

User Manual

SOLENERGIBOX™ - POWERING THE WORLD



Welcome to the magnificent world of
SOLENERGIBOX™ product line
the new portable power station

Safety guidelines

Thank you for purchasing the SOLENERGIBOX™

To get most out of it, please read this user manual carefully, paying special attention to the safety notes! Keep the manual in a safe place for later reference, and pass it on to any new owner.

The output of the SOLENERGIBOX™ is 230 V. Do not touch the output connector – danger for life! Do not connect any un-isolated wires or any devices using other than 230 V power.

Do not use the SOLENERGIBOX™ when it is wet or in the rain.

Always switch the SOLENERGIBOX™ OFF when transporting it.

Always keep the SOLENERGIBOX™ away from children.

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Introduction

The brand new SOLENERGIBOX™ receives solar energy with its solar panels, converts it to 230 V electricity and stores the electricity into its battery for your use anytime, anywhere! Leave the SOLENERGIBOX™ in the sun for day time and use the electricity in evenings, or whenever you need it. The SOLENERGIBOX™ will give you absolutely green energy: there are no CO₂ emissions!

The unique SOLENERGIBOX™ is a self-standing, small, portable 230 V power station which generates electricity directly from the sun. The generated electricity can either be used at the same time it is being generated (direct use) or the electricity can be stored to the battery of the SOLENERGIBOX™ to be used when needed: in evenings or on a cloudy day.

The SOLENERGIBOX™ has a powerful 14-18 W solar panel, which is able to charge the built-in battery in only 8-10 hours of sunlight. The full battery will give you 30 W power for approximately 3 hours to be used to watch TV, use a laptop computer or recharge your battery operated tools. All in all, the SOLENERGIBOX™ will give you electricity all gadgets using less than 50-75 W power, such as mobile phones and iPads!

The fully charged built-in battery will give you 30 W power for 2 hours, or 15 W power for 4 hours.

Figure 1 shows the basic operation principles.

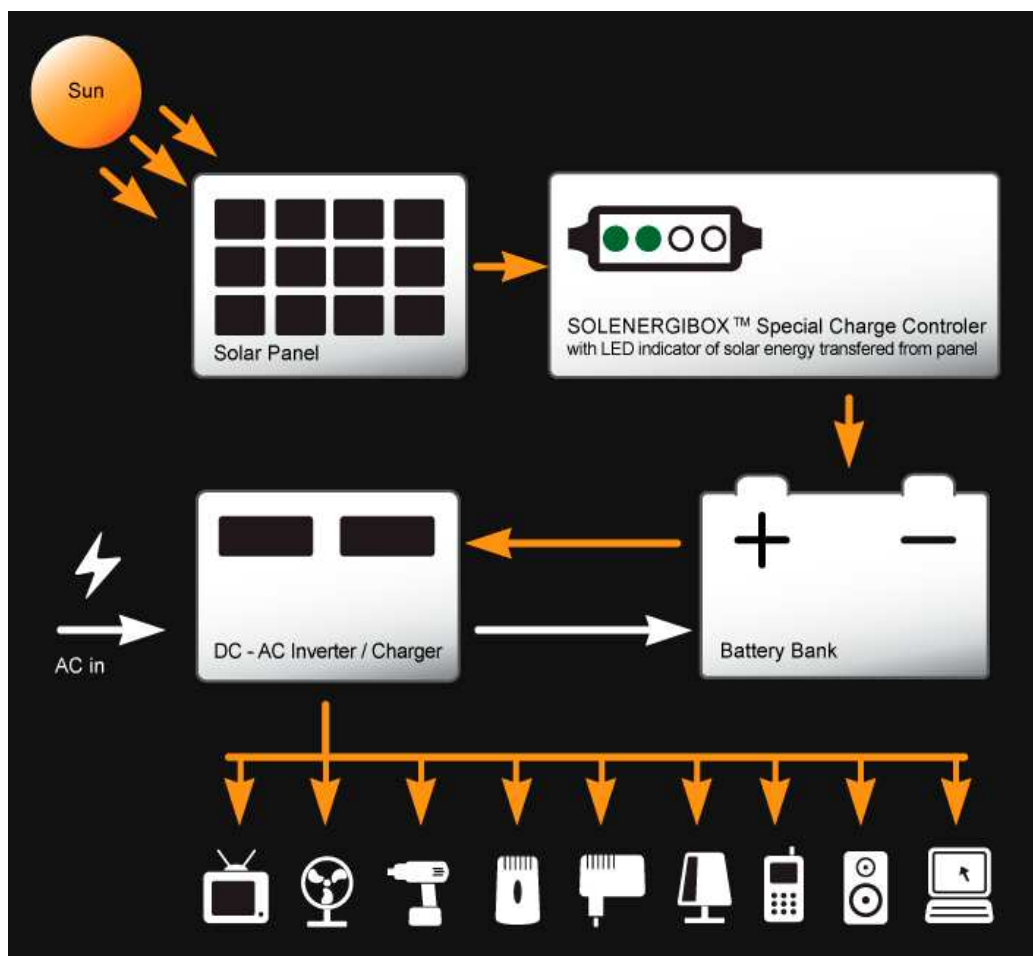


Figure 1

Parts of the SOLENERGIBOX™

Figures 2, 3 and 4 show the main parts of the SOLENERGIBOX™.

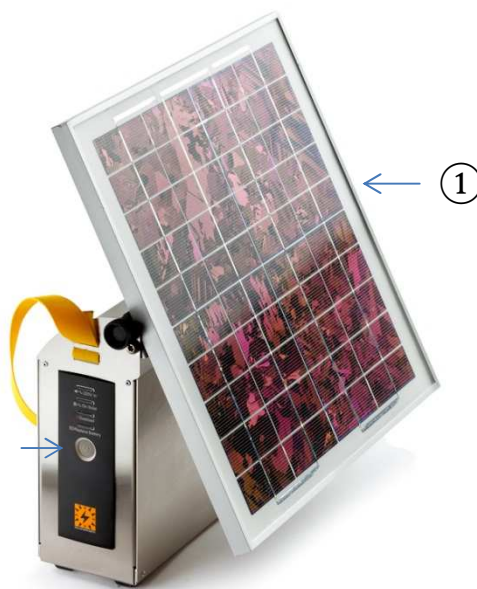


Figure 2

Figure 2 illustrates the solar panel (shown as ①) and the power (ON/OFF) switch (shown as ②). The side panel (warning and indicator panel) is shown in details in figure 4.



Figure 3

Figure 3 illustrates the 230 V outlet connector (③), fast charger (④) and the joint hinge to adjust the angle of the solar panel (⑤).

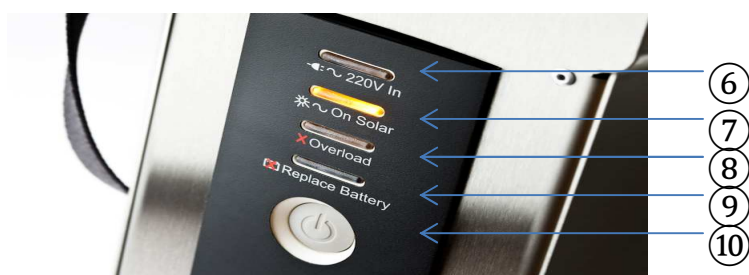


Figure 4

Figure 4 shows the warning and indicator panel. The uppermost indicator (⑥) is illuminated when the fast charger (④ in figure 3) is in operation. The indicator (⑦) is illuminated when a device is connected to the SOLENERGIBOX™ getting energy (230 V) from its battery. The indicator (⑧) is red when too powerful a device (typically more than 250 W) is connected to the SOLENERGIBOX™ causing overload. The indicator (⑨) tells when the in-built battery needs to be changed or there is an error with the battery. Switch (⑩ , also ② in figure 2) is the power (ON/OFF) button (press 1-2 seconds to switch ON or OFF).

Operating the the SOLENERGIBOX™

Charging the SOLENERGIBOX™ from the sun

To prepare the SOLENERGIBOX™ for operation place it first into a sunny place where the batteries can be charged with the solar panels (figure 2) facing the sun.

Adjust the angle of the solar panel towards the sun in the way that that most lamps are on in the charging indicator (figure 5). On a bright sunny day all four lamps should be on while on a normal sunny day three lamps may be on.



Figure 5: charging indicator

Note, that when charging the SOLENERGIBOX™ from the sun it should be switched OFF, i.e. there shall be no lights in the warning and indicator panel (⑦ figure 4). This way the charging is faster and the power in the battery is not 'lost' at the same time.

If you need to use the SOLENERGIBOX™ at the same time the battery is charging, the unit should be switched ON. Depending on the power

demand of the connected device you may be using more power out from the SOLENERGIBOX™ than the solar panels are able to give in to the battery.

The best way to charge the SOLENERGIBOX™ is to take it to a sunny place for at least six hours making sure that the solar panels are facing directly to the sun.

During winter the power of the sun is much weaker especially in Nordic countries. To charge the SOLENERGIBOX™ in winter it is advisable to place it **inside by the window** <see FAQ Q.9> ensuring that the solar panels get as much sun power as possible. It is also advised that the SOLENERGIBOX™ will be charged (either using sun and the solar panels or the mains – see next chapter) every three months even it is not used!

Fast-charging the SOLENERGIBOX™ without the sun

The input connector (fast charger - ④ figure 3) is used for charging the SOLENERGIBOX™ without the sun and the solar panels, if you have 230 V mains available. When the SOLENERGIBOX™ is connected to the mains it needs to be switched ON and the green indicator '220 V In' (⑥ figure 4) will illuminate. It takes 6-8 hours to fully charge the battery from the mains. Remember to switch the SOLENERGIBOX™ OFF by pressing the power button for 1-2 seconds when the charging is complete.

Using the SOLENERGIBOX™

When the SOLENERGIBOX™ has been charged in the sun or via fast-charging you are able to get 230 V power from it. Switch the SOLENERGIBOX™ ON by pressing the power button (② figure 2) for 1-2 seconds. In the warning

and indicator panel (figure 4) of the SOLENERGIBOX™ the green indicator '220 V In' (⑥ figure 4) and the yellow indicator 'On solar' (⑦ figure 4) will start flashing simultaneously. After 4-6 seconds the green indicator will fade away while the yellow indicator will keep illuminating. This means that 230 V power is now available from the connector (③ figure 3). Just connect your device to the SOLENERGIBOX™.

If the connected device is using more than 250 W power, the red overload indicator will illuminate (⑧ figure 4) and the SOLENERGIBOX™ will automatically be switched OFF. Before switching the SOLENERGIBOX™ ON again disconnect the device causing overload and press thereafter the power button for 1-2 seconds.

Figure 6 illustrates the run time of the SOLENERGIBOX™ in minutes compared with the load (W) of the connected device. The connected device is using 50 W power, the battery power in the SOLENERGIBOX™ lasts approximately for 70 minutes. On the other hand, if the connected device is using 150 W power, there is energy in the battery only for a little more than 10 minutes.

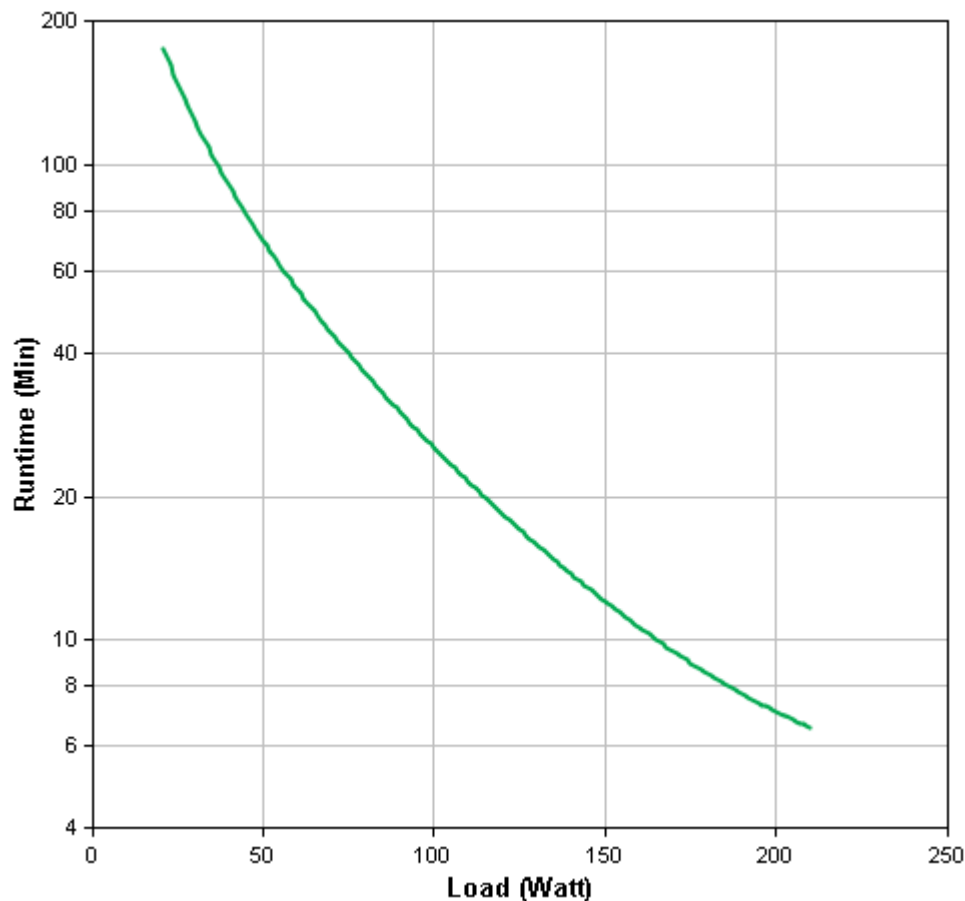


Figure 6

Frequently Asked Questions (FAQ)

Q.1	There is no light in indicators 'On solar' nor '220 V In'
A.1	This means that the battery of the SOLENERGIBOX™ is empty. Place the SOLENERGIBOX™ in the sun for 6-8 hour to be charged from the sun by the solar panels. Alternatively the SOLENERGIBOX™ can be charged from mains (remember to switch it ON).
Q.2	Only 1 green lamp is on in the charging indicator although there is a lot of sun shine.
A.2	This means that the SOLENERGIBOX™ is fully charged. To test if the SOLENERGIBOX™ is fully charged switch it ON and check that one more lamp switch on.
Q.3	After the SOLENERGIBOX™ has been placed in the sun for 6-8 hours the battery runs fast empty.
A.3	The SOLENERGIBOX™ may have been switched ON during charging. Remember to switch it OFF while charging in the sun.
Q.4	The SOLENERGIBOX™ has been connected to the mains, and still after 6 hours there is no power in the battery.
A.4	The SOLENERGIBOX™ may have been switched OFF while charging in the mains. Remember that the SOLENERGIBOX™ must be switched ON while charging in the mains.
Q.5	Overload lamp is illuminated.
A.5	This means that the device connected to the SOLENERGIBOX™ is using too much power. Disconnect the device and press the power button again for 1-2 seconds.
Q.6	Replace battery indicator is illuminated.
A.6	This means that there is an error with the battery. Please contact Solenergibox company (www.solenergibox.dk).
Q.7	The charging indicator becomes warm.
A.7	This is because the charging unit in the SOLENERGIBOX™ is delivering power to the battery, and it is normal that the unit warms up little. The unit will be switched OFF automatically if the internal temperature increases 60 °C, and it will automatically restart after having cooled down.
Q.8	The solar panel becomes warm.
A.8	It is normal that the solar panel warms up to 30-40 °C due to the panel's absorbing energy from sun. However, the solar panel operates best if it is not too hot. Try to place the SOLENERGIBOX™ in a place

	with little breeze.
Q.9	The SOLENERGIBOX™ has been placed inside and there is lot of sun. However, only 1 or no charging indicator leds are illuminated.
A.9	The windows limit the sun's power to the solar panels. Move the SOLENERGIBOX™ outside for charging.
Q.10	I forgot the SOLENERGIBOX™ outside, it started to rain and now the SOLENERGIBOX™ is wet.
A.10	Do not switch the SOLENERGIBOX™ ON! Dry it with a towel and leave it to dry for at least 3-4 hours in the sun. Thereafter you may switch it ON again.
Q.11	It seems that there is some 'damp' in the charging controller.
A.11	This is because the charging controller becomes warm, and it is normal. The humidity will disappear soon.
Q.12	I connected my alarm clock to the SOLENERGIBOX™, and now the time of the clock is wrong.
A.12	The output voltage from the SOLENERGIBOX™ is not pure 50 Hz sinus wave form, and this is the reason why the clock is not accurate when connected to the SOLENERGIBOX™.
Q.13	There is strange noise from the radio connected to the SOLENERGIBOX™.
A.13	The output voltage from the SOLENERGIBOX™ is not pure 50 Hz sinus wave form, and this is the reason why noise may appear from the radio when connected to the SOLENERGIBOX™.

SOLENERGIBOX™ - Technical specifications**Material and dimensions**

Maximum height	400,00 mm	Net weight	9,6 kg
Maximum width	410,00 mm	Material	Stainless steel/Aluminium
Maximum depth	120,00 mm		

Environmental figures

Operating temperature	0 – 35 °C	Relative operating humidity	0 – 80 %
Storage temperature	-15 – 45 °C		

DC/AC inverter output

Output power capacity	210 W / 350 VA	Nominal output voltage	230 V
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DC/AC inverter input

Nominal input voltage	230 V	Input voltage range for main operations	196 – 280 V
Input frequency	50 Hz		

Batteries and runtime

Battery type	Maintenance-free sealed lead-acid battery with suspended electrolyte: leak-proof (9Ah, 12 V)	Typical recharge time with 230 V input	6 h
		Typical runtime on battery	1 h 9 min – 50 W load 25 min – 100 W load

Solar panel

Output voltage	20 VDC	Typical recharge time with solar panels	6 – 8 h
Output power	14 – 16 W		Unit has to be switched OFF

Winter storage

Maximum interval between recharge	Maximum 3 months Alternatively storage in sunny place
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Solenergibox ApS, Bygvænget 12, DK-4720 Præstø, Denmark, Tel: +45 31520679,
Info@solenergibox.dk