

# SmartSolar Charge Controllers with load output

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



SmartSolar Charge Controller  
MPPT 75/15



Bluetooth sensing  
Smart Battery Sense



Bluetooth sensing  
BMV-712 Smart Battery Monitor



### 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 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.

### 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 (48V 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)		12/24V		12/24/48V
Rated charge current	10A	15A	15A	20A
Nominal PV power, 12V 1a,b)	145W	220W	220W	290W
Nominal PV power, 24V 1a,b)	290W	440W	440W	580W
Nominal PV power, 48V 1a,b)	n. a.	n. a.	n. a.	1160W
Max. PV short circuit current 2)	13A	15A	15A	20A
Automatic load disconnect		Yes		
Max. PV open circuit voltage		75V		100V
Peak efficiency		98%		
Self-consumption – load on		12V: 19 mA 24V: 16 mA		26 / 20 / 19 mA
Self-consumption – load off		12V: 10 mA 24V: 8 mA		10 / 8 / 7 mA
Charge voltage 'absorption'		14,4V / 28,8V (adjustable)		14,4V / 28,8V / 57,6V (adj.)
Charge voltage 'float'		13,8V / 27,6V (adjustable)		13,8V / 27,6V / 55,2V (adj.)
Charge algorithm		multi-stage adaptive		
Temperature compensation		-16 mV / °C resp. -32 mV / °C		
Max. continuous load current		15A		20A / 20A / 1A
Low voltage load disconnect		11,1V / 22,2V / 44,4V or 11,8V / 23,6V / 47,2V or Battery Life algorithm		
Low voltage load reconnect		13,1V / 26,2V / 52,4V or 14V / 28V / 56V 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 <sup>2</sup> / 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 113 x 60 mm

### STANDARDS

Safety	EN/IEC 62109-1, UL 1741, CSA C22.2		
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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.