victron energy
BLUE POWER

Manual

EN

IMPORTANT

- **Always connect the battery first, in order to allow the Controller to recognize system voltage**
- **Use a 12V (36 cells) solar array for a 12V system.**
- **Use a 24V (72 cells) solar array for a 24V system.**

BlueSolar PWM Pro Charge Controller

12V | 24V | 5A **SCC010005010**
12V | 24V | 10A **SCC010010010**
12V | 24V | 20A **SCC010020110**
12V | 24V | 30A **SCC010030010**


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1. General Safety Information

Read all instructions and cautions in the manual before starting the installation.

Keep the controller away from rain, exposure, severe dust, vibration, corrosive gas and intense electromagnetic interference.

Do not allow water to enter the controller.

There are no user serviceable parts inside the controller. Do not disassemble or attempt to repair it.

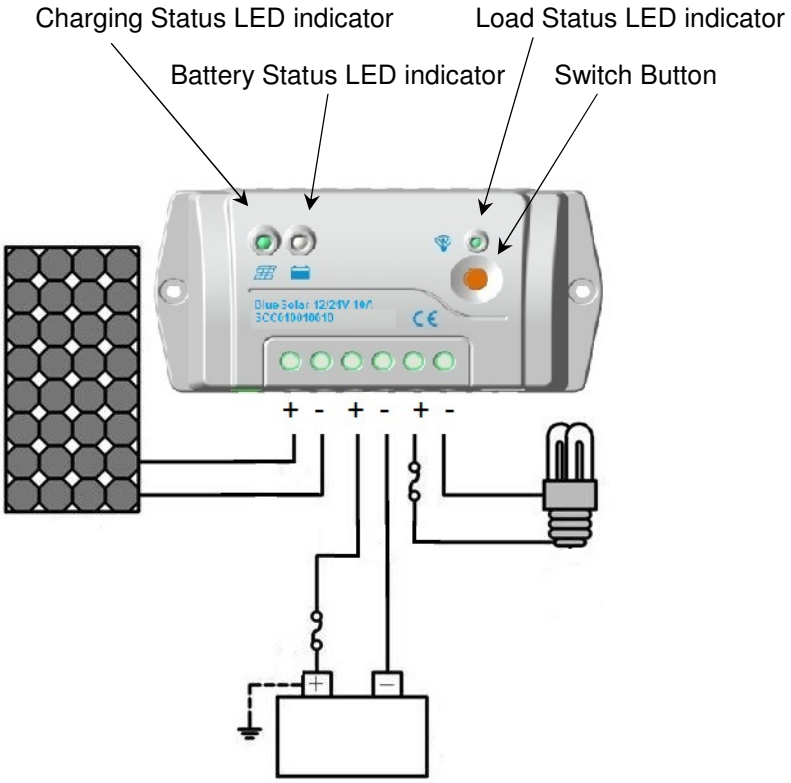
2. Features

- Three stage battery charging (bulk, absorption, float), fully programmable with the Remote Panel.
- Load output with low voltage disconnect and manual control (default setting).
- Fully programmable lighting control (Remote Panel needed).
- Optional external temperature sensor.
- Load output protected against over load and short circuit.
- Protected against reverse polarity connection of the solar panels and/or battery.

3. Intallation and operation

Important note: always connect the battery first, in order to allow the controller to recognize system voltage.

- The controller is a common positive controller.
- If system grounding is required, preferably the positive pole of the battery should be grounded.
- Use one system ground only.



Indicator Status Description

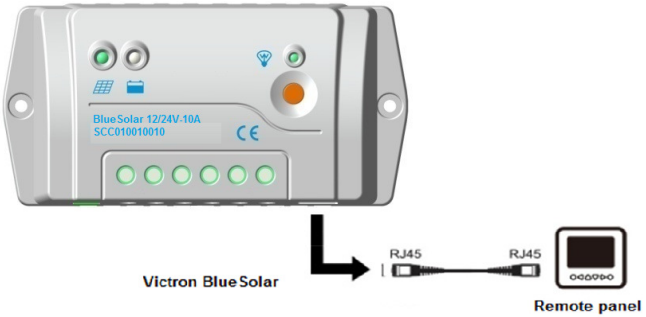
	Green	On Solid	Normal
	Green	Slowly Flashing	Charging
	Green	Off	Not charging
	Green	On Solid	Normal
	Green	Slowly Flashing	Full
	Green	Fast Flashing	Over voltage
	Orange	On Solid	Under voltage
	Red	On Solid	Over discharged
	Red	Flashing	Battery over temperature (if temp. sensor installed)
	Red	On Solid	Normal
	Red	Slowly Flashing	Overload
	Red	Fast Flashing	Short circuit
Charging, load and battery indicator (red) flashing simultaneously			System voltage error
Charging, load and battery indicator (orange) flashing simultaneously			Over temperature

Switch Button Functions:

1) Manual ON/OFF load control.
2) Resume to normal operation after a fault has been cleared.

4. Programming the controller

The default settings (see specifications) can be modified with help of the remote panel. The panel must be connected to the controller with a standard RJ45 UTP cable.



Use remote panel SCC900300000 to program the controller

Possible settings (Please see the manual of the panel for details):

Load programs:

- Manual Control (default)
- Light ON/OFF
- Light ON + Timer
- Time Control

Battery Type:

- Gel
- Sealed AGM (default)
- Flooded
- User defined

5. Protection

Load Overload
If the load current exceeds the rated current of controller (≥1.05 times rated discharge current), the controller will disconnect the load. Overloading must be cleared, then press the switch button.

Load Short Circuit
Fully protected against load wiring short-circuit (≥2 times rated discharge current). After one automatic load reconnect attempt, the fault must be cleared by restarting the controller or pressing the switch button.

PV Reverse Polarity
Full protection against PV reverse polarity, no damage to the controller will result. Correct the wiring to resume normal operation.

Battery Reverse Polarity
Full protection against battery reverse polarity, no damage to the controller will result. Correct the wiring to resume normal operation.

Damaged Temperature Sensor
If the temperature sensor short-circuited or damaged, the controller will be charging or discharging at the default temperature (25℃).

Overheating Protection
If the temperature of the controller heat sink exceeds 85°C, the controller will stop charging and discharging. When the temperature is below 75°C, the controller will restart.

High Voltage Transients
Limited internal transient protection.
In lightning prone areas, additional external suppression is recommended.

6. Troubleshooting

Faults	Possible reasons	Troubleshooting
Charging LED indicator off during daytime when sunshine falls on PV modules	PV array disconnected	Check that PV and battery wire connections are correct and tight.
Green Battery LED indicator fast flashing	Battery voltage higher than over voltage disconnect voltage	Check battery voltage. If too high, disconnect the solar module immediately and replace the controller.
Battery LED indicator orange	Battery under voltage	Load output is normal. Charging LED indicator will return to green automatically when fully charged.
Battery LED indicator RED and loads not working	Battery over discharged	The controller did cut off the output automatically. The LED indicator will return to green when fully charged.
Load status indicator red and slow flashing	Overload	Remove or cut out the additional load and press the button. The controller will restart after 3s.
Load status indicator red and fast flashing	Short circuit	Clear short circuit and press the button, the controller will resume to work after 3s
Charging, load and battery indicator (orange) flashing simultaneously	Over temperature	When the heat sink of the controller exceeds 85℃, the controller will automatically shut down. When the temperature has decreased to less than 75℃, the controller will restart..
Charging, load and battery indicator (red) flashing simultaneously	System voltage error	Check whether the battery voltage matches with the controller working voltage. Please change to a suitable battery or reset the working voltage. Press load button to clear the malfunction.

7. Technical specifications

	BlueSolar PWM Pro charge controller 12/24V		
	5 A /10 A	**20 A**	**30 A**
Battery voltage	12/24V Auto Select		
Rated charge current	5 A / 10 A	20 A	30 A
Automatic load disconnect	Yes		
Maximum solar voltage	28 V / 55 V (1)		
Self-consumption	8 mA		
DEFAULT SETTINGS			
Absorption charge	14,4 V / 28,8 V		
Float charge	13,8 V / 27,6 V		
Equalization charge	14,6 V / 29,2 V		
Low voltage load disconnect	11,1 V / 22,2 V		
Low voltage load reconnect	12,6 V / 25,2 V		
Load output	Manual control + low voltage disconnect		
ENCLOSURE & ENVIRONMENTAL			
Battery temperature sensor	Optional		
Temperature compensation	-30 mV / ℃ resp. -60 mV / ℃ (if temperature sensor installed)		
Operating temperature	-35℃ to +50℃		
Cooling	Natural convection		
Humidity	≤95% (non condensing)		
Enclosure	IP30		
Grounding	Positive grounding		
Overall dimensions	138x70x37 mm 5.4x2.7x1.4 inch	160x82x48 mm 6.3x3.2x1.9 inch	200x100x57 mm 7.9x4.0x2.3 inch
Mounting hole size	Φ 4,3 mm	Φ 4,3 mm	Φ 4,5 mm
Terminal size	4 mm^2	10 mm^2	10 mm^2
Weight	0,13 kg	0,3 kg	0,5 kg
Mounting	Vertical wall mount, indoor only		
STANDARDS			
Safety	IEC 62109-1		
EMC	EN 61000-6-1, EN 61000-6-3, ISO 7637-2		

1) For 12 V use 36 cell solar panels
For 24 V use 72 cell solar panels, or 2x 36 cell in series

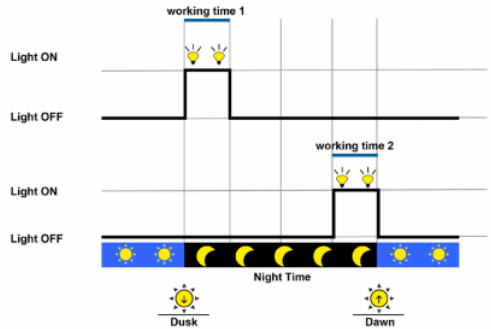
8. Battery related programming options

(see remote panel manual for details)

Battery related programming options	Gel	Sealed (default setting)	Flooded	User defined
Over voltage load disconnect	16.0V			9~17V
Charge limit	15.0V			9~17V
Over voltage reconnect	15.0V			9~17V
Equalize	——	14.6V	14.8V	9~17V
Absorption	14.2V	14.4V	14.6V	9~17V
Float	13.8V	13.8V	13.8V	9~17V
New charge cycle trigger voltage	13.2V			9~17V
Low voltage load reconnect	12.6V			9~17V
Under voltage warning reset	12.2V			9~17V
Under voltage warning	12.0V			9~17V
Low voltage load disconnect	11.1V			9~17V
Discharge limit	10.6V			9~17V
Equalize duration	——	2 hrs.	2 hrs.	0~3
Absorption duration	2 hrs.	2 hrs.	2 hrs.	0~3

Multiply voltages by 2 for a 24V system

9. Day/night timing options **(see remote panel manual)**



Victron Energy Blue Power

Distributor:

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Victron Energy B.V.
De Paal 35 | 1351 JG Almere
PO Box 50016 | 1305 AA Almere | The Netherlands

General phone : +31 (0)36 535 97 00
Customer support desk : +31 (0)36 535 97 03
Fax : +31 (0)36 535 97 40

E-mail : sales@victronenergy.com

www.victronenergy.com