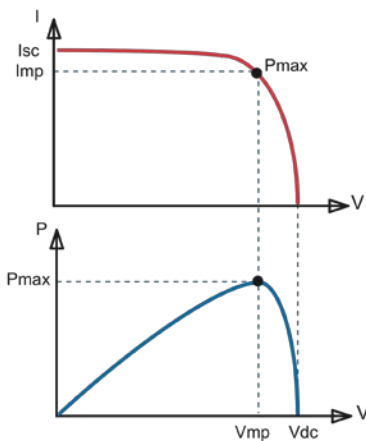


SmartSolar Charge Controllers MPPT – Overview

www.victronenergy.com



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 Pmax along the curve where the product $I \times V$ reaches its peak.

Lower curve:

Output power $P = I \times V$ 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 Vmp.

Feature highlights

- Bluetooth Smart built-in: enables set-up and monitoring with a smart phone or other Bluetooth enabled device
- Ultra-fast Maximum Power Point Tracking (MPPT)
- Advanced Maximum Power Point Detection in case of partial shading conditions
- Load output on the small models
- Battery Life: intelligent battery management by load shedding
- Automatic battery voltage recognition
- Flexible charge algorithm
- Over-temperature protection and power de-rating when temperature is high.

Color Control GX

All Victron Energy MPPT Charge Controllers are compatible with the Color Control GX: The Color Control GX provides intuitive control and monitoring for all products connected to it. The list of Victron products that can be connected is endless: Inverters, Multis, Quattros, MPPT 150/70, BMV-600 series, BMV-700 series, Skylla-i, Lynx Ion and even more.

VRM Online Portal

Besides monitoring and controlling products on the Color Control GX, the information is also forwarded to our free remote monitoring website: the VRM Online Portal. To get an impression of the VRM Online Portal, visit <https://vrm.victronenergy.com>, and use the 'Take a look inside' button. The portal is free of charge.

Related product: EasySolar

Minimal wiring and an all-in-one solution: the EasySolar takes power solutions one stage further, by combining an Ultra-fast BlueSolar charge controller (MPPT), an inverter/charger and AC distribution in one enclosure.

Model	Load output	Fan	Battery voltage	Optional display	Color Control GX	Com. port
75/10	Yes	No	12/24	MPPT control	Compatible	VE.Direct
75/15	Yes	No	12/24	MPPT control	Compatible	VE.Direct
100/15	Yes	No	12/24	MPPT control	Compatible	VE.Direct
100/20	Yes	No	12/24	MPPT control	Compatible	VE.Direct
100/20-48	Yes, 100mA	No	48	MPPT control	Compatible	VE.Direct
100/30	No	No	12/24	MPPT control	Compatible	VE.Direct
100/50	No	No	12/24	MPPT control	Compatible	VE.Direct
150/35	No	No	12/24/36/48	MPPT control	Compatible	VE.Direct
150/45-Tr	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
150/45-MC4	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
150/60-Tr	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
150/60-MC4	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
150/70-Tr	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
150/70-MC4	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
150/85-Tr	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
150/85-MC4	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
150/100-Tr	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
150/100-MC4	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
250/60-Tr	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
250/60-MC4	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
250/70-Tr	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
250/70-MC4	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
250/85-Tr	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
250/85-MC4	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
250/100-Tr	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct
250/100-MC4	No	No	12/24/36/48	Plug-in	Compatible	VE.Direct



Plug-in display

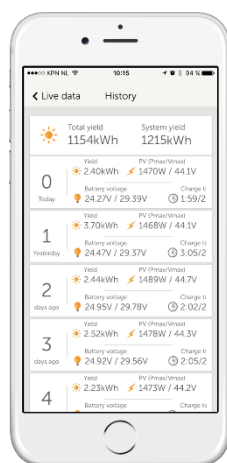
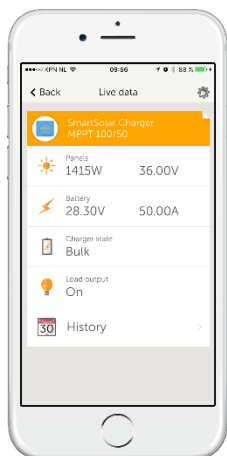


MPPT Control



SmartSolar Charge Controllers MPPT 100/30 & 100/50

www.victronenergy.com



Bluetooth Smart built-in: dongle not needed

The wireless solution to set-up, monitor and update the controller using Apple and Android smartphones, tablets or other devices.

VE.Direct

For a wired data connection to a Color Control panel, Venus GX, PC or other devices

Ultrafast Maximum Power Point Tracking (MPPT)

Especially in case of a cloudy sky, when light intensity is changing continuously, an ultra-fast MPPT controller will improve energy harvest by up to 30% compared to PWM charge controllers and by up to 10% compared to slower MPPT controllers.

Advanced Maximum Power Point Detection in case of partial shading conditions

If partial shading occurs, two or more maximum power points may be present on the power-voltage curve.

Conventional MPPTs tend to lock to a local MPP, which may not be the optimum MPP.

The innovative BlueSolar algorithm will always maximize energy harvest by locking to the optimum MPP.

Outstanding conversion efficiency

No cooling fan. Maximum efficiency exceeds 98%.

The full output current up to 40°C (104°F).

Flexible charge algorithm

Fully programmable charge algorithm (see the software page on our website), and eight pre-programmed algorithms, selectable with a rotary switch (see manual for details).

Extensive electronic protection

Over-temperature protection and power derating when temperature is high.

PV short circuit and PV reverse polarity protection.

PV reverse current protection.

Internal temperature sensor

Compensates absorption and float charge voltage for temperature.

Real-time data display options

- Apple and Android smartphones, tablets and other devices.

- Color Control panel.



**SmartSolar Charge Controller
MPPT 100/50**

SmartSolar Charge Controller	MPPT 100/30	MPPT 100/50
Battery voltage	12/24V Auto Select	
Rated charge current	30A	50A
Nominal PV power, 12V 1a,b)	440W	700W
Nominal PV power, 24V 1a,b)	880W	1400W
Maximum PV open circuit voltage	100V	100V
Max. PV short circuit current 2)	35A	60A
Maximum efficiency	98%	98%
Self-consumption	10 mA	
Charge voltage 'absorption'	Default setting: 14,4V / 28,8V (adjustable)	
Charge voltage 'float'	Default setting: 13,8V / 27,6V (adjustable)	
Charge algorithm	multi-stage adaptive	
Temperature compensation	-16 mV / °C resp. -32 mV / °C	
Protection	Battery reverse polarity (fuse, not user accessible) PV reverse polarity Output short circuit Over temperature	
Operating temperature	-30 to +60°C (full rated output up to 40°C)	
Humidity	95%, non-condensing	
Data communication port	VE.Direct	
	See the data communication white paper on our website	
ENCLOSURE		
Colour	Blue (RAL 5012)	
Power terminals	13 mm ² / AWG6	
Protection category	IP43 (electronic components), IP22 (connection area)	
Weight	1,3 kg	
Dimensions (h x w x d)	130 x 186 x 70 mm	
STANDARDS		
Safety	EN/IEC 62109-1	
1a) If more PV power is connected, the controller will limit input power.		
1b) The PV voltage must exceed Vbat + 5V for the controller to start. Thereafter the minimum PV voltage is Vbat + 1V.		
2) A higher short circuit current may damage the controller in case of reverse polarity connection of the PV array.		