



# PV GRID CONNECTED





# »POWER FROM THE SUN FOR EVERYDAY USE.«

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In one hour, the amount of energy radiated to the earth by the sun exceeds the annual energy requirement of the world population. Making use of this inexhaustible energy source for our everyday electricity requirement is the great challenge of the present and the future. Steca was quick to recognise the opportunities of a boom in the making: The company has become synonymous all over the world with vision, innovation, and initiative in the name of solar power. Steca is a recognised specialist in the development of high-performance systems which turn light into electricity before feeding it into the public grid.  
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»WE ARE THINKING OF TOMORROW.«



Full power for you: Management board Dr.-Ing. Gerald Katzler, Peter Voigtsberger and Michael Voigtsberger.

Owner-managed family business

As a family company built up over time, we have years of experience behind us and can boast of innovation excellence as an electronics service provider and manufacturer of Steca brand product lines in solar electronics and battery charging systems.

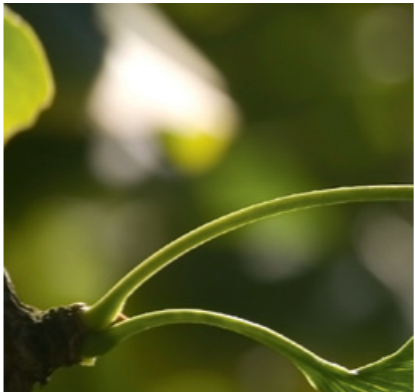
Our day-to-day business dealings are characterised by mutual appreciation, transparent communication and prudent decision-making. We passionately serve our customers and provide an unrivalled service.

Through technological prominence and global partnerships, we are assured of a successful future together.



- PV GRID CONNECTED
- PV OFF GRID
- SOLAR THERMAL

- ELECTRONICS SERVICES
- BATTERY CHARGING SYSTEMS



Environmental protection in series



Services and production have an ecological future at the Memmingen electronics specialist company Steca. The company makes a worldwide contribution to reducing power consumption and allowing alternative energy sources to be used efficiently by providing high-performance products.

Steca has established a wide base in order to achieve these goals. The company offers electronic services for residential, automotive, agricultural, environmental, traffic and building technology and also for the industrial and medical sectors. The company also develops products for the environmentally friendly use of solar energy under the brand name of Steca. Steca Elektronik is one of the few manufacturers that cover all three segments of the solar market: PV grid feeding

systems, off-grid PV systems and solar thermal systems. Steca also produces battery charging systems that extract the maximum potential from the energy storage system.

Steca sets a good example in its own production methods: the company uses only manufacturing processes that conform to strict ecological criteria. Steca is actively involved in research projects for efficient energy use and climate protection. The German federal government therefore listed Steca as an authority for energy generation in the environmental technology atlas „Green Tech made in Germany“.

Steca's environmental policy is based on sustainability and environmental compatibility, with a view to providing services and producing products for an ecological future.

The company considers the whole value-added chain from this perspective and also involves its suppliers and customers. Steca is certified in accordance with ISO 14001:2004 and organised in accordance with the EU Environmental Management and Audit Scheme.

# » HIGHEST PERFORMANCE ALONG WITH MAXIMUM FLEXIBILITY AND EASE OF USE.«

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Together with their range of accessories, StecaGrid inverters represent an innovative family of inverter solutions for grid-connected solar power systems.  
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## TECHNOLOGY





COOLCEPT

A world first: cool, long-living, efficient

The coolcept product family can be divided into single-phase coolcept inverters and three-phase coolcept<sup>3</sup> inverters. Both types of inverter are based on the tried-and-tested coolcept topology.

**What is coolcept?**  
coolcept is Steca's new inverter topology that provides the highest peak efficiency. It is basically characterised by circuit simplicity combined with highest efficiency. The patented coolcept topology is a global innovation that is only available from Steca.

**The advantages of coolcept:**  
coolcept is cool. High peak efficiency means the lowest possible heat dissipation. This makes cooling elements unnecessary.  
coolcept is efficient. Stable peak efficiency over the entire power range ensures maximum yields.  
coolcept is long-living. Low heat dissipation and cool components guarantee a long service life.



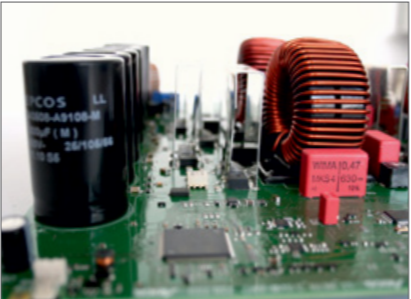
WORLD RECORD

**Independent tests confirm highest level of efficiency**  
Photon Profi spoke of a „revolutionary“ new development. „Thanks to its innovative topology the StecaGrid 3600 can rightly call itself the champion of all classes. Until now, no inverter in series production has provided better results on the Photon test bench.“ was the summary on the new number one.  
The AIT (Austrian Institute of Technology) in Vienna has confirmed that the StecaGrid 3600 achieves the highest efficiency. This has been verified by a comprehensive test report from the renowned institute.

**Highest efficiency at all input voltages**  
The peak efficiency is only very slightly dependent on the module input voltage. This allows a free choice of the number and type of modules, without risking a loss of yields.

**A completely new cooling concept**  
This is only possible through the top efficiency of the coolcept inverters! The requirements – low-cost and high-efficiency – are fully satisfied!

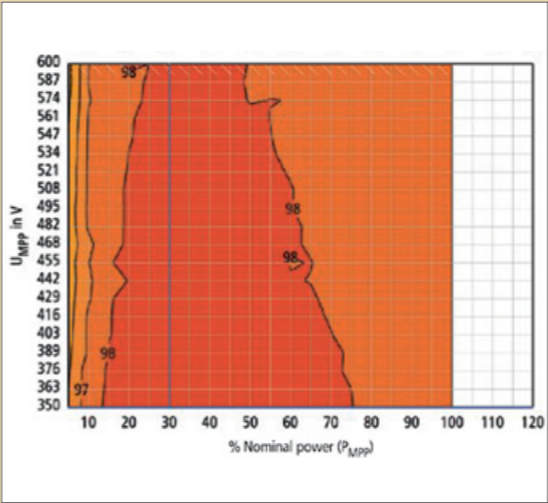
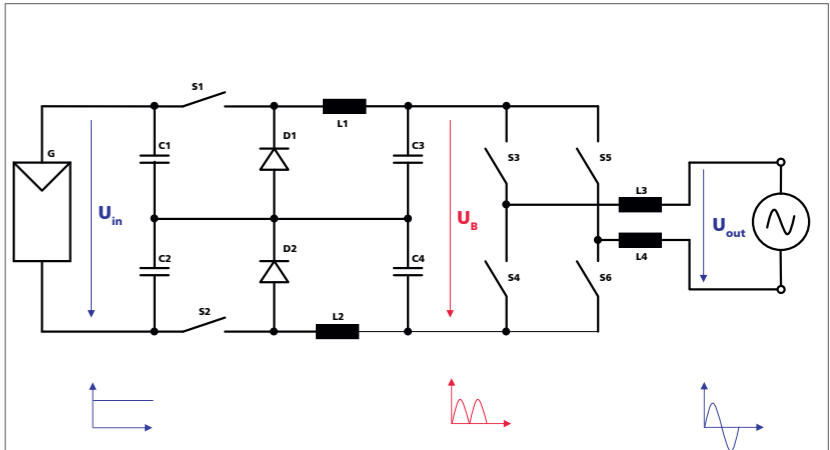
**Inverters with “coolcept”:**  
This high-end technology is integrated in Steca's series devices with a rated output of between 1.5 kW and 5.5 kW, which achieve a peak effectiveness of 98.6%.



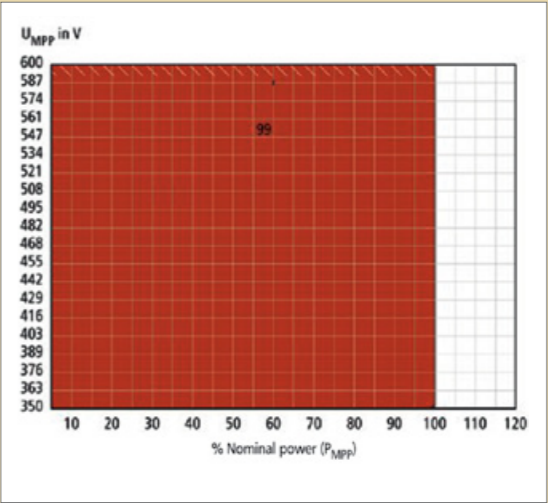
StecaGrid 1500x  
StecaGrid 2000x  
StecaGrid 2500x  
StecaGrid 3010x  
StecaGrid 3600x  
StecaGrid 4200x

98.6 %

peak efficiency



Conversion efficiency (Photon Profi 12/2011)



MPP efficiency: Highest MPP efficiency over the entire input range (Photon Profi 12/2011)

## TOP-GRADE PERFORMANCE FROM BAVARIA

coolcept inverters convince across the board

### The lightweights on the market

coolcept devices are only half as heavy as other inverters on the market: weighing less than 9 kg. This extremely low weight makes both transportation and installation a great deal easier.

### Easy to install

With their low weight, the coolcept devices can easily and safely be mounted onto the wall by just one person. The supplied wall bracket and practical recessed grips for right and left handed installers make mounting of the device simple and convenient. The device does not need to be opened for installation. All connections and the DC circuit breaker are externally accessible.

### Made in Bavaria

The inverters in the coolcept series are original „Made in Bavaria“, with top quality, safety, reliability and environmental sensitivity at the forefront during development and production. The StecaGrid 3600, the oldest member of the coolcept family, is the proud bearer of the Bavarian Energy Prize as the best grid inverter in the world in its class.

### Pleasantly quiet – even at full load

Loud operating noises were yesterday. Since the emergence of the coolcept generation, inverters can be attached close to living areas without any problems - even on sun-drenched days, coolcept units will operate quietly.



coolcept, coolcept-x, coolcept<sup>3</sup> and coolcept<sup>3</sup>-x: the market lightweights



### Smart networking

Monitor the output of your PV system for free\* with the StecaGrid Portal. With the intuitive user interface, you can access your yield data anywhere and at any time – even from your smartphone or tablet PC.



All coolcept inverters can be used in many different countries, which simplifies the warehouse logistics process.

\* For the first two years

## PRODUCT OVERVIEW

A direct comparison of all coolcept inverters

### Understanding the name

Based on the same innovative coolcept topology, all single-phase and three-phase coolcept inverters are extraordinarily cool, efficient and durable. In addition, all devices are extremely lightweight and quiet. Nevertheless there are differences for planners and users. The name of the product family and inverter type provides an initial insight here.

The following information can be gleaned from the name alone: type of feeding (single-phase or three-phase), protection class (IP 21 or IP 65) and power class (1.5 - 5.5 kW). The names are decrypted precisely in the illustration on the right.

coolcept<sup>3</sup>-x  
StecaGrid 3203x

The first two figures in the type designation indicate the relevant performance class. In this case: 3.2 kW.

Whether the devices are single-phase or three-phase can be discerned in the family name from the superscript 3 and in the type name by the ending „03“. With single-phase devices, there is no such suffix.

The additional x in the product family and type name indicates that these coolcept devices are also designed for outdoor use. They conform to protection class IP 65. All types without this x are ideal for use indoors (IP 21).

The most important aspects of differentiation are summarised here at a glance.



	coolcept	coolcept-x	coolcept <sup>3</sup>	coolcept <sup>3</sup> -x
<b>Product family name</b>	coolcept	coolcept-x	coolcept <sup>3</sup>	coolcept <sup>3</sup> -x
<b>Inverter types</b>	StecaGrid 1500 StecaGrid 2000 StecaGrid 2500 StecaGrid 3010 StecaGrid 3600 StecaGrid 4200	StecaGrid 1500x StecaGrid 2000x StecaGrid 2500x StecaGrid 3010x StecaGrid 3600x StecaGrid 4200x	StecaGrid 3203 StecaGrid 4003 StecaGrid 4803 StecaGrid 5503	StecaGrid 3203x StecaGrid 4003x StecaGrid 4803x StecaGrid 5503x
<b>1 or 3-phase grid feeding</b>	1-phase	1-phase	3-phase	3-phase
<b>For use in 120 V grids</b>	■ (can feed into two or three-phase 120 V grids)	■ (can feed into two or three-phase 120 V grids)		
<b>Suitability for indoor or outdoor use</b>	indoor (IP 21)	outdoor (IP 65)	indoor (IP 21)	outdoor (IP 65)
<b>DC connection</b>	Phoenix Contact SUNCLIX (1 pair)	Phoenix Contact SUNCLIX (1 pair)	Phoenix Contact SUNCLIX (2 pairs)	Phoenix Contact SUNCLIX (1 pair)
<b>Ethernet interface</b>	■	■	■	■

● smart.TRACKING

● smart.UPDATE

● smart.FLEXIBILITY

● smart.MANAGEMENT


● smart.TROUBLE-SHOOTING


● smart.ANALYSING

● smart.CHECK

● smart.MODULE

smart. smarter. **steca**  
Elektronik





SMART. SMARTER. STECA  
coolcept inverters with optimised performance

- smart.TRACKING

Global MPP tracking: The inverters check if there is shading and then accordingly adjust themselves to find the optimum operating point. Optimum shade management increases the yield of PV systems.
- smart.FLEXIBILITY

Large number of pre-programmed countries: Over 50 countries are pre-programmed in the inverters. If required, individual parameters can be adapted depending on any national requirements. The inverters are suitable for both 50 Hz and 60 Hz grids and can therefore be used in most countries.
- smart.TROUBLE-SHOOTING

Error message in plain text: Unlike other manufacturers, Steca devices display the entire error message in plain text instead of an error code. This makes troubleshooting far easier and less time-consuming.
- smart.CHECK

Recording the generator curve: The P-U characteristic curve of the generator can be recorded and displayed on the inverter. This is an extremely useful but barely common feature: the generator's characteristic curve serves as a first indicator of shading or defective modules.

- The efficient coolcept inverter range boasts numerous smart functions. These features increase the user-friendliness while simultaneously reducing costs.
- smart.UPDATE

Firmware update via Ethernet: Updates are downloaded via the standard browser, so no special software has to be installed. There is hardly any more convenient and faster way to update the software of an inverter.
- smart.MANAGEMENT

Feed limitation: A Modbus energy meter can be connected directly to the inverter. The inverter will then limit the feeding power to a set value. This function is required by increasingly more countries. An energy meter in conjunction with an intelligent coolcept inverter provides the simplest solution here.
- smart.ANALYSING

Integrated web server: The inverters feature a well-designed web server that offers numerous functions. Even clearer than on the display, the values and the event log are displayed and made available for download.
- smart.MODULE

Optimised module monitoring: The impairment of individual modules can significantly impact the yield of PV systems. Tigo® products in conjunction with an intelligent coolcept inverter prevent output losses of one module from affecting another module, and therefore guarantee the highest possible yield at all times.

STORAGE SYSTEMS

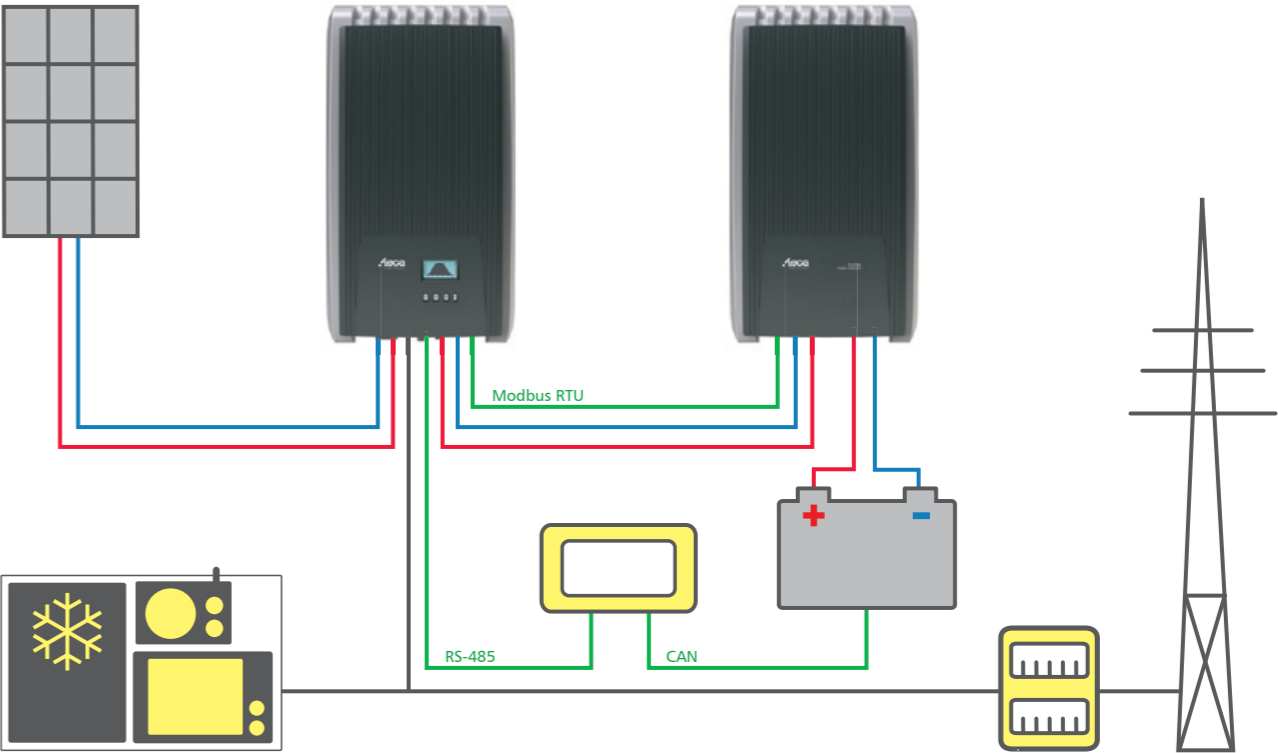
Full speed ahead

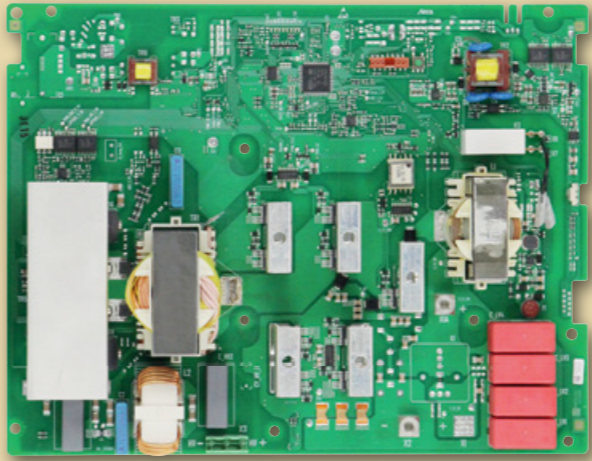
**Optimising self-consumption**  
Battery storage systems for increasing self-consumption are gaining more and more importance. In conjunction with photovoltaic systems, storage systems enable the self-consumption to be maximised. This ensures independence and protects against electricity price hikes.

**Ready for the future**  
Steca's coolcept<sup>3</sup> inverters have therefore been equipped with an additional BAT input since the product range was launched in 2014. A StecaGrid SolUse power converter can be connected to this input using simple plug contacts.

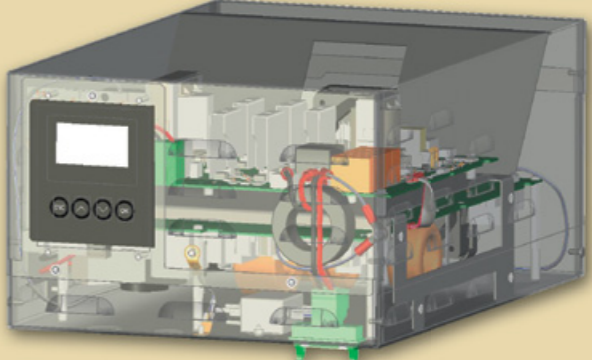


 **Quality made in Germany**  
StecaGrid SolUse 2503-48  
Power Converter





**Power electronics for modern home storage systems**  
Steca develops and produces electronic assemblies for flexible use in various storage systems.



# »PROFESSIONAL SYSTEM MONITORING FOR RELIABLE YIELDS AND ENERGY MANAGEMENT.«

Continuous system monitoring is essential for obtaining the absolute maximum performance from your solar system at all times. Alongside a wide range of system monitoring options, Steca also offers the best possible solution for energy and feed-in management for your photovoltaic system.



## ENERGY MANAGEMENT AND SYSTEM MONITORING

Energy manager



System monitoring



Software





# ENERGY MANAGEMENT

## Convenient feed-in management for systems with one inverter

The inverters in the coolcept and coolcept<sup>3</sup> family all have a Modbus-RTU interface which receives a Modbus energy meter.

The feeding power can be limited or completely stopped as required. The maximum power to be fed into the grid can be conveniently set in Watt on the inverter display. This makes it easy to meet the 70% limit, for instance. Thanks to communication via Modbus RTU, the control response is very fast.

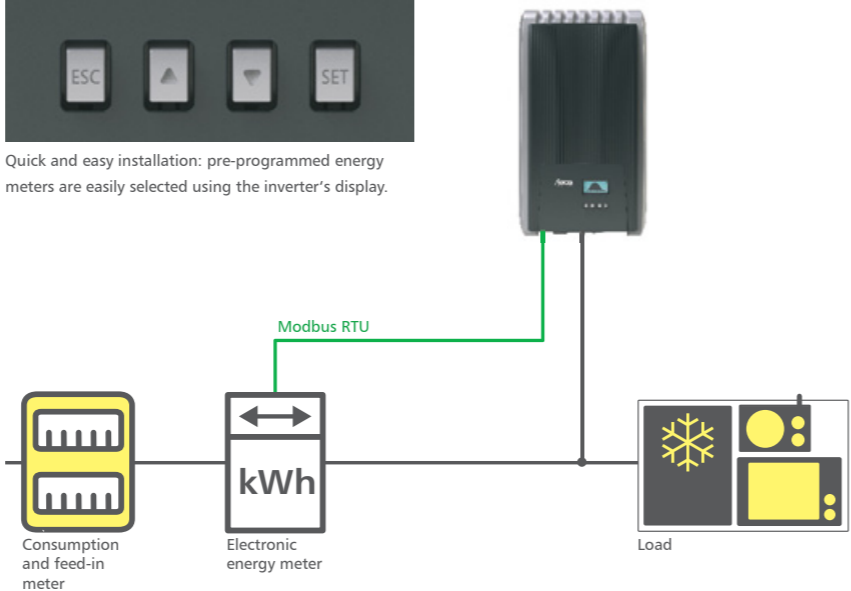
Several preprogrammed energy meters allow for swift and easy installation: users simply choose the respective energy meter type on the inverter.

The coolcept inverters thus provide a very simple and cost-effective feed-in management solution which does not require any further accessories.

This solution has been optimised for systems with inverters. Where more than one inverter is used per system, or further functions are required, the StecaGrid SEM is used.



Quick and easy installation: pre-programmed energy meters are easily selected using the inverter's display.



StecaGrid SEM



## Feed-in management for systems with several inverters

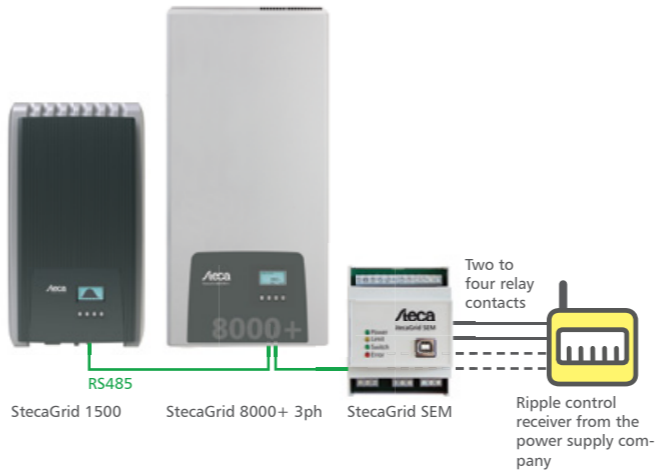
The StecaGrid SEM offers different options of realising feed-in management with a photovoltaic system. A ripple control receiver from the relevant distribution grid operator can be connected. The feed output at the grid connection point can be limited to an adjustable value, or the ripple control signal can be switched to the relay output. Up to ten inverters can be connected to the StecaGrid SEM via the RS 485 interface.

## SEM stands for Smart Energy Manager

The energy manager stands out for its very easy installation and accessible service interface.

StecaGrid SEM can be installed on a top-hat rail in the switching cabinet right next to the ripple control receiver. Direct power supply at 230 V. A mains adapter plug or an external direct current power supply are not required.

All connected StecaGrid inverters can be accessed via a USB interface on the StecaGrid SEM. Connection to a PC via the supplied USB cable. The interface is on the front side of the casing – the cover does not need to be removed in the switching cabinet. .



## Forwarding of ripple control signal

In compliance with national regulations, photovoltaic systems may have to include a form of feed-in management. To this end, ripple control receivers of the respective grid operators are installed. These ripple control receivers transmit a reduction signal from the grid operator whenever the system has to be throttled due to grid overloads.

StecaGrid SEM is the easiest way to connect your StecaGrid inverter to the ripple control receiver. StecaGrid SEM evaluates the relay outputs of the ripple control receiver and transmits the signals via the Steca solar bus (or Steca RS485 bus) to the connected inverters.

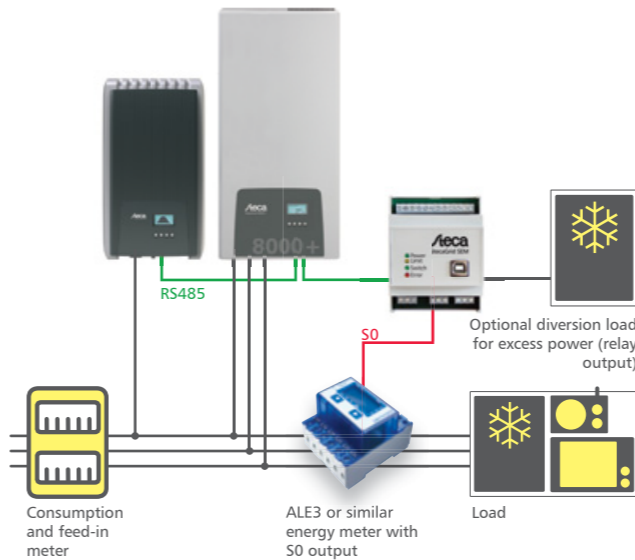
With the StecaGrid User software, the function of the individual relay outputs of the ripple control receiver can be freely configured. In this way, all ripple control receivers with two to four outputs can be used.

## Dynamic feed limitation

Data can be read from an energy meter via an S0 interface. This allows for a distinction between the share of PV energy used at home and that fed into the grid. With this measurement data, StecaGrid SEM monitors the house connection and ensures that no more than a specified output is fed into the grid. If required, it accurately reduces the output of the connected inverters.

Benefit for system operators: energy consumed at home is not included in the limitation. The limit may be changed as required via the StecaGrid User software and the USB interface on the StecaGrid SEM. For example, the 70 % limitation or the standards set by the KfW funding programme for storage systems are fulfilled. In general, feeding into the public grid can also be prevented by setting the specified value to 0 W.

The StecaGrid SEM can connect a load via a relay. The switch-on value for the load can be specified as required. The parameters for switching the relay, and therefore also the load, on and off can also be set as needed.





Displayed and analysed: StecaGrid Portal keeps you up-to-date on the optimum work of your system at all times – even on the road.

SYSTEM MONITORING  
Locally and remotely

Continuous system monitoring is recommended, or even essential, for obtaining the absolute maximum performance from your solar energy system at all times. Steca offers you a number of different system monitoring methods: local visualisation, remote querying or remote monitoring.

Local visualisation is sufficient when the operator regularly checks the data on the display unit of the inverter or via a connected PC or Laptop.

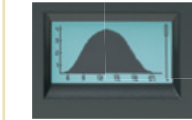



Remote system querying is more convenient. The internal data logger can display all system data via the HTML user interface.

With the StecaGrid Portal system data can be accessed online from anywhere. The data logger sends the system data to an external database. The operator can then log in to this database and not only analyse his or her data but can also compare the data with regional irradiance values. This thus provides the operator with an objective impression of the effectiveness of his or her PV system.

The most professional method is remote monitoring via an external data logger: The data logger monitors the functions of the system components and reports faults. Beyond this it stores all relevant system data.



System monitoring for  
coolcept, coolcept-x, coolcept³, coolcept³-x

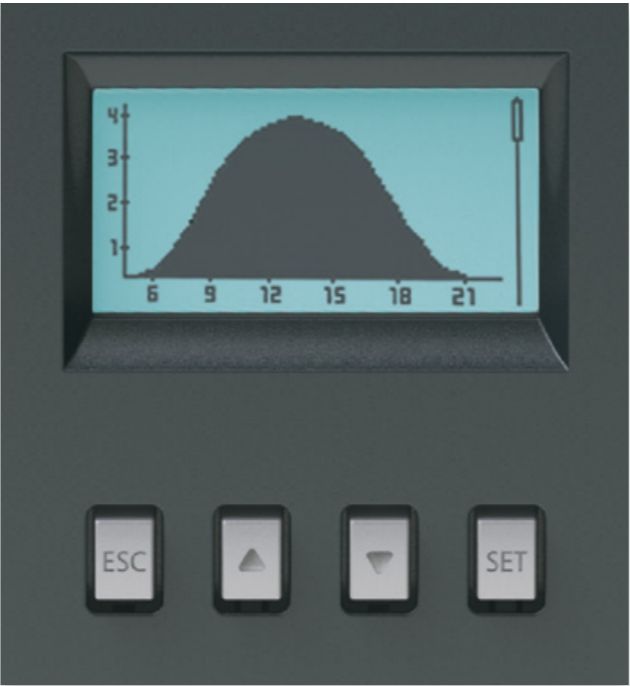
			
<b>Local data logging</b>	<b>StecaGrid Webserver</b> Browser-based user interface	<b>StecaGrid Portal</b> web portal	<b>External data loggers</b>
<input checked="" type="checkbox"/> Local visualisation	<input checked="" type="checkbox"/> Local visualisation <input checked="" type="checkbox"/> Remote querying	<input checked="" type="checkbox"/> Remote querying	<input checked="" type="checkbox"/> Local visualisation <input checked="" type="checkbox"/> Remote querying <input checked="" type="checkbox"/> Remote monitoring

Local data logging

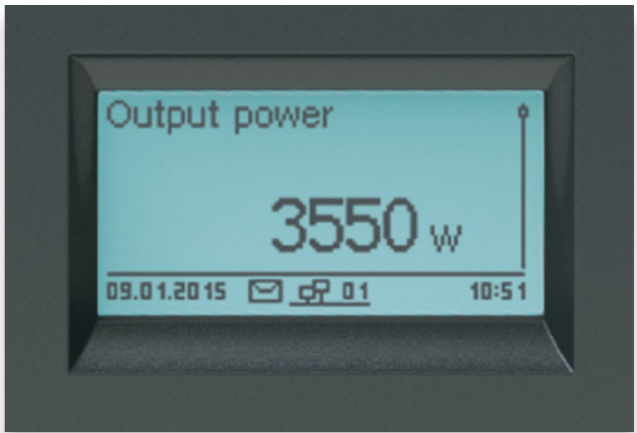
Local visualisation of the yield data

The inverters of the coolcept family have a graphical LCD display for visualising the energy yield values, current performance and operating parameters of the system. Their innovative menu allows individual selection of the various measurements.

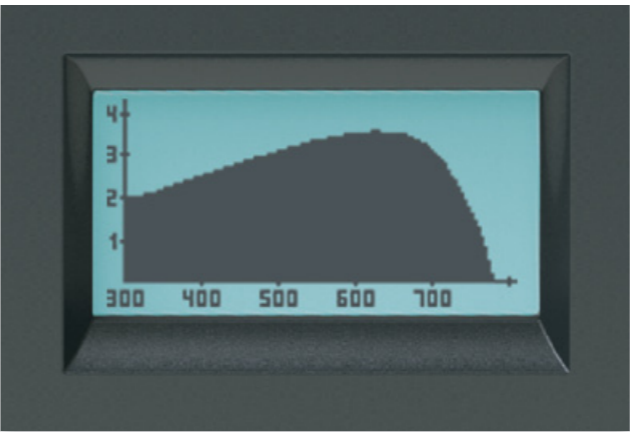
The guided, pre-programmed menu allows easy final commissioning of the device.



Energy yield values are displayed on the inverter's LCD.



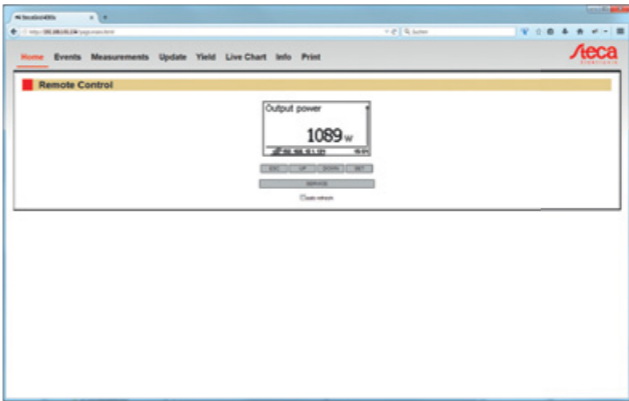
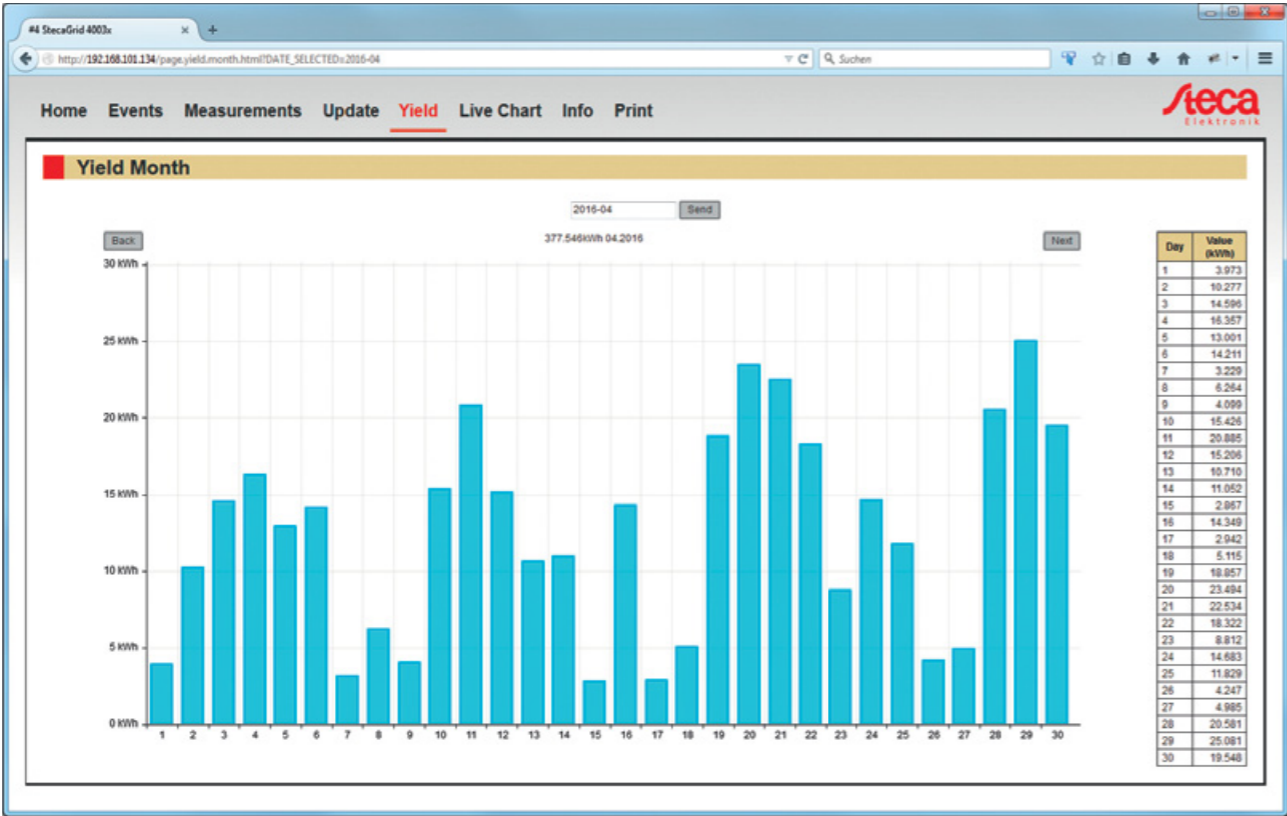
The inverter display shows the system's current performance and operating parameters.



Graphical display of the module's characteristic curves



The guided, pre-programmed menu makes it easy to take the inverter into operation for the first time.



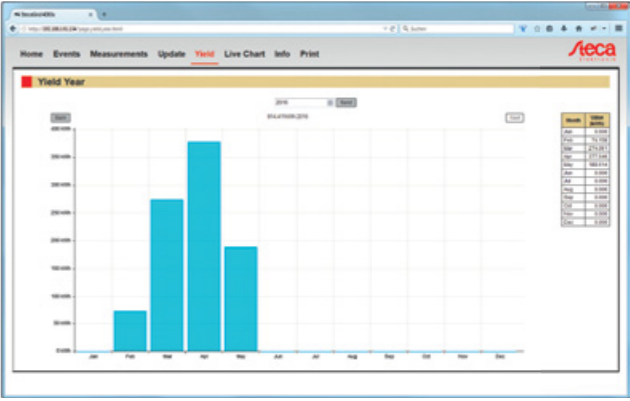
The coolcept inverter is easy to operate through a PC using the StecaGrid web server.



The live chart view displays the current readings.



Daily yield curve



Daily, monthly, annual and total yields are clearly displayed in StecaGrid Webserver

## StecaGrid Webserver

Web browser-based user interface for coolcept, coolcept-x, coolcept<sup>3</sup> and coolcept<sup>3</sup>-x

coolcept inverters feature an integrated Ethernet interface. It can be used for free and convenient system monitoring.

### Optimised usability

coolcept inverters can be easily connected to the home network with a standard RJ45 network cable to permit inverter operation and data retrieval through a PC, including the display of yield information and any error messages.

The firmware can also be updated very easily using the Ethernet interface.





StecaGrid Portal

Free web portal for system monitoring

Plug and Play

When the Ethernet interface of the coolcept inverter is connected to a router, the data from the data logger of the inverter is sent directly to the StecaGrid Portal. Setting up the portal is easy: on [www.steca.com/portal](http://www.steca.com/portal), follow the link to the system data entry mask. In addition to system output, the modules used and the location of the system, the serial numbers of the installed inverters are queried. On the StecaGrid Portal, up to five coolcept- and coolcept<sup>3</sup>-inverters can be combined to one system. The data of the individual devices are added up and displayed as a complete system.

Free use for two years

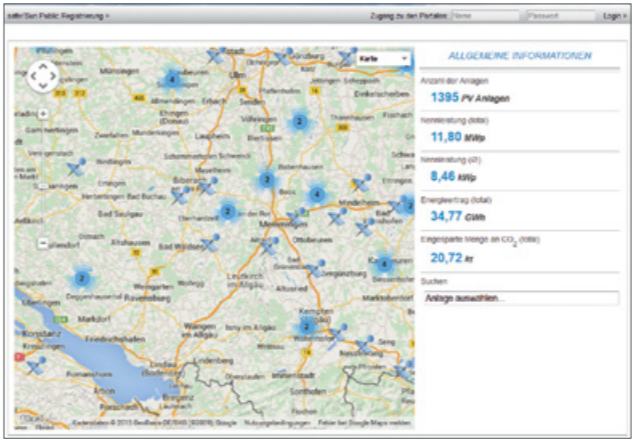
If the system operator agrees to having his system data published on [www.solare-energiemende.de](http://www.solare-energiemende.de), the StecaGrid Portal can be used free of charge for two years. Afterwards for further optional use, which is not free of charge, he will receive an offer. Usage fee is EUR 120 for a further 5 years.

Clear presentation of yield data

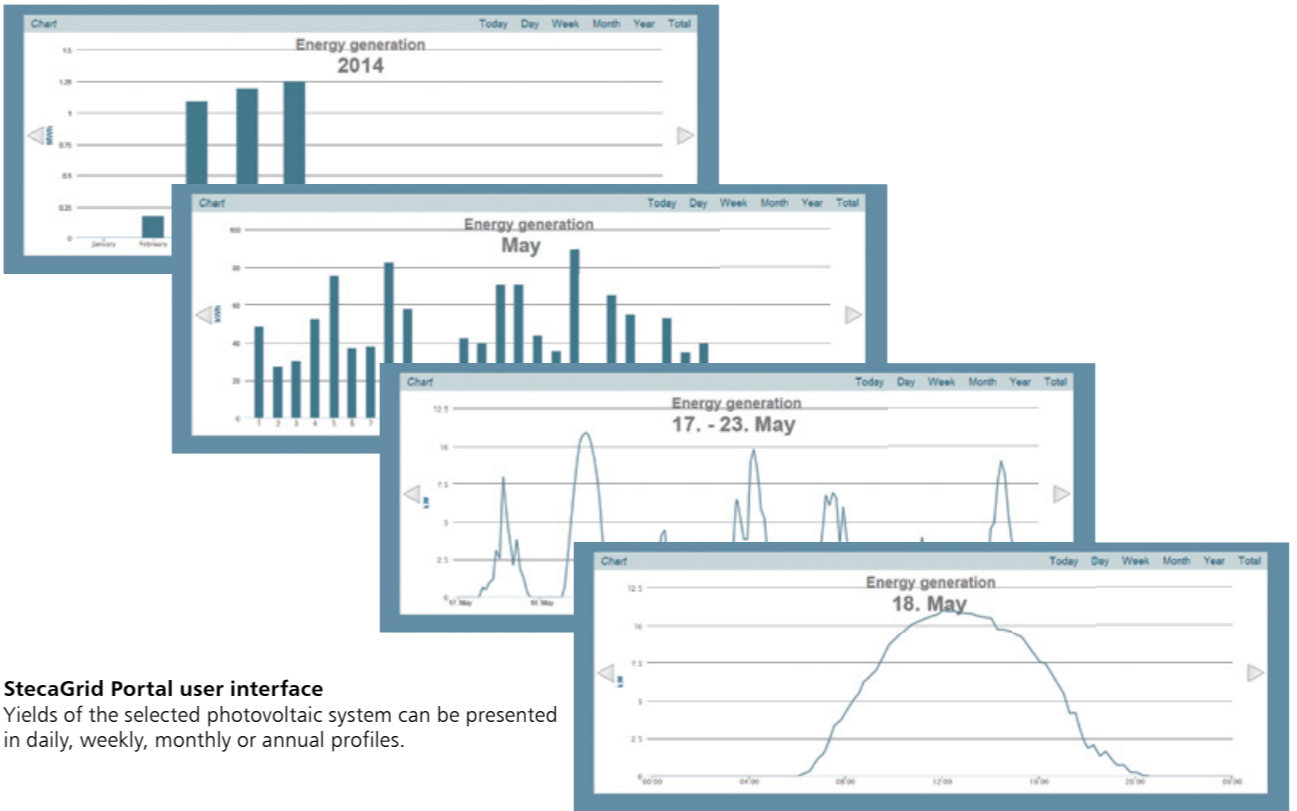
The software interface is very clearly structured. In addition to the system data, yield data is displayed in daily, weekly, monthly and annual profiles. A scale evaluates current yield data of the system in comparison to values from other systems in the same region. This allows the user to determine at a glance whether the system's yield lies above or below the regional average. The display also shows the user's environmental contribution in terms of CO<sub>2</sub> saved due to yields.

Smart networking

Monitor the output of your PV system for free with the StecaGrid Portal. With the intuitive user interface, you can access your yield data anywhere and at any time – even from your smartphone or tablet PC.



**Direct comparison to other systems**  
Compare your PV system data to other systems from your region.



**StecaGrid Portal user interface**  
Yields of the selected photovoltaic system can be presented in daily, weekly, monthly or annual profiles.

Exemplary connection

On the StecaGrid Portal, up to five coolcept, coolcept-x, coolcept<sup>3</sup> and coolcept<sup>3</sup>-x inverters can be combined to one system.





## PROFESSIONAL SYSTEM MONITORING

with StecaGrid Configurator 3.3 and 4.1

**A technically matched system along with the suitable software secures the highest yields.**

The simulation software versions provided by Steca aid system planners, dealers, installers and end customers in planning the right system.

### Free software solutions

The comprehensive and detailed StecaGrid Configurator 3.3 is available for download at [www.stecasolar.com](http://www.stecasolar.com).

The easy to use and intuitive StecaGrid Configurator 4.1 is started online as a browser application.



## StecaGrid Configurator 4.1

Software for system planning online

The StecaGrid Configurator 4.1 is an innovative, user-friendly web application that makes the design and configuration of photovoltaic systems even easier than before. The application can be used without downloading and installing any extra software.

### Intuitive and convenient

The intuitive menu structure allows quick entry of all data required for designing a system. The convenient user-interface allows selection from the range of StecaGrid inverters and corresponding PV modules and entry of the relevant system data. The StecaGrid Configurator 4.1 automatically calculates the optimum system design immediately.

### For installers and system planners

If the interconnection concepts do not match each other, or the electrical values do not conform to the performance spectrum of a selected inverter, the program automatically indicates the problem. The free StecaGrid Configurator 4.1 is optimally designed for the requirements of installers and system planners.



## StecaGrid Configurator 3.3

Software for system monitoring

The update version of the StecaGrid Configurator makes it possible to plan a photovoltaic system in an even more professional manner. It offers a wealth of improvements compared to its forerunner, the 3.2 version.

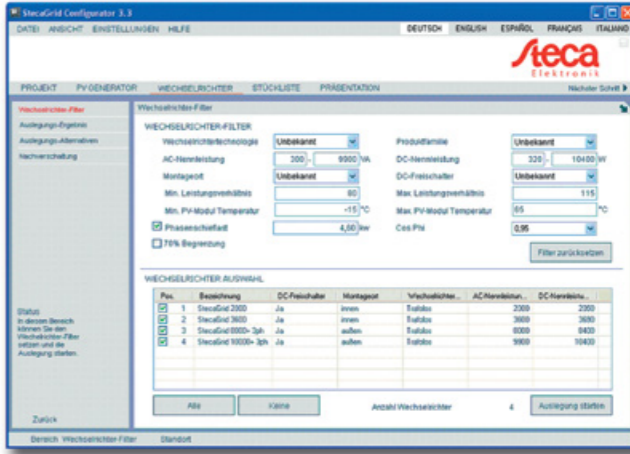
Among the new features is the inclusion of the new 70 percent rule for design relationships where the output power is only 70 percent of the module power. To consider the reactive power, Cos Phi (1.00; 0.95 or 0.90) can be selected. The system planner can also specify the maximum and minimum module temperatures. The number of modules to be used in the selected system configuration can be modified subsequently. The effects on the system values and yields as well as exceeding of the input parameters are clearly shown.

This version is self-contained, offering a convenient user interface. There are four different options for determining the size of a photovoltaic system after selecting a module type. In addition, modules stored in a large database can be filtered according to specific criteria. If the required module is not stored in the database, you can add own modules to the programme. This is followed by the selection of the inverters according to a range of specifications, for example the installation site and rated AC or DC power.

The calculated cost of generating electricity is taken as the standard selection criterion. To help with the specifications, the programme includes different values for the cost of systems planning as well as for modules, wiring, installation systems, etc. The installing company can provide their client data and company logo, which will appear on the printouts. A total of 100 locations throughout Europe offer irradiation data to help predict annual energy yield.

The predicted annual energy yield and the similarly editable values for the discount factor and operating time together allow the exact calculation in cents per kilowatt hour of the costs incurred by a system in producing electricity. On the basis of the electricity generation costs, it is possible to ascertain at a glance whether it would be more efficient to use the inverter with one more solar module, or one fewer. A list of required parts, the connection diagram and a summary of the project data all guarantee professional preparation for sales meetings with customers.

The programme's menu navigation can be set to German, English, French, Italian or Spanish.



The software is available free of charge at: [www.stecasolar.com](http://www.stecasolar.com)

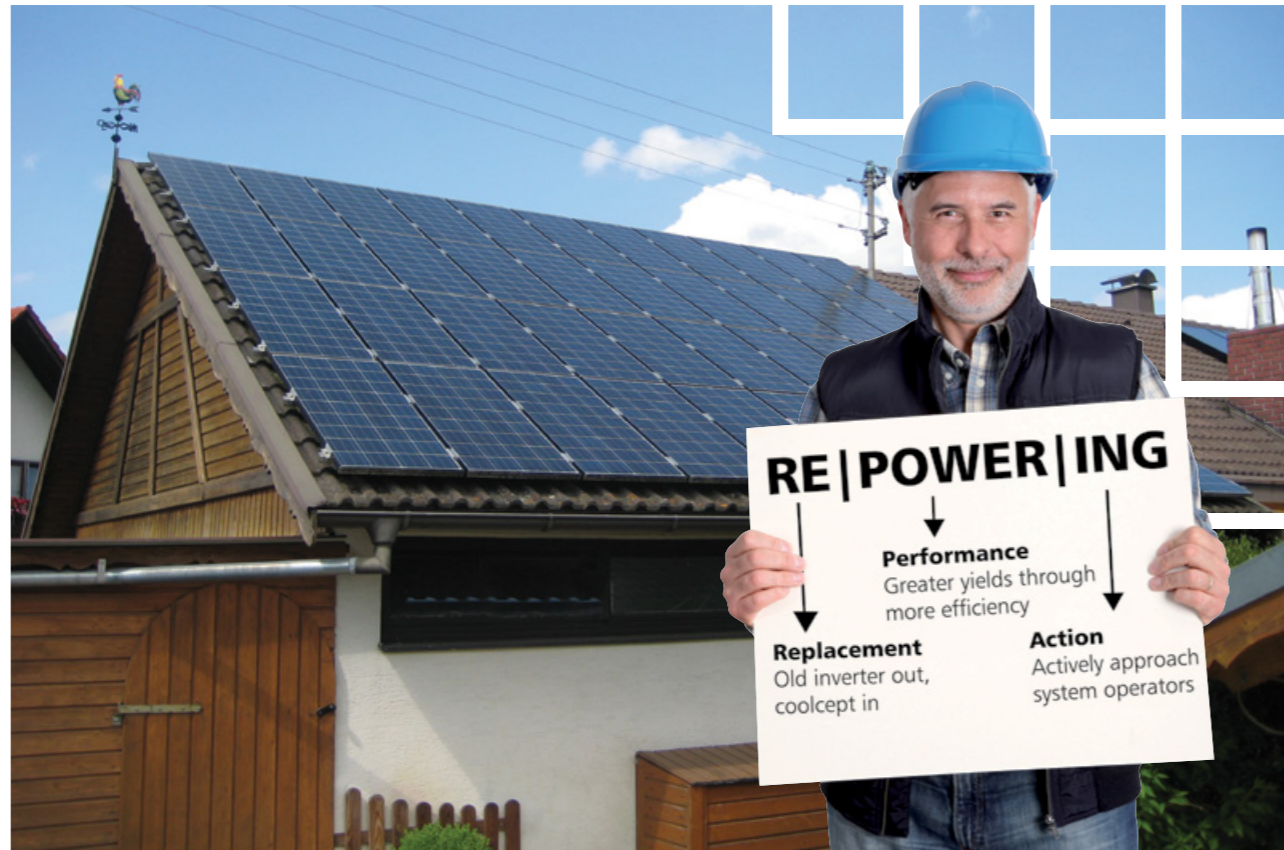
For updates please refer to the Steca web site.

# »STECA SOLAR ELECTRONICS PRODUCTS AND SOLUTIONS FOR AN ECOLOGICAL FUTURE.«

Steca has long stood for ideas and innovations as an electronic manufacturing services (EMS) provider and manufacturer of Steca brand product lines in solar electronics and battery charging systems. As a leading supplier of products for the solar electronics industry, Steca sets the international standard for the regulation and control of solar energy systems. In the three market segments PV grid connected, PV off grid and Solar thermal, the Steca brand is synonymous with innovation and vision. Development, production, sales and after sales service have set themselves the highest quality standards.

## SERVICE AND OTHER PRODUCT AREAS





## REPOWERING

Increased yield through inverter replacement

### What does repowering mean?

Repowering of solar systems entails replacing components, such as e.g. inverters, on existing systems. The efficiencies of grid inverters have increased markedly in recent years, meaning that replacement inevitably brings enhanced efficiency and higher yields. Repowering also gives system operators the opportunity to enhance their monitoring capabilities thanks to current monitoring solutions.

### Which systems are best suited to inverter repowering?

The replacement of inverters in existing systems is particularly worth while when the system was commissioned before 2009, when the guarantee period of the inverters has expired, or when the efficiency difference is sufficiently high.

### Why should you install the new Steca coolcept inverters?

Steca's coolcept inverters offer the maximum possible yield increase, since with their top-ranking efficiency worldwide they consistently achieve the maximum efficiency difference. The good value for money of the inverters keeps retrofitting costs down. In this way, Steca makes repowering even more worth while!

Our sample references show that repowering makes sense for a wide range of different systems.



Your benefits from

inverter replacement

- Significantly higher efficiencies of inverters boosts the efficiency of the overall system: increased yields of almost 10% achieved on test system  
» Peak efficiency of 98.6% on all coolcept inverters
- On existing systems with high rates of feed-in compensation, any increase in efficiency immediately pays dividends.
- Renewed warranty period for replaced inverters reduces future maintenance costs  
» 5-year warranty for Steca grid inverters, sometimes extendible to 10 or 20 years
- Modern inverters are significantly quieter; particularly where fitted in residential, working and occupied areas, noise levels are greatly reduced.
- New generation of inverters offers improved options for remote monitoring and visualisation of system data, enabling faults too to be identified and rectified more quickly  
» Simple remote monitoring from anywhere, e.g. via StecaGrid portal
- Use of coolcept inverters makes repowering even more economically attractive

## OUR EXPERIENCE

Modernising pays off



### Repowering test facility in Anzing, Germany

First commissioned: 2007  
Repowering: 2013  
PV system size: 34.8 kWp  
Inverters used to date: Sun Profi SP 3400-600  
New inverters: StecaGrid 3600  
Efficiency difference  $\eta_{eu}$ : 6.3 %  
Increment: 9.23%  
Actual yield increase: EUR 129.63 per annum



### Repowering system in Trochtelfingen, Germany

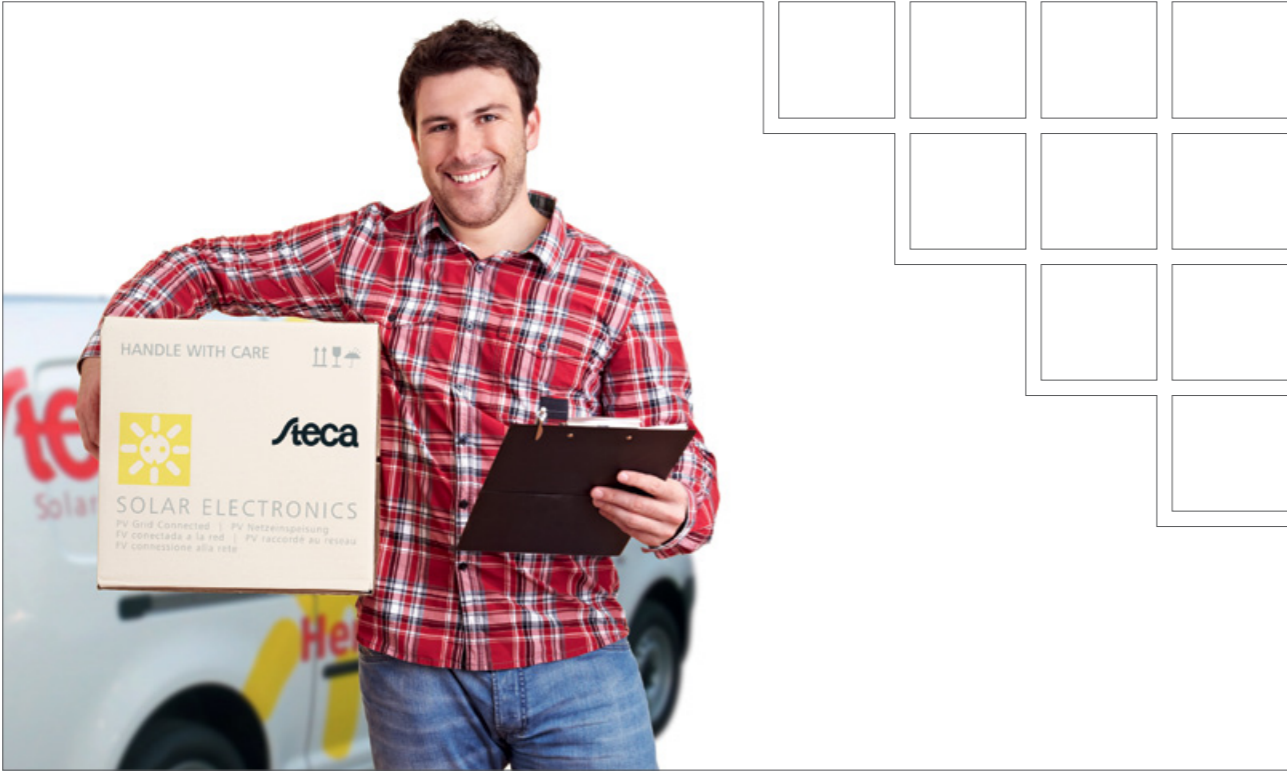
First commissioned: 2005  
Repowering: 2013  
PV system size: 5.5 kWp  
Inverters used to date: 1x Siemens SITOP solar 2300 Master, 1x Siemens SITOP solar 2300 Slave  
New inverters: StecaGrid 3010



### Repowering-system in Bad Honnef, Germany

First commissioned: 2002  
Repowering: 2013  
PV system size: 3.2 kWp  
Inverters used to date: SMA Sunny Boy SWR 2500  
New inverters: StecaGrid 3010





Production - factory in Memmingen, Germany



SUPPORT

with added value, exclusively for Steca Service Partners

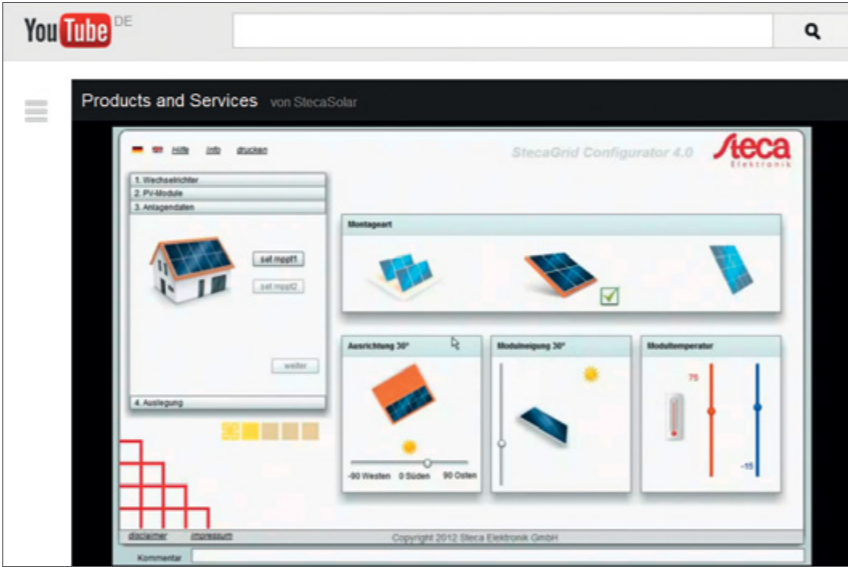
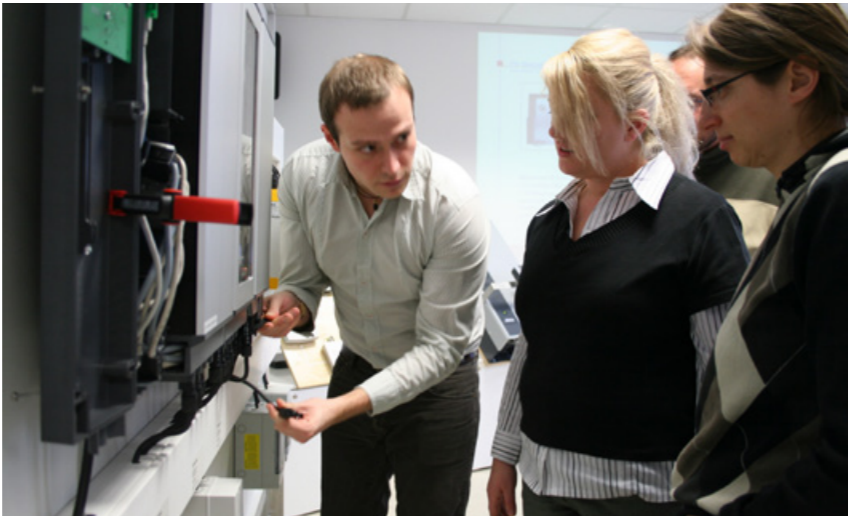
Whether workshops, guarantee extensions or marketing tools: Whatever you need in our diverse range of Service Partner services, we support you with know-how and advertising material for your professional presence.

Seminars

Steca is offering seminars on all product-related topics as a workshop. Here, you will learn from the trainers how to use the products for your application, as well as their function, installation and operation. Your opinion counts in order to present better solutions.

Youtube Channel

The Stecasolar Youtube channel presents brief instructions on selected products, as well as company news. Videos with easy to understand information explain how to use the individual products.



With the purchase of any Steca product you benefit from our extensive range of services:



Hotline/Support

Our capable customer advisers and technical support department are at your service at all times to answer any product questions you may have. +49 (0) 700 STECAGRID (+49 (0) 700 783224743) (Monday to Friday from 8:00 to 16:00; 12 Euro-cents/minute from within the German public telephone network) or outside business hours: service@stecasolar.com. Naturally, we support our international partners in their national language: we have customer advisers who speak English, French, Spanish or Italian.



Guarantee and guarantee extension

We provide a 5-year guarantee on all grid inverters. Within the first 2 years, guarantees can be extended to 10 or 20 years in some cases. We offer our trading and service partners especially favourable commercial and legal guarantee conditions and cost-sharing flat-rates. Further information can be found at www.stecasolar.com.



Replacement service and repair

To keep the yield losses as low as possible in the case of a fault, we offer all our EU partners replacement devices. If a defective device cannot be repaired after expiry of the guarantee period, our Service Partners receive replacement devices under special conditions.



On-site customer service

If the Service Hotline and replacement service cannot correct your problems then our authorised Service Technicians will correct the problem on-site.



Workshops and seminars

As a Service Partner you are eligible to take part in our regular product training courses and receive information on new innovations.



Marketing tools

We support our Service Partners with professional marketing tools for the Web, trade fairs and communication.



Steca Service-Partner-Logo

As an authorised Service Partner, we allow you to use our logo on your advertising material.



 **PV OFF GRID**

**Solar Home Systems**



**Inverter Systems**

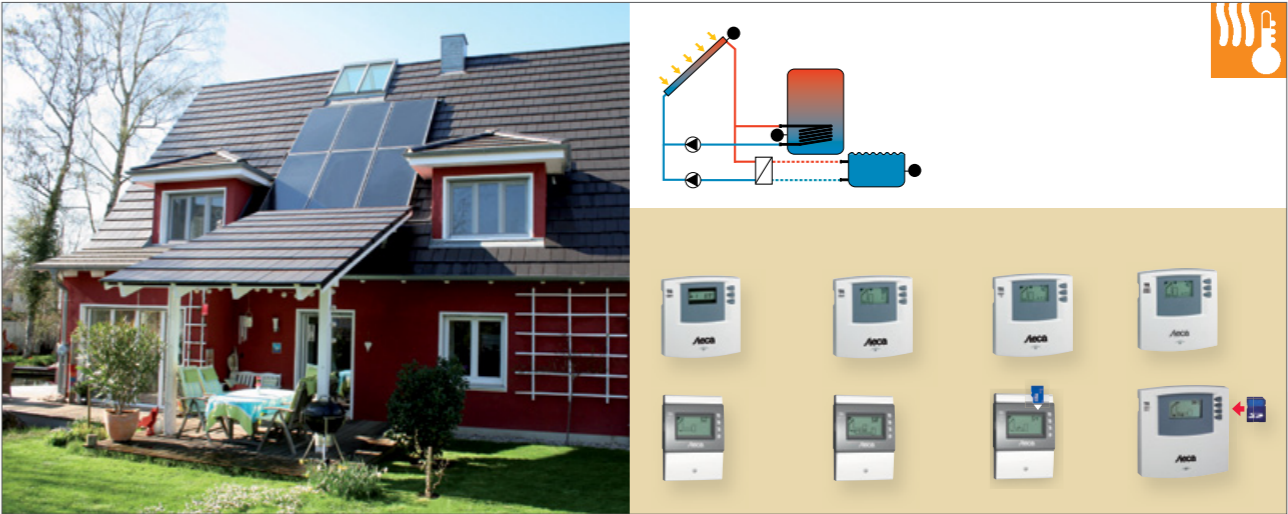


**Hybrid Systems**



 **SOLAR THERMAL**

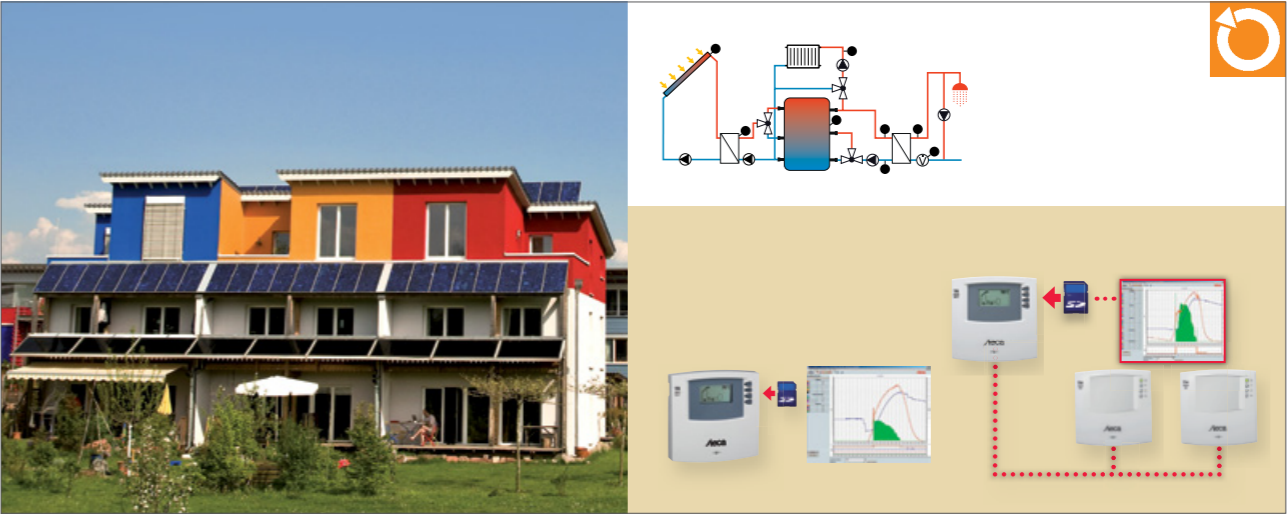
**Solar Controllers**



**Heating and Domestic Hot Water Controllers**



**System Controllers**





# BATTERY CHARGING SYSTEMS

## Battery Chargers



## Battery Chargers IP 65



## Parking Space Supply Units

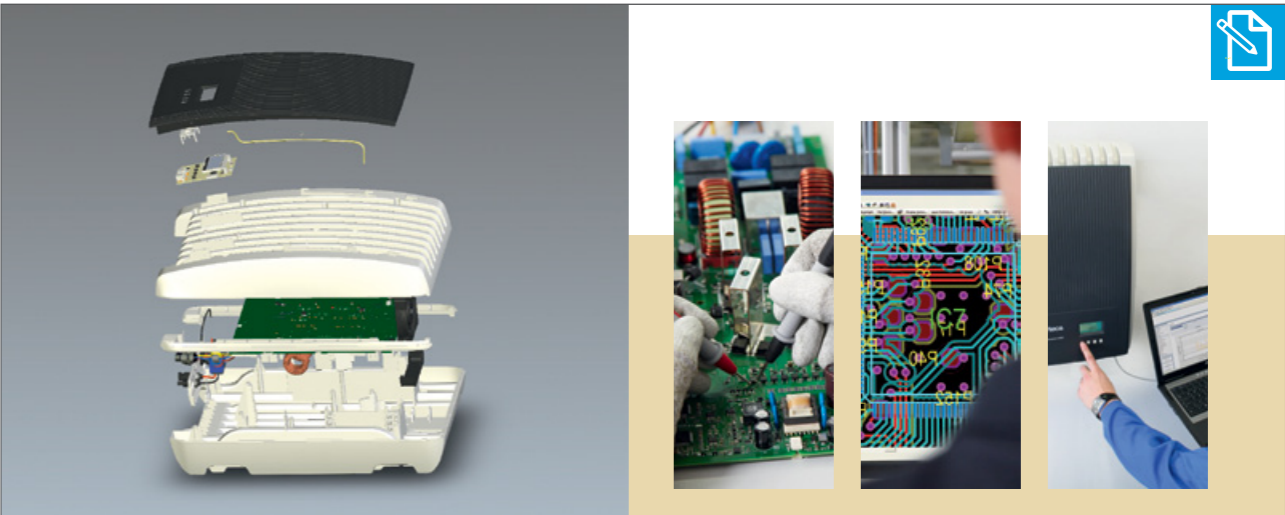


# ELEKTRONIKS SERVICES

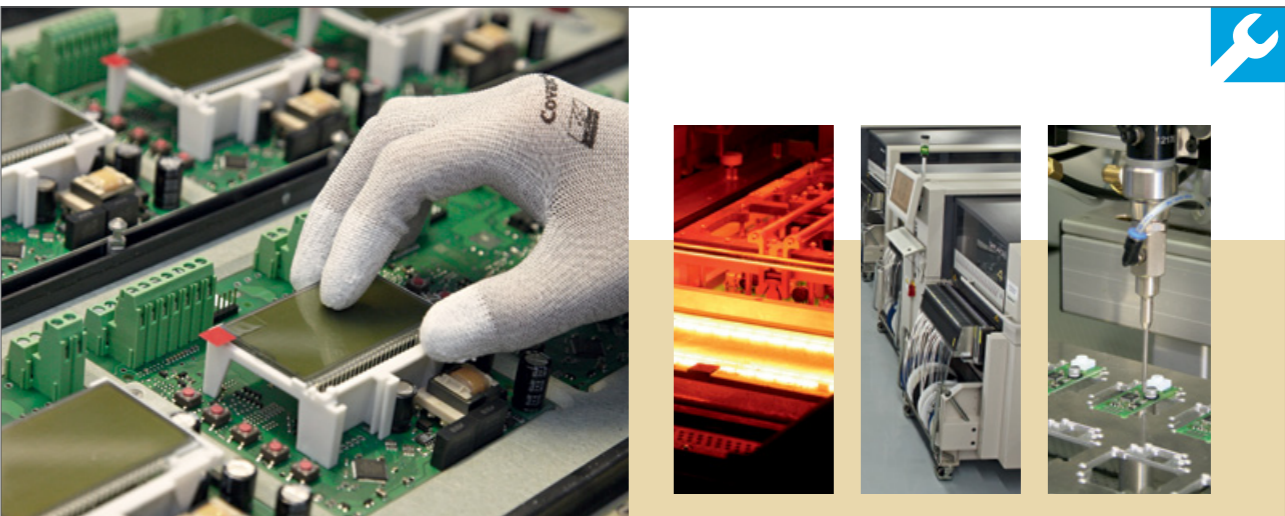
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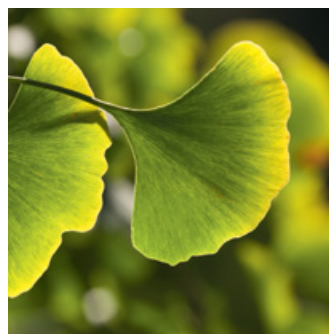
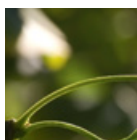


## Development



## Production





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