

# RAIN WATER HARVESTING & UTILISATION

**Easily use clean rainwater in your home & garden.**

## 1. INTEWA PURAIN pre-filter

Quality rainwater is ensured with the self-cleaning in-tank PURAIN pre-filter designed for an efficient rainwater harvest. Collect every drop!

## 2. INTEWA RAINMASTER pump station

Pumping rainwater through a building is easy with this fully automatic, operating and monitoring pump station with controller & built-in mains water top-up.

## 3. Micro-filtration INTEWA AQUALOOP

The rainwater can be further micro-filtered (sterilised) by an AQUALOOP membrane station if desired. Situated inside the tank the membrane fibres ensure germ-free clean clear water.



## 1. PURAIN Pre-filter



FIG 1. Collecting rainwater during low rainfall.



FIG 2. Self-cleaning of debris during high rainfall.

**The best place to install a rainwater filter is inside the tank!**

Now there is no need for separate downpipe filters (ie. first flush diverters) or separate filtration tanks. The PURAIN Pre-filter can be directly used as an overflow and all roofing downpipes can be connected to one single filter. Thus less rainwater is lost and wasted.

Many tank manufacturers in Europe are providing PURAIN rainwater filters built into their tanks.

The PURAIN rainwater filter cleanses water with a high quality, break-proof, stainless steel wedge wire sieve with a gap width of 0.8mm. Its trapezoidal shape & diagonally set profile prevents dirt from settling and clogging.

**FITS**  
into most  
**TANKS**

All PURAIN pre-filters are self-cleaning (98% efficiency) using the 'hydraulic jump' principle from nature, where debris is naturally removed during high rainfall events.

- built-in overflow skimmer
- non-return valve
- sizes range from DN100 (domestic homes) to DN400 (commercial buildings)

**EASY TO ASSEMBLE | SELF-CLEANING | LOW MAINTENANCE | OUT OF SIGHT**



# A Self-Sustaining Automatic Rainwater Supply

## 2. RAINMASTER Pump Stations

**INTEWA RAINMASTER Pump Stations are the pumping heart of all our systems!**

Fully automatic, operating and monitoring stations combining pump, controller with a built-in mains water top-up ... so you NEVER run out of water! Available in domestic or commercial sizes.

*RAINMASTER Eco*



- 24V low voltage supply (ECO models)
- Energy efficient diaphragm pump (ECO models)
- DVGW-certified with required "air gap"
- Connect in parallel for larger systems (FAVORIT models)
- Speed controller regulates flow rate (FAVORIT SC model)

*German Engineered and Manufactured*

**One of the most economic rainwater system in the world!**

On average, the INTEWA RAINMASTER Eco saves more than 75% power than similarly sized centrifugal pumps.

**Whisper-quiet use!**

A multiple setting centrifugal pump creates a noise level of around 65 dB (A). The RAINMASTER Eco, for instance, is whisper quiet at around just 48 dB (A). This represents a 50% reduction in noise emission. In the past, the noise created by a rainwater harvesting pump was so high that it was almost impossible to install indoors. All this has changed with INTEWA RAINMASTER Pumps.

**Attractive design and well-planned ergonomics!**

The RAINMASTER Rainwater Pump Stations look elegant.

*RAINMASTER Favorit SC*



## 3. MEMBRANE Micro-Filtration

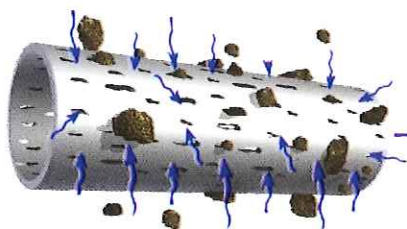
**The rainwater can be micro-filtered (sterilised) with AQUALOOP MEMBRANES situated inside the tank.**

Special organic fibres are used in the patented MEM membrane filters have a pore size of 0.2 µm. These organic porous hollow fibre membranes have an external diameter of less than 1 mm. Hundreds of fibres are bundled together, creating sufficient surface area and ensuring a constant flow rate.

The fibres are cleaned periodically by backflushing with the filtered water. The Membrane Filters effectively remove bacteria and viruses.

The rainwater may be additionally disinfected prior to distribution within the dwelling with UV treatment (if required / requested).

- Disinfection without chemicals such as chlorine
- A long service life of up to 10 years
- Minimal maintenance



*AQUALOOP C-MEM MEMBRANES*

**NO CHEMICALS REQUIRED!**

**10  
YEAR  
FILTER LIFE\***

**Removes up to 99.9999% of bacteria & 99.7% of viruses.**

\*Depending on degree of utilization





# GREY WATER TREATMENT & RECYCLING

**INTEWA AQUALOOP** - An automatic Greywater Treatment & Recycling System that makes it easy for every household to conserve precious water reserves.

AQUALOOP is a tertiary water treatment system with oxygenated biological degradation & patented ultra-filtration with organic membrane technology [0.2µm].

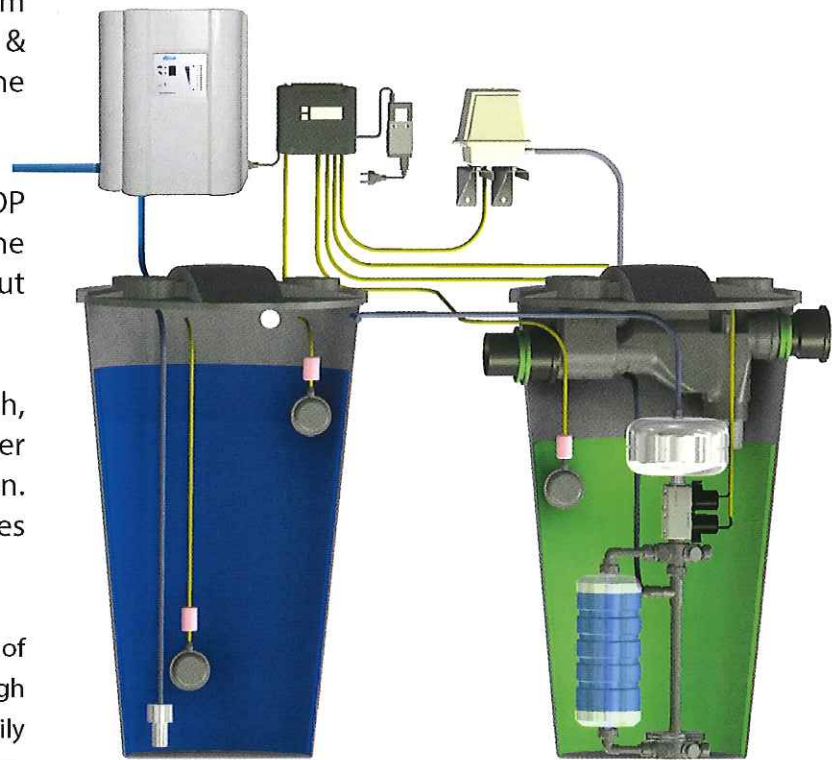
Simple to install and maintain, AQUALOOP produces germ-free high quality water with the safe removal of bacteria and viruses - without using chemicals!!

Treat your bathroom greywater (shower, bath, basin) with AQUALOOP to create clean clear water to reuse in your toilet, laundry or spray irrigation. A family of six could treat and reuse up to 450 litres of bathroom greywater every day!

The AQUALOOP system can also be used for the treatment of surface water, rainwater or groundwater - creating high quality drinking water. The AQUALOOP system is easily expandable to match daily water usage in residential homes or commercial buildings.

**INTEWA**  
INTEWA

**10  
YEAR  
FILTER LIFE\***



*German Engineered and Manufactured*

# AQUALOOP

\*Depending on degree of utilization

**MODULAR | EXPANDABLE | LOW MAINTENANCE | NO CHEMICALS!!**



# AQUALOOP An Expandable Modular System

The AQUALOOP system consists of a few modular **components** that can be easily assembled as required. Depending on the quality of inflow water and its intended recycled use, the optimum AQUALOOP system can be selected from the modular components available:

## Components of the AQUALOOP SYSTEM

**PURAIN pre-filter**

**Growth bodies**

**Greywater storage tanks**

**Clean water storage tanks**

**AQUALOOP membrane station with controller and membranes**

**Blower**

**RAINMASTER pump station**

### 1. Pre-filter and Growth bodies

The PURAIN filter cleanses water with a high quality, break-proof, stainless steel wedge wire sieve with a gap width of 0.8mm. Its trapezoidal shape & diagonally set profile prevents dirt from settling and clogging. Includes automatic extraction of bottom sediment and floating debris via a skimmer.



The growth bodies provide ample space for a natural ecology of useful bacteria to develop and thrive, when combined with aeration - for excellent secondary biological treatment.

### 2. Two Tanks

The AQUALOOP prefilter and AQUALOOP membrane station can be integrated into almost any tank, regardless of whether it is situated indoors or outdoors. The system requires two tanks - one for the greywater and one for the clean water. These need to be sized correctly for your needs.

**FITS**  
into most  
**TANKS**

### 3. Membrane station with system control

The AQUALOOP membrane station is mounted within the greywater collection tank. This membrane station includes a platform for the mounting of membranes. A permeate pump, back-flushing pump, back-flushing tank and blower connection are all integrated. The AQUALOOP membrane station can be flexibly equipped with up to six membranes, depending on the required amount of water to be recycled. Multiple membrane stations can be used in parallel - for higher water volumes.

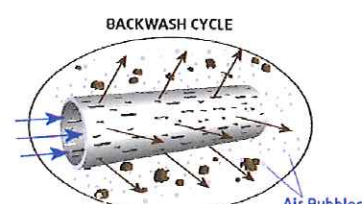
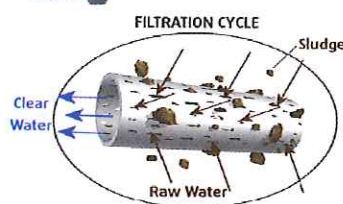
Each membrane station contains a fully automatic system controller for operating and monitoring the pumps and blower. The blower simultaneously fulfils the jobs of membrane cleaning and supplying oxygen to the bioreactor.



## Amazing Membranes!



Patented AQUALOOP C-MEM membranes are the core of the water treatment process. The membranes' special hollow fibres are designed to effectively retain bacteria and viruses until it is automatically cleaned. This improves water quality without chemical additives such as chlorine. AQUALOOP's special design and water treatment process allow for a long service life of up to 10 years with only minimal maintenance.



### 4. Blower

The blower provides oxygen to the bioreactor. At the same time, an air current is passed through the hollow membrane fibres which allows optimal cleaning of the cartridge.

### 5. Pumping stations

Fully automatic, operating and monitoring stations combining pump, controller and built-in mains water top-up - so you NEVER run out of water! The recycled water can be pumped to the toilet, washing machine or outside irrigation.

*Treats and Recycles Water Daily*

**Safely use your water twice!**

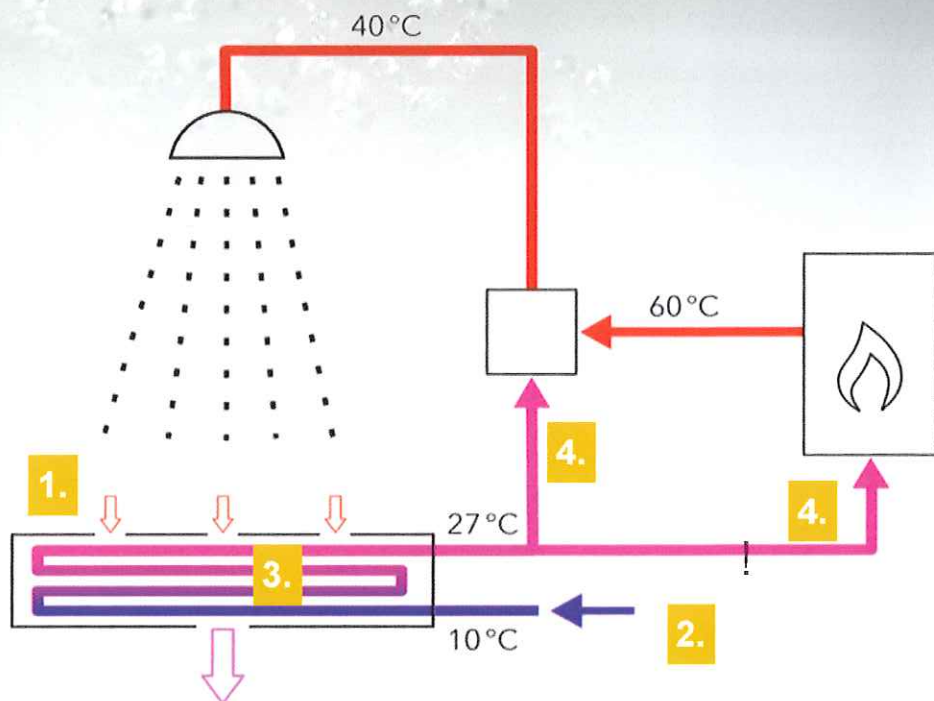




## HEAT RECOVERY SYSTEMS FROM WASTEWATER

**Automatically reduces the hot-water demand in the shower.**

1. In a typical shower, hot wastewater goes down the drain with an average temperature of 33°C, this hot wastewater streams over the heat exchanger.
2. Cold water flows into the heat exchanger in a counter flow, ready to be pre-heated.
3. The heat in the drainwater preheats fresh coldwater to a temperature of approx 27°.
4. This pre-heated mainswater replenishes the hot water cylinder and/or flows directly to the shower.



**PASSIVE HOUSE CERTIFIED | POWER SAVINGS OF UP TO 40%**





**CERTIFIED  
COMPONENTS**

Passive House Institute

# ECOshower - Shower PIPE

The **Shower PIPE** makes use of the fact that a falling film of water exchanges heat most efficiently. This means that, a large amount of heat energy is transferred. At a shower flow rate of 7.5 litres/min (40°C), the net heat recovered is 9.3 kW! The drain water flows down through the central pipe. Cold water flows up in a spiral in the surrounding sleeve.



- Heat Exchanger Efficiency - 66% / 50.2%
- Installed in a precise vertical orientation and does not need to be fitted below the shower
- 2015 mm long | 63 mm / 77 mm diameter

**MODELS: 15 or 20**

# ECOshower - Shower DRAIN

An installed **Shower Drain** is just 120mm deep. It is available with the mains water connections on either the right or left-hand side of the unit. The Shower Drain has been tested by independent certification institute KIWA and its energy performance verified.

- Heat Exchanger Efficiency - 42% / 54%
- Easy installation - drain included
- Floor level installation for tiled showers
- Easy access for cleaning and maintenance
- Stainless steel case and double walled seamless copper tube heat exchanger.

**MODELS: 800 or 900**



# ECOshower - Shower TRAY



A high-quality acrylic shower tray with an attractive stainless steel grid, drain trap and copper heat exchanger. Easy to install as no structural work is required, making it ideal for renovations. Can be fitted inside a shower cabinet or behind a shower door. And because the **Shower TRAY** heat exchanger is easy to clean, it maintains that high efficiency over many years of use.

- Heat Exchanger Efficiency - 54% (Certified)
- 160mm high - 900x900mm or 900x1200mm

**MODELS: 900 or 1200**



*German Engineered and Manufactured*

**Wagner Solar**

**Substantial SAVINGS \$\$ with a small investment!!**





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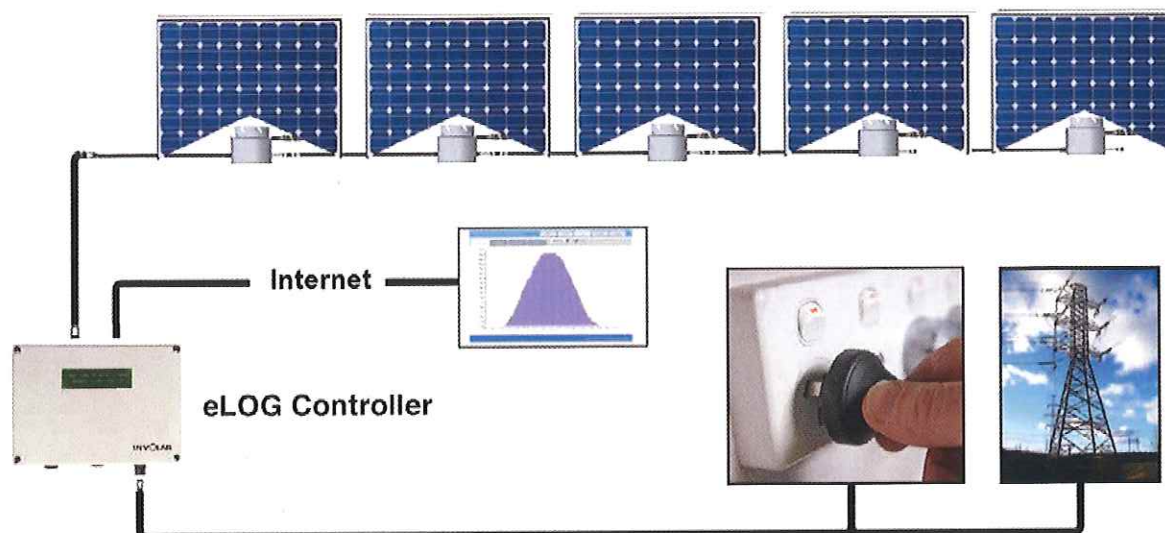
*turning sunshine hours into power*

## GRID-TIED SOLAR

A grid-tied solar system is an electricity generating solar PV array that is connected to the utility grid, via the distribution board. It creates free electricity during sunshine hours - sustaining the electricity load of the building. Excess solar power is fed into the electricity network (grid), and system owners are paid a fee per kWh exported.\* Electricity is not stored in batteries and the system will shut-down in the event of a grid-failure.

\*Select Electricity Retailers Only

**ALOSUN uses microinverter technology for grid-tied solar power.** Each solar panel is attached to one microinverter, ensuring top performance from each PV module. Because of their reliability and longer lifetime (25yrs), microinverters now dominate the home solar market in the USA.



**Maximise** your energy production by up to 26% more than string inverters.

**Expand** your system easily by adding new microinverters.

**Safer** with NO high-voltage d.c. wiring anywhere in your home!

**Reliable** with no moving parts to wear out, they have a much longer life.

**Monitor** each individual PV panel - if one fails - you'll know about it.

**Quiet** solar power generation - no bulky noisy inverter unit.

**Warranty** security with a 15 year manufacturers warranty.

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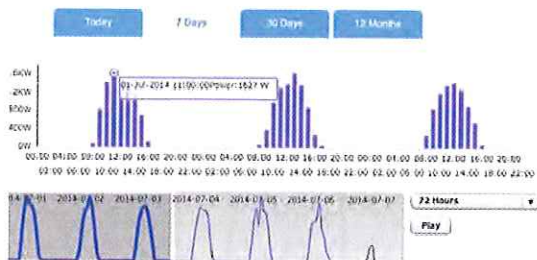
## INVOLAR Microinverter

Each 250W microinverter is connected directly to one PV module in the array. This unique configuration means more effective capture of energy, even when the array is partially shaded or covered in dust or debris. This ensures that the maximum power available from each PV module is used - creating up to 25% more energy production. Involar microinverters are completely sealed from dust and humidity - fully covered in silicon material inside an ambient resistant aluminum casing. They have a 15 year warranty, and an expected life of 25 years.



## INVOLAR eLog Gateway

The eLog is a monitoring device installed between the PV array and the distribution board. Information from each PV/microinverter module is collected by the eLog and transmitted to the Solar Energy Data Acquisition System [SEDAS] via an ethernet cable. The current status of the system is also displayed on the eLog's LCD screen. The eLog is installed near a switchboard and can monitor up to 16 PV/microinverters (4kW). For larger installs, simply add more monitors. This device is optional.



## SEDAS Web Monitoring

The SEDAS (Solar Energy Data Acquisition System) has been developed by Involar to provide smart 24-hour real-time performance monitoring and analysis of each and every microinverter/PV module. The total daily, weekly, and yearly energy harvests are recorded and are accessible from the SEDAS website or on your mobile device. This is a free service with no on-going monitoring charges. Other monitoring options available.



## PV Module

High-power polycrystalline solar panels (250W) are sourced from a reputable manufacturer, Sunrise Solartech, who individually examine each panel during the production process. They have been tested by leading institutions and are TÜV certified for reliability and safety. The manufacturer provides a 12 year product warranty for defects in materials and processing which is backed by an international insurance policy. Each module has a power output guarantee of - 5 years at 95% and 25 years at 80% of its capacity. These panels are available with a German Warranty on request. We also supply German manufactured panels if preferred.

## Roof Mounting System

The panels and microinverters are mounted on high-strength stainless steel / aluminium profiles which have a 10 year warranty and a 25 year expected life. A durable accurate system with great flexibility that allows for installation on tilted, flat, tin, tiled or bitumen rooves. We also engineer other structural array mounts site specific on request.

*All components are compliant with AS4777 standards.*

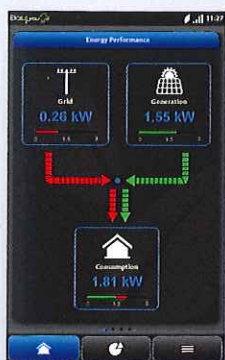


## Self-Consumption made simple!



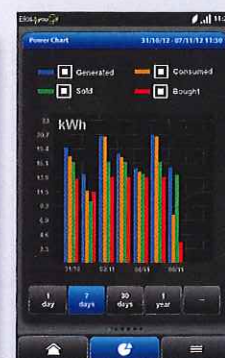
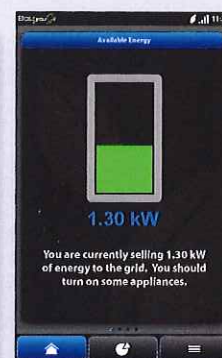
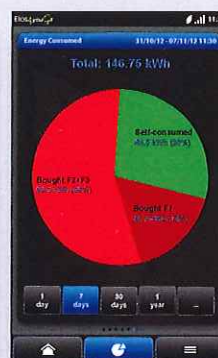
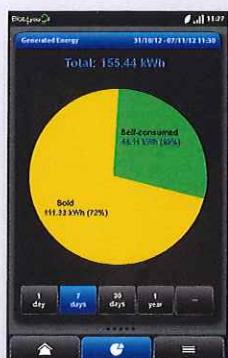
- An **innovative way to optimize self-consumption** and **monitor PV installations** via a **smart App** developed by 4-noks. Real-time data is made available **on any mobile device** (tablet or smartphone) & PC **anytime, anywhere**.
- **Precise measurement** of the energy generated, consumed and exchanged with the grid, the overall household consumption and the level of self-consumption achieved
- **Load activation**: automatically manage appliances based on threshold parameters, through the on-board relay
- Independent of the inverter or meter installed
- Up to 20 years data storage usefull to build **a profile of consumption behaviour**
- For single-phase up to 10 kW and three-phase PV installs up to 50 kW
- **Free App** for iOS and Android mobile devices

## Smart App for Android and iOS - Intuitive GUI



**User-friendly graphical interface with animation providing crucial real-time details of the status of the PV install:**

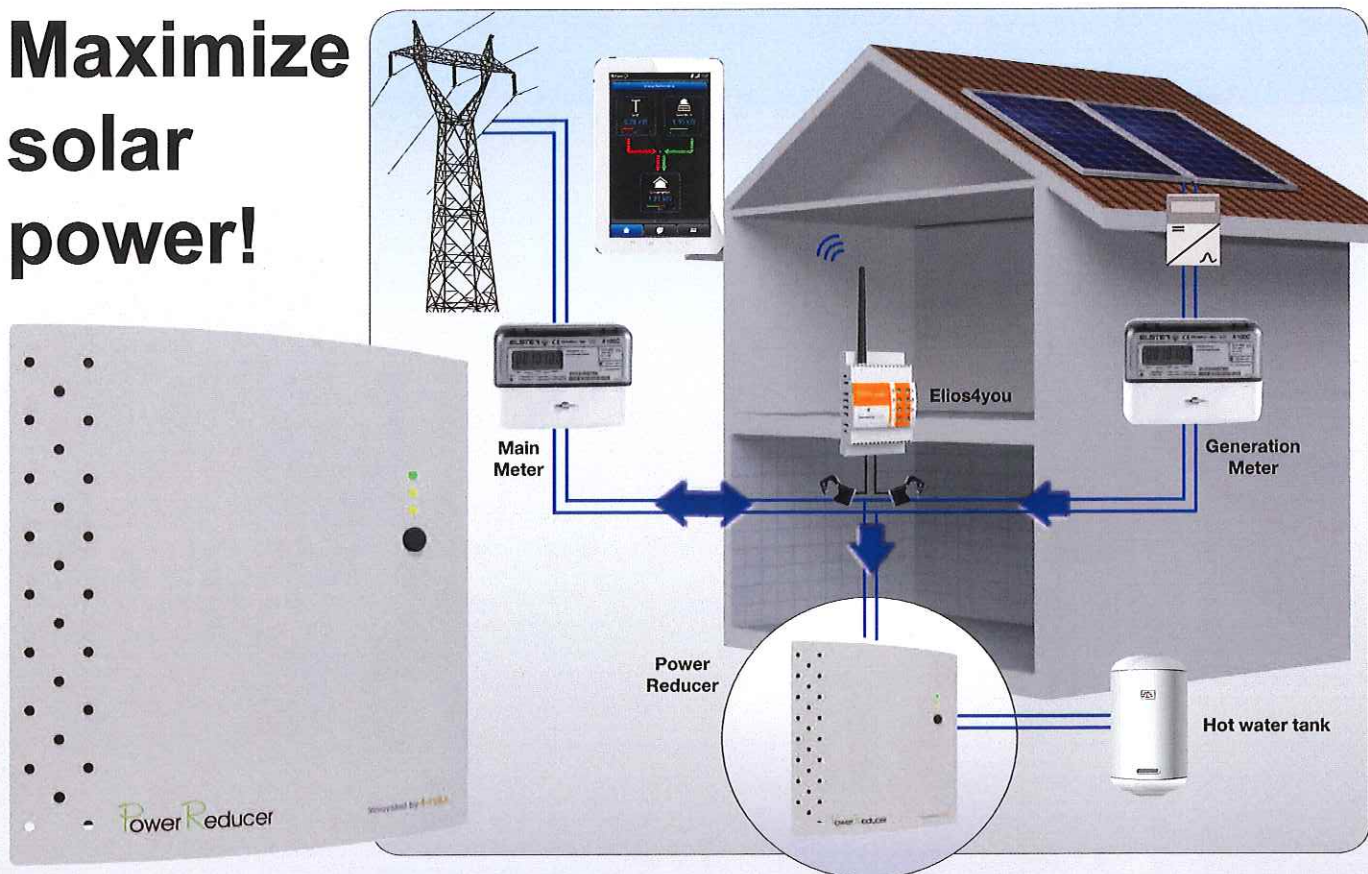
- real time energy generation
- real time energy purchased from and sold to the grid
- real time energy consumption
- energy available for **self-consumption**
- alarm notifications





# PowerReducer

## Maximize solar power!



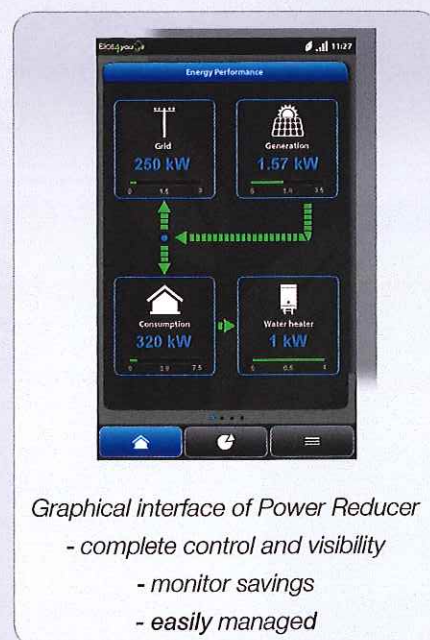
**The Power Reducer is a proportional controller designed to automatically divert surplus solar energy to the hot water tank. This clever device provides free hot water.**

### How it works:

**The Power Reducer** works by monitoring your **energy** export. When it sees that you are exporting free energy **to the grid** it redirects it to your hot water tank or other heating source, ensuring that no **more** additional **grid** power is imported **than necessary**

The Power Reducer managed by Elios4you, enables complete control and visibility. Providing valuable reporting tools to aide in reaping the most out of your PV system. The functionality **on the app** enables users to break-down the overall savings achieved and provide a holistic view, where possible to make further savings, by utilising all available surplus energy.

- **Automatic:** diverts surplus generated energy to **hot water** element without importing from the grid and automatically adjusts household energy demand.
- **Save Money.** Import less grid power.
- **Universal:** completely independent from inverter and meters
- **Easy to setup:** retrofit without any tampering to existing PV install, no adjustment or additional programming required
- **Easy to install:** No additional plumbing required.
- **Fully compliant with CE norms:** (fit for domestic & commercial install)



Distributor



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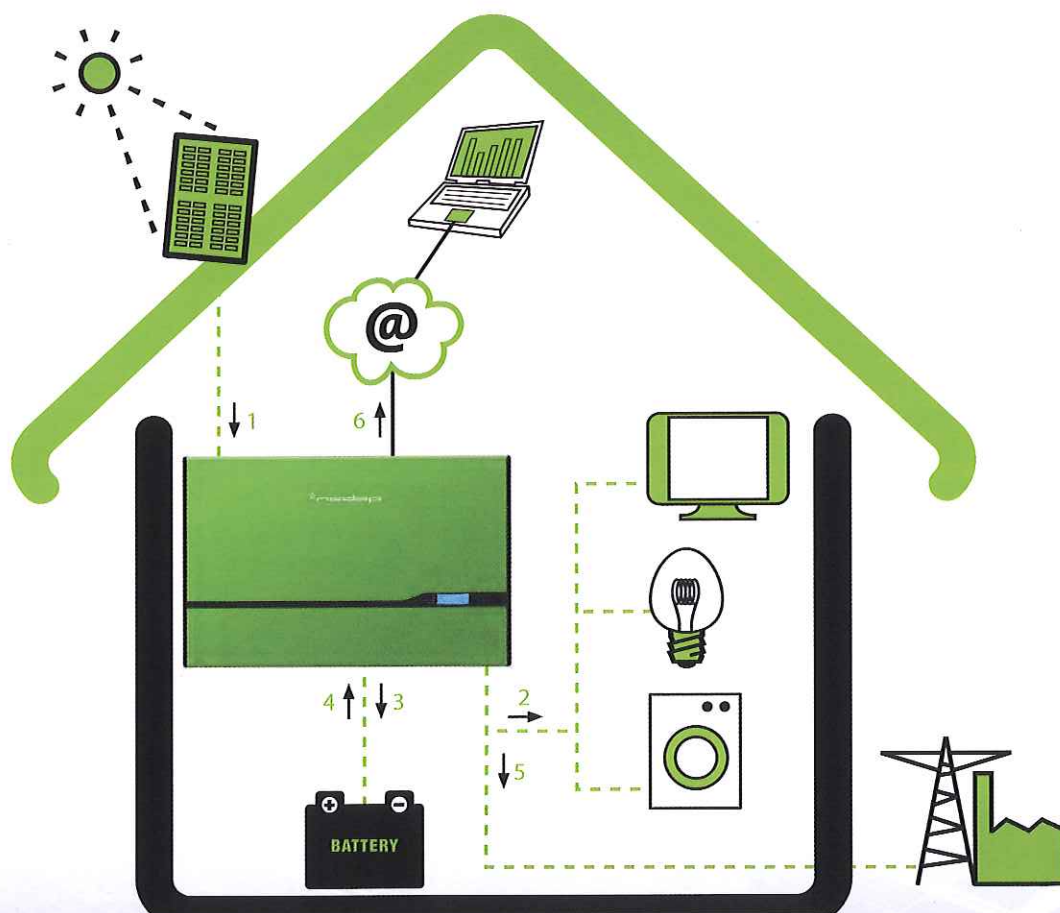
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*turning sunshine hours into power*

## HYBRID SOLAR

The hybrid solar system is an electricity generating solar PV array that is connected to the utility grid via the distribution board, but also includes a battery bank for energy storage. The principle behind it is simply brilliant. When the sun shines, the solar energy is converted to energy for use by appliances. Energy not consumed immediately is stored in batteries for later use. If more energy is generated after the charging process, additional appliances can be supplied or the power can be exported to the grid.



ALOSUN recommends Nedap PowerRouter - a new generation of solar inverters. Providing both maximum use of self-generated solar energy, and a back-up power supply. In the event of a power failure, the PowerRouter is disconnected from the grid, and the connected load is switched to "Local out". Any electrical devices connected will continue to be supplied with solar energy and with electricity from the batteries.

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## ***POWERBLOCK Cabinet***

The PowerBlock PR series is the ideal hybrid/UPS or off-grid energy management system utilising the NEDAP PowerRouter.

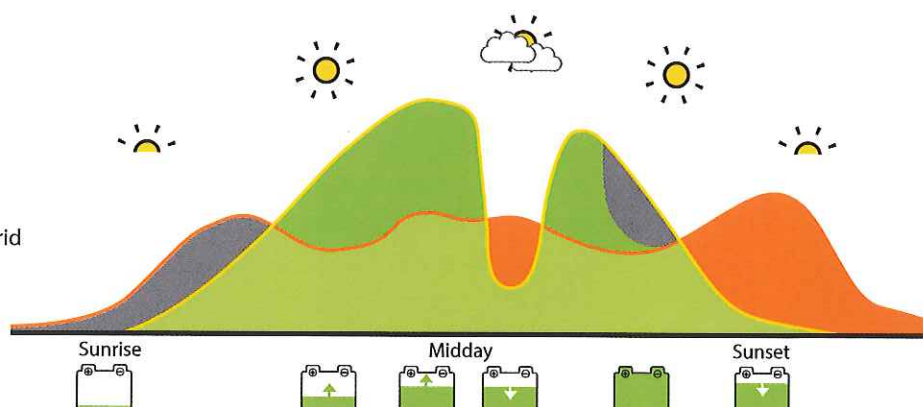
The PowerBlock offers a modular approach to energy management all contained within a custom designed enclosure. Gel, AGM or LiFePO4 battery types are used with capacities ranging from 6 kWh up to 19.2 kWh.

- Lockable enclosure(s)
- Ability to add additional battery banks
- Aesthetically pleasing
- Functional
- Space saving
- 24 volt systems design
- Modular, easy to assemble
- Expandable
- Ventilated

## ***Energy Management***

When the batteries are fully charged and only a small amount of electricity is being consumed in the house - surplus energy is normally fed into the power grid. However, the PowerRouter has an intelligent energy management facility. Using an external wired or wireless relay, additional appliances can be switched on as required - for example, a hot water system or a heat pump. This increases self-use and eliminates the need for consumption of expensive electricity from the power grid.

- Solar energy production
- Self-use from batteries
- Consumption from/ export to the grid
- Charging the batteries
- Self-use from solar energy







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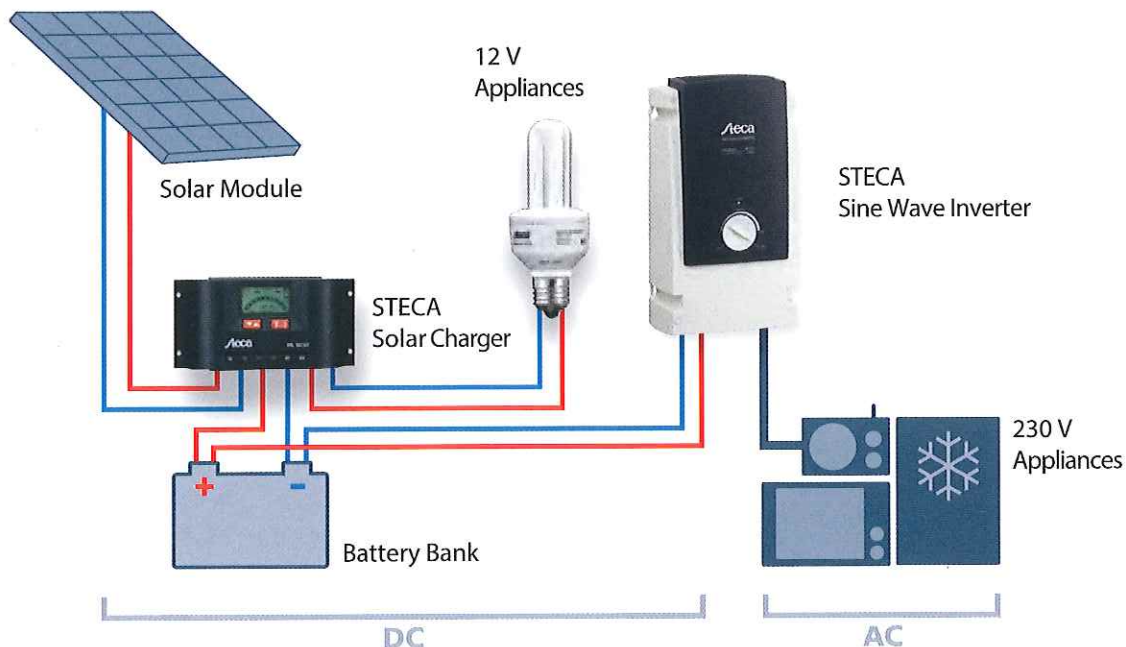
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*turning sunshine hours into power*

## OFF-GRID SOLAR

Off-grid solar power is stand-alone solar generation that is independent of the power grid. It is a solution for locations where grid connection is not feasible. Using primarily a photo-voltaic array to generate power, they can also be combined with a diesel generator or a wind turbine. Storage is within a battery bank. Power drawn directly from the battery will be 'direct current extra low voltage' (DC ELV) which is used for DC lighting and other DC appliances. An inverter may also be used to create AC 230V - for normal appliances.

### OFF-GRID INVERTER SOLAR SYSTEM FOR BOTH DC AND AC



*The solar charge controller is the central and most important component in a solar stand-alone system. It controls the energy flow in the entire system and determines the system function and service life. It must be selected carefully!*

**ALOSUN** supplies German manufactured Steca components for off-grid solar power solutions. Steca develops top-quality products which are reliable with a long life. They are the leading supplier to the solar electronics industry, setting the international standard for solar energy systems. Different combinations and options are available, depending upon your energy load, location, and need.

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## Sine Wave Inverters

*for operation of AC appliances*



STECA Xtender XTS S  
Sine Wave Inverter

A sine wave inverter is introduced into the system to convert DC voltage into AC voltage. The size of the inverter is selected according to the energy load. Steca have a large range of sine wave inverters from 275W-12V up to 8000W-48V to meet all off-grid requirements!

## Solar Charge Controllers

*controls the entire energy flow in solar systems*

A central element in off-grid photovoltaic systems are the solar charge controllers. They control the entire energy flow while ensuring optimal battery maintenance. Steca lead the way internationally with their solar charge controllers, meeting every need from simple DC loads to complex 3-phase hybrid systems with the latest in battery technology.

**Award winning charge controller !**



STECA Tarom 6000-M  
Solar Charger

The Steca Tarom MPPT 6000-M dual MPPT peak charge controller, won the renowned OTTI Innovation Prize, and the Intersolar Award 2014. This unit is for use with all types of lithium-ion batteries. With complex charging algorithms, the charge controller features battery diagnosis, a long-term data logger, interfaces and an exceptionally high efficiency.

## LSHS - MINI SOLAR HOME SYSTEMS!

The **fosera** L-ion Solar Home System is an autonomous and mobile energy system that is capable of powering several small 12V loads. (120W)



**fosera** LSHS systems use high quality lithium-iron-phosphate battery technology to store energy. This technology has a long battery lifetime of five to ten years. Efficient appliances can be connected to all fosera systems including table lamps, fans, radios, phone chargers, and mobile devices. They can even power a 12V DC TV or a small computer.

An affordable solution - perfect for mobile homes, small baches, huts, and sheds - where simple energy needs can be met.

