SMARTSOLAR MPPT

New SmartSolar MPPT solar charge controllers from Victron Energy.

Regulador Victron Energy SmartSolar MPPT

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Display Victron Energy SmartSolar MPPT

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 99%.

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, 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.

75/10 - 100/20 SPECIFICATIONS

SmartSolar MPPT	MPPT 75/10	MPPT 75/15	MPPT 100/15	MPPT 100/20	MPPT 100/20-48
Performance					
Battery voltage	12 / 24 Vdc	12 / 24 Vdc	12 / 24 Vdc	12 / 24 Vdc	12 / 24 / 48 Vdc
Self consumption	12V: 25 mA - 24 V: 15 mA				12V: 25 mA - 24 V: 15 mA 48V: 10 mA
DC input					
Maximum PV power 12V	145 W	220 W	220 W	290 W	290 W
Maximum PV power 24V	290 W	440 W	440 W	580 W	580 W
Maximum PV power 48V	n.d.	n.d.	n.d.	n.d.	1160 W
Max PV open circuit voltage	75 Vdc	75 Vdc	100 Vdc	100 Vdc	100 Vdc
Peak efficiency	98 %	98 %	98 %	98 %	98 %
DC Output					
Load current	15 Amp max	15 Amp max	15 Amp max	20 Amp. max.	20 A / 20 A / 1 A max.
Absorption voltage	14,4 / 28,8 Vdc	14,4 / 28,8 Vdc	14,4 / 28,8 Vdc	14,4 / 28,8 Vdc	14,4 / 28,8 / 57,6 Vdc
Float voltage	13,8 / 27,6 Vdc	13,8 / 27,6 Vdc	13,8 / 27,6 Vdc	13,8 / 27,6 Vdc	13,8 / 27,6 / 55,2 Vdc
Charge algorithm	Multi stage adaptative				
Temperature compensation	-16 mV/ºC rep. -32mV/ºC				
Continuos peak load current	13 A	15 A	15 A	20 A	20 A
Low voltage load disconnect	11,1 / 22,2 / 44,4 V ó 11,8 / 23,6 / 57,6 V or BatteryLife algorithm				
Low voltage load reconnect	13,1 V / 26,2 / 52,4 V ó 14 V / 28 / 56 V or BatteryLife algorithm				
Ambiental specifications					
Operating temperature	-30 a +60 ºC. Full rated output up to 40° C				
Humidity	95%, non condensing				
Enclosure and Environmental					
Data communication port	VE.Direct or Bluetooth				
Power terminals	6 mm2	6 mm^2	6 mm^2	6 mm^2	6 mm^2
Protection category	IP65 / IP22 (conections)				
Dimensions	100 x 113 x 40 mm			100 x 113 x 50 mm	100 x 113 x 60 mm
Weight	0,5 Kg			0,6 Kg	0,65 Kg
Mounting	Vertical wall mount. Indoor only				
Standards					
Security	EN 62109-1, UL 1741, CSA C22.2				

100/30 - 100/50 SPECIFICATIONS

SmartSolar MPPT	MPPT 100/30	MPPT 100/50
Performance		
Battery voltage	12 / 24 Vdc	12 / 24 Vdc
Self consumption	12V.: 30 mA. - 24V: 20 mA	
DC input		
Maximum PV power 12V	440 W (15 to 80 Vdc)*	700 W (15 to 70 Vdc resp. 95V)*
Maximum PV power 24V	880 W (30 to 80 Vdc)*	1400 W (30 to 70 Vdc resp. 95V)*
Max PV open circuit voltage	100 Vdc	100 Vdc
Peak efficiency	98 %	98 %
DC Output		
Absorption voltage	14,4 / 28,8 Vdc	14,4 / 28,8 Vdc
Float voltage	13,8 / 27,6 Vdc	13,8 / 27,6 Vdc
Charge algorithm	Multi stage adaptative	
Temperature compensation	-16 mV/ºC rep. -32mV/ºC	
Load current	30 A	50 A
Ambiental specifications		
Operating temperature	-30 a +60 ºC. Full rated output up to 40º C	
Humidity	95%, non condensing	
Enclosure and Environmental		
Data communication port	VE.Direct or Bluetooth	
Terminals	16 mm2	16 mm^2
Protection category	IP43 / IP22 (conections)	
Dimensions	130 x 186 x 70 mm	
Weight	1,30 Kgr	
Mounting	Vertical wall mount. Indoor only	
Standards		
Security	EN62109	

150/35 - 150/100 SPECIFICATIONS

SmartSolar MPPT	MPPT 150/35	MPPT 150/45	MPPT 150/60	MPPT 150/70	MPPT 150/85	MPPT 150/100
Performance						
Battery voltage	12 / 24 / 48 Vdc	12/24/48 Vdc	12/24/48 Vdc	12/24/48 Vdc	12/24/48 Vdc	12/24/48 Vdc
Self consumption	Less than 35mA @ 12V / 20mA @ 48V					
DC input						
Maximum PV power 12V	500 W	650 W	860 W	1000 W	1200 W	1450 W
Maximum PV power 24V	1000 W	1300 W	1720 W	2000 W	2400 W	2900 W
Maximum PV power 48V	2000 W	2600 W	3440 W	4000 W	3600 W	5800 W
Max PV open circuit voltage	150 Vdc	150 Vdc	150 Vdc	150 Vdc	4900 W	150 Vdc
Peak efficiency	98 %	98 %	98 %	98 %	98 %	98 %
DC Output						
Absorption voltage	14,4 / 28,8 / 57,6 Vcc (adjustable)					
Float voltage	13,8 / 27,6 / 55,2 Vcc (adjustable)					
Charge algorithm	Multi stage adaptative					
Temperature compensation	-16 mV/ºC / -32mV/ºC / -64 mV/ºC					
Load current	35 A	45 A	60 A	70 A	85 A	100 A
Max. PV short circuit current	40 A	50 A	50 A	50 A	70 A	70 A
Protection	PV Reverse polarity / Output Short Circuit / Over temperature					
Ambiental specifications						
Operating temperature	-30 to +60 ºC. Full rated output up to 40º C					
Humidity	95%, non condensing					
Enclosure and Environmental						
Data communication port	VE.Direct or Bluetooth					
Terminals	13 mm2	35 mm2 (Tr) 2 x MC4 (MC4)	35 mm2 (Tr) 2 x MC4 (MC4)	35 mm2 (Tr) 2 x MC4 (MC4)	35 mm2 (Tr) 3 x MC4 (MC4)	35 mm2 (Tr) 3 x MC4 (MC4)
Protection category	IP43 / IP22 (conections)					
Dimensions	130 x 186 x 70 mm		Tr: 185 x 250 x 95 mm MC4: 215 x 250 x 95 mm		Tr: 216 x 295 x 103 mm MC4: 246 x 295 x 103 mm	
Weight	1,25 Kgr		3 Kgr		4,5 Kgr	
Mounting	Vertical wall mount. Indoor only					
Standards						
Security	EN 62109-1, UL 1741, CSA C22.2					

250/60 - 250/100 SPECIFICATIONS

Model	MPPT 250/60	MPPT 250/70	MPPT 250/85	MPPT 250/100
Battery voltage	Auto Select: 12, 24, 48 V Software tool needed to select 36 V			
Rated charge current	60 Amp	70 Amp	85 Amp.	100 Amp
Maximum PV power, 12 V [1a,b)]	860 W	1000 W	1200 W	1450 W
Maximum PV power, 24 V [1a,b)]	1720 W	2000 W	2400 W	2900 W
Maximum PV power, 48 V [1a,b)]	3440 W	4000 W	4800 W	5800 W
Max. PV short circuit current	35 A	35 A	70 A	70 A
Maximum PV open circuit voltage	250 V maximum			
Maximum efficiency	99%			
Self-consumption	Less than 35 mA at 12V / 20 mA at 48 V			
Charge voltage (absorption) adjustable	14,4 / 28,8 / 43,2 / 57,6 V			
Charge voltage (float) adjustable	13,8 / 27,6 / 41,4 / 55,2 V			
Charge algorithm	Multi-stage adaptative			
Temperature compensation	- 16 mV / - 32 mV / - 64 mV / °C			
Protection	Battery reverse poarity (fuse, not user accesible) PV Reverse polarity Output short circuit Over temperature			
Operating temperature	-30 a 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 240 VAC / 4 A DC Rating 4 A up to 35 Vcc, 1 A up to 60 Vcc			
Parallel operation	Yes (not synchronized)			
ENCLOSURE				
Color	Blue (RAL 5012)			
PV Terminals [3)]	35 mm^2 / AWG2 (Tr models) Two sets of MC4 connectors (MC4 models)		35 mm^2 / AWG2 (Tr models) Three sets of MC4 connectors (MC4 models)	
Battery terminals	35 mm^2 / AWG2		35 mm^2 / AWG2	
Protection category	IP43 (electronic components), IP22 (connection area)			
Weight	3 Kg		4,5 kg	
Dimensions (h x w x d) in mm	Tr Models: 185 x 250 x 95 MC4 Models: 215 x 250 x 95		Tr Models: 216 x 295 x 103 MC4 Models: 246 x 295 x 103	
STANDARDS				
Safety	EN / IEC 61209-1, UL 1741, CSA C22.2			

[1a)] If more PV power is connected, the controller will limit input power to the stated maximum.
[1b)] PV voltage must exceed Bvat + 5V for the controller to start.
Thereafter 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 parts 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)

VE.CAN 150/70 - 150/100 SPECIFICATIONS

SmartSolar	MPPT 150/70	MPPT 150/85	MPPT 150/100
Battery voltage	Auto Select: 12, 24, 48 V Software tool needed to select 36 V		
Rated charge current	70 Amp	85 Amp.	100 Amp
Maximum PV power, 12 V [1a,b)]	1000 W	1200 W	1450 W
Maximum PV power, 24 V [1a,b)]	2000 W	2400 W	2900 W
Maximum PV power, 48 V [1a,b)]	4000 W	4900 W	5800 W
Max. PV short circuit current	50 A (max 30 per MC4 conn)	70 A (max 30 per MC4 conn)	70 A (max 30 per MC4 conn)
Maximum PV open circuit voltage	150 V maximum		
Maximum efficiency	99%		
Self-consumption	Less than 35 mA at 12V / 20 mA at 48 V		
Charge voltage (absorption) adjustable	14,4 / 28,8 / 43,2 / 57,6 V		
Charge voltage (float) adjustable	13,8 / 27,6 / 41,4 / 55,2 V		
Charge algorithm	Multi-stage adaptative		
Temperature compensation	- 16 mV / - 32 mV / - 68 mV / ºC		
Protection	Battery reverse poarity (fuse, not user accesible) PV Reverse polarity Output short circuit Over temperature		
Operating temperature	-30 a 60 ºC (Full rated output up to 40 ºC)		
Humidity	95%, non-condensing		
Data communication port	VE.Can, VE.Direct or bluetooth		
Remote on /off	Yes (2 pole connector)		
Programmable relay	DPST AC Rating 240 VAC / 4 A DC Rating 4 A up to 35 Vcc, 1 A up to 60 Vcc		
Parallel operation	Yes, sinchronized via VE.Can or Bluetooth		
ENCLOSURE			
Color	Blue (RAL 5012)		
PV Terminals [3)]	35 mm^2 / AWG2 (Tr models) One set of MC4 connectors (MC4 models)	35 mm^2 / AWG2 (Tr models) Twoo sets of MC4 connectors (MC4 models)	
Battery terminals	35 mm^2 / AWG2		
Protection category	IP43 (electronic components), IP22 (connection area)		
Weight	3 Kg	4,5 kg	
Dimensions (h x w x d) in mm	Tr Models: 185 x 250 x 95 MC4 Models: 215 x 250 x 95	Tr Models: 216 x 295 x 103 MC4 Models: 246 x 295 x 103	
STANDARDS			
Safety	EN / IEC 61209-1, UL 1741, CSA C22.2		

[1a)] If more PV power is connected, the controller will limit input power to the stated maximum.
[1b)] PV voltage must exceed Bvat + 5V for the controller to start.
Thereafter 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 parts 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)

VE.CAN 250/70 - 250/100 SPECIFICATIONS

SmartSolar	MPPT 150/85	MPPT 150/85	MPPT 150/100
Battery voltage	Auto Select: 12, 24, 48 V Software tool needed to select 36 V		
Rated charge current	70 Amp	85 Amp.	100 Amp
Maximum PV power, 12 V [1a,b)]	1000 W	1200 W	1450 W
Maximum PV power, 24 V [1a,b)]	2000 W	2400 W	2900 W
Maximum PV power, 48 V [1a,b)]	4000 W	4900 W	5800 W
Max. PV short circuit current	35 A (max 30 per MC4 conn)	70 A (max 30 per MC4 conn)	70 A (max 30 per MC4 conn)
Maximum PV open circuit voltage	150 V maximum		
Maximum efficiency	99%		
Self-consumption	Less than 35 mA at 12V / 20 mA at 48 V		
Charge voltage (absorption) adjustable	14,4 / 28,8 / 43,2 / 57,6 V		
Charge voltage (float) adjustable	13,8 / 27,6 / 41,4 / 55,2 V		
Charge algorithm	Multi-stage adaptative		
Temperature compensation	- 16 mV / - 32 mV / - 68 mV / °C		
Protection	Battery reverse poarity (fuse, not user accesible) PV Reverse polarity Output short circuit Over temperature		
Operating temperature	-30 a 60 °C (Full rated output up to 40 °C)		
Humidity	95%, non-condensing		
Data communication port	VE.Can, VE.Direct or bluetooth		
Remote on /off	Yes (2 pole connector)		
Programmable relay	DPST AC Rating 240 VAC / 4 A DC Rating 4 A up to 35 Vcc, 1 A up to 60 Vcc		
Parallel operation	Yes, sinchronized via VE.Can or Bluetooth		
ENCLOSURE			
Color	Blue (RAL 5012)		
PV Terminals [3)]	35 mm^2 / AWG2 (Tr models) Two sets of MC4 connectors (MC4 models)	35 mm^2 / AWG2 (Tr models) Three sets of MC4 connectors (MC4 models)	
Battery terminals	35 mm^2 / AWG2		
Protection category	IP43 (electronic components), IP22 (connection area)		
Weight	3 Kg	4,5 kg	
Dimensions (h x w x d) in mm	Tr Models: 185 x 250 x 95 MC4 Models: 215 x 250 x 95	Tr Models: 216 x 295 x 103 MC4 Models: 246 x 295 x 103	
STANDARDS			
Safety	EN / IEC 61209-1, UL 1741, CSA C22.2		

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