

# Orion-Tr Smart DC-DC charger isolated

250 / 400 Watt

With 3-stage battery charge algorithm

[www.victronenergy.com](http://www.victronenergy.com)



Orion-Tr Smart 12/12-30



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### 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.

### 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.

### Suitable for use in vehicles with a smart alternator (Euro 5 and Euro 6 engines)

The built-in engine shutdown detection will stop the converter when the engine is not running. This prevents unwanted discharge of the starter battery (see manual for details).

### 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.

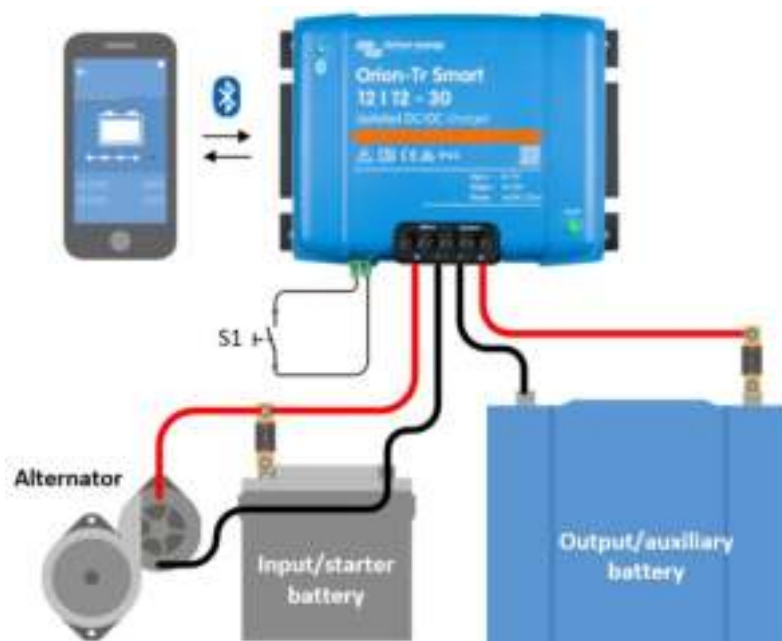
### IP43 protection

When installed with the screw terminals oriented downwards.

### Screw terminals

No special tools needed for installation.

### Input fuse (not replaceable)



Orion-Tr Smart Chargers Isolated 220 - 280 Watt	12/12-18 (220W)	12/24-10 (240W)	24/12-20 (240W)	24/24-12 (280W)
Input voltage range (1)	8-17V	8-17V	16-35V	16-35V
Under voltage shut down	7V	7V	14V	14V
Under voltage restart	7,5V	7,5V	15V	15V
Nominal output voltage	12,2V	24,2V	12,2V	24,2V
Output voltage adjust range	10-15V	20-30V	10-15V	20-30V
Output voltage tolerance	+/- 0,2V			
Output noise	2mV rms			
Cont. output current at nominal output voltage and 40°C	18A	10A	20A	12A
Maximum output current (10 s) at nominal output voltage	25A	15A	25A	15A
Short circuit output current	40A	25A	50A	30A
Cont. output power at 25°C	280W	280W	300W	320W
Cont. output power at 40°C	220W	240W	240W	280W
Efficiency	87%	88%	88%	89%
No load input current	< 80mA	< 100mA	< 100mA	< 80mA
Standby current	Less than 1mA			
Galvanic isolation	200V dc between input, output and case			
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 mm <sup>2</sup> AWG6			
Weight	1,3 kg (3 lb)			
Dimensions h x w x d	130 x 186 x 70 mm (5.1 x 7.3 x 2.8 inch)			
Standards: Safety Emission Immunity Automotive Directive	EN 60950 EN 61000-6-3, EN 55014-1 EN 61000-6-2, EN 61000-6-1, EN 55014-2 ECE R10-5			

Orion-Tr Smart Chargers Isolated 360 - 400 Watt	12/12-30 (360W)	12/24-15 (360W)	24/12-30 (360W)	24/24-17 (400W)
Input voltage range (1)	10-17V	10-17V	20-35V	20-35V
Under voltage shut down	7V	7V	14V	14V
Under voltage restart	7,5V	7,5V	15V	15V
Nominal output voltage	12,2V	24,2V	12,2V	24,2V
Output voltage adjust range	10-15V	20-30V	10-15V	20-30V
Output voltage tolerance	+/- 0,2V			
Output noise	2mV rms			
Cont. output current at nominal output voltage and 40°C	30A	15A	30A	17A
Maximum output current (10 s) at nominal output voltage minus 20%	40A	25A	45A	25A
Short circuit output current	60A	40A	60A	40A
Cont. output power at 25°C	430W	430W	430W	480W
Cont. output power at 40°C	360W	360W	360W	400W
Efficiency	87%	88%	88%	89%
No load input current	< 80mA	< 100mA	< 100mA	< 80mA
Standby current	Less than 1mA			
Galvanic isolation	200V dc between input, output and case			
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 mm <sup>2</sup> (AWG6)			
Weight	12V input and/or 12V output models: 1,8 kg (3 lb)		Other models: 1,6 kg (3.5 lb)	
Dimensions h x w x d	12V input and/or 12V output models: 130 x 186 x 80 mm (5.1 x 7.3 x 3.2 inch) Other models: 130 x 186 x 70 mm (5.1 x 7.3 x 2.8 inch)			
Standards: Safety Emission Immunity Automotive Directive	EN 60950 EN 61000-6-3, EN 55014-1 EN 61000-6-2, EN 61000-6-1, EN 55014-2 ECE R10-5			
1)	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.			