

Solar Charge Controllers

Ott 5A

- Discharge Protection
- Overcharge Protection
- Temperature Compensation
- System Voltage 12 V
- Gassing Regulation

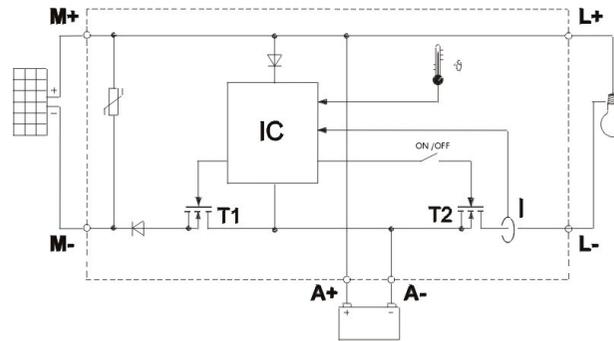


Fig. 1: Circuit Diagram

Displays:

The controller contains three LEDs. The yellow LED is on as soon as there is energy from the module. When the controller starts to limit the charge current, this LED is flashing. The green and the red LED shows the state of charge (SOC). When the green LED is on then the battery is full. When the battery is empty the red LED is on and the loads are switched off by the charge controller to protect the battery.

Load switch:

The charge controller contains a red manual load switch. The load is switched on when the switch is in its lower position. The load is switched off when the switch is in its upper position.

Advice for Installation:

Do not forget that the connected loads do not use more current than admissible for your regulator.

Pay attention to the correct polarity!

Avoid short circuits ! Even when the controller is protected against short circuit, overload and wrong polarity

The controller has to be installed possibly near the battery and must not be exposed to direct weather conditions. The controller is to be operated in well-ventilated rooms. The connection terminals have to point downwards when it is installed. In order to activate the protective functions the controller has to be connected with solar generator, battery and users.

All system components i.e. solar generator, battery, loads and controller have to be coordinated concerning voltage. This is to be checked before installation! Pay attention to the correct nominal voltage! Ask your dealer when you are in doubt!

Following order has to be obeyed when installing your controller:

1. Connect the battery with the controller at the screw terminal. The biggest possible cable diameter is recommended in order to keep a voltage drop and a connection terminal heating as low as possible. Only when the controller is installed with short circuit proof cables, an isolation of the battery cable can be omitted. Otherwise a fuse has to be inserted directly at the plus pole of the battery in order to avoid a short circuit. Both components have to be installed in the same room in near distance, as the sensor for temperature determination is integrated into the controller.
2. Connect the modules with the controller and note the correct polarity.
3. At last connect loads.

Sources of errors:

Inversion of battery polarity :
The internal electronic fuse protect the charge controller.

Inversion of module polarity:
Protected, but no charging is possible.

Inversion of the polarity of the load:

The loads (lights, radio etc.) can be damaged before the electronic fuse trips.

Short circuit loads :

protected, but Loads are disconnected for some seconds

Attention:

- 1 Avoid short circuits: danger of fire!
2. Sparkings can develop especially in direct current systems during installation and operation. Do not install PV-components in rooms where easy flammable gases mixtures can develop (e. g. by gas bottles, laquers, solvents). Consult your dealer when in doubt.

Limited warranty

Steca, hereafter referred to as "the manufacturer", hereby offers the following limited warranty:

The manufacturer will repair or replace (at the manufacturer's option) all defects in materials and workmanship that occur during the warranty period of 2 years. The usual wear and tear is not considered a defect. This warranty does not cover any faults that have been caused by improper use of the end user or third parties, particularly by improper installation and operation, faulty or careless use, extremely heavy use, inappropriate operating material, inadequate installation site, unsuitable construction ground or similar things. This Warranty is only valid when immediately upon noticing the fault—a claim has been reported to your dealer within the warranty period. A copy of the sales receipt showing date of purchase must be enclosed.

For a fast and smooth settlement, a detailed error description is necessary. All warranty obligations expire after 24 months after date of purchase, except in cases where the manufacturer agrees by written confirmation to prolong the warranty period.

The authorised dealer's own separate guarantee (on the basis of the purchase contract with the end user) has no effect on this Limited Warranty obligation. Warranty is honored by either rectification or replacement of the product. This Limited Warranty does not cover the costs involved in exchanging, dispatching, freight, or re-installing. If rectification or replacement is not possible, or a repair or replacement is not effected within a certain period of time (despite written request by the customer), the manufacturer must come up for all losses in value caused by the malfunction or — if this is not sufficient in the interest of the end user - accepts the buyer's right of conversion to another product.

Any further claims against the manufacturer arising from this Warranty, particularly compensation claims due to losses in sales, revenues, as well as indirect damages, are excluded from this Limited Warranty if not forced by law.

Technical Data at 25°C:

Nominal Voltage	12 V
Max. module current	5A
Max. load current	5A
Max. own consumption	3mA
Final charge voltage	13.8V
Final gassing voltage	14.6V
"Gassing active" voltage	12.6V
Overdischarge disconnection	10.6V .. 11.1V
Overdischarge reconnection	12.3V
Temperature compensation	- 21 mV / K
Admissible ambient temperature	-25 °C ... + 50 °C
Dimensions	146x90x33mm
Connection terminal	6mm / 10mm
Weight	160g



Fig. 2: Connection

Please read these instructions completely before installation!

Instructions and description of the solar charge controller.

In photovoltaic solar systems lead batteries are often used for storing solar current. These batteries have to be protected against overcharging and overdischarging. The solar charge controller fulfill both tasks in one device. It is for use in 12V systems.

Overcharge Protection

When the battery exceeds the final charge voltage, it starts to gas. As this process is temperature dependent, the final charge voltage is adapted automatically to the ambient temperature by a built-in sensor. Strong gassing leads to an electrolyte loss and finally to the destruction of the battery. The battery is however not charged completely when the final charge voltage is reached, so that the current flow should not be interrupted. The charge controller therefore reduces the current flow into the battery just as much as that the final charge voltage is not exceeded. This procedure is called "IU-charging" which is considered to be especially fast and gentle. The reduction of the current flow is effected by very quick, temporary cut off the solar generator.

Gassing Regulation

The final charge voltage is changed in dependence with the discharge level. When a lead battery is operated without gas development for a longer time, there is the danger of a harmful acid layering. This acid layering can be avoided by limited, controlled gassing. This function is fulfilled by the gassing regulation. The gassing regulation switches off the overcharge protection until the so-called final gassing voltage is reached. Furthermore the gassing regulation increases the final charge voltage during high cyclisation. By this temperature dependent function, the battery capacity is better used.

Overdischarge protection

The batteries have to be protected from overdischarge, as it would be destroyed otherwise. Therefore the charge controller protects the battery from overdischarge by disconnecting the loads when the voltage falls below the final charge voltage. After the battery has been recharged by the solar generator and the reconnection voltage is reached, the loads are again reconnected.