

SUN SWITCH light-sensor

Application

General

The LORENTZ SUN SWITCH is basically to use for the Lorentz pump controllers but also good for any general application where you need to switch depending on solarlight intensity. It is an autarkic working unit that supplies itself with power from its small solar cells. It is designed to work outside and protected by a IP64.

The Problem

Some solar pumps (e.g. centrifugals) are only pumping above a minimum solar irradiation. If there is not enough irradiation, the pump starts to rotate but does not deliver any water. In this case the pump can heat up and the lifetime gets shorter.

The Solution

LORENTZ SUN SWITCH light sensor allows to set an irradiation level at which the pump is switched on.

The Advantages

- reduced wear on the pump and motor since the pump only starts when it will continue to run
- no water heat up inside the pump due to too not sufficient power in the morning or other low light situations where the pump spins but cannot produce a flow up to the delivery point
- setting of min. pump flow rates for irrigation systems etc

Practice example

A solar pump starts slow in the morning and only the first plants in a irrigations string would be watered while the middle and last ones are not. Therefore the pump should only be started once a minimum flow rate is reached in order that all plants are getting the same amount of water at the same time.



Installation

Warning

This device is to be installed, connected and serviced by qualified personnel only. Never use this device in connection with AC Power.

Mounting

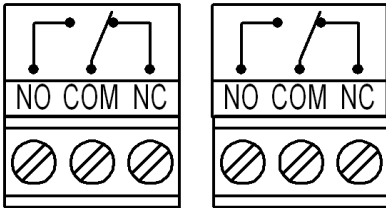
Mount the SUN SWITCH light-sensor close to the solar panel. The device must stay in the same orientation as the solar panels. For mounting the SUN SWITCH light-sensor on the frame of the solar panel you can use the provided C-bracket to clamp it to the frame. Alternatively you can drill two holes into the frame and fix the SUN SWITCH light-sensor with machine screws.

Mounting example



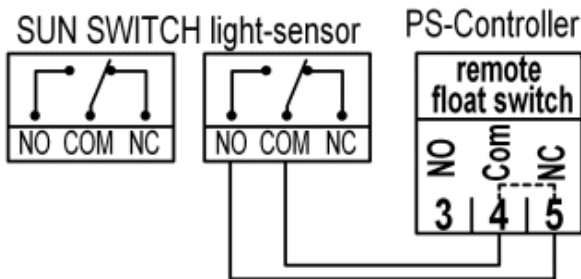
Connecting

The SUN SWITCH has two potential-free double throw contacts.

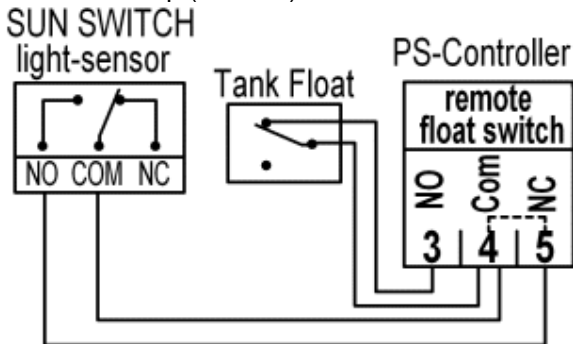


The contacts are in the OFF-state in the drawing. To operate the SUN SWITCH with a PS-Controller, connect one COM and NO to the terminals 4 and 5 of the PS-Controller (COM and NC). The polarity does not matter.

In this case, the PS-controller will start the pump when the irradiation is sufficient.



It is also possible to connect a tank float in a storage tank in addition. In the following example the float is closed when up (tank full).



Both the SUN SWITCH and the float switch can stop the PS-Controller. In other words, the pump will only run if the irradiation is sufficient and the tank is not full.

A lot of other combinations to start or stop the pump are possible with series or parallel connections with pressure switches, remote switches and so on.

With the second switch it is for example possible to start a generator when the irradiation is not sufficient.

Use at least 0.5mm² cable.

For long wiring (<10m) use shielded cable.

Refer to the PSXXX manual for additional information about this.

Contact rating

Max. voltage:	250V AC / 220V DC
Max. current:	2A
Max power:	60W / 62.5VA

Operation

Connect the SUN SWITCH light-sensor to the PS controller and mount it at the solar modules.

The scale of the adjustment wheel starts at 15% to 55%.

100% means 1000W/m². So the SUN SWITCH light sensor can set the pump startup point between 150W/m² to 550W/m².

The hysteresis of the SUN SWITCH light-sensor is about 40W/m².

It is useful to make the exact setting in the afternoon, when the irradiation becomes less and less.

Set the level to minimum (15%) and watch the flow rate of the pump.

When it reduces to a flow which is not reasonable anymore, increase the setting until the pump stops.

Due to the hysteresis, the pump will now start with a little bit more power and stops at the set irradiation.

When the SUN SWITCH light-sensor allows the pump to operate, the "ACTIVE" LED lights up. If the Pump starts too early or too late it is possible to modify the startup value at any time during operation.

Dimensions

- 230 x 115 x 87
- weight: 1,2kg / 0,54lbs

Warranty

Warranted to be free from defects in material and workmanship for TWO Years from date of purchase.