

## Solar Battery Charger CSM 1000



### Application

- Compensation of the self-discharge of the starter battery in long-term parked vehicles
- Suitable for 12 V and 24 V starter batteries (lead, lead gel, fleece batteries)

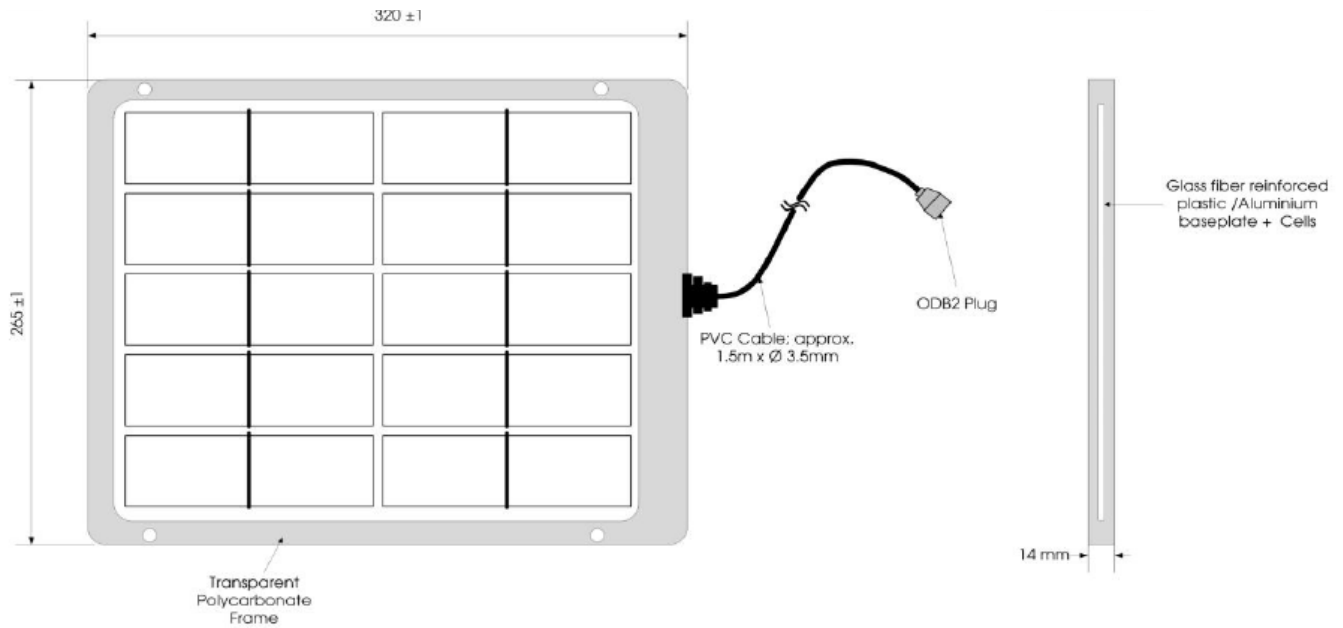
### Function of the integrated electronics

- Automatic detection and adjustment of the charging voltage to the battery voltage (12 V or 24 V)
- Protection of the battery from overcharging
- Detection and signalling of the state of charge

### Optimized for the requirements of the automotive industry

- The high-performance output of 10 W respectively 650 mA charging current are sufficient to compensate for the self-discharge of the starter battery even under not optimal weather conditions. Furthermore, it maintains the state of charge of the battery
- Low weight (only 500 g) at high strength by use of a new foil design instead of a glass module
- A light-transmissive frame with rounded edges avoids colour changes or scratches on the dashboard
- High quality mono-crystalline cells, which suffer only minimal age-related loss of performance (degradation max. 1% per annum) in comparison with thin-film modules
- Designed & Made in Germany

## Technical data



### Measurement

320 x 265 x 14 mm

Weight: ca. 500 g

### Specifications

Front/laminated plastic	ETFE
Back	Glass fiber-amplified synthetic material/aluminium plate
Cells	10 (2x5) cells, Mono-Si, Sun Power
Frame	Transparent, Polycarbonate
Connections	1,5m PVC Cable Ø 3,5mm with OBD2-Plug

### Electrical data

Output Power	10 W (± 10 %)
Output Voltage	14,3 V / 28,6 V (± 0,1 V)
Charging current (12V / 24V)	650 mA / 325 mA nominal
Humidity area	max. 90 %
Temperature range	-40 °C to +85 °C
Guarantee	2 years

## Features and Usability

### Versatile and effective

The CSM is suitable for both, 12 V and 24 V starter batteries (automatic recognition). 10 W power output, the charging current is up to 650 mA. The solar module and electronic are short-circuit and reverse current protected. The charge system is limited to 14.3 V / 28.6 V (+/-0.1 volts) and temperature compensated in accordance with the charge characteristics of lead acid cells.

### Handling

Easy handling. The solar battery charger is simply placed behind the front windscreen and fastened at the rear-view mirror mount by means of a holding cord. Connection with the on-board battery via the OBD2 plug. Storage and transportation of the modules in a robust container (optionally available).

### Robust

Extremely stable execution with an unbreakable frame from polycarbonate and use of foils instead of glass. Tearproof connection cable (up to 5 kg) and stable hardware connections with bayonet seal against pulling out unintentionally.

### Translucent

Transparent frame for the avoidance of core shadows and resultant changes of colour on dashboards in the event of long-term use.

### Heat-resistant

Zero-emission and heat-resistant materials for the protection of high-quality vehicle equipment. It is designed to operate continuously at ambient temperatures between – 40°C and + 85°C.

### Long Service Life

Solar cells with crystalline cells that are characterized by a long service life (30 years), constant output and insignificant ageing effects

### Utilization time

High utilization time of more than 10 years at continuous operation and through this multiple amortization of the initial costs of the wear free system

### Prevent self-discharge

The self-discharge of the battery is prevented, thus maintaining the battery's startability. Permanent damage to the battery from sulphation is avoided.

### Quality improvement

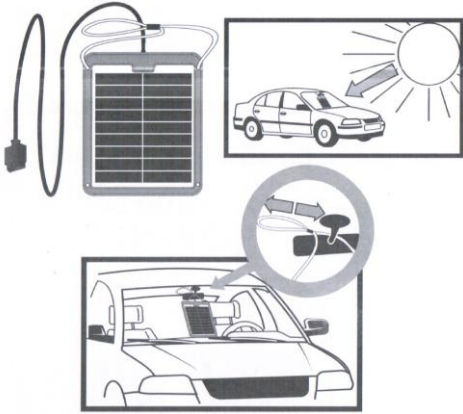
Thanks to the permanent trickle charge provided by the CSM solar battery charger, the formation of sulphates is prevented and the battery's storage capacity is maintained. The vehicle remains able to start and the battery does not suffer any damage. Complaints decrease while quality increases.

**→ The CSM 1000 fulfils the requirements of the automotive industry**

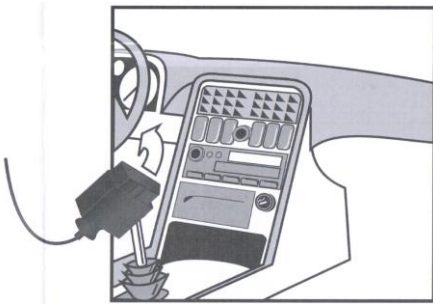
<b>Sickert &amp; Hafner GmbH Automotive Systems</b> Berliner Straße 9 • D-63628 Bad Soden-Salmünster • Germany ☎ +49 (0)6056/900-570 • info@sickert-hafner.de	<b>Product</b> CSM 1000	<b>Document</b> Brochure	<b>Published</b> 25.04.2017
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## Quick user Guide

1. Place the solar charger module on the dashboard and fix it with the cord on the inner mirror



2. Connect the OBD2-plug in the vehicle interior



### 3. Charging conditions

The solar charger has three states:

1. No battery detected
  - Green LED flashes
  - The OBD2 plug has 10 V \*
2. Battery detected and charge
  - Green LED is off
  - The battery voltage is applied to the OBD2 plug (12 V or 24 V)
  - The battery is charging
3. Battery full
  - Green LED is permanently on
  - The battery voltage is applied to the OBD2 plug
  - The battery will not be charged

\* A test voltage of 10 V is generated to detect a battery. As soon as a battery is connected, the test voltage changes to the value of the battery voltage and the battery is reliably detected.

## Scope of delivery and accessories

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### Scope of delivery

- Solar charging module with integrated electronics
- Holding cord (undyed, cotton) integrated in frame
- Connection cable with OBD2 plug (1.5 m)
- Operating instructions



### Accessories (optionally available)

- Transport and storage container (for 10 modules, not included)