Orion XS DC-DC battery chargers

www.victronenergy.com

Orion XS 12/12-50A

Orion XS 12/12-70A

Orion XS 1400 for 12 & 24V

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 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.
Note that the Orion XS 12/12-70A has an ingress protection rating of IP20 and is therefore intended for installation in a dry indoor environment only.

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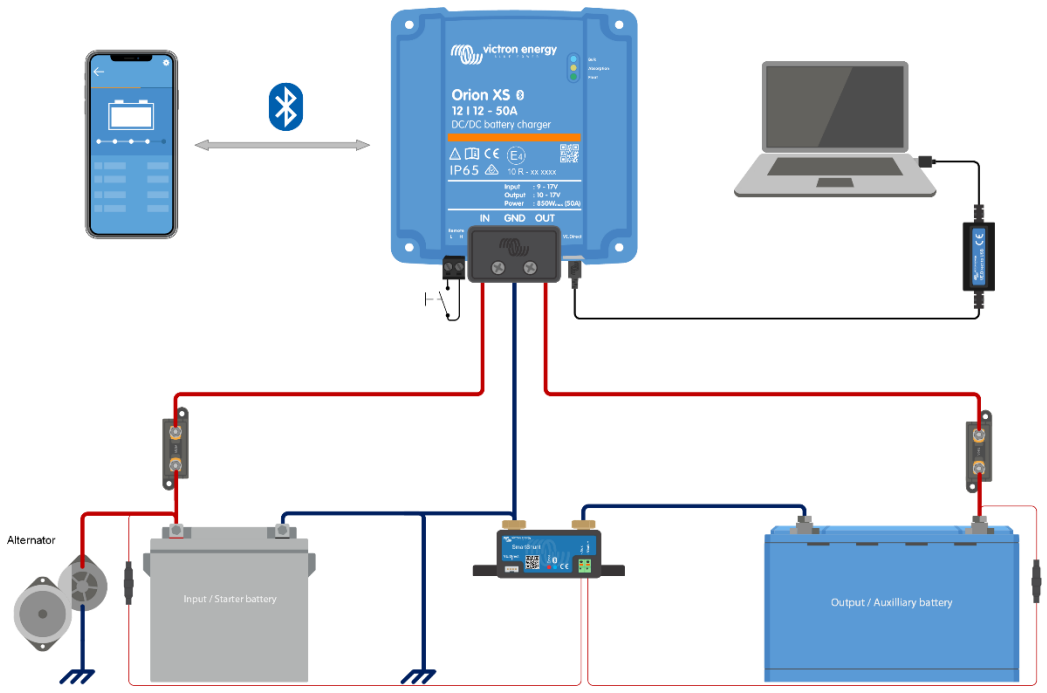
Orion XS DC-DC battery charger	XS 12/12-50A	XS 1400	XS 12/12-70A
Input voltage range	9-17 V	9 – 35 V	9-17 V
Output voltage adjust range	10-17 V	10 – 35 V	10-17 V
Output voltage tolerance	+/- 0,25 % (max)		
Output voltage noise	10 mV rms		
Input and output current setting range	1 – 50 A		1 – 70 A
Maximum constant short-circuit current	50 A		70 A
Continuous output power up to 40 °C [1]	700 W [4]	1400 W [4]	1000 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 °C (derating 1,5 % per °C above 40 °C)		
Humidity	95 %, non-condensing		
Maximum altitude	2000 m		
Pollution degree	PD2		
Overvoltage category	OVC 1		
DC connection	Screw terminals		
Maximum cable cross-section	4AWG (21,2 mm²)		4AWG (25 mm²)
Weight	0,330 kg (0,73 lb)	0,520 kg (1,14 lb)	0,340 kg (0,74 lb)
Dimensions hxwxd	137,3 x 123,1 x 40 mm (5,4 x 4,85 x 1,6 inch)	138.1 x 124.4 x 53mm (5,44 x 4,9 x 2,1 inch)	137,3 x 123,1 x 40 mm (5,4 x 4,85 x 1,6 inch)
Protection category	IP65		IP20[5]
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 °C.
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 14 V (12/12-50A), 14,3 V (12/12-70A) and 28 V (Orion XS 1400). Power is calculated as the product of the applied voltage and current (P = V × I). Examples: 12 V × 50 A = 600 W, 14 V × 50 A = 700 W, 28 V x 50 A = 1400 W
5) Power electronics are enclosed in IP65 housing