# SmartSolar Charge Controllers with screw- or MC4 PV MPPT 150/45 up to MPPT 150/100

#### 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 preprogrammed 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 GX, other GX products, 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 optional pluggable display



SmartSolar Charge Controller MPPT 150/100-MC4 without display

SmartSolar Charge Controller	150/45	150/60	150/70	150/85	150/100	
Battery voltage	12 / 24 / 48V Auto Select (software tool needed to select 36V)					
Rated charge current	45A	60A	70A	85A	100A	
Nominal PV power, 12V 1a,b)	650W	860W	1000W	1200W	1450W	
Iominal PV power, 24V 1a,b)	1300W	1720W	2000W	2400W	2900W	
Iominal PV power, 36V 1a,b)	1950W	2580W	3000W	3600W	4350W	
lominal PV power, 48V 1a,b)	2600W	3440W	4000W	4900W	5800W	
Nax. 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					
emperature compensation	-16 mV / -32 mV / -64 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)					
lumidity	95%, non-condensing					
Maximum altitude	5000m (full rated output up to 2000m)					
Environmental condition	Indoor, unconditioned					
Pollution degree	PD3					
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)	Two pa	35 mm <sup>2</sup> / AWG2 (Tr mode irs of MC4 connectors (MC	- /	35 mm <sup>2</sup> / AWG Three pairs of MC4 mod	connectors (MC4	
Battery terminals	35mm <sup>2</sup> / AWG2					
Protection category	IP43 (electronic components), IP22 (connection area)					
Veight		3 kg 4,5kg		kg		
	Tr models: 185 x 250 x 95 mm			Tr models: 216 x 295 x 103		
Dimensions (h x w x d) in mm	MC4 models: 215 x 250 x 95 mm			MC4 models: 24	MC4 models: 246 x 295 x 103	
		STANDARDS				
Safety		EN/IE	C 62109-1, UL 1741, CSA	C22.2		

1a) If more PV power is connected, 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

