

# BlueSolar PWM Light Charge Controller 12/24V

(with light turn-off timer)

# 1. DESCRIPTION

- · Programmable load output with lighting control mode.
- Three stage battery charging (bulk absorption float).
- Protected against over current.
- Protected against short circuit.
- Protected against reverse polarity connection of the battery or solar array.
- Low voltage load disconnect.
- · Easy to set up thanks to two digit seven segment display.

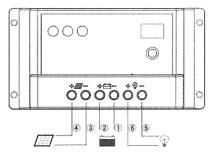
# 2. INSTALLATION



Use a 12V (36 cells) solar array for a 12V battery system. •

Use a 24V (72 cells) solar array for a 24V battery system.

The display will show a "12" if the Controller detects a 12V battery, and a "24" if it detects a 24V battery



## Do not exceed Solar and Load ratings

## 3. LED INDICATORS



Green LED: Off: No sunlight or not enough sunlight. Charger off. Fast flashing: Bulk charge. On: Absorption charge. Slow flashing: Float charge.



LED=Green: battery fully charged (> 13,4V) LED=Orange: battery ok (12,4V - 13,4V) LED=Red: battery low (11,2V - 12,4V) LED=Flashing Red: battery fully discharged (< 11,2V) (load output cut off level: 11,2V)

LED=ON: load output is on. LED=OFF: load output is off.

LED=Slow flashing: Overload. LED=Fast flashing: Short Circuit

#### Please note:

- The load output will cut off in case of over load or short circuit. The load output 1. will attempt to restart after 30 seconds. 2.
- After over discharge, the load will reconnect automatically when the battery is recharged to 13,1V / 26,2V.
- After over discharge, the load can be reconnected manually by pressing the on/off push button, if the battery voltage exceeds 12,6V / 25,2V. 3.

# 4. SETTING THE LOAD OUTPUT

## 4.1 Settings

	=		
0	Load output permanently off	9	Load output turned on during 9 hours after sunset
1	Load output turned on during 1 hour after sunset	10	Load output turned on during 10 hours after sunset
2	Load output turned on during 2 hours after sunset	11	Load output turned on during 11 hours after sunset
3	Load output turned on during 3 hours after sunset	12	Load output turned on during 12 hours after sunset
4	Load output turned on during 4 hours after sunset	13	Load output turned on during 13 hours after sunset
5	Load output turned on during 5 hour after sunset	н	Manual load control
6	Load output turned on during 6 hours after sunset	С	Load output controlled by battery voltage only
7	Load output turned on during 7 hours after sunset	L	Dusk to dawn mode
8	Load output turned on during 8 hours after sunset	d	Debug mode

## 4.2 Settings description

# 0 Charger only

The load output is switched off permanently.

## 1-13 Light control + delay

The load output automatically turns on after sunset (array voltage < 8V) and the built-in timer starts counting. When the timer reaches the set time, or when the low voltage limit is reached, the load output will turn off.

#### H Manual

The load output can be turned on and off manually with the push button. (low voltage shutdown remains active)

## C Load output controlled by battery voltage only

Load disconnect and load reconnect will be based only on battery voltage, see section 3

## L Dusk to dawn mode

Turn on delay (array voltage < 8V): 10 seconds. Turn off delay (array voltage > 8V): 1 minute. No timer function.

#### d Debug mode

Same as L mode but without delay of 10s/1min

# 5. SPECIFICATIONS

BlueSolar PWM-Light	12/24-5	12/24-10	12/24-20	12/24-30				
Battery Voltage	12/24V with automatic system voltage detection*							
Rated charge current	5 A	10 A	20 A	30 A				
Recommended solar array	36 cell for 12 V / 72 cell for 24 V							
Automatic low voltage load disconnect	Yes							
Maximum solar voltage	28 V for a 12 V system and 55 V for a 24 V system (1)							
Self-consumption	< 10 mA							
	Shut down after 60 s in case of 130% load							
Overload protection	Shut down after 5 s in case of 160% load							
	Short circuit: immediate shut down							
Grounding	Common positive							
Operating temp. range	-20 to +50°C (full load)							
Humidity (non	Max 95 %							
Settings								
Charge voltage 'absorption'	14.2 V / 28,4 V							
Charge voltage 'float'	13.8 V / 27,6 V							
Load disconnect	11,2V / 22,4V							
Load reconnect	12,6V / 25,2V (manual) 13,1V / 26,2V (automatic)							
	Enclo	sure						
Protection class	IP20							
Terminal size	5 mm² / AWG10							
Weight	0,13			0,15 kg				
Dimension (h x w x d)	70 x 133 x 33,5 mm (2.8 x 5.3 x 1.3 inch)							
Mounting	nt Indoor on	ly						
Humudity (non condensing)	mudity (non condensing) Max. 95%							
Operating temperature	-20°C to +50°C (full load)							
Cooling	Natural convection							
Standards								
Safety		IEC 62109-1						
EMC	EN 61000-6-1, EN 61000-6-3, ISO 7637-2							
<ol> <li>For 12V use 36 cell solar panels For 24V use 72 cell solar panels or 2x 36 cell in series</li> </ol>	2) The controller switches to the lower float voltage level 2 hours after the absorption voltage has been reached. Whenever the battery voltage becomes lower than 13 V, a new charge cycle is triggered.							

Victron Energy bv / De Paal 35 / 1351 JG ALMERE / The Netherlands Phone: (+31) (0)36 535 97 00 / Fax: (+31) (0)36 535 97 40 / www.victronenergy.com / e-mail: sales@victronenergy.com