



Steca Solarix PI 550, 1100

In developing the Solarix PI stand-alone inverter, Steca has brought about some innovations which are unprecedented in this form. These are, above all, parallel switching, the novel operating concept which uses a single rotary switch, direct communication in order to calculate the state of charge (SOC) with Tarom and Power Tarom, and the electronic fuse. Furthermore, our many years of experience have come into play for deploying these inverters specifically in photovoltaic systems. This shows up, in the way that a most diverse range of appliances is provided with a stable energy supply, whilst the inverter's own consumption remains low.

Functions

- Sine wave inverter with 550 W or 1,100 W
- Inverter can be connected directly to the Steca Tarom
- Good overload capacity
- Optimal battery protection
- Automatic load detection in standby mode
- Up to 4 devices can be connected in parallel

Electronic protection functions

- Battery deep-discharge protection
- Switches off in case of battery overload
- Overheating and overload protection
- Short circuit protection
- Internal fuse provides reverse polarity protection

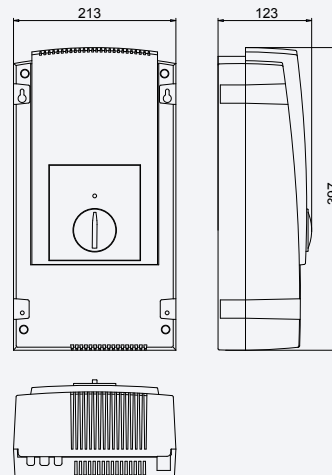
Options

- Available with 115 V / 60 Hz or 230 V / 60 Hz

Displays

- Three-colour LED shows the operating status of the inverter

Technical data



Steca Solarix PI	550	1100
Nominal battery voltage	12 V	24 V
Input voltage range	10.5 - 16 V	21 - 32 V
Output voltage	230 VAC +/- 10%	
Output frequency	50 Hz	
Continuous power	450 VA	900 VA
Max. power 30 min.	550 VA	1,100 VA
Max. power 5 sec.	1,500 VA	3,000 VA
Max. asymmetric load	250 VA	350 VA
Max. efficiency	93 %	
Own consumption standby	0.5 W	
Consumption „ON“ at idle mode	4 W	7 W
Cos phi of load	0.1 - 1 (to Pnom)	
Load detection (standby)	yes	
Battery deep discharge protection	current driven or by Tarom	
Over temperature protection	yes	
Electronical protection	Reverse polarity/over voltage/over current/ socket to 230 V grid	
Cable length battery/ AC	1.5 m/ 1.5 m	
Temperature range	-20 °C to +45 °C	
Enclosure protection class	IP 20	
Options	parallel use over PAX4	
Weight	5.5 kg	8.5 kg
Dimensions l x w x h	400 x 215 x 130 mm	

Technical data at 25 °C / 77 °F

Power class





550 W / 12 V
1,100 W / 24 V



1,100 W / 12 V
2,200 W / 24 V



1,650 W / 12 V
3,300 W / 24 V



2,200 W / 12 V
4,400 W / 24 V

Parallel switching

A stand-alone PV system is relatively difficult to size, since the loads and their average running times are often not adequately known, or because more loads are afterwards added.

This is where the simple expandability of the Solarix PI inverters pays off. Up to four devices can be operated in parallel. The connections are made via an external box, the PAX4.

From the outside, the combination of two, three or four inverters functions like one device with a correspondingly higher capacity. Inside only one inverter continues to operate in case of open-circuit operation or low output, e.g. for the lighting. This has a positive effect on the electricity consumption, since the devices which are not turned on do not consume any power. Only when a higher capacity is called for, for example when a refrigerator is turned on, all the inverters are automatically switched on, thus ensuring trouble-free operation.

The Solarix PI inverters are all the same. Only via the connection to the PAX4 parallel switch box one inverter is designated as the master. This device has control over the system, whilst the other Solarix PI inverters operate as slaves.

Rotary switch

Operating the Solarix PI is made very easy by the large rotary switch on the front of the device.

If the Solarix PI is being used as a single device, three different modes of operation are possible, and these may be selected using the rotary switch. The load detection section follows on from the 'off' setting on the far left. In this section, the switch can be turned continuously to match the power consumption of the smallest appliance. In order to reduce power consumption, the inverter is then turned off, and it checks periodically whether an appliance has been turned on. Only in this case the inverter switches itself on. The 'on' setting on the rotary switch follows on from the load detection section. In this mode of operation, the inverter makes the output voltage continually available.

If several inverters are connected in parallel, the requested mode of operation is selected by using the rotary switch of the device connected to the 'master socket'. In addition to the modes of operation described above, there is also the setting 'all on'. This means that not only the master device is continually switched on, but all other connected inverters as well.

The use of the rotary switch makes it possible to see very quickly the current mode of operation.

Electronic fuse

One innovation in stand-alone inverters is the electronic fuse as it is employed by Steca in solar charge controllers. With this fuse, the Solarix PI is protected against overloads, and also against the accidental connection of the AC output to the public grid. Because the fuse is electronic, it does not need to be replaced after it has been triggered, as is the case with mechanical fuses. As soon as the problem which triggered the fuse has been remedied, the inverter automatically reverts back to its selected mode of operation.

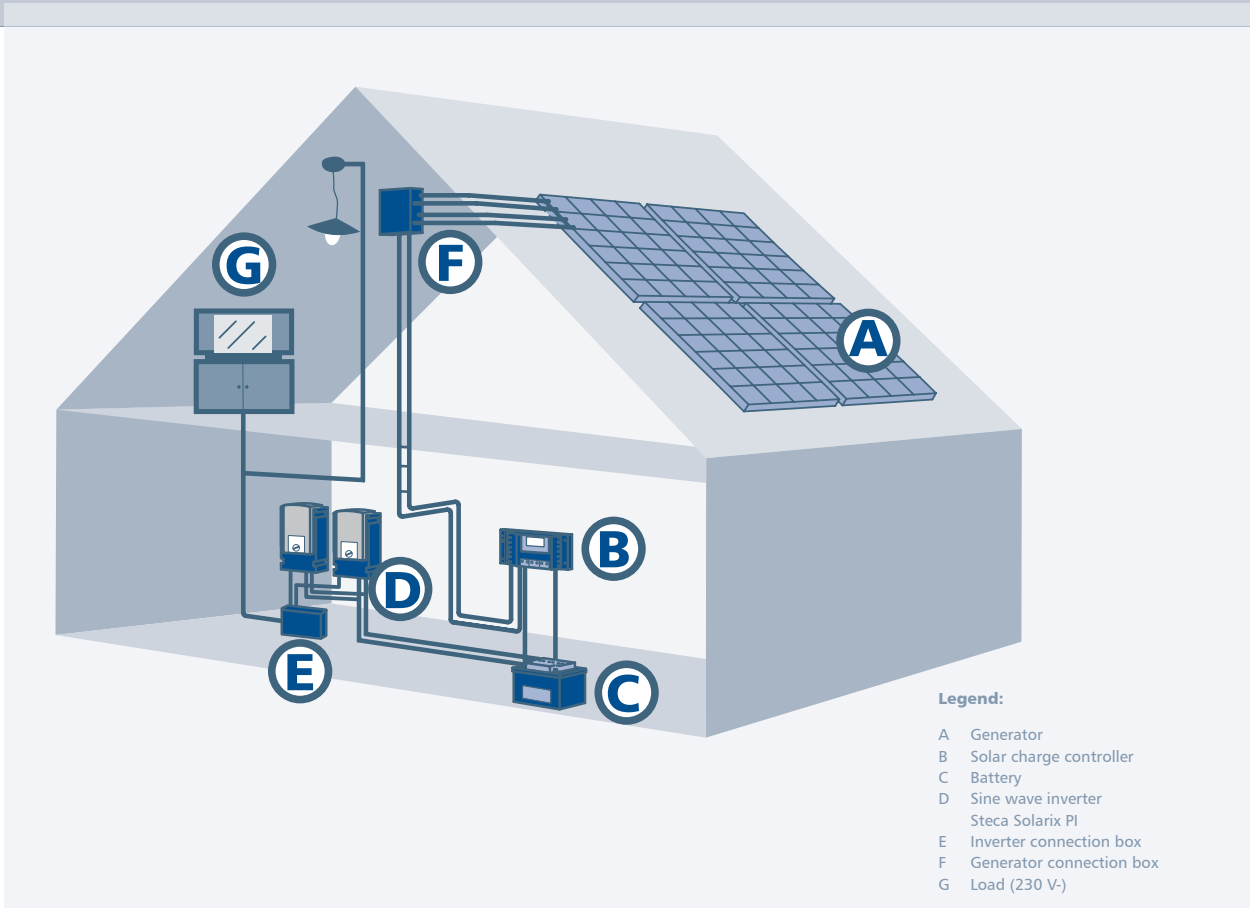
The Solarix PI is also internally protected against an incorrect wiring of the battery. In case of reverse polarity, the device remains undamaged, and there is no need to replace the fuse.

Quick and robust control

The Solarix PI inverter has been developed to supply power to a wide range of appliances. Thanks to the quick control, even critical loads can be operated. At the heart of the controller is a DSP which takes on the extensive calculation work. The inverter's necessary robustness is supplied by a control software program which was developed in cooperation with a renowned research institute.

Low operating consumption

The stand-alone inverter availed of Steca's 15 years of experience in the field of stand-alone PV systems. This is reflected, for instance, in the low operating consumption of the Solarix PI. In solar home systems, the inverter is connected to the battery 24 hours a day. It is designed to consume as little solar-generated energy as possible both in load-detection and open-circuit modes.



Communication with Tarom charge controllers

A further Solarix PI innovation is the communication with the solar charge controllers from the Steca Tarom and PowerTarom series. A data connection to the charge controller can be created via the PAX4.

In this case, the inverter connected directly to the battery communicates the amount of energy that has been withdrawn to the solar charge controller. The controller is thus able to calculate the correct state of charge (SOC). This

means that these systems no longer need to be switched to voltage-controlled operation or an additional current shunt.

If the switch-off threshold of 30% SOC is reached, the Solarix PI receives a signal from the solar charge controller and subsequently switches itself off in order to protect the battery from deep discharge. It turns itself back on again once the SOC has reached the 50% mark.

