

GENERAL SAFETY RECOMMENDATIONS

Batteries store a large amount of energy. Never short circuit a battery under any circumstances. We recommend connecting a fuse (slow acting type, according to the nominal regulator current) directly to the battery terminal. Batteries can produce flammable gases. Avoid making sparks, using fire or any naked flame. Make sure that the battery room is ventilated. Avoid touching or short circuiting wires or terminals. Be aware that the voltages on specific terminals or wires can be up to double the battery voltage. Use isolated tools, stand on dry ground and keep your hands dry. Keep children away from batteries and the charge regulator. Please observe the safety recommendations of the battery manufacturer. If in doubt, consult your dealer or installer.

INTENDED USE

The charge regulator is intended for use in photovoltaic systems with 12V nominal voltage. It shall be used with vented or sealed lead acid batteries only.

LIABILITY EXCLUSION

The manufacturer shall not be liable for damages, especially on the battery, caused by use other than as intended or as mentioned in this manual or if the recommendations of the battery manufacturer are neglected. The manufacturer shall not be liable if there has been service or repair carried out by any unauthorised person, unusual use, wrong installation, or bad system design. Opening the charge controller casing voids the warranty.

DESCRIPTION OF FUNCTIONS

The charge controller protects the battery from being overcharged by the solar array. The charging characteristics include several stages. Ambient temperature influences the charging characteristics. The charge controller has a number of safety and display functions.

CHOOSING THE POSITION

The regulator is intended for indoor use only. Protect it from direct sunlight and place it in a dry environment. Never install it in humid rooms (e.g. bathrooms).

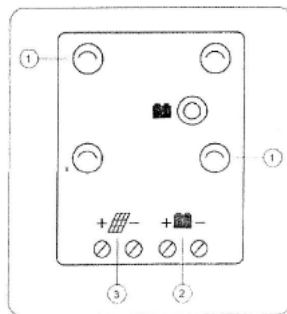
The regulator measures the ambient temperature to adapt the charging voltages, therefore it must be installed in the same room as the battery. The distance between the regulator and the battery should be between 12 to 40 inches (30 to 100 cm).

The regulator warms up during operation. It should only be installed on a non flammable surface.

CONNECTING THE CHARGE REGULATOR

1. Mount it on a dry, plain and non flammable surface using the mounting holes ①.
2. Respecting polarity (+ to +, - to -), connect the wires leading to the battery to the terminals ②.
3. Respecting polarity, connect the wires to the battery terminals. It is recommended that you protect the battery by connecting a fuse directly to the battery terminal.
4. Respecting polarity, connect the wires leading to the solar array to the terminals ③. To avoid sparks, shade the solar array during connection. The maximum short circuit current must not exceed the nominal current of the regulator.

For all wires, we recommend some form of mechanical strain relief close to the regulator.



SAFETY FUNCTIONS

Battery reverse polarity: If the battery is connected with reverse polarity by accident, the regulator will not get damaged.

Solar array reverse polarity: An electronic fuse protects the regulator if the array is connected with reverse polarity.

DISPLAY FUNCTIONS

The regulator has a display LED.

If the LED is green, the battery is fully charged.

If the LED is red, the battery voltage is low. Charge the battery to avoid depletion.

RECOMMENDATIONS FOR USE

The regulator does not need any maintenance or service. Dust can be removed with a dry tissue.

It is important that the battery gets fully charged frequently (at least monthly). Otherwise the battery will be permanently damaged.

A battery can only be fully charged if not too much energy is drawn during charging. Keep this in mind, especially if you install additional loads.

ERROR DESCRIPTION			
Error Condition	Display	Reason	Remedy
Battery is not being charged	LED off	Battery not connected or battery fuse blown	Check battery wires and fuse
Battery is flat	LED red	Low battery voltage	Switch off loads Re-charge battery
Battery is flat after short time	LED frequently red	Battery has low capacity	Change battery

TECHNICAL DATA	
Nominal voltage	12V
Boost voltage	14.4V (at 25°C)
Float voltage	13.7V (at 25°C)
Boost return voltage	12.5V
Temperature compensation	-18mV/°C
Max. solar panel current	4A
Dimensions	5.7 x 7.1 x 2.7 cm / 2.2 x 2.8 x 1.1 in.
Weight	0.24 lbs. / 110 g
Max. wire size	16 mm ²
Self consumption	4mA
Ambient temperature range	-15 to +45°C
Case protection	IP 20

2-YEAR WARRANTY

Please register online at:
http://www.icpsolar.com/4105/warranty_registration.asp

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