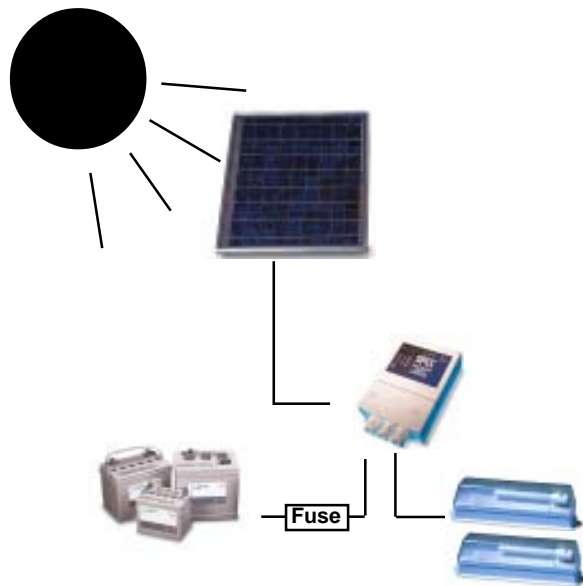


SOLLATEK SPCC16E SOLAR CHARGE CONTROLLER



Typical Solar System

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 SPCC will greatly increase battery lifetime and system reliability, whilst also giving the user a constant display of the system status.

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

The SPCC16E is protected against short circuit, overload, reverse current flow, reverse polarity and lightning power surges.

SPCC16E Specifications

Solar Charge Current	16 Amps
Load Current	16 Amps
Nominal Voltage (field selectable)	12 or 24 VDC
Current Consumption : Charging	12 mA
Discharging	12 mA
No Load	12 mA
Voltage Thresholds : Load disconnect	10 - 12 V
Load reconnect Hys.	0.5 - 1.0 V
Charge disconnect	13 - 15 V
Charge reconnect Hys.	0.5 - 2.0 V
Battery Temp. Compensation (int or ext)	-3mV/°C/cell
Operating Temperature	-10° to +50° C
Connections (max cable 6mm²)	Screw Type
Dimensions (mm)	182x132x53
Weight (Kg)	0.4

Installation Sequence

Having made any adjustments necessary for operation of the SPCC16E, follow the installation sequence below :-

1. Mount the SPCC16E 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 SPCC16E. 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 SPCC16E. The external temperature compensation probe cable should be connected to the terminals of the SPCC16E and the actual probe stuck onto the side of the nearest battery within the system.
 4. Connect the Battery cable, observing the correct polarity. A fuse (20A) 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 upon LVD setting
- * The load output has been disconnected to avoid damaging the battery due to excessive discharge.
- * The reset switch will re-connect the load after LVD has occurred and before LVD-H in case of an emergency or the LVD occurring at an inconvenient time. The load will disconnect when LVD is reached again.

LVD	<i>Low Voltage Disconnect</i>
LVD-H	<i>Low Voltage Disconnect Hysteresis</i>
Hysteresis	<i>The voltage the battery must rise by before reconnecting again.</i>

Troubleshooting

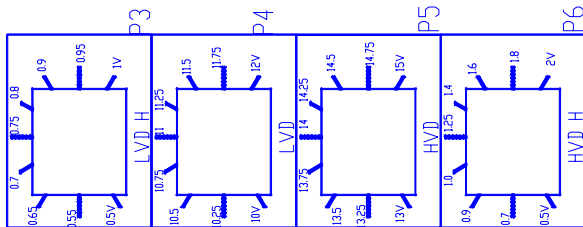
SYMPTOM	CAUSE	SOLUTION
Sun LED is not illuminated during daylight	· Solar Modules not properly connected	· Check module connections and ensure that polarities are correct
Battery Status LED s do not illuminate	· Battery incorrectly installed or fuse blown · Battery Acid is very low (Wet batteries only) · Battery is dead	· Check cables and fuse for short circuits and correct polarity connections · Fill the battery cells with distilled water · Replace
Internal load fuse blows (20 Amp)	· Short circuit in the load · Load is drawing too much current	· Find and repair short circuit, check cables · Reduce load size
Rapid on/off operation (chattering) of the relays	· Voltage thresholds have been set incorrectly · Battery is significantly undersized	· Adjust thresholds to limits indicated in these instructions · Increase number or capacity of battery
Loads do not operate	· Blown load fuse · Lights: Dead tube or lamp · Cable diameter is too small (High voltage drop)	· Establish why fuse has blown (see above) then replace · Replace tube or lamp · Increase cable size to reduce voltage losses
Incorrect System Operation	· Jumpers Set Incorrectly. · System Needs resetting.	· Set Jumpers as per table overleaf. · To reset, remove J1 and replace after 5 seconds

Advanced Technical Modifications



For Qualified personnel only

The SPCC16E is factory set at for immediate use at 12V using internal battery sense and temperature compensation and at the voltage thresholds set for a flooded lead-acid battery (see below). In order to adjust please follow the instructions noted below. Make sure that the SPCC16E 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. **(for 24V double all figures)**

Recommended thresholds	Flooded lead-acid battery	Sealed Gel type batteries
LVD	11.3	11.3
LVD-H	12.3 (1V)	12.3 (1V)
HVD	14.4	14.0
HVD-H	12.8 (1.6V)	12.8 (1.2V)

The miniature thumbwheels are removable to prevent un-authorized tampering of the rotary controls. When replacing them, ensure they are fitted in the correct orientation.

The low and high reconnect voltages are a hysteresis of the low and high disconnect voltages. If the required low volt disconnect is 11.5 volts and the required reconnect 12.3 volts then the LVD-H rotary control should be set to 0.8 v ($11.5 + 0.8 = 12.3$). Similarly if the HVD is 14V and the required reconnect is 12.9V, the HVD-H control should be set to 1.1V ($14 - 1.1 = 12.9$)

12 or 24V Operation

The SPCC16E is supplied ready for 12V operation. The installer can easily set the controller for 24V operation by adjusting jumpers as shown in Jumper Position table opposite. **All voltage figures will double.**

External Battery Sense

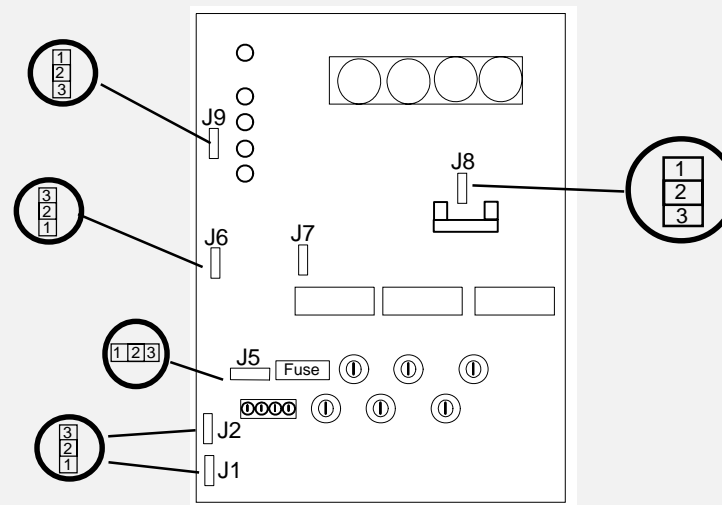
Although the SPCC16E is fitted with internal battery voltage sensing, for greater accuracy an external sense cable can be installed between the battery terminals and the 'Batt sense' terminals within the controller as shown below. It is important to make sure that the battery sense cable polarities are correct and J1 and J2 are set to 2+3 position. A 1Amp fuse should be fitted in the positive sense wire at the battery end.

External Temperature Compensation

The SPCC16E is fitted with internal temperature compensation which will adjust the controllers operation according to the ambient temperature, however for greater accuracy or if the batteries are located in an enclosure or a different room then an external temperature compensation probe (Code No. 94900000) should be fitted and J5 should be set to 1+2.

Jumper Positions

DO NOT ADJUST J7 (Leave in 1+2 position)
DO NOT ADJUST P1 or P2.



The SPCC16E Charge Controller is covered by a two year world-wide warranty. If any problems should arise please return the SPCC16E to your local dealer or contact your nearest Sollatek company.

Sollatek (UK) Ltd.
Unit 10, Poyle 14,
Newlands Drive,
SLOUGH SL3 0DX.
ENGLAND.

Tel. +44 1753 688300 Fax. +44 1753 685306 Tlx. 849057 SUKL G
Email:sales@sollatek.com
<http://www.sollatek.com>

The Power To Protect

TECHNOLOGY . QUALITY . SERVICE