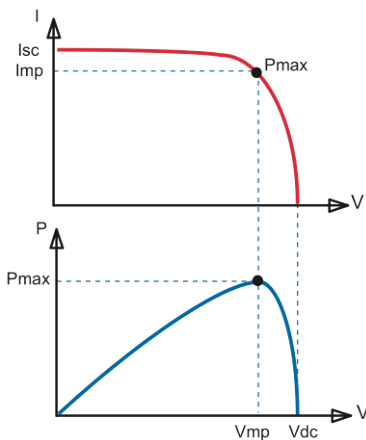


# BlueSolar and SmartSolar MPPT Charge Controllers Overview

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## Maximum Power Point Tracking (MPPT)

### 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  $V_{mp}$ .

## Feature highlights common to all models

- Ultra-fast Maximum Power Point Tracking (MPPT)
- Advanced Maximum Power Point Detection in case of partial shading conditions
- Outstanding conversion efficiency
- Natural convection cooling (except for the 150/70 and 150/85 CAN-bus models)
- Automatic battery voltage recognition
- Flexible charge algorithm
- Over temperature protection and power derating when temperature is high.

## SmartSolar and BlueSolar:

- **SmartSolar** models have Bluetooth built-in.
- **BlueSolar** models can be made Bluetooth accessible by connecting a **VE.Direct Bluetooth Smart dongle**. Advantage: the products are not accessible when no dongle is connected.

## Low Power models with load output (see table on page 2)

- See the appendix of the respective manuals for load output disconnect and reconnect options, including **BatteryLife algorithm**.

## Day/night timing and light dimming on the low power models with a load output

- Use the **VE.Direct TX digital output cable**, and **VictronConnect** to configure.

## Virtual load output, including day/night timing and BatteryLife algorithm on the higher power models

- Use the **VE.Direct TX digital output cable** and connect to a **BatteryProtect** or a solid state relay. Use **VictronConnect** to configure.

## Display options

- **MPPT Control**: connects to all models with a VE.Direct port, except the BlueSolar MPPT 70/15. (Does not connect to the 150/70 and 150/85 CAN-bus models)
- **SmartSolar Control Display**: a plug-on display compatible with all models 150/45 and higher. Both displays can be connected to one controller simultaneously.
- **Color Control GX and other GX devices**: see the GX product family on our website.
- **VRM website**: see the VRM portal documentation on our website.

## Remote firmware updating

- See **VRM: Remote firmware update** on our website.

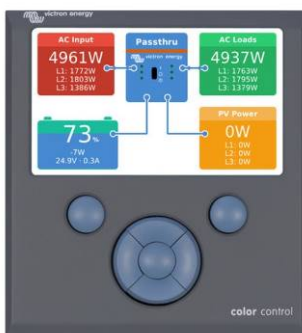
To access the above-mentioned documents: press the search button on our website and enter the appropriate search word.



MPPT Control



SmartSolar Control



Color Control GX



Venus GX



Octo GX



GX GSM

BlueSolar Charge Controller	Load output	Fan	Battery voltage	Optional display	Bluetooth	Com. port	Remote on-off	Programmable relay	Wire Box
75/10	Yes	No	12/24	MPPT control	Optional dongle	VE.Direct	No	No	S 75-10/15
75/15	Yes	No	12/24	MPPT control	Optional dongle	VE.Direct	No	No	S 75-10/15
100/15	Yes	No	12/24	MPPT control	Optional dongle	VE.Direct	No	No	S 100-15
100/30	No	No	12/24	MPPT control	Optional dongle	VE.Direct	No	No	M
100/50	No	No	12/24	MPPT control	Optional dongle	VE.Direct	No	No	M
150/35	No	No	12/24/36/48	MPPT control	Optional dongle	VE.Direct	No	No	M
150/45-Tr	No	No	12/24/36/48	MPPT control	Optional dongle	VE.Direct	No	No	L
150/45-MC4	No	No	12/24/36/48	MPPT control	Optional dongle	VE.Direct	No	No	L
150/60-Tr	No	No	12/24/36/48	MPPT control	Optional dongle	VE.Direct	No	No	L
150/60-MC4	No	No	12/24/36/48	MPPT control	Optional dongle	VE.Direct	No	No	L
150/70-Tr	No	No	12/24/36/48	MPPT control	Optional dongle	VE.Direct	No	No	L
150/70-MC4	No	No	12/24/36/48	MPPT control	Optional dongle	VE.Direct	No	No	L
150/70 CAN-bus	No	Yes	12/24/36/48	Integrated display	n.a.	VE.Can	Yes	Yes	n.a.
150/85 CAN-bus	No	Yes	12/24/36/48	Integrated display	n.a.	VE.Can	Yes	Yes	n.a.
SmartSolar Charge Controller	Load output	Fan	Battery voltage	Optional display	Bluetooth	Com. port	Remote on-off	Programmable relay	Wire Box
75/10	Yes	No	12/24	MPPT control	Built-in	VE.Direct	No	No	S 75-10/15
75/15	Yes	No	12/24	MPPT control	Built-in	VE.Direct	No	No	S 75-10/15
100/15	Yes	No	12/24	MPPT control	Built-in	VE.Direct	No	No	S 100-15
100/20	Yes	No	12/24	MPPT control	Built-in	VE.Direct	No	No	S 100-20
100/20_48V	Yes, 100mA	No	48	MPPT control	Built-in	VE.Direct	No	No	S 100-20
100/30	No	No	12/24	MPPT control	Built-in	VE.Direct	No	No	M
100/50	No	No	12/24	MPPT control	Built-in	VE.Direct	No	No	M
150/35	No	No	12/24/36/48	MPPT control	Built-in	VE.Direct	No	No	M
150/45-Tr	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	L
150/45-MC4	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	L
150/60-Tr	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	L
150/60-MC4	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	L
150/70-Tr	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	L
150/70-MC4	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	L
150/85-Tr	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	XL
150/85-MC4	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	XL
150/100-Tr	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	XL
150/100-MC4	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	XL
250/60-Tr	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	L
250/60-MC4	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	L
250/70-Tr	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	L
250/70-MC4	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	L
250/85-Tr	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	XL
250/85-MC4	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	XL
250/100-Tr	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	XL
250/100-MC4	No	No	12/24/36/48	MPPT ctrl & SmartSolar ctrl	Built-in	VE.Direct	Yes	Yes	XL

For connection to a Color Control GX or other GX device see <https://www.victronenergy.com/live/venus-os:start>