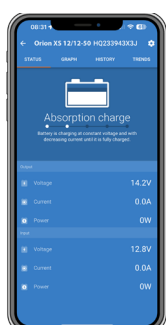**Orion XS 12/12-50A DC-DC battery charger**

**Orion XS 12/12-50A DC-DC battery charger connection area**

**Orion XS 1400 DC-DC battery charger**

**Orion XS 1400 DC-DC battery charger connection area**

Engineered from the ground up, the Orion XS redefines adaptive DC-DC battery charging. For use in dual battery systems charged with an (intelligent) alternator. This device not only ensures top-tier performance but also guarantees the safety of your system.
The Orion XS serves as a DC-DC battery charger or as a power supply, offering a wide input and output voltage range. This is especially significant in the case of vehicles with a Euro 5 or Euro 6 smart alternator, which often supplies too low charging voltage even when the engine is running or when extended cable lengths, as is often the case in boats and RVs, lead to voltage drops. In such scenarios, precise and controlled charging is imperative to fully charge the service battery while protecting the starter/input battery from discharge.

## Adjustable charging current
The charge current is adjustable with a minimum step size of 0.1 A. via VictronConnect.

## Smart alternator compatibility
An integrated mechanism detects whether the engine is running (engine shutdown detection), which only activates the charger when the alternator supplies power. This ensures that the charger only draws power when the alternator is supplying power, i.e. when the engine is running.

## Adaptive 4-stage charge algorithm
For lead acid batteries it is important that during shallow discharges the absorption time is kept short in order to prevent overcharging of the battery. After a deep discharge the absorption time is automatically increased to make sure that the battery is completely recharged.
The Orion XS includes fully programmable charging algorithms and eight pre-programmed battery settings.

## Low temperature shutdown and input undervoltage protection
To prevent damage of lithium batteries the charger will turn off automatically at low temperatures. It will also shut down when the input voltage drops below a configurable lockout value and restart when the input voltage rises above the restart value, this to protect the input source ie. starter battery from deep discharge.

## Remote on/off
The Orion XS can be switched on and off remotely via the remote on/off connector or the VictronConnect App. Typical applications include wiring a switch or Battery Management System (BMS).

## Comprehensive electronic protection
The protections includes overload, short circuit and excessive temperatures. The charger is protected against over-temperature by reducing the output power when the maximum product temperature is reached.

## Can be paralleled to increase output current
An unlimited number of units can be connected in parallel.

## Bluetooth Smart enabled
**Built-in Bluetooth Smart:** The wireless solution to change settings, monitor activities and update the Orion XS software using Apple and Android smartphones, tablets or other devices. Various parameters can be adjusted with the VictronConnect App.
**Instant Readout:** The VictronConnect App can display key data, including warnings and alarms, on the Device list page without the need to connect to the product.
**VE.Smart Networking:** Use VE.Smart Networking to receive Vsense, Tsense and Isense data over the wireless network for your Orion XS DC-DC battery charger, for example, from a BMV, a SmartShunt, or a Smart Battery Sense. The charger uses the available information from the battery to optimise the charging parameters. This improves charging efficiency and extends battery life.

## VE.Direct port and DVCC
For a wired connection to a GX device such as the Cerbo GX or Ekrano GX, PC or other devices. Enables advanced monitoring, control and diagnostics from anywhere (requires a GX device connected to the internet and VRM Portal) or locally via the Remote Console, as well as DVCC (Vsense, Tsense, Isense), System wide charge current limit and BMS control.

## IP65 protection
The Orion XS complies with ingress protection rating IP65. This means the product is dust-tight and protected against heavy rain.

| Orion XS DC-DC battery charger | 12/12-50A |
|---|---|
| Input voltage range | 9-17 V |
| Output voltage adjust range | 10-17 V |
| Output voltage tolerance | +/- 0.25% (max) |
| Output voltage noise | 10 mV rms |
| Input and output current setting range | 1 – 50 A |
| Maximum constant short-circuit current | 50 A |
| Continuous output power up to 40 ℃ [1] | 700 W [4] |
| Maximum efficiency | 98.5 % |
| No-load current consumption | < 100 mA |
| Standby current consumption | < 1.5 mA |
| Can be used as power supply | Yes, output voltage can be set with VictronConnect App |
| Communication | |
| VictronConnect App / Bluetooth Smart | Yes |
| VE.Smart Networking | Yes [2] |
| VE.Direct | Yes (including DVCC) [3] |
| Other | |
| Operating temperature range | -20 to +60 ℃   (derating 1.5 % per  ℃ above 40 ℃) |
| Humidity | 95 %, non-condensing |
| Maximum altitude | 2000 m |
| Pollution degree | PD2 |
| Overvoltage category | OVC 1 |
| DC connection | Screw terminals |
| Maximum cable cross-section | 4AWG (21.2mm$^2$) |
| Weight | 0.330 kg (0.73 lb) |
| Dimensions  hxwxd | 137.3 x 123.1 x 40 mm (5.4 x 4.85 x 1.6 inch) |
| Protection category | IP65 |
| Standards | |
| Safety | IEC 62477-1 |
| EMC | EN 300 328, EN 301 489-1, EN 301 489-17, FCC 15B, ICES-003 |
| Automotive Directive | ECE R10-6 |

1) This applies to optimal cooling where the product is mounted as indicated in the manual with sufficient free space. In case of limited cooling, e.g. due to insufficient airflow, the charging current will be regulated back sooner. With an improved airflow (e.g. forced airflow), derating will take place far above ambient temperatures of 40 ℃.
2) VE.Smart Networking features will be receiving Vsense, Tsense and Isense data from the wireless network, for example from a SmartShunt, BMV or Smart Battery Sense. Synchronised charging is not supported.
3) DVCC compatibility requires Orion XS firmware v1.03 or later and Venus OS firmware v3.20 or later on the GX device
4) This value represents the nominal power level at a typical voltage of 14V (12/12-50A) and 28V (Orion XS 1400). Power is calculated as the product of the applied voltage and current (P = V × I). Examples: 12V × 50A = 600W, 14V × 50A = 700W, 28V x 50A = 1400W

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