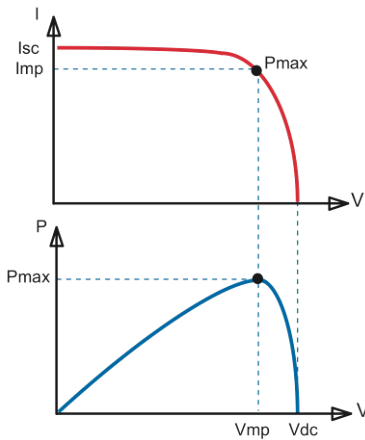


BlueSolar and SmartSolar MPPT Charge Controllers Overview

www.victronenergy.com



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.

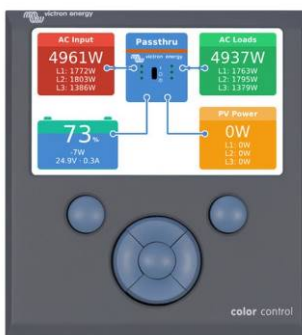
To access the above-mentioned documents: press the search button on our website and enter the appropriate search word.



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>