

# SmartSolar Charge Controllers with load output

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

www.victronenergy.com



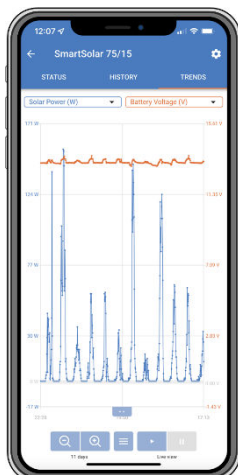
**SmartSolar Charge Controller  
MPPT 75/15**



**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 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 (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 <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 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.