

# BlueSolar Charge Controllers with screw- or MC4 PV connection

MPPT 150/60 and MPPT 150/70

[www.victronenergy.com](http://www.victronenergy.com)



**Solar Charge Controller  
MPPT 150/70-Tr**



**Solar Charge Controller  
MPPT 150/70-MC4**



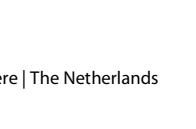
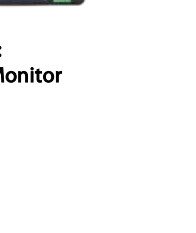
**VE.Direct Bluetooth  
Smart Dongle**



**Bluetooth sensing:  
Smart Battery Sense**



**Bluetooth sensing:  
BMV-712 Smart Battery Monitor  
or SmartShunt**



## Ultra-fast 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 %.

## 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 and optional external battery voltage, temperature and current sensing via Bluetooth

A Smart Battery Sense or a BMV-712 Smart Battery Monitor can be used to communicate battery voltage and temperature (and current, in case of a BMV-712 or a SmartShunt) to one or more BlueSolar Charge Controllers. (VE.Direct Bluetooth Smart dongle needed)

## Real-time data display options

- Color Control GX or other GX devices: see the Venus documents on our website.
- A smartphone or other Bluetooth-enabled device: VE.Direct Bluetooth Smart dongle needed.

| BlueSolar Charge Controller                                                                                                                                                                                                                                                                                                                                                                                                                                                                | MPPT 150/60                                                                       | MPPT 150/70                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------|
| Battery voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 12 / 24 / 48 V Auto Select (software tool needed to select 36 V)                  |                            |
| Rated charge current                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 60 A                                                                              | 70 A                       |
| Nominal PV power, 12 V 1a,b)                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 860 W                                                                             | 1000 W                     |
| Nominal PV power, 24 V 1a,b)                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1720 W                                                                            | 2000 W                     |
| Nominal PV power, 48 V 1a,b)                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3440 W                                                                            | 4000 W                     |
| Max. PV short circuit current 2)                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 50 A                                                                              | 50 A                       |
| Maximum PV open circuit voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 150 V absolute maximum coldest conditions<br>145 V start-up and operating maximum |                            |
| Maximum efficiency                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 98 %                                                                              |                            |
| Self-consumption                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 10 mA                                                                             |                            |
| Charge voltage 'absorption'                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Default setting: 14,4 / 28,8 / 43,2 / 57,6 V (adjustable)                         |                            |
| Charge voltage 'float'                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Default setting: 13,8 / 27,6 / 41,4 / 55,2 V (adjustable)                         |                            |
| Charge algorithm                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | multi-stage adaptive                                                              |                            |
| Temperature compensation                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -16 mV / -32 mV / -64 mV / °C                                                     |                            |
| Protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 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 comm. port and remote on-off                                                                                                                                                                                                                                                                                                                                                                                                                                                          | VE.Direct (see the data communication whitepaper on our website)                  |                            |
| Parallel operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Yes (not synchronized)                                                            |                            |
| ENCLOSURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |                            |
| Colour                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Blue (RAL 5012)                                                                   |                            |
| PV terminals 3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 35 mm² / AWG2 (Tr models)<br>Two sets of MC4 connectors (MC4 models)              |                            |
| Battery terminals                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 35 mm² / AWG2                                                                     |                            |
| Protection category                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | IP43 (electronic components), IP22 (connection area)                              |                            |
| Weight                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3 kg                                                                              |                            |
| Dimensions (h x w x d) in mm                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Tr models: 185 x 250 x 95                                                         | MC4 models: 215 x 250 x 95 |
| STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |                            |
| Safety                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | EN/IEC 62109-1, UL 1741, CSA C22.2                                                |                            |
| 1a) If more PV power is connected, the controller will limit input power.<br>1b) PV voltage must exceed Vbat + 5 V for the controller to start.<br>Thereafter minimum PV voltage is Vbat + 1 V.<br>2) A PV array with a higher short circuit current may damage the controller.<br>3) MC4 models: several splitter pairs may be needed to parallel the strings of solar panels.<br>Maximum current per MC4 connector: 30 A (the MC4 connectors are parallel connected to one MPPT tracker) |                                                                                   |                            |