

Orion-Tr Smart DC-DC charger non-isolated

360/400 Watt

With 3-stage battery charge algorithm



Orion-Tr Smart non-isolated 12/12-30



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The Orion-Tr Smart non-isolated DC-DC charger serves as a DC-DC battery charger or as a power supply (it is also designed for use as a constant voltage source), 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.

Bluetooth Smart enabled

- Any Bluetooth enabled smart phone, tablet or other device can be used to monitor, to change settings and to update the charger when new software features become available.
- Instant Readout: The <u>VictronConnect App</u> can display key data, including warnings and alarms, on the Device list page without the need to connect to the product.

Fully programmable

- Battery charge algorithm (configurable) or fixed output.
- Smart alternator compatibility: engine running detection mechanism.

Adaptive 3-stage charge algorithm: bulk - absorption - float

- 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.
- For lithium batteries absorption time is fixed, default 2 hours.
- · Alternatively, a fixed output voltage can be chosen.

Remote on/off

A remote on/off switch or relay contact can be connected to a two-pole connector.

Alternatively, the H terminal (right) of the two-pole connector can be switched to battery plus, or the L terminal (left) of the two pole connector can be switched to battery minus (or the chassis of a vehicle, for example).

All models are short-circuit proof and can be paralleled to increase output current

An unlimited number of units can be connected in parallel.

High temperature protected

The output current will reduce at high ambient temperature.

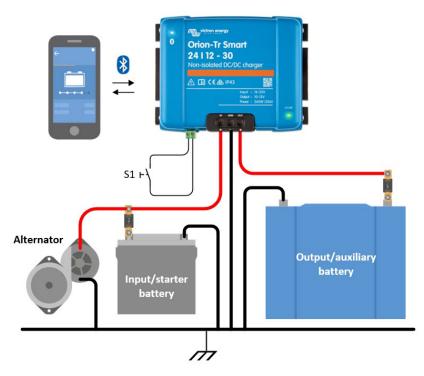
P43 protection

When installed with the screw terminals oriented downwards.

Screw terminals

No special tools needed for installation.

Input fuse (not replaceable)





Orion-Tr Smart Chargers non-isolated 306-400 Watt 10-17 V (360 W) 12/12-30 (360 W) 24/12-30 (360 W) 24/12-30 (360 W) 24/12-30 (400 W) Input voltage range (1) 10-17 V (10-17 V) 10-17 V (20-35 V) 20-35 V (20-35 V) Under voltage shut down 7V 7V 14 V (14 V) 14 V (14 V) 14 V (15 V) Under voltage restart 7,5 V 7,5 V (15 V) 15 V (15 V) 15 V (20-30 V) Nominal output voltage adjust range (10-15 V) 20-30 V (10-15 V) 20-30 V Output noise (20 V) 2 mV rms 2 mV rms Cont. output current at nominal output voltage and 40 °C (20 V) 30 A (15 A) (30 A) (3					
Non-isolated (360 W) (360 W) (360 W) (360 W) (400 W)		12/12-30	12/24-15	24/12-30	24/24-17
Input voltage range (1) Input voltage range (1) Input voltage grace grace (1) Input voltage restart Input voltage shut down Input voltage shut down Input voltage restart Input voltage and supput voltage adjust range Input voltage tolerance Input voltage restart In			(360 W)		
Under voltage shut down 7V 7V 14V 14V 14V 14V 14V 14V 14V 14V 14V 14		<u> </u>	` '		
Under voltage restart 7,5 V 7,5 V 7,5 V 15 V 15 V Nominal output voltage 12,2 V 24,2 V 12,2 V 24,2 V 10-15 V 20-30 V Output voltage adjust range 10-15 V 20-30 V Output noise Cont. output current at nominal output voltage and 40 °C Max. output current (10 s) at nominal output voltage minus 20 % Short circuit output current 60 A 40 A 25 A 45 A 25 A Short circuit output current 60 A 40 A 60 A 6					
Nominal output voltage	Under voltage shut down	7 V	7 V	14 V	14 V
Output voltage adjust range 10-15 V 20-30 V 10-15 V 20-30 V Output voltage tolerance +/- 0,2 V 4/- 0,2 V 0 Output noise 2 mV rms 0 17 A Cont. output current at nominal output voltage and 40 °C 30 A 15 A 30 A 17 A Max. output current (10 s) at nominal output voltage minus 20 % 40 A 25 A 45 A 25 A Short circuit output current 60 A 40 A 60 A 40 A 40 A Cont. output power at 25 °C 430 W 430 W 430 W 480 W 480 W Cont. output power at 40 °C 360 W 360 W 360 W 400 W 460 W 400 W 480 W 480 W 400 W 480 W 400 W 480 W	Under voltage restart	7,5 V	7,5 V	15 V	15 V
Output voltage tolerance +/- 0,2 V Output noise 2 mV rms Cont. output current at nominal output voltage and 40 °C 30 A 15 A 30 A 17 A Max. output current (10 s) at nominal output voltage minus 20 % 40 A 25 A 45 A 25 A Short circuit output current 60 A 40 A 60 A 40 A Cont. output power at 25 °C 430 W 430 W 430 W 480 W Cont. output power at 40 °C 360 W 360 W 360 W 400 W Efficiency 87 % 88 % 89 % 89 % No load input current < 80 mA	Nominal output voltage	12,2 V	24,2 V	12,2 V	24,2 V
Output noise 2 mV rms Cont. output current at nominal output voltage and 40 °C 30 A 15 A 30 A 17 A Max. output current (10 s) at nominal output voltage minus 20 % 40 A 25 A 45 A 25 A Short circuit output current 60 A 40 A 60 A 40 A Cont. output power at 25 °C 430 W 430 W 430 W 480 W Cont. output power at 40 °C 360 W 360 W 360 W 400 W Efficiency 87 % 88 % 88 % 89 % No load input current < 80 mA	Output voltage adjust range	10-15 V	20-30 V	10-15 V	20-30 V
Cont. output current at nominal output voltage and 40 °C Max. output current (10 s) at nominal output voltage minus 20 % Short circuit output current 60 A 40 A 25 A 45 A 25 A Short circuit output current 60 A 40 A Cont. output power at 25 °C 430 W 430 W 430 W 430 W 430 W 440 A Cont. output power at 40 °C 360 W 360 W 360 W 88 % 88 % 89 % No load input current 480 mA Standby current Less than 1 mA Can be used as power supply Operating temperature range 720 to +55 °C 430 w 430 w 430 w 430 w 430 w 480 w 480 w 480 w 490 w 490 w Efficiency 87 % 88 % 88 % 89 % No load input current Can be used as power supply Yes, output voltage can be set with Bluetooth Operating temperature range 720 to +55 °C 430 w 430 w 430 w 430 w 430 w 480 w 480 w 480 w 480 mA Standby current Less than 1 mA Can be used as power supply Yes, output voltage can be set with Bluetooth Operating temperature range 720 to +55 °C 430 w 140 A 525 A 540 A 5	Output voltage tolerance	+/- 0,2 V			
voltage and 40 °C 30 A 15 A 30 A 17 A Max. output current (10 s) at nominal output voltage minus 20 % 40 A 25 A 45 A 25 A Short circuit output current 60 A 40 A 60 A 40 A Cont. output power at 25 °C 430 W 430 W 430 W 480 W Cont. output power at 40 °C 360 W 360 W 360 W 400 W Efficiency 87 % 88 % 88 % 89 % No load input current < 80 mA	Output noise	2 mV rms			
output voltage minus 20 % Short circuit output current 60 A 40 A 60 A 40 A Cont. output power at 25 °C 430 W 430 W 430 W 480 W Cont. output power at 40 °C 360 W 360 W 360 W 400 W Efficiency 87 % 88 % 88 % 89 % No load input current Can be used as power supply Yes, output voltage can be set with Bluetooth Operating temperature range -20 to +55 °C (derate 3 % per °C above 40 °C) Humidity Max. 95 % non-condensing DC connection Screw terminals Maximum cable cross-section 16 mm² (AWG6) Weight 12 V input and/or 12 V output models: 1,8 kg (3 lb) Other models: 1,6 kg (3.5 lb) Dimensions hxwxd 130 x 186 x 80 mm (5.1 x 7.3 x 3.2 inch) Protection category IP43 (electronic components), IP22 (connection area) Standards: Safety EN 60950 Emission EN 61000-6-3, EN 55014-1 Immunity EN 61000-6-2, EN 61000-6-1, EN 55014-2		30 A	15 A	30 A	17 A
Cont. output power at 25 °C 430 W 430 W 430 W 430 W 480 W Cont. output power at 40 °C 87 % 88 % 88 % 89 % No load input current 480 mA Standby current Can be used as power supply Operating temperature range 720 to +55 °C Humidity Max. 95 % non-condensing DC connection Screw terminals Maximum cable cross-section 16 mm² (AWG6) Weight 12 V input and/or 12 V output models: 1,8 kg (3 lb) Dimensions hxwxd Protection category Standards: Safety EN 60950 Emission EN 61000-6-3, EN 55014-1 Immunity EN 61000-6-1, EN 55014-2	• , ,	40 A	25 A	45 A	25 A
Cont. output power at 40 °C 360 W 360 W 360 W 360 W 400 W Efficiency 87 % 88 % 88 % 89 % No load input current 88 % 88 % 89 % No load input current Can be used as power supply Operating temperature range -20 to +55 °C (derate 3 % per °C above 40 °C) Humidity Max. 95 % non-condensing DC connection Screw terminals Maximum cable cross-section 16 mm² (AWG6) Weight 12 V input and/or 12 V output models: 1,8 kg (3 lb) Dimensions hxwxd 130 x 186 x 80 mm (5.1 x 7.3 x 3.2 inch) Protection category IP43 (electronic components), IP22 (connection area) Standards: Safety EN 60950 Emission EN 61000-6-3, EN 55014-1 Immunity EN 61000-6-2, EN 61000-6-1, EN 55014-2	Short circuit output current	60 A	40 A	60 A	40 A
Efficiency 87 % 88 % 88 % 89 % No load input current < 80 mA < 100 mA < 100 mA < 80 mA Standby current Less than 1 mA Can be used as power supply Yes, output voltage can be set with Bluetooth Operating temperature range -20 to +55 °C (derate 3 % per °C above 40 °C) Humidity Max. 95 % non-condensing DC connection Screw terminals Maximum cable cross-section 16 mm² (AWG6) Weight 12 V input and/or 12 V output models: 1,8 kg (3 lb) Other models: 1,6 kg (3.5 lb) Dimensions hxwxd 130 x 186 x 80 mm (5.1 x 7.3 x 3.2 inch) Protection category IP43 (electronic components), IP22 (connection area) Standards: Safety EN 60950 Emission EN 61000-6-3, EN 55014-1 Immunity EN 61000-6-2, EN 61000-6-1, EN 55014-2	Cont. output power at 25 °C	430 W	430 W	430 W	480 W
No load input current Standby current Can be used as power supply Operating temperature range Humidity Max. 95 % non-condensing DC connection Screw terminals Maximum cable cross-section Weight 12 V input and/or 12 V output models: 1,8 kg (3 lb) Other models: 1,6 kg (3.5 lb) Dimensions hxwxd Protection category Standards: Safety Emission Emission EN 61000-6-3, EN 55014-1 EN 61000-6-2, EN 61000-6-1, EN 55014-2	Cont. output power at 40 °C	360 W	360 W	360 W	400 W
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Can be used as power supply Yes, output voltage can be set with Bluetooth Operating temperature range -20 to +55 °C (derate 3 % per °C above 40 °C) Humidity Max. 95 % non-condensing DC connection Screw terminals Maximum cable cross-section 16 mm² (AWG6) Weight 12 V input and/or 12 V output models: 1,8 kg (3 lb) Dimensions hxwxd 130 x 186 x 80 mm (5.1 x 7.3 x 3.2 inch) Protection category IP43 (electronic components), IP22 (connection area) Standards: Safety EN 60950 Emission EN 61000-6-3, EN 55014-1 Immunity EN 61000-6-2, EN 61000-6-1, EN 55014-2	No load input current	< 80 mA	< 100 mA	< 100 mA	< 80 mA
Operating temperature range -20 to +55 °C (derate 3 % per °C above 40 °C) Humidity Max. 95 % non-condensing DC connection Screw terminals Maximum cable cross-section 16 mm² (AWG6) Weight 12 V input and/or 12 V output models: 1,8 kg (3 lb) Dimensions hxwxd 130 x 186 x 80 mm (5.1 x 7.3 x 3.2 inch) Protection category IP43 (electronic components), IP22 (connection area) Standards: Safety EN 60950 Emission EN 61000-6-3, EN 55014-1 Immunity EN 61000-6-2, EN 61000-6-1, EN 55014-2	Standby current	Less than 1 mA			
Humidity Max. 95 % non-condensing DC connection Screw terminals Maximum cable cross-section 16 mm² (AWG6) Weight 12 V input and/or 12 V output models: 1,8 kg (3 lb) Dimensions hxwxd 130 x 186 x 80 mm (5.1 x 7.3 x 3.2 inch) Protection category IP43 (electronic components), IP22 (connection area) Standards: Safety EN 60950 Emission EN 61000-6-3, EN 55014-1 Immunity EN 61000-6-2, EN 61000-6-1, EN 55014-2	Can be used as power supply	Yes, output voltage can be set with Bluetooth			
DC connection Screw terminals Maximum cable cross-section 16 mm² (AWG6) Weight 12 V input and/or 12 V output models: 1,8 kg (3 lb) Dimensions hxwxd 130 x 186 x 80 mm (5.1 x 7.3 x 3.2 inch) Protection category IP43 (electronic components), IP22 (connection area) Standards: Safety EN 60950 Emission EN 61000-6-3, EN 55014-1 Immunity EN 61000-6-2, EN 61000-6-1, EN 55014-2	Operating temperature range	-20 to +55 °C (derate 3 % per °C above 40 °C)			
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Protection category IP43 (electronic components), IP22 (connection area) Standards: Safety EN 60950 Emission EN 61000-6-3, EN 55014-1 Immunity EN 61000-6-2, EN 61000-6-1, EN 55014-2	Weight	12 V input and/or 12 V output models: 1,8 kg (3 lb) Other models: 1,6 kg (3.5 lb)			
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Emission EN 61000-6-3, EN 55014-1 Immunity EN 61000-6-2, EN 61000-6-1, EN 55014-2	Standards: Safety	EN 60950			
	Emission				
A D'	Immunity		EN 61000-6-2, EN 6	1000-6-1, EN 55014-2	
Automotive Directive ECE R10-5	Automotive Directive	ECE R10-5			

If set to nominal or lower than nominal, the output voltage will remain stable within the specified input voltage range (buck-boost function). If the output voltage is set higher than nominal by a certain percentage, the minimum input voltage at which the output voltage remains stable (does not decrease) increases by the same percentage.

Note 1: The VictronConnect App will not display current in or current out. Note 2: The Orion-Tr Smart is not equipped with a VE.Direct port.

