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.

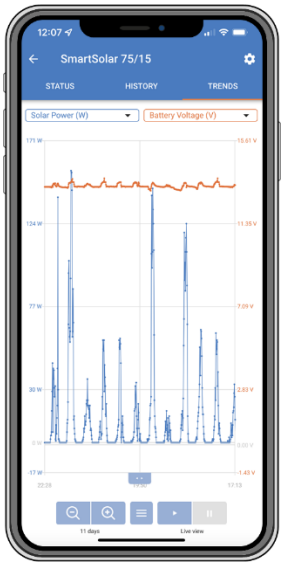
Programmable relay

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



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SmartSolar Charge Controller with VE.Can interface	150/70 VE.Can	150/85 VE.Can	150/100 VE.Can (also available without Bluetooth)
Battery voltage	12/24/48 V Auto Select (36 V: manual)		
Rated charge current	70 A	85 A	100 A
Nominal PV power, 12 V 1a,b)	1000 W	1200 W	1450 W
Nominal PV power, 24 V 1a,b)	2000 W	2400 W	2900 W
Nominal PV power, 36 V 1a,b)	3000 W	3600 W	4350 W
Nominal PV power, 48 V 1a,b)	4000 W	4900 W	5800 W
Max. PV short circuit current 2)	50 A (max 30 A per MC4 conn.)	70 A (max 30 A per MC4 conn.)	
Maximum PV open circuit voltage	150 V absolute maximum coldest conditions 145 V start-up and operating maximum		
Maximum efficiency	98 %		
Self-consumption	Less than 35 mA @ 12 V / 20 mA @ 48 V		
Charge voltage 'absorption'	Default setting: 14,4 / 28,8 / 43,2 / 57,6 V (adjustable with: rotary switch, display, VE.Direct or Bluetooth)		
Charge voltage 'float'	Default setting: 13,8 / 27,6 / 41,4 / 55,2 V (adjustable: rotary switch, display, VE.Direct or Bluetooth)		
Charge voltage 'equalization'	Default setting: 16,2 V / 32,4 V / 48,6 V / 64,8 V (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: 240 VAC / 4 A DC rating: 4 A up to 35 VDC, 1 A up to 60 VDC		
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 mm² / AWG2 (Tr models) Three 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: 215x 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		
STORED TRENDS			
Data stored	Battery voltage,current and temperature, as well as load output current, PV voltage and PV current.		
Number of days trends data is stored	46		

1a) If more PV power is connected, the controller will limit input power.
1b) The PV voltage must exceed Vbat + 5 V for the controller to start. Thereafter the minimum PV voltage is Vbat + 1 V.
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: 30 A (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)

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