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 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.

<table>
<thead>
<tr>
<th>SmartSolar Charge Controller</th>
<th>MPPT 75/10</th>
<th>MPPT 75/15</th>
<th>MPPT 100/15</th>
<th>MPPT 100/20</th>
<th>MPPT100/20-48V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery voltage</td>
<td>12/24V Auto Select</td>
<td>48V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated charge current</td>
<td>10A</td>
<td>15A</td>
<td>15A</td>
<td>20A</td>
<td>20A</td>
</tr>
<tr>
<td>Nominal PV power, 12V</td>
<td>145W</td>
<td>220W</td>
<td>220W</td>
<td>290W</td>
<td>290W</td>
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<tr>
<td>Nominal PV power, 24V</td>
<td>290W</td>
<td>440W</td>
<td>440W</td>
<td>580W</td>
<td>580W</td>
</tr>
<tr>
<td>Nominal PV power, 48V</td>
<td>n. a.</td>
<td>n. a.</td>
<td>n. a.</td>
<td>n. a.</td>
<td>1160W</td>
</tr>
<tr>
<td>Max. PV short circuit current</td>
<td>13A</td>
<td>15A</td>
<td>15A</td>
<td>20A</td>
<td>20A</td>
</tr>
<tr>
<td>Automatic load disconnect</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. PV open circuit voltage</td>
<td>75V</td>
<td>100V</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Temperature compensation</td>
<td>-16 mV/°C resp. -32 mV/°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low voltage load disconnect</td>
<td>11,1V/22,2V/44,4V or 11,8V/23,6V/47,2V or Battery Life algorithm</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Low voltage load reconnect</td>
<td>13,1V/26,2V/52,4V or 14V/28V/56V or Battery Life algorithm</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Protection</td>
<td>Battery reverse polarity (fuse) / Output short circuit / Over temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Operating temperature</td>
<td>-30 to +60°C (full rated output up to 40°C)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>95%, non-condensing</td>
<td></td>
<td></td>
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<tr>
<td>Data communication port</td>
<td>VE.Direct (see the data communication white paper on our website)</td>
<td></td>
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</tbody>
</table>

ENCLOSURE

Colour
Blue (RAL 9002)

Power terminals
6 mm² / 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

1a) If more PV power is connected, the controller will limit input power.
1b) The PV voltage must exceed Vbat + 0V for the controller to start.
2a) For wired data connection to a Color Control GX, other GX products, PC or other devices.
2b) The PV voltage must exceed Vbat + 5V for the controller to start.
1c) If more PV power is connected, the controller will limit input power.
2c) The PV voltage must exceed Vbat + 1V for the controller to start.
2) A PV array with a higher short circuit current may damage the controller.