather conditions.
- All fosera lamps use bright and highly-efficient LED lights for low energy consumption and have a very long life-span.
- The "Plug & Play" design allows everyone to install the system without technical skills.

For technical support, please contact your local dealer or contact our headquarters in Germany.

Package Content

(A) Solar Panel

(B) fosera PSHSPAYG

(C) Lamp alternatives (optional)

Lamp3.25V 50
Lamp 3.25V 100
Lamp 3.25V 200

(D) Radio with cable (optional)
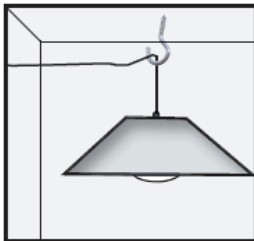
(E) User Manual

(F) Mounting Set

Installation

Place the solar panel (A) 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

Mount the PSHS PAYG on the wall (with the screws and wall plugs provided). Indoor use only!

Place the lamp at your desired location and use the Hook Screw (F), which is included in your PSHS PAYG package. Make sure the cable is not pulled too tightly. If you need to extend the cable, please use a cable provided by fosera.

Connect the solar panel (A) to the yellow socket of the PSHS PAYG (B). Connect the cable of the fosera lamp (C) to the blue socket of the PSHS PAYG. As soon as the PSHS PAYG is connected to the solar panel the yellow light indicates that the systems battery is charging and well connected to the solar module.

Operation

Solar Home System operation

Check the status of the system by pressing the (T) Test Button:

PAYG indicator

Battery bar

Charge light

Test button (T)

During the daytime the yellow charging light should be always on. It indicates that the system is being charged and is well connected to the module.

Box mode

During and after delivery 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 5 days, 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 test button.

Light symbol	Status	Meaning
Charge light	On	Indicates that the system charging
Battery bar	4 green bars	Indicates full battery charge. (100% – 81%)
Battery bar	3 green bars	Indicates medium battery charge. (80% – 51%)
Battery bar	2 green bars	Indicates partial battery charge. (50% – 26%)
Battery bar	1 green bar	Indicates low battery charge. (25%-0%)
Battery bar	Green blinking	Indicates the battery is completely empty. - All appliances will switch off automatically. Connect to the solar panel to recharge the PSHS system

The USB automatically turns on if the system is operating (panel connected, loads connected, Test Button pushed).

Special Outlet

If the system is not in use, it automatically turns off after 24 hours. To restart the system, press the Test Button (T) or charge the system.

Special Outlet:

The second port can be used as a special outlet with four different functions.

Mode 1: Normal outlet

The outlet acts like a normal outlet and provides power as long as the battery is charged.

Mode 2: Night light

The outlet switches on as soon as the solar module registers darkness. During daytime the outlet is switched off. This outlet can be used to power a security light during the night.

Mode 3: Priority outlet

This outlet is on when the battery is fully charged. When the battery is nearly empty (around 10%) the outlet switches off automatically. This outlet can be used to power low priority loads like a TV. When the battery is nearly empty the system switches off the TV and you still have energy left for lighting.

Mode 4: Excess outlet

This outlet is always on when the battery is full, meaning it will work when the highest LED light is on.

Changing the function:

The function of the Special Outlet (next to the solar plug) can be changed by the user by pressing the "T" button.

- If you press the button until the LED light is on, the function is set to "normal output".
- If you press the button until the LED light is on, the function is set to "night light".
- If you press the button until the LED light is on, the function is set to "priority output".
- If you press the button until the LED light is on, the function is set to "excess output".

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 distributer and your IR remote control you can add credit to your system for several days. The PAYG status is illustrated by a yellow indication on the top of the light bar (PAYG indicator).

Indication Lights:

PAYG indicator is blinking: The system has low credit and will switch off
● ● ●…   soon, but can still be used.

Indication Lights when **pressing the Test Button (T):**

PAYG indicator off: The system has plenty of credit.
●

PAYG indicator on: 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 (see section *Purchasing Tokens*).
Once you received your token (e.g. *023-563-…#) 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 blue indication (PAYG indicator):

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

PAYG indicator is blinking 6x slowly: The entered code is valid and
●…●…●…●…●   changed the credit state

PAYG indicator is blinking 3x slowly: The entered code is valid but credit
●…●…●   state is not changed

PAYG indicator is blinking 3x fast: Something went wrong (Error).
● ● ●   Enter the code again starting with ✶

PAYG indicator is blinking 12x fast: The entered code is **invalid.**
● ● ● ● ● ● ● ● ● ● ● ●

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Error Indication

Over current protection:

If all LED lights start blinking, too many "high consumption appliances" are connected to the system. The total consumption should not exceed 5A.
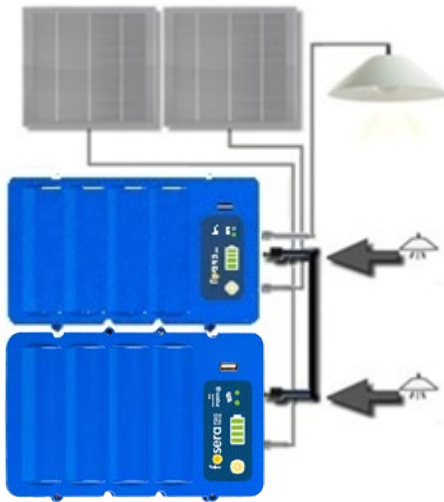

Solution:

Disconnect one or more appliances from the system and press the Test-Button (T) to reset the system.

Expanding your system

When more battery capacity is needed the fosera PSHS PAYG can be easily expanded:

Just connect two PSHSPAYG systems with a parallel cable over two outlets, marked.

It is recommended to use a separate solar panel for each PSHS PAYG.

Security Advice

- Protect the battery box from rain and direct sunlight. Indoor use only.

- Place the solar panel in direct sunlight for maximum efficiency.

- The solar panel is 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.

- Only authorized personnel can carry out any repairs of- and/or change fosera. Otherwise the warranty will be invalid.

- The ideal temperature for the functional capability of all fosera products is between 0°Celsius and 50°Celsius.

- Keep all fosera products in a safe place and make sure they are installed securely. Do not open the products; this will result in a loss of the warranty.

- 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 fosera solar panels to charge the battery. Other panels or chargers will harm the system and therefore result in a loss of warranty. Only use the special fosera cable for the parallel connection of systems.

> ⚠️ If you store the system longer than the rated maximum storage time, please recharge it regularly with the solar panel. If this is not done the battery is drained empty and warranty is broken.

Maintenance

- Clean the solar panel from time to time to ensure proper power output.

- Keep the battery box and the appliances clean.

- Make sure that the battery box and appliances are not exposed to liquids.

- The battery has to be replaced after several years of usage. This should be done by an authorized technician.

Technical Data

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.

PSHS	3000	4500	7500	Unit
Version		V 6.1		
Nominal capacity	3	4.5	7.5	Ah
Nominal voltage		3.25		V
Battery type		LiFePO4		

Charge controller:			
Deep discharge protection	2.80		V
DDP release voltage	3.20		V
Over charge protection	3.55		V
Load reset after DDP	Yes		
Load reset after short circuit	Yes		
Load reset after over current	Manual by test button		
Nightlight function	Yes		
Priority outlet	Yes		
Excess outlet	Yes		
USB outlet	500		mA

Protection function			
Over current switch off	2.80		A
short circuit reaction time	500		µs
short circuit peak current	20		A
Charge current limitation	No		

Charging				
recommended charge current	0.34	0.58	1.33	A
Absolute max. charge current	1.5	2.25	2.5	A
Topology	Mosfet with PWM			

Storage				
Store time full battery	2			years
Store time empty battery	111	166	277	days

Battery Box				
Color	PANTONE 7691			
Dimensions	192x131x45			mm
Weight	325	365	460	g

Solar Panel types	1.5 W	2.5 W	6 W	
Cell type	poly	poly	poly	
Module dimensions	150x192x17	150x192x17	270x192x17	mm
Nominal power (STC)	1.5	2.5	6	W
V_{mpp}	4.43	4.43	4.50	V
V_{oc}	5.33	5.33	5.40	V
I_{mpp}	0.34	0.578	1.33	A
I_{sc}	0.37	0.636	1.46	A
Weight	550	550	800	g

Warranties

We trust in the quality of our products. All fosera battery boxes 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.

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 repair 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, PAYG remote 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/Place of purchase:

Name and Contact of local retailer:

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

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.htm

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