Sollatek™

SOLLATEK SUNPOWER
SOLAR CHARGE CONTROLLERS

User instructions

Sunpower 30   Sunpower 6

Sollatek™

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Important: This manual contains important safety instructions.
Keep this manual handy for reference.

INTRODUCTION

Charge controllers are one of the most essential parts of any solar electric system, monitoring and controlling the system and protecting the battery against overcharge by the solar modules and over discharge by the loads. A Sollatek SunPower will greatly increase battery lifetime and system reliability, whilst also giving the user a constant display of the system status.

Once installed, the SunPower operates automatically and requires no attention or maintenance from the user.

The SunPower is protected against short circuit, overload, reverse current flow, reverse polarity and lightning power surges.

For more information on our Solar products, contact us now.

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The Sollatek SunPower is covered by a two year worldwide warranty.
If any problems should arise please return the SunPower to your local dealer or contact your nearest Sollatek company.

A TYPICAL SOLAR SYSTEM

solar module

sun

charge contoller

fuse

battery

lighting
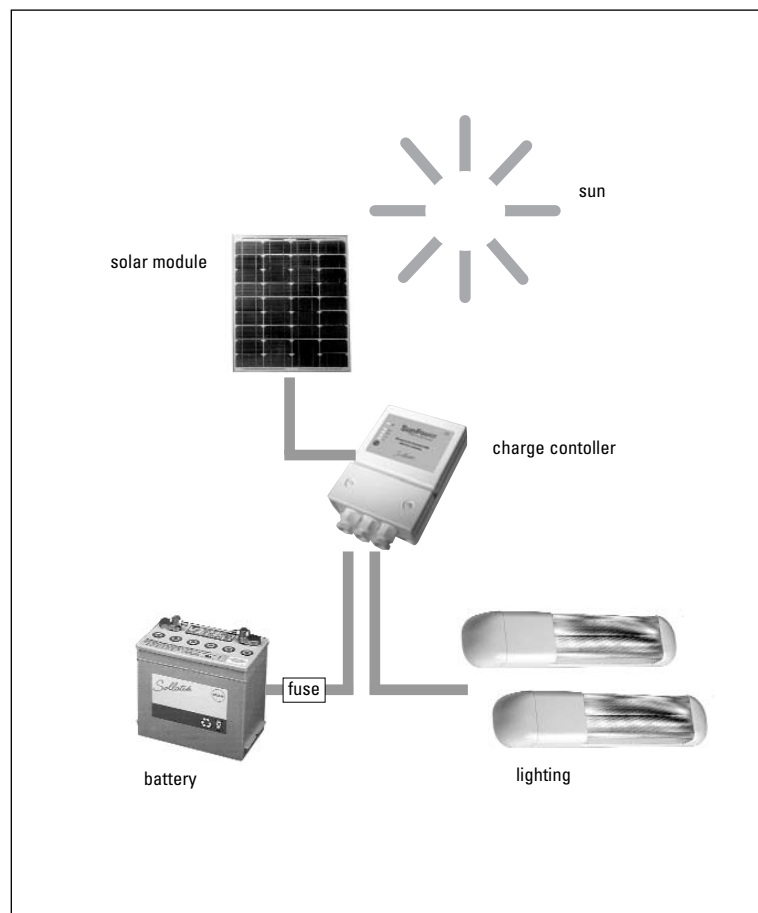
SPECIFICATIONS

SunPower 30 Specifications

		12V	24V	48V
Solar charge current		30 Amps		
Load current		30 Amps		
Nominal voltage (3 models available)		12V	24V	48V
Current Consumption :	Charging	110mA	61mA	35 mA
	Battery full	60mA	35mA	23mA
	Battery low (night)	10mA	10mA	10mA
Voltage thresholds :	Charge disconnect	11.3 V		
(double for 24V)	Charge reconnect hys.	12.3 V		
(x4 for 48V)	Charge disconnect	14.4 V		
Battery temp. compensation		-3mV/°C/cell		
Operating temperature		-10° to +50°C		
Connections (max cable 16mm²)		Screw type		
Remote battery sense		Yes		
Display (standard)		5 x LEDs		
LCD display (optional)		Battery voltage		
Timer facility for light/street light		Yes		
Dimensions (mm)		182 x 132 x 53		
Weight (Kg)		0.8		

INSTALLATION SEQUENCE

Having made any adjustments necessary for operation of the SunPower 30, follow the installation sequence below :-

1. Mount the SunPower 30 on to a flat, vertical surface with the cable glands facing towards the floor. Insert one screw into the wall upon which to hang the controller, after which insert mounting screws into the two holes at the bottom section of the SunPower 30. The controller should be as close to the battery as possible, in a well ventilated room and away from direct sunlight.

2. Connect the load cable to the controller through the left hand cable gland. The cable should have been stripped of 10mm of insulation and inserted into the terminals, observing the correct polarity. (Red/Brown is normally positive '+', Black/Blue is normally negative '-')

3. If required, install the external battery sense cable between the battery terminals and the 'Batt sense' terminals in the SunPower 30 and the actual probe stuck into the nearest side of the battery within the system.

4. Connect the battery cable, observing the correct polarity. A fuse (30A) should be fitted in the battery cable at the positive terminal of the battery to prevent accidental short circuit damage of the controller and system.

5. Connect the cable from the solar module (s) ensuring that the solar module is covered. (During daylight sparks may occur at the controller terminals if the module is not covered)

    Ensure that all connections and terminals are clean and tight
    Always use the largest available cross section of cable in order to prevent voltage drops. If in doubt consult your dealer.

SYSTEM STATUS INDICATION

Solar panel is generating electricity and charging the battery except when green 'battery full' LED is illuminated.

Battery is fully charged and the solar module has been disconnected.

Battery is in a good state of charge.

Battery is in a low state of charge and the load will soon be disconnected, depending on LVD setting.

The load output has been disconnected to avoid damaging the battery due to excessive discharge.

The reset button will reconnect the load after LVD has occured and before LVD-Hyst in case of an emergency, or the LVD occuring at an inconvienient time.
The load will disconnect when LVD is reached again.
The reset button will also re initialise the system.

LVD	Low Voltage Disconnect
LVD-Hyst	Low Voltage Disconnect Hysteresis
Hysteresis	The voltage the battery must rise by before reconnecting again (1.2V).

ADVANCED TECHNICAL MODIFICATIONS

⚠️

For Qualified personnel only

The Sunpower 30 is factory set at for immediate use at 12V using internal battery sense and temperature compensation and at the voltage thresholds indicated overleaf. In order to adjust please follow the instructions noted below. Make sure that the Sunpower30 is disconnected from the system before attempting any adjustments.
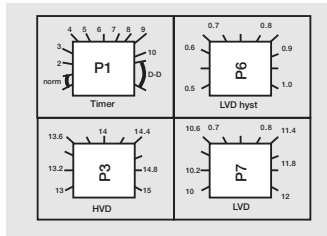
Voltage Thresholds

The voltage thresholds can be re-set using the four rotary controls located in the upper half of the controller.

The adjustable controls allow the installer to set the voltage thresholds to their particular preference, depending upon battery type and system requirements.

The minature thumbwheels are removable to prevent unauthorised tampering of the rotary controls. When replacing them, ensure they are fitted in the correct orientation.

The low reconnect voltage is the hysterisis voltage above the low disconnect voltage. If the required low volt disconnect is 11.5 volts and the required reconnect 12.3 volts then the LVD-Hyst rotary control should be set to 0.8 v (11.5 + 0.8 = 12.3). The HVR is not adjustable as the Sunpower has PWM control

12, 24V or 48V Operation

The Sunpower 30 is manufactured in 3 different models, 12, 24 or 48V. Make sure you have ordered the unit with the correct voltage for your application. All the voltage threshold values will double for 24V (11V becomes 22V - 0.6V becomes 1.2V etc.) and x 4 for the 48V unit.

Timer Operation - Street Light Mode/Normal Mode

The Sunpower 30 is supplied with a timer set at normal mode. To put the Sunpower 30 in street light mode, the dial has to be set to the required number of hours of lighting, or fully clockwise to give dusk to dawn lighting. During the day when the load is off, the red LED and the battery state LED will be on constantly.
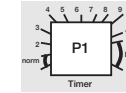
At dusk, the battery state LED will flash and the load will come on. The Load will be on until Low voltage disconnect, dawn or the timer has elapsed whichever comes first. There is a dawn detection delay which will only enable the unit to accept dawn if the solar module voltage is above 3 volts for 4 minutes. This prevents the load switching off unexpectedly during the night as a result of, say headlights on motor vehicles or search lights on helicopters shining on the solar module.

External Battery Sense

Although the Sunpower 30 is fitted with internal battery voltage sensing, for greater accuracy an external sense cable can be installed between the battery terminals and the 'Batt sense' terminals within the controller. It is important to make sure that the battery sense cable polarities are correct and J1 is set to EXT position. A 1Amp fuse should be fitted in the positive sense wire at the battery end.

External Temperature Compensation

The Sunpower 30 can be fitted with an external temperature compensation probe. This probe is available as an option from Sollatek and should be wired into the temperature compensation terminals of the Sunpower 30 (observing polarity). The probe should then be stuck to the nearest battery on the system.

LCD Display

The Sunpower 30 is available in a model with an LCD display which will show the battery voltage. The LCD model should be specified at time of order if required.

SPECIFICATIONS

SunPower 6 Specifications		12V	24V
Solar charge current		6 Amps	6 Amps
Load current		6 Amps	6 Amps
Nominal voltage		12V	24V
Current Consumption :	max	8.5 mA	8 mA
Voltage thresholds :	Charge disconnect	11.8V	23.6V
	Charge reconnect	12.7V	25.4V
	PWM float charge at	13.9V	27.8V
Operating temperature		-10° to +50°C	
Connections (max cable 6mm^2)		Screw type	
Dimensions (mm)		90 x 37 x 72	
Weight (Kg)		0.25	0.25

INSTALLATION SEQUENCE

To install the SUNPOWER 6, follow the installation sequence below :-

1. Mount the SUNPOWER 6 on to a flat, vertical surface with the cable terminals facing towards the floor. Insert two mounting screws into the two holes of the SUNPOWER 6. The controller should be as close to the battery as possible, in a well ventilated room and away from direct sunlight.

2. Connect the load cable to the controller. The cable should have been stripped of 10mm of insulation and inserted into the terminals, observing the correct polarity. (Red/Brown is normally positive '+', Black/Blue is normally negative '-').

3. Connect the Battery cable, observing the correct polarity. A fuse (10A) should be fitted in the battery cable at the positive terminal of the battery to prevent accidental short circuit damage to the battery cable.

4. Connect the cable from the solar module (s) ensuring that the solar module is covered. (During daylight sparks may occur at the controller terminals if the module is not covered).

Ensure that all connections and terminals are clean and tight.
Always use the largest available cross section of cable in order to prevent voltage drops.
If in doubt consult your dealer.

SYSTEM STATUS INDICATION

Solar panel is generating electricity and charging the battery except when green 'battery full' LED is illuminated.

Battery is fully charged and being float charged.

Battery is in a good state of charge.

Battery is in a low state of charge and the load will soon be disconnected.

The load output has been disconnected to avoid damaging the battery due to excessive discharge.

TROUBLESHOOTING

Sympton	Cause	Solution
Sun LED is not illuminated during daylight	Solar modules not properly connected	Check module connections and ensure that polarities are correct
Battery status LEDs do not illuminate	Battery incorrectly installed or fuse blown	Check cables and fuses for short circuits and correct polarity connections
	Battery acid is very low (wet batteries only)	Fill the battery cells with distilled water
	Battery is dead	Replace
Internal load fuse blows	Short circuit in the load	Find and repair short circuit, check cables
	Load is drawing too much current	Reduce load size
Rapid on/off operation of relays (chattering)	Voltage thresholds have been set incorrectly	Adjust thresholds to limits indicated in these instructions
	Battery is significantly undersized	Increase number or capacity of battery
Loads do not operate	Blown load fuse	Establish cause of blown fuse and replace
	Lights: dead tube/lamp	Replace tube/lamp
	Cable diameter too small (high voltage drop)	Increase cable size to reduce voltage loss
Incorrect system operation	Jumpers set incorrectly	Set jumpers as per table overleaf
	Sytem needs re setting	Press reset button
Battery full and battery low LEDs flashing alternately (SunPower 30)	Solar module reverse connected	Correct polarity
	Temp sensor faulty or reverse connected	Replace faulty temp sensor
Battery full and battery good LEDs flashing (SunPower 6)	Overload (>6.3 Amps)	Reduce load size