

SmartSolar Charge Controllers with load output

MPPT 75/10, 75/15, 100/15, 100/20-48 V

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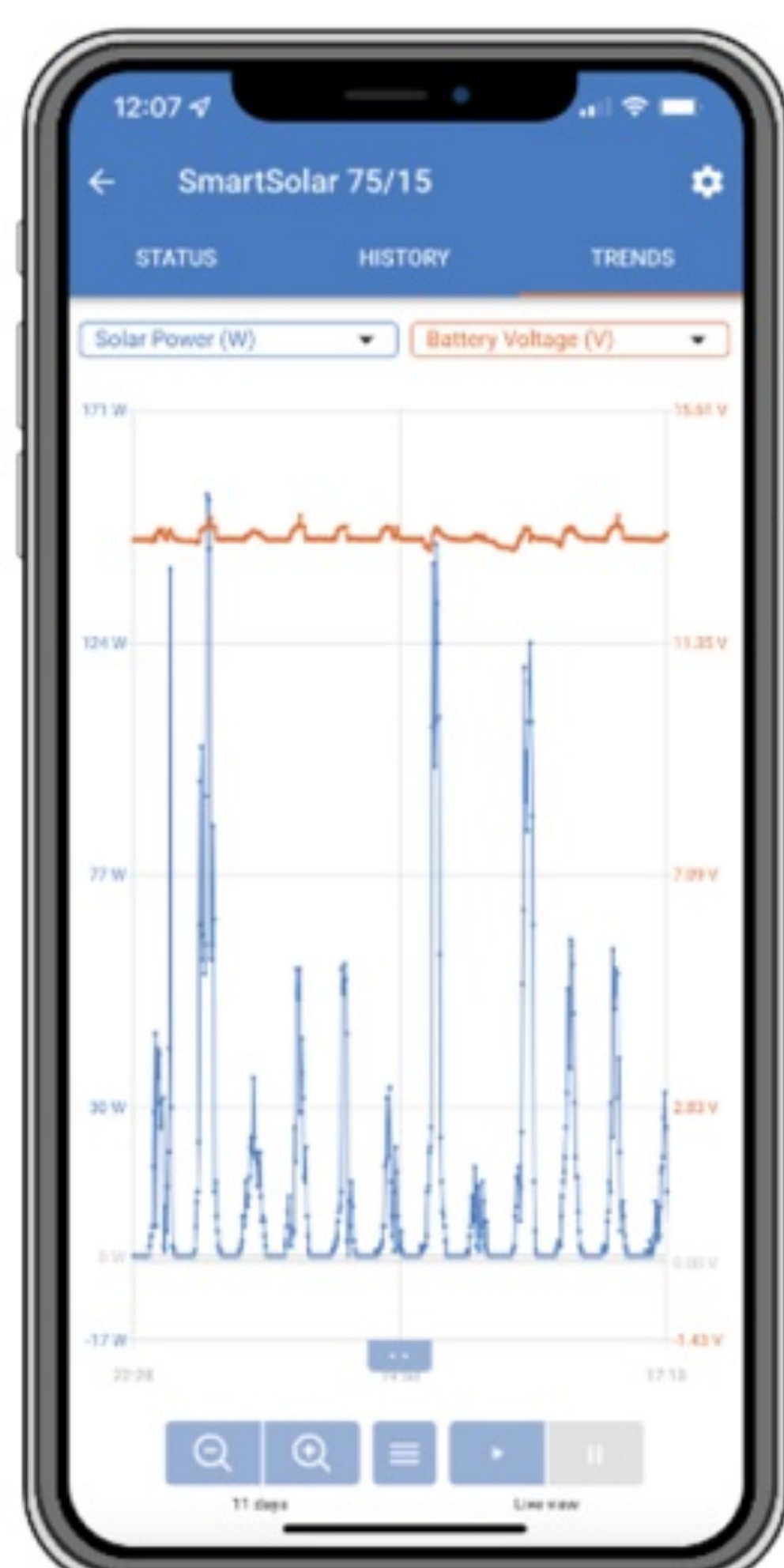

SmartSolar Charge Controller
MPPT 75/15



Bluetooth sensing
Smart Battery Sense



Bluetooth sensing
BMV-712 Smart Battery Monitor



Stored trends

Bluetooth Smart built-in

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

VE.Direct - For a wired data connection to a Color Control GX, other GX products, PC or other devices

Ultra-fast Maximum Power Point Tracking (MPPT)

Especially in case of a cloudy 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.

Load output

Over-discharge of the battery can be prevented by connecting all loads to the load output. The load output will disconnect the load when the battery has been discharged to a pre-set voltage (48 V model: interface with a relay).

Alternatively, an intelligent battery management algorithm can be chosen: see Battery Life.

The load output is short circuit proof.

Battery Life: intelligent battery management

When a solar charge controller is not able to recharge the battery to its full capacity within one day, the result is often that the battery will continually be cycled between a 'partially charged' state and the 'end of discharge' state. This mode of operation (no regular full recharge) will destroy a lead-acid battery within weeks or months.

The Battery Life algorithm will monitor the state of charge of the battery and, if needed, day by day slightly increase the load disconnect level (i.e. disconnect the load earlier) until the harvested solar energy is sufficient to recharge the battery to nearly the full 100 %. From that point onwards, the load disconnect level will be modulated so that a nearly 100 % recharge is achieved about once every week.

Programmable battery charge algorithm - See the software section on our website for details

Day/night timing and light dimming option - See the software section on our website for details

Internal temperature sensor - Compensates absorption and float charge voltage for temperature.

Optional external battery voltage and temperature sensing via Bluetooth

A Smart Battery Sense or a BMV-712 Smart Battery Monitor can be used to communicate battery voltage and temperature to one or more SmartSolar Charge Controllers.

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.

SmartSolar Charge Controller	MPPT 75/10	MPPT 75/15	MPPT 100/15	MPPT 100/20-48V
Battery voltage (auto select)		12/24 V		12/24/48 V
Rated charge current	10 A	15 A	15 A	20 A
Nominal PV power, 12 V 1a,b)	145 W	220 W	220 W	290 W
Nominal PV power, 24 V 1a,b)	290 W	440 W	440 W	580 W
Nominal PV power, 48 V 1a,b)	n. a.	n. a.	n. a.	1160 W
Max. PV short circuit current 2)	13 A	15 A	15 A	20 A
Automatic load disconnect		Yes		
Max. PV open circuit voltage		75 V		100 V
Peak efficiency			98 %	
Self-consumption – load on		12 V: 19 mA 24 V: 16 mA		26 / 20 / 19 mA
Self-consumption – load off		12 V: 10 mA 24 V: 8 mA		10 / 8 / 7 mA
Charge voltage 'absorption'		14,4 V / 28,8 V (adjustable)		14,4 V / 28,8 V / 57,6 V (adj.)
Charge voltage 'float'		13,8 V / 27,6 V (adjustable)		13,8 V / 27,6 V / 55,2 V (adj.)
Charge algorithm		multi-stage adaptive		
Temperature compensation		-16 mV / °C resp. -32 mV / °C		
Max. continuous load current		15 A		20 A / 20 A / 1 A
Low voltage load disconnect		11,1 V / 22,2 V / 44,4 V or 11,8 V / 23,6 V / 47,2 V or Battery Life algorithm		
Low voltage load reconnect		13,1 V / 26,2 V / 52,4 V or 14 V / 28 V / 56 V or Battery Life algorithm		
Protection		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 (see the data communication white paper on our website)		
ENCLOSURE				
Colour		Blue (RAL 5012)		
Power terminals		6 mm ² / AWG10		
Protection category		IP43 (electronic components), IP22 (connection area)		
Weight		0,5 kg	0,6 kg	0,65 kg
Dimensions (h x w x d)		100 x 113 x 40 mm	100 x 113 x 50 mm	100 x 131 x 60 mm
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.