

- Voltage regulation
- Automatic detection of voltage
- PWM control
- Multistage charging technology
- Current compensated load disconnection
- Automatic load reconnection
- Temperature compensation



## Decription

The Steca Solsum F-Line continues the huge success of one of the most used SHS controllers. With a power range of up to 10 A at automatically recognized 12 V or 24 V it fits to a system sizes of maximum 240 W.

The circuit board is completely electronically protected and with the LED user interface it is easy to check the battery state of charge at any time. Large terminals guarantee a simple connection of solar panels, battery and load. The Steca Solsum F works on PWM as a low loss series controller.

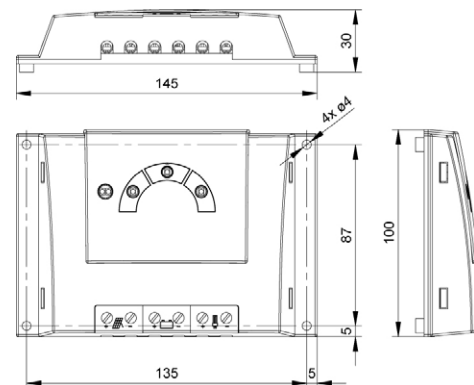
## Functions

The solar charge controller monitors the state of charge of the battery bank, controls the charging process, controls the connection/disconnection of loads. This optimises battery use and significantly extends its service life.

The following protection functions are part of the basic function of the controller: Overcharge protection; Deep discharge protection; Battery undervoltage protection; Solar module reverse current protection.

## Electronic protection functions

- Overcharge protection
- Deep discharge protection
- Reverse polarity protection of load, module, battery
- Automatic electronic fuse
- Short circuit protection of load and module
- Overvoltage protection at module input
- Open circuit protection without battery
- Reverse current protection at night
- Overtemperature and overload protection
- Battery overvoltage shutdown



Characteristic	Description / Value		
Type	6.6F	8.8F	10.10F
System voltage	12 V (24 V)		
Own consumption	< 4 mA		
Module current	6 A	8 A	10 A
Load current	6 A	8 A	10 A
End of charge voltage	13.9 V (27.8 V)		
Boost of charge voltage	14.4 V (28.8 V)		
Deep discharge protection (SOC / LVD)	< 30% / 11.2 ... 11.6 V (22.4 ... 23.2 V)		
Operating temperature	-25 ... +50 °C		
Protection	IP 32		
Dimensions	145 x 100 x 30 mm		
Weight	approx. 150 g		
Manufacturer	Steca Elektronik GmbH		

## Installation

### Mounting location requirements

Do not mount the solar charge controller outdoors or in wet rooms. Do not subject the solar charge controller to direct sunshine or other sources of heat. Protect the solar charge controller from dirt and moisture.

Mount upright on the wall (concrete) on a non-flammable substrate. Maintain a minimum clearance of 10 cm below and around the device to ensure unhindered air circulation. Mount the solar charge controller as close as possible to the batteries (with a safety clearance of at least 30 cm).

### Fastening the solar charge controller

Mark the position of the solar charge controller fastening holes on the wall.

Drill 4 Ø 6 mm holes and insert dowels. Fasten the solar charge controller to the wall with the cable openings facing downwards, using 4 oval head screws M4x40 (DIN 7996).

### Connection

Use a wire size suited to the current ratings of the charge controller, e.g. 6mm<sup>2</sup> for 10A, 5 mm<sup>2</sup> for 8A, 4 mm<sup>2</sup> for 6A, 3 mm<sup>2</sup> for 5A for cable length of 10 m.

An additional external 20A fuse (not provided) must be connected to the battery connection cable, close to the battery pole. The external fuse prevents cable short circuits.

Solar modules generate electricity under incident light. The full voltage is present, even when the incident light levels are low. Protect the solar modules from incident light during installation, e.g. cover them.

Never touch not isolated cable ends. Use only insulated tools. Ensure that all loads to be connected are switched off. If necessary, remove the fuse.

Connections must always be made in the sequence described below.

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### 1st step: Connect the battery

Connect the battery connection cable with the correct polarity to the middle pair of terminals on the solar charge controller (with the battery symbol).

If present, remove any external fuse. Connect battery connection cable A+ to the positive pole of the battery. Connect battery connection cable A- to the negative pole of the battery. Insert the external fuse in the battery connection cable.

If the connection polarity is correct, the info LED illuminates green.

### 2nd step: Connect the solar module

Ensure that the solar module is protected from incident light (cover it or wait for night).

Ensure that the solar module does not exceed the maximum permissible input current.

First connect the M+ solar module connection cable to the correct pole of the left pair of terminals on the solar charge controller (with the solar module symbol), then connect the M-cable. Remove the covering from the solar module.

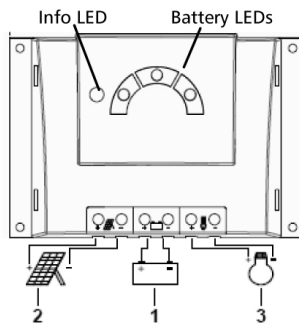
### 3rd step: Connect loads

First connect the L+ load cable to the correct pole of the right pair of terminals on the solar charge controller (with the lamp symbol), then connect the L-cable. Insert the load fuse or switch on the load.

**Notes :** Connect loads that must not be deactivated by the solar charge controller deep discharge protection, e.g. emergency lights or radio connection, directly to the battery. Loads with a higher current consumption than the device output can be directly connected to the battery. However, the solar charge controller deep discharge protection will no longer intervene. Loads connected in this manner must also be separately fused.

### 4th step: Final work

Fasten all cables with strain relief in the direct vicinity of the solar charge controller (clearance of approx. 10 cm).



## LED displays

LED	Status	Meaning
Info LED	illuminates green	normal operation
	flashes slowly red	system fault <ul style="list-style-type: none"> <li>• too high charging current</li> <li>• overload / short circuit</li> <li>• overheated</li> </ul> together with red LED: <ul style="list-style-type: none"> <li>• too low battery voltage</li> </ul> together with green LED: <ul style="list-style-type: none"> <li>• too high battery voltage</li> </ul>
Battery red LED	flashing quickly*	battery empty, low voltage disconnection prewarning, loads still on
	flashing slowly*	deep discharge protection active (LVD), loads disconnected
Battery yellow LED	illuminates	battery weak, loads are on
	flashes slowly yellow*	LVD reconnection setpoint has not yet been reached, loads still disconnected
Battery green LED	illuminates	battery good
	flashes quickly green*	battery full, charge regulation active

\* flashing slowly: 0.4 Hz: 4 times in 10 sec; flashing quickly: 3 Hz: 3 times in 1 sec

## Grounding

The components in stand-alone systems do not have to be grounded – this is not standard practice or may be prohibited by national regulations (e.g.: DIN 57100 Part 410: Prohibition of grounding protective low voltage circuits). Ask your dealer for technical assistance.

## Lightning protection

In systems subjected to an increased risk of overvoltage damage, we recommend installing additional lightning protection / overvoltage protection to reduce dropouts. Ask your dealer for technical assistance.

## Maintenance

The solar charge controller is maintenance-free.

All components of the PV system must be checked at least annually, according to the specifications of the respective manufacturers. Ensure adequate ventilation of the cooling element. Check the cable strain relief. Check that all cable connections are secure. Tighten screws if necessary. Check corrosion on terminals.