

➤ ***Innovative data logger
for PV monitoring***



Consumer

- Inverter-independent
- Retrofittable
- Easy Install



➤ Simple functions, maximum effectiveness: PV monitoring with "Care Solar"

Although solar power is free, a photovoltaic (PV) system only pays for itself after many years. Long-term, **gap-free monitoring of the PV system** is therefore a good investment. Because every single kilowatt hour which is fed in counts and means hard cash.

The innovative "Care Solar" system offers optimised monitoring of PV systems – completely **irrespective of the inverter type and vendor**.

The "Care Solar" system impresses with its simple design and high-quality and durable components. It enables you to monitor the entire photovoltaic system highly efficiently. The system consists of a **data logger** which collects the performance data, and a **Web portal** which calls the data logger's information. Data transfer takes place via a cable or wireless connection (DSL, GSM).

In contrast to most monitoring solutions, the metering device of the innovative "Care Solar" system is not inverter-based. In fact the metering system is connected directly to the power cable **upstream** and **downstream** of the inverter. As a result the data logger operates completely independently of the inverter and is consequently also compatible with all commonly available inverters. Collecting the performance data directly on the power cable permits not only the performance capability of the PV modules to be metered, but also that of the inverter. As a result you can constantly see how well the entire PV system is functioning.



➤ Location-independent Web monitoring – particularly for large-scale systems



The Web portal presents the collected data in a transparent and straightforward manner and permits effective monitoring. The PV system can be monitored worldwide and from any location via the Web interface. This also allows the monitoring of large-scale systems which are geographically far apart. The transparent presentation of the data and the analysis of history data offer a very solid foundation for long-term, gap-free monitoring.

» Hall sensors and data logger

"Easy Install":

Quick and simple installation

- Little effort thanks to folding technology
- Metering directly on the power cable – no data read-out on the inverter is required
- **Compatible with all inverter types – 100% vendor-independent**
- Compatible with all hardware systems
- **Problem-free retrofitting** of existing systems
- Update capability

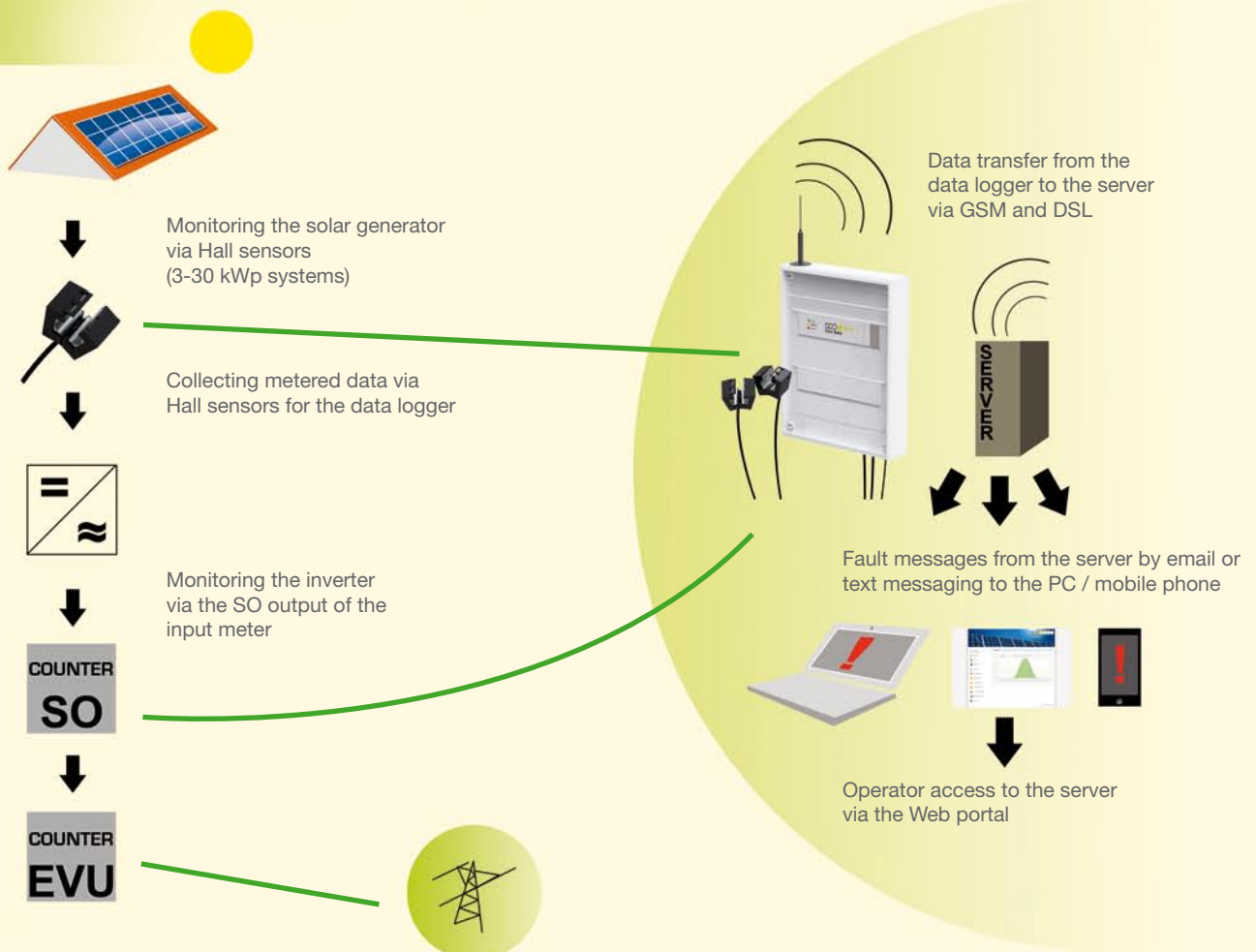
Metering and display of the central PV performance data, module monitoring, direct current (DC):

- **Current power**
- **Power history**
- Power-on and power-off times
- TARGET / ACTUAL performance
- Fault message
- Failure message
- Connections for DC metering: via Hall sensors, at most 12 strings

Inverter monitoring, alternating current (AC):

- Wattage and performance
- Inverter fault and failure
- Connection for AC metering: Three-phase electricity meter with S0

» 3-30 kWp systems



» Shunt resistors, string box and data logger

Everything always under control: Monitoring large systems by means of shunt technology and string boxes

- Metering with shunt resistors directly on the power cable – no data read-out on the inverter is required
- **Compatible with all inverter types – 100% vendor-independent**
- **Compatible with all hardware systems**
- **Monitoring system sections by means of string boxes**
- String boxes are protected individually with overvoltage protection
- Reliable data transfer using tried and tested S-BUS technology
- Update capability

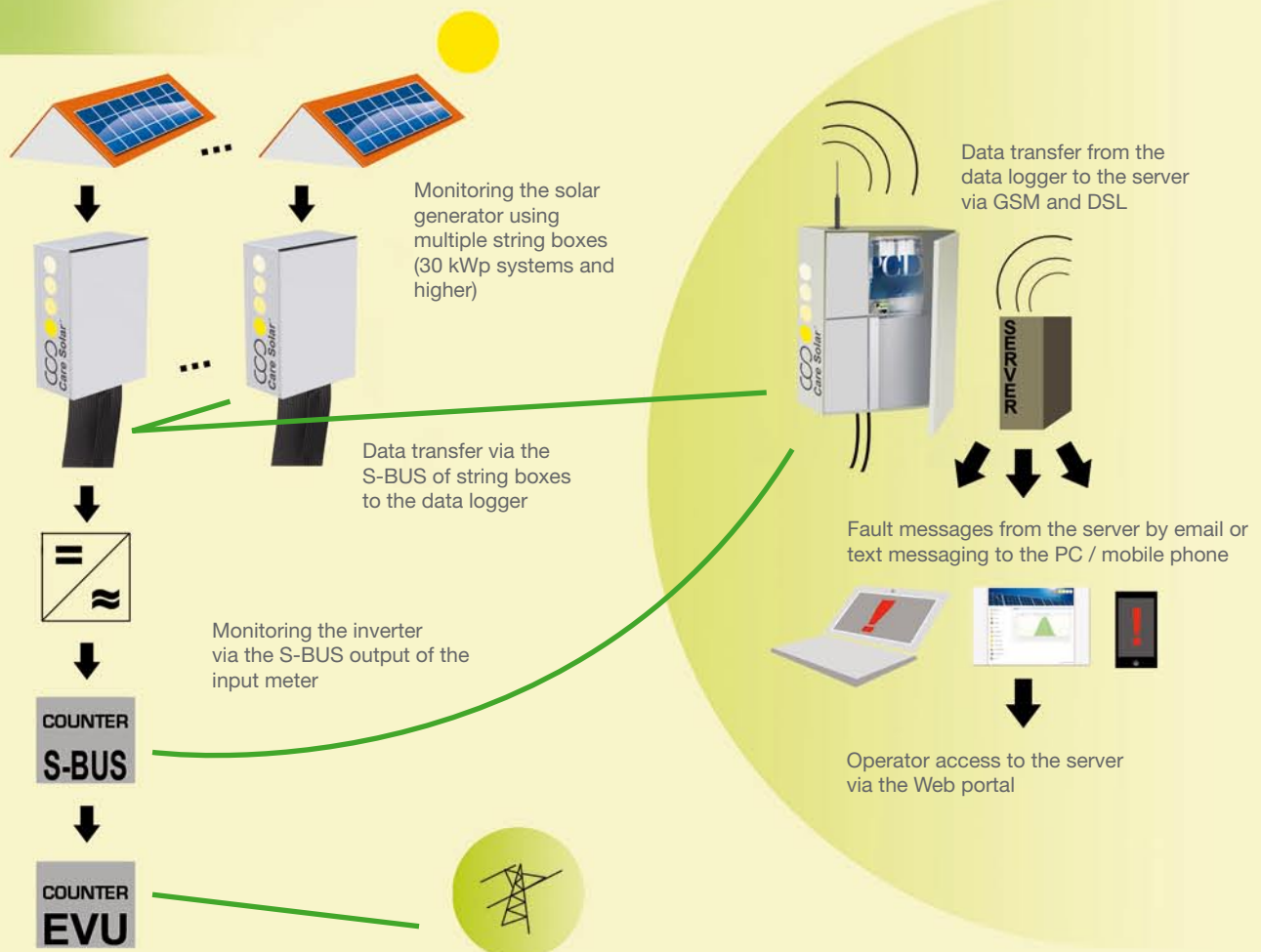
Metering and display of the central PV performance data, module monitoring, direct current (DC):

- **Power**
- **Voltage**
- Power-on and power-off times
- TARGET / ACTUAL performance
- Fault message
- Failure message
- Connections for DC metering: via shunt resistors

Inverter monitoring, alternating current (AC):

- Wattage and performance
- Inverter fault and failure
- Connection for AC metering: Three-phase electricity meter with S-BUS

» 30 kWp systems and higher



➤ **Simple installation,
effective system control,
transparent data communication**



The "Care Solar" system permits **effective monitoring** – regardless of whether you operate a small or a large PV system and whether you are using solar power for commercial or private purposes.

The electrical power is not metered via inverter, but directly on the power cable. The "Care Solar" system is consequently not only **compatible with all commercially available inverters, but also completely independent of the inverter type**. Metering covers both the power produced by the modules and the performance of the inverter. As a result you always **know what is happening throughout the complete PV system** and, when faults or failures occur, you can intervene immediately. You **are therefore always guaranteed maximum performance from your "solar power plant", and optimise the power yield** not just in the short term but also on a long-term basis.

Direct metering on the power cable also enables "Care Solar" to monitor parts of the system, i.e. individual strings. This permits weak spots and failures in the PV system to be located and corrected very precisely. The innovative monitoring system alerts you or your service provider immediately by email or text messaging when faults or failures occur. During "normal operation" **you monitor your system conveniently and round the clock via Web portal**, from any location worldwide. All the data is stored, which allows you to **perform long-term analyses** and to obtain specific advice to optimise your system when necessary.

The password-protected internet interface of the Web portal is tailored and configured precisely to your requirements. Your "solar account" is extremely easy to operate, and is similar to online banking. It also enables you to **keep a constant track of your solar income and yield** – because every kilowatt hour counts when you want your PV system to pay for itself as quickly as possible.



The innovative "Care Solar" monitoring system soon pays for itself. Any weak spot and fault becomes apparent straight away and can be rectified immediately. That means cash in the hand for you – every kilowatt hour.

➤➤ **Monitor your photovoltaic system via internet – using the innovative "Care Solar" data logger**

Don't give away any money – monitor your entire PV system – because every kilowatt hour counts!

Your benefits:

Simple functions. Maximum effectiveness.

PV monitoring with Care Solar:

- ✓ Inverter-independent
- ✓ Ideal retrofitting because of hardware independence
- ✓ For mixed systems
- ✓ Simple installation
- ✓ Monitoring function & fault messages
- ✓ Save money by detecting faults quickly
- ✓ All systems are visible centrally via one portal



The system at a glance – so that you can control and optimise your overall system better

- Maximum transparency through monitoring of the PV modules and of the inverter via Web portal
- Monitoring individual strings
- Logging of the current performance and functional integrity
- Immediate detection of failures and faults
- Alerting on the Web portal, as well as by email or text messaging
- Data logging independently of the inverter – Compatible with all inverter types
- User-friendly monitoring via internet portal, worldwide
- Individual Web account, as easy as online banking
- Storage of all data for long-term analysis – as a basis for system optimisation
- 24-hour real-time monitoring of the PV system and of the performance data
- Comparison of TARGET and ACTUAL performance data shows the power yield
- Weak spots resulting from environmental influences or technical defects can be detected – rapid response possible

For new installation and retrofitting: Simple installation, compatible with all commonly available PV modules and inverters

- Simple and quick assembly directly on the power cable
- Durable and reliable components
- Compatible with all PV module types and inverter types
- Independent of the inverter – no connection and no complicated configuration required
- Problem-free integration of new, additional PV systems

Optimum cost effectiveness: Profit from optimum system operation in the long term

- Short- and long-term optimisation of the power yield
- The PV system consequently pays for itself more quickly
- Investment costs for the "Care Solar" PV monitoring are paid off in a few months or years – depending on the operating behaviour

