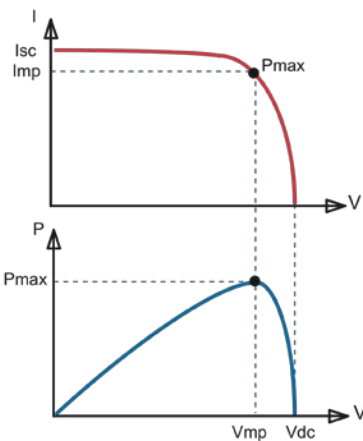# SmartSolar Charge Controllers MPPT – Overview

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 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 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