# SmartSolar Charge Controllers with screw- or MC4 PV connection
## MPPT 150/85 & MPPT 150/100

www.victronenergy.com

## Ultra-fast Maximum Power Point Tracking (MPPT)
Especially in case of a clouded 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 SmartSolar 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
Compensates absorption and float charge voltage for temperature.

## 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
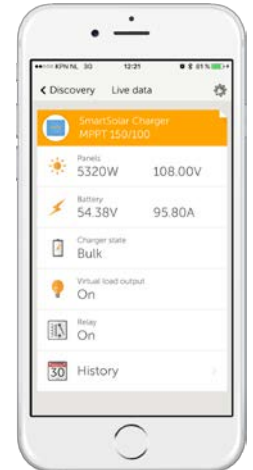
## Remote on-off
To connect for example to a VE.BUS BMS.

## Programmable relay
Can be programmed (a.o. with a smartphone) to trip on an alarm, or other events.

## Optional: pluggable LCD display
Simply remove the rubber seal that protects the plug on the front of the controller, and plug-in the display.

SmartSolar Charge Controller
MPPT 150/100-Tr
with pluggable display

SmartSolar Charge Controller
MPPT 150/100-MC4
without display

| SmartSolar Charge Controller | MPPT 150/85 | MPPT 150/100 |
|---|---|---|
| Battery voltage | 12 / 24 / 48V Auto Select (software tool needed to select 36V) | |
| Rated charge current | 85A | 100A |
| Maximum PV power, 12V   1a,b) | 1200W | 1450W |
| Maximum PV power, 24V   1a,b) | 2400W | 2900W |
| Maximum PV power, 48V   1a,b) | 4900W | 5800W |
| Max. PV short circuit current   2) | 70A | 70A |
| Maximum PV open circuit voltage | 150V absolute maximum coldest conditions 145V start-up and operating maximum | |
| Maximum efficiency | 98% | |
| Self-consumption | Less than 35mA @ 12V / 20mA @ 48V | |
| Charge voltage 'absorption' | Default setting: 14,4 / 28,8 / 43,2 / 57,6V (adjustable with: rotary switch, display, VE.Direct or Bluetooth) | |
| Charge voltage 'float' | Default setting: 13,8 / 27,6 / 41,4 / 55,2V (adjustable: rotary switch, display, VE.Direct or Bluetooth) | |
| Charge algorithm | multi-stage adaptive | |
| Temperature compensation | -16 mV / -32 mV / -68 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 or Bluetooth | |
| Remote on/off | Yes (2 pole connector) | |
| Programmable relay | DPST    AC rating: 240VAC / 4A      DC rating: 4A up to 35VDC, 1A up to 60VDC | |
| Parallel operation | Yes (not synchronized) | |
| ENCLOSURE | | |
| Colour | Blue (RAL 5012) | |
| PV terminals   3) | 35 mm² / AWG2 (Tr models)        Three sets of MC4 connectors (MC4 models) | |
| Battery terminals | 35 mm² / AWG2 | |
| Protection category | IP43 (electronic components), IP22 (connection area) | |
| Weight | 4,5kg | |
| Dimensions (h x w x d) in mm | Tr models: 216 x 295 x 103   MC4 models: 246 x 295 x 103 | |
| STANDARDS | | |
| Safety | EN/IEC 62109 | |

1a) If more PV power is connected, the controller will limit input power to the stated maximum.
1b) The PV voltage must exceed Vbat + 5V for the controller to start.
   Thereafter the minimum PV voltage is Vbat + 1V.
2)   A PV array with a higher short circuit current may damage the controller in case of reverse polarity connection of the PV array.
3)   MC4 models: several splitter pairs may be needed to parallel the strings of solar panels.
   Maximum current per MC4 connector: 30A (the MC4 connectors are parallel connected to one MPPT tracker)

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