

- for 12/24 V systems
- with dynamic protection against battery deep discharging
- 12/24V DC load output

Dear Customer,  
Thank you for buying our product. You have bought one of the most powerful, compact and reliable units of its class. Please read the operating instructions carefully before use.

## WARNING!!! Safety Instructions!!!

- Do not use the unit:  
In places, which are dusty, damp, in a high-humidity area (over 80% rel. humidity), at temperatures above 50°C, in areas containing inflammable materials (liquids/solvents, gas). Do not immerse in water.
- Use only in closed, dry areas.
- Should the unit fail to operate, or show signs of not operating properly unplug immediately and make sure that the unit is not put into further operation. Do not use the unit when visible signs of damage - due to transport or inadequate storage are noticeable.
- To prevent the risk of explosion by overcharging, install the battery in a well-ventilated place.
- Use only solar cells as power source.
- To prevent a short-circuit between solar charger unit and battery, install a fuse on the positive battery pole.
- Equipment, which on account of its function must not be switched off by means of load disconnection (e.g. navigation lights), must be connected directly to the battery and fused.

## Description of operation

Solar Charge Controller Unit 12/24V 4A with:

- 12 / 24 V selector switch
- Dynamic protection against battery deep discharging
- Protection against battery overcharging

The use of lead-batteries is common for the storage of solar energy (photovoltaic solar systems). Lead-batteries require protection against overcharging and deep discharging. This unit satisfies both requirements. The 12/24V selector switch enables the solar battery charger unit to operate with the installed solar system.

## 12/24 V Selector switch

The unit can be used with both 12 V and 24 V photovoltaic solar systems. All system components (PV modules, batteries, inverter, DC loads) must have the same voltage (12 or 24V) rating!

## Protection against battery deep discharging

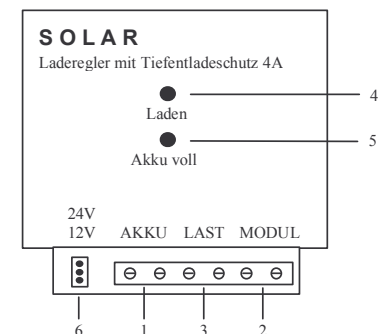
Lead-Batteries need to be protected against being deep-discharged, otherwise damage can occur to the battery cells. The solar battery charger unit protects lead-batteries from deep discharging by disconnecting the DC loads when the battery's voltage has decreased to a certain voltage level. As soon as the batteries are recharged by the solar cells, the load is automatically reconnected.

## Protection against battery overcharging

The battery is not fully charged when the final charging voltage is reached. The charging current should not be completely switched off, instead reduced, so that the final charging voltage is not exceeded. This function is also accomplished by the solar charger unit.

## Connection and Operating-elements

1. +/- Terminal/Pole lead-battery
2. +/- Terminal/Pole solar module
3. +/- Terminal/Pole DC load
4. LED red: lead-battery is being charged
5. LED green: lead-battery is fully charged
6. 12/24V Selector switch (Jumper)



## Installation - Warning: Make sure of the right polarity!!!

The solar charger unit should be placed in close proximity to the battery and be sufficiently protected against the weather. Take care to place the battery in a well-ventilated place. To guarantee that the unit functions properly it must be connected to the solar generator, the lead-battery and the load.

Each part of the system - solar generator, lead battery, DC load and solar charger unit - should have the same nominal operating voltage (12 or 24V). Please check each component before installation, when in doubt, contact a Specialist! Take careful attention of the following installation instructions:

1. Connect the battery to the corresponding terminals on the solar charger unit. To prevent voltage losses in the cabling, please use min. 2,5 mm<sup>2</sup> cable diameter (up to 8m). Only when an additional "short-circuit-protection" device is already installed, can the battery be operated without a fuse. Otherwise must a fuse be connected to the battery +terminal/pole in order to prevent possible short circuit of the battery cables. Both components must be installed close together in the same room.
2. Connect the solar module to the corresponding terminals on the solar charger.
3. Connect the load to the solar charger unit. The connection diagrams are printed on the solar charger.

## Specifications

Nominal voltage:	12/24 V
Charging current (solar cells):	4 A
Max. Load:	4 A
Max. Power use:	1,5 mA
Final charging voltage:	13,8 V / 27,6 V
Deep discharging disconnection:	
Constant	10,5 V / 21 V
Reset voltage	12,5 V / 25 V
Temperature range:	-10°C up to +50°C
Measurements:	68 x 57 x 28 mm
Weight:	150 g

**Delivered:** Solar Battery Charger Unit with Operating Instruction