



STROMHAMSTER[®]

ENERGY MANAGEMENT +
SOLAR HEATING SYSTEM (SHS)

Use solar power for
**heating and
hot water**

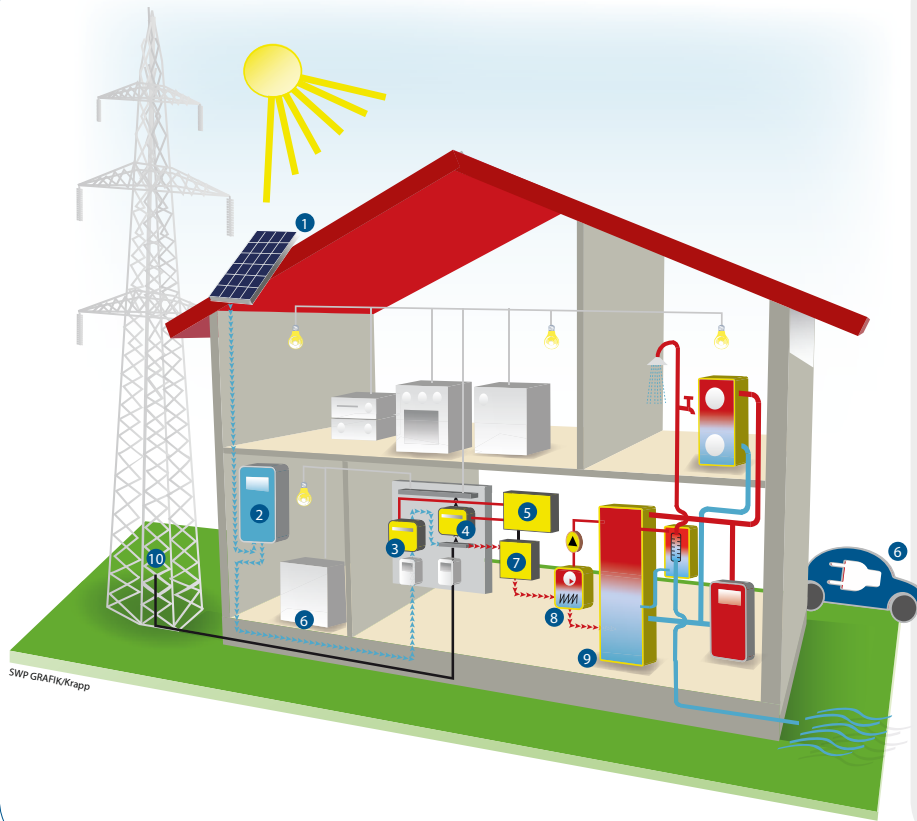


STROMHAMSTER[®] Product features

- ⊕ Allows you to use surplus solar power simultaneously for heating and hot water
- ⊕ Powers external electrical devices such as heat pumps and electric car charging stations
- ⊕ Can be combined with all conventional heating and hot water systems
- ⊕ Built-in monitoring
- ⊕ Easy to install, including into existing systems
- ⊕ Continuously variable output

Stromhamster in action

The electricity generated ❶ by the PV system is fed into ❷ the domestic supply system via the inverter. The Stromhamster energy management system ❸ and the built-in metering equipment ❹ measure the PV power not required by the electrical appliances in the home. Selected electrical devices, ❺ such as heat pumps and e-car charging stations, are controlled and specifically supplied ❻ surplus electricity is conducted to a water heater ❼ or an immersion heater via the solar hot water then flows into the hot water tank ❽ and can be used for showering or for heating the home. Any remaining electricity can be fed into the ❿ public grid.



Storing PV power as hot water

Did you know that solar power can now be used to heat water?

The innovative Stromhamster solar heating system (SHS) uses surplus power to directly heat water in the boiler of a domestic heating system via an immersion heater or water heater.

The basic principle is very simple. The solar power generated by the PV modules is firstly consumed by the domestic appliances. Surplus electricity is supplied to an electric car charging station, heat pump, water heater or immersion heater to heat water for showering and heating and for storing in a buffer tank. Any remaining surplus electricity is then fed into the public grid.

The Stromhamster is available in two models, the SHS Water Heater and the SHS Immersion Heater. Both Stromhamster systems are suitable for retrofitting into existing systems. To do so, all your home needs is a solar installation and a traditional heating system. Thanks to the low number of components, the electric heating system is easy and inexpensive to fit.

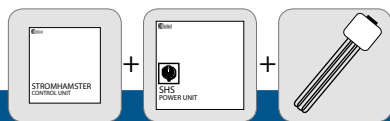
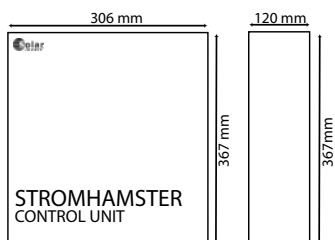
The intelligent metering and control system means that every single watt that is not directly consumed is made available to the heating system. What's more, the SHS complies with all mandatory EMC and grid feedback requirements as well as improves your home's Energy Performance Certificate.

Advantages of Stromhamster

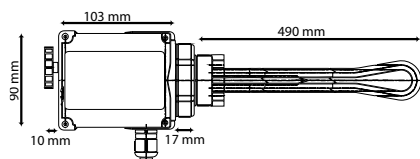
- + Intelligent energy management
- + Powers external electrical devices such as heat pumps and electric car charging stations
- + Easy to install into all existing PV
- + Reduces heating costs while saving heating oil and gas
- + Improves your home's Energy Performance Certificate
- + Can be combined with all conventional heating and hot water systems
- + Low investment costs thanks to ease of installation
- + Allows you to use solar power for electricity and hot water simultaneously

Technical data

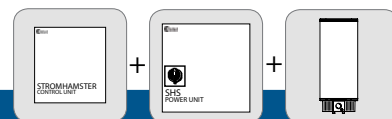
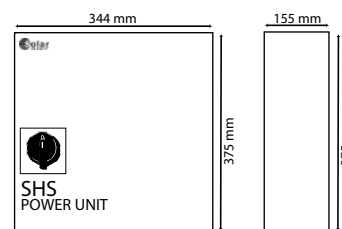
Control Unit	
Electrical connection	3/N/PE 230/400 V
Output [kW]	0–6, can be extended to up to 18 kW (only with the immersion heater model)
Weight [kg]	2,2
Power meters	x 3, 2,000 imp/kWh (generation/consumption/heating energy)
Housing	Plastic/steel
Dimensions (H x W x D) [mm]	367 x 306 x 120
Online Monitoring	Yes
Residual-current circuit breaker	Yes
Protection class	IP30
Able to be retrofitted	Yes
Control of extra loads	2 x programmable output ports for relay contacts



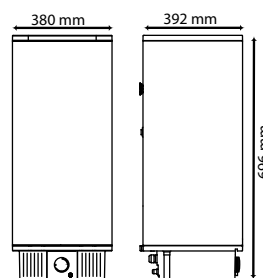
Immersion Heater	
Type	Screw-in heating element
Output [W]	6000 + 5%/-10%
Weight [kg]	2,3 (with cable)
Material of the tubular heating	Stainless steel 1.4404
Dimensions (L x W) [mm]	620 x 90
Immersion depth [mm]	490
Area of application	Domestic non-drinking water/ drinking water
Thermostat [°C]	30° to 80°
Temperature limiter [°C]	110° to - 9°/Frost
Protection class	IP 44
Supply voltage	3/N/PE 230/400 V
Connecting thread	1½"

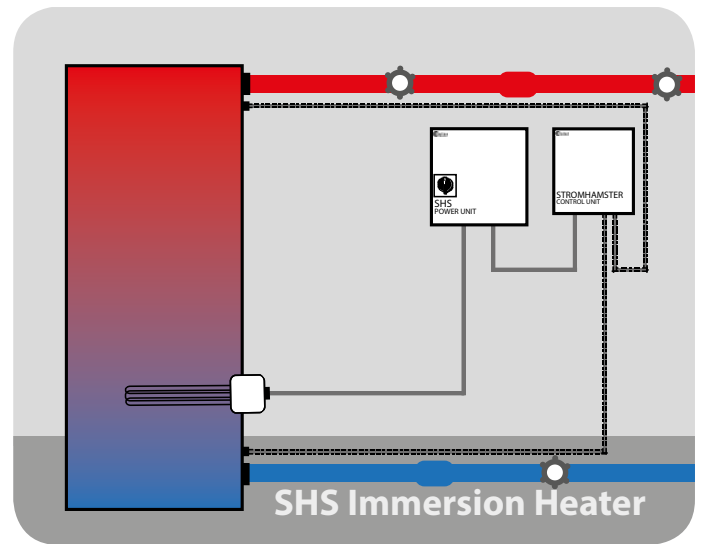
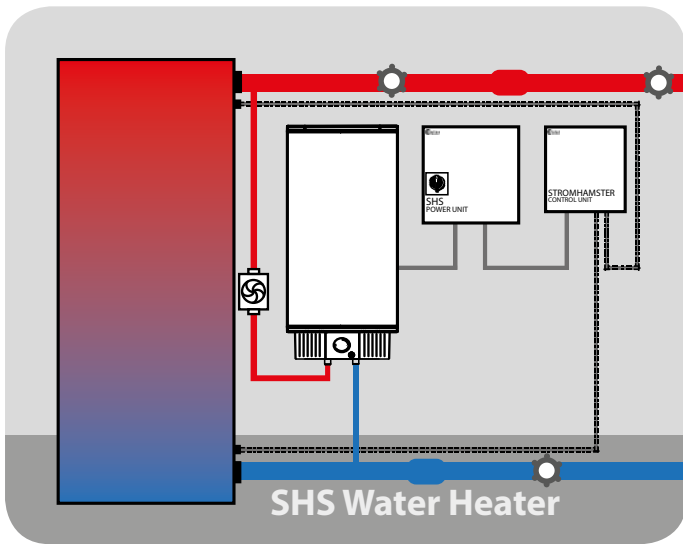


Power Unit	
Type	Power controller (AC-PWM)
Output [W]	Max. 6000 (3 x 2000)
Connection	3/N/PE 230/400 V
Output per phase	Output level 1: Fully adjustable from 0–2,000 watts (AC PWM) 230 VAC/50 Hz, Output level 2: 2,000 watts can be connected Output level 3: 2,000 watts can be connected
Controller	RS485 Modbus/RTU
Loads	Resistive loads
Protective function	AC PWM – thermal cut off and overcurrent cut off
Standards	EN 60335-1:2012/AC:2014, EN 61000-3-2:2006 + A1:2009 + A2:2009, EN 61000-3-3:2008, EN 61000-6-1:2007, EN 61000-6-2:2005/AC:2005, EN 61000-6-3:2007/A1:2011/AC:2012, EN 55011:2009/A1:2010 Class B, EN 55014-1:2006/A2:2011, EN 55014-2:1997/A2:2008
Housing	Powder-coated steel sheet
Protection class	IP 20
Dimensions (W x H x D) [mm]	344 x 375 x 155
Weight [kg]	4,4
Optional	Temperature sensor



Water Heater	
Number of water heaters	1
Weight [kg] (empty)	20
Output [W]	Max. 6000
Storage volume [l]	30
Connecting thread	G ½ A
Dimensions (W x H x D) [mm]	380 x 696 x 392
Supply voltage	3/N/PE 230/400 V
Protection class	IP 25
Flow regulator	Yes





Heat water using the energy generated on your roof

Both the Stromhamster SHS Water Heater and the Stromhamster SHS Immersion Heater are outstanding systems for heating water inexpensively and offer long-term protection against rising heating costs. To ensure that the energy produced on the roof is used in the home as efficiently as possible, the surplus electricity is measured using the Control Unit, which acts as the energy management system.

The Control Unit is in a way the heart of the solar heating system, as it regulates the surplus electricity and conducts it to external devices such as the Power Unit. Even monitoring is controlled by the intelligent energy management system.

As soon as surplus electricity is identified, it is modulated by the Power Unit and fed into the buffer tank. During this process, the power unit regulates the continuously variable output of the immersion heater or the water heater. Once the water being heated in the water heater reaches the set maximum temperature, it is pumped via a hot water circulation pump into the hot water tank or is stratified in a buffer tank where it can be used as required.



The SHS Immersion Heater system is also able to conduct surplus electricity generated on the roof to a continuously variable immersion heater via the power unit. The immersion heater is screwed into the buffer tank and heats the water which can then be used to help meet the building's hot water and heating needs.

The immersion heater is positioned in the middle or lower third of the buffer tank. The advantage of this is that even when there is a low level of surplus electricity, there is sufficient hot water in the upper third of the buffer tank to prevent the existing oil or gas heating system from firing. Any remaining electricity is fed into the public grid.

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