BlueSolar charge controllers

BlueSolar 12/24-10

BlueSolar 12/24-10   **10A at 12V or 24V**
- Low cost PWM controller.
- Internal temperature sensor.
- Three stage battery charging (bulk, absorption, float).
- Protected against over current.
- Protected against short circuit.
- Protected against reverse polarity connection of the solar panels and/or battery.
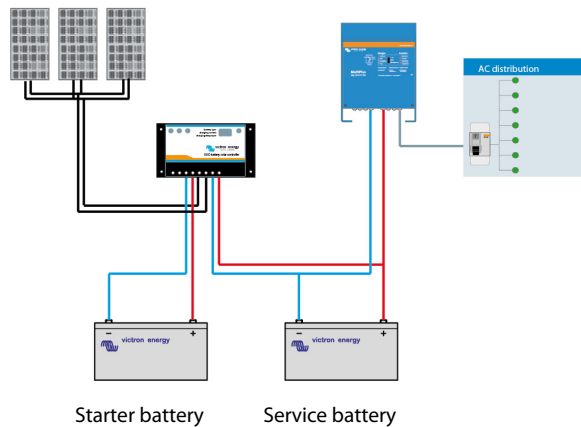- With low voltage load disconnect output.

BlueSolar DUO 12/24-20

BlueSolar DUO 12/24-20   **20A at 12V or 24V**
- PWM controller.
- Charges two separate batteries. For example the starter battery and the service battery of a boat or mobile home.
- Programmable charge current ratio (standard setting: equal current to both batteries).
- Charge voltage settings for three battery types (Gel, AGM and Flooded).
- Internal temperature sensor and optional remote temperature sensor.
- Protected against over current.
- Protected against short circuit.
- Protected against reverse polarity connection of the solar panels and/or battery.

Starter battery   Service battery

BlueSolar MPPT 12/24-40

BlueSolar MPPT 12/24-40   **40A at 12V or 24V**
- Maximum Power Point Tracking (MPPT) controller. Increases charge current by up to 30% compared to a PWM controller.
- Charge voltage settings for eight battery types, plus two equalize settings.
- Remote temperature sensor.
- Protected against over current.
- Protected against short circuit.
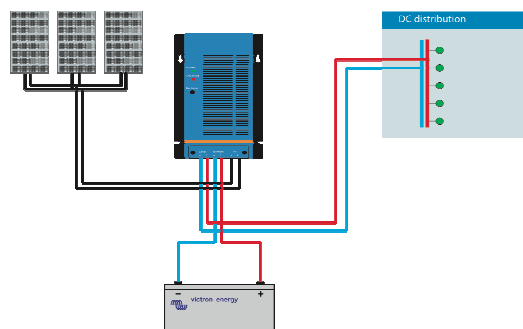- Protected against reverse polarity connection of the solar panels and/or battery.
- With low voltage load disconnect output.

BlueSolar	BlueSolar 12/24-10		BlueSolar DUO 12/24-20		BlueSolar MPPT 12/24-40	
	12V	24V	12V	24V	12V	24V
Battery Voltage	12/24V Auto Select		12/24V Auto Select		12/24V Auto Select	
Rated charge current	10A		20A		40A	
MPPT Tracking	No		No		Yes	
Second battery output	No		Yes		No	
Automatic load disconnect	Yes (maximum load 10A)		n. a.		Yes (maximum load 15A)	
Maximum solar voltage	55V		55V		55V	
Self-consumption	6mA		4mA		10mA	
Default settings						
Absorption charge (1)	14.4V	28.8V	14.4V	28.8V	14.4V	28.8V
Float charge (1)	13.7V	27.4V	13.7V	27.4V	13.7V	27.4V
Equalization charge	n. a.		n. a.		15.0V	30.0V
Over charge disconnect	n. a.		n. a.		14.8V	29.6V
Over charge recovery	n. a.		n. a.		13.6V	27.2V
Low voltage load disconnect	11.1V	22.2V	n. a.		10.8V	21.6V
Low voltage load reconnect	12,6V	25.2V	n. a.		12.3V	24.6V
Enclosure & Environmental						
Battery temperature sensor	Yes Internal sensor		Yes Internal sensor Remote sensor optional		Yes Remote sensor	
Temperature compensation	-30mV/℃	-60mV/℃	-30mV/℃	-60mV/℃	-30mV/℃	-60mV/℃
Operating temperature	-35℃ to +55℃ (full load)		-35℃ to +55℃ (full load)		0-40℃ (full load) 40-60℃ (derating)	
Cooling	Natural Convection		Natural Convection		Natural Convection	
Humidity (non condensing)	Max. 95%		Max. 95%		Max. 95%	
Protection class	IP20		IP20		IP20	
Terminal size	6mm² / AWG10		6mm² / AWG10		8mm² / AWG8	
Weight	160gr		180gr		1400gr	
Dimension (h x w x d)	70x133x33.5 mm		76x153x37 mm		202x66x140 mm	
Mounting	Vertical wall mount Indoor only		Vertical wall mount Indoor only		Vertical wall mount Indoor only	
Standards						
Safety	EN60335-1					
EMC	EN61000-6-1, EN61000-6-3					

1) BlueSolar DUO 12/24-20 and BlueSolar MPPT 12/24-40: Other settings possible (see manual)
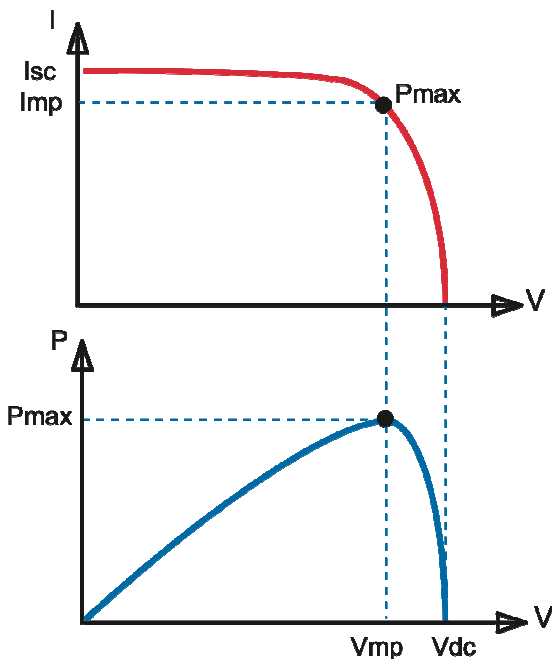
Maximum Power Point Tracking

Upper curve:
Output current (I) of a solar panel as function of output voltage (V).
The maximum power point (MPP) is the point P_{max} along the curve were the product I x V reaches its peak.

Lower curve:
Output power P = I x V as function of output voltage.
When using a PWM (not MPPT) controller the output voltage of the solar panel will be nearly equal to the voltage of the battery, and will be lower than V_{MP}.

victron energy
BLUE POWER