

SmartSolar Charge Controllers with VE.Can interface MPPT 150/70 VE.Can up to MPPT 150/100 VE.Can



SmartSolar Charge Controller MPPT 150/100-Tr VE.Can with optional pluggable display



SmartSolar Charge Controller MPPT 150/100-Tr VE.Can without display



Bluetooth sensing: Smart Battery Sense



Bluetooth sensing: BMV-712 Smart Battery Monitor



Bluetooth sensing: SmartShunt

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 (MPP) 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, 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.

Bluetooth Smart built-in

The wireless solution to set-up, monitor, update and synchronise SmartSolar Charge Controllers.

Internal temperature sensor and optional external battery voltage, temperature and current sensing via Bluetooth

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

VE.Direct or VE.Can

For a wired data connection to a Color Control GX, other GX products, PC or other devices

Fully discharged battery recovery function

Will initiate charging even if the battery has been discharged to zero volts.

Will reconnect to a fully discharged Li-ion battery with integrated disconnect function.

VE.Can: the multiple controller solution

Up to 25 units can be synchronised with VE.Can, and up to 10 units with Bluetooth

Remote on-off

To connect for example to a VE.BUS BMS.

Programmable relay

Can be programmed to trip on an alarm, or other events.

Optional: SmartSolar pluggable LCD display

Simply remove the rubber seal that protects the plug on the front of the controller, and plug-in the display.



SmartSolar pluggable display





| | | | 4 = 0 /4 0 0 1 1 = 0 | |
|---|---|---|--|--|
| SmartSolar Charge Controller | 150/70 VE.Can | 150/85 VE.Can | 150/100 VE.Can | |
| with VE.Can interface | | 12/24/40// 4 | (also available without Bluetooth) | |
| Battery voltage | 12/24/48V Auto Select (36V: manual) | | | |
| Rated charge current | 70A | 85A | 100A | |
| Nominal PV power, 12V 1a,b) | 1000W | 1200W | 1450W | |
| Nominal PV power, 24V 1a,b) | 2000W | 2400W | 2900W | |
| Nominal PV power, 36V 1a,b) | 3000W | 3600W | 4350W | |
| Nominal PV power, 48V 1a,b) | 4000W | 4900W | 5800W | |
| Max. PV short circuit current 2) | 50A (max 30A per MC4 conn.) 70A (max 30A per MC4 conn.) | | | |
| 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 voltage 'equalization' | Default setting: 16,2V / 32,4V / 48,6V / 64,8V (adjustable) | | | |
| Charge algorithm | multi-stage adaptive (eight preprogrammed algorithms) or user defined algorithm | | | |
| 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 | | | |
| Maximum altitude | 5000m (full rated output up to 2000m) | | | |
| Environmental condition | Indoor, unconditioned | | | |
| Pollution degree | PD3 | | | |
| Data communication | VE.Can, VE.Direct and 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, parallel synchronised operation with VE.Can (max. 25 units) or Bluetooth (max. 10 units) | | | |
| ENCLOSURE | | | | |
| Colour | Blue (RAL 5012) | | | |
| PV terminals 3) | 35 mm² / AWG2 (Tr models) Two pairs of MC4 connectors (MC4 models) | | 35 mm ² / AWG2 (Tr models) hree pairs of MC4 connectors (MC4 models) | |
| Battery terminals | 35mm² / AWG2 | | | |
| Protection category | IP43 (electronic components), IP22 (connection area) | | | |
| Weight | 3 kg 4,5kg | | | |
| Dimensions (h x w x d) in mm | Tr models: 185 x 250 x 95 mm MC4 models: 215 x 250 x 95 mm | Tr models: 216 x 295 x 103 MC4 models: 246 x 295 x 103 | | |
| STANDARDS | | | | |
| Safety EN/IEC 62109-1, UL 1741, CSA C22.2 | | | | |
| An) If more DV power is connected the controller will limit input power | | | | |

1a) If more PV power is connected, the controller will limit input power.

1a) If more PV power is confricted, the controller will limit input power.
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.
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)



With VE.Can or Bluetooth up to 25 respectively up to 10 Charge Controllers can be daisy-chained for synchronous charging and connected to a Color Control GX or other GX device Each Controller can be monitored individually, for example on a Color Control GX and on the VRM website (VE.Can)

or on a smartphone or iPad (Bluetooth)

