

# PHOTOVOLTAIC CHARGE CONTROLLER

*RSL30*



**Soluciones Energéticas S.A.**

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### ***INSTALATION***

The **DSS/RSL** charge controllers from Soléner are designed for use in all kinds of standalone photovoltaic installations. It is very reliable and versatile, due to the automatic selection of operation voltage, the built-in protections, the solid stage design and the range of selectable batteries available. Other features are compact design and easy installation.

#### **Recommended connection sequence:**

- 1°.- Battery. Some LED will start blinking
- 2°.- Modules
- 3°.- Loads

**The disconnection sequence is the inverse (from step 3 to 1).**

The controller is protected against battery disconnection, but removing the battery while the modules are still connected can damage the loads.

The initial charging stage is **Equalization**, and repeats every 30 days or when the output is disconnected due to a low battery charge condition. This does not apply to gel batteries.

## **CHARACTERISTICS**

### **Physical**

Length × width × height:	172 × 105 × 24 mm
Weight:	0,35 kg
Enclosure:	Galvanized steel
Painting:	Epoxy
Environment protection:	IP32
Temperature range (no derating):	-10 a +50 °C

### **Electrical**

Nominal voltage:	12/24 volts, automatic
Maximum module voltage (12/24):	50/60 V
Maximum module current:	30 amperes
Maximum load current:	30 amperes
Allowed overload:	25 %
Self consumption:	< 15 mA
Power losses (input/output):	~ 3,0/1,0 watts
Smart input diode:	Yes

### **General**

Control method:	Series
Battery model:	Four predefined profiles, see table
Charge stages:	Gassing (bulk), floating, equalization
Status indication:	Five LED

### **Other**

- Low and high battery voltage alarms, overload and short circuit.
- Polarity protection in modules and battery.
- Overload protection with courtesy delays.
- Overvoltage protection in input, battery and output terminals.

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- Protected against battery disconnection (loads are not protected).
- Tropicalized circuits.
- Temperature compensated.
- Automatic load reconnection when battery recovers some charge.

When a short circuit is detected the output is shut down permanently. In order to enable the output again you must remove the short and then press the RESET button.

**The controller has a temperature probe hanging from the bottom.  
Said probe must be left hanging in free air.**

## **STATUS INDICATOR**

### **Charging mode**

The yellow LED informs about the charging mode using groups of blinks. One blink means floating charge, two blinks bulk charge and three blinks equalization charge.

### **Overload/shortcircuit**

The red LED blinks whenever the load current is too high. When there is a short circuit or a three-second overload the controller shuts down the output and this LED remains ON. Pressing the reset button (after removing the short circuit) will restore the output.

### **Battery status**

The battery status is shown via a “traffic light” (three LEDs in the right side).

The red LED blinks when the battery has low charge. When the battery is empty, the LED remains ON and the output is disconnected. When the battery is recharged the output is reconnected automatically.

The yellow LED blinks when the battery has medium charge.

The green LED blinks when the battery is near full charge. It remains ON when the battery is fully charged and the input is open.

## **BATTERY SELECTION**

You can select one out of four different battery types using two jumpers (**JPA** & **JPB**), as shown in the table below. The default battery is *Modified SLI*.

<b>JPB</b>	<b>JPA</b>	<b>BATTERY</b>
OFF	OFF	Modified SLI
OFF	ON	Tubular vented
ON	OFF	Tubular gel
ON	ON	AGM+beacon

*Battery selection*

<b>PARAMETER</b>	<b>SLI MODIFIED</b>	<b>TUBULAR VENTED</b>	<b>TUBULAR GEL</b>	<b>AGM BEACON</b>
<b>HIGH VOLTAGE ALARM</b>	15,80	15,80	15,80	15,80
<b>EQUALIZATION BAND</b>	14,70 / 15,00	14,70 / 15,00		
<b>GASSING CHARGE</b>	14,70	14,70	14,70	14,70
<b>FLOATING BAND</b>	13,80 / 14,40	13,80 / 14,40	13,80 / 14,40	13,80 / 14,40
<b>REGASSING VOLTAGE</b>	12,62	12,62	12,62	12,62
<b>LOW VOLTAGE ALARM</b>	11,12	11,12	11,12	11,12
<b>LOAD DISCONNECTION</b>	11,00	11,00	11,00	11,00
<b>LOAD RECONNECTION</b>	13,00	13,00	13,00	13,00

*Voltage settings*

- Voltages shown are for 12-volt systems. In 24-volt systems they must be doubled.

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- These voltages are valid for 25 °C. The controller is temperature-compensated, so the measured voltages can be different.
- There are built-in delays in the algorithms, so (for example) the low voltage disconnection is not instantaneous, adding tolerance to sudden current demands.
- If your battery is not in the list, read carefully the datasheet of the battery and select the nearest with same or lower gassing voltage (also called bulk voltage).

### *IMPORTANT*

Matching controller voltages with battery specifications is key for battery life..

Beacon function disables the output during daylight. It is intended for special applications, like street lights, beacons in communication towers etc.

If your battery uses gel technology you must select TUBULAR GEL or AGM+BEACON. The other models are vented and will try to equalize the battery now and then.

60 cell modules **ARE NOT SUITABLE** for battery installations. They are intended for grid-connected systems, are cheap and easy to find, but their power curves do not match battery specifications. A 12-volt system must have 36 to 40-cell modules, a 24-volt system must have twice the cell number (equivalent to two 12 V modules in series).

The controller can work without changes in 12 and 24 volt systems. When working in 12-volt systems you must use 36 to 40-cell modules, and in 24-volt systems you must connect 72 to 80-cell modules. If you use other modules the battery will not charge at all (12 V modules with 24 V battery) or will charge using only half of the modules' nominal power (24 V modules with 12 V battery).