

# Orion-Tr DC-DC converters isolated

100 / 250 / 400 Watt

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



**Orion-Tr 24/12-20 (240W)**



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### Remote on-off

The remote on-off eliminates the need for a high current switch in the input wiring. The remote on-off can be operated with a low power switch or by for example the engine run/stop switch (see manual).

### Adjustable output voltage: can also be used as a battery charger

For example to charge a 12 Volt starter or accessory battery in an otherwise 24V system.

### 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)

On 12V and 24V input models only.

Isolated converters 110 – 120W	Orion-Tr 12/12-9 (110W)	Orion-Tr 12/24-5 (120W)	Orion-Tr 24/12-9 (110W)	Orion-Tr 24/24-5 (120W)	Orion-Tr 24/48-2,5 (120W)	Orion-Tr 48/12-9 (110W)	Orion-Tr 48/24-5 (120W)	Orion-Tr 48/48-2,5 (120W)
Input voltage range (1)	8-17V	8-17V	16-35V	16-35V	16-35V	32-70V	32-70V	32-70V
Under voltage shut down	7V	7V	14V	14V	14V	28V	28V	28V
Under voltage restart	7,5V	7,5V	15V	15V	15V	30V	30V	30V
Nominal output voltage	12,2V	24,2V	12,2V	24,2V	48,2V	12,2V	24,2V	48,2V
Output voltage adjust range	10-15V	20-30V	10-15V	20-30V	40-60V	10-15V	20-30V	40-60V
Output voltage tolerance	+/- 0,2V							
Output noise	2mV rms							
Cont. output current at nominal output voltage and 25°C	9A	5A	9A	5A	2,5A	9A	5A	2,5A
Maximum output current (10 s) at nominal output voltage	12,5A	6,3A	12,5A	6,3A	3,0A	12,5A	6,3A	3,0A
Short circuit output current	32A	23A	39A	30A	19A	27A	25A	17A
Cont. output power at 25°C	110W	120W	110W	120W	120W	110W	120W	120W
Cont. output power at 40°C	85W	110W	85W	115W	115W	85W	100W	85W
Efficiency	87%	88%	85%	87%	88%	87%	86%	89%
Off load current	< 50mA	< 80mA	< 40mA	< 60 mA	< 120mA	< 50mA	< 60mA	< 80mA
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	6 mm <sup>2</sup> AWG10							
Weight	0,42 kg (1 lb)							
Dimensions h x w x d	100 x 113 x 47 mm (4.0 x 4.5 x 1.9 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.

See page two for 250 W and 400 W models

Isolated converters 220 - 280 Watt	Orion-Tr 12/12-18 (220W)	Orion-Tr 12/24-10 (240W)	Orion-Tr 24/12-20 (240W)	Orion-Tr 24/24-12 (280W)	Orion-Tr 24/48-6 (280W)	Orion-Tr 48/12-20 (240W)	Orion-Tr 48/24-12 (280W)	Orion-Tr 48/48-6 (280W)
Input voltage range (1)	8-17V	8-17V	16-35V	16-35V	16-35V	32-70V	32-70V	32-70V
Under voltage shut down	7V	7V	14V	14V	14V	28V	28V	28V
Under voltage restart	7,5V	7,5V	15V	15V	15V	30V	30V	30V
Nominal output voltage	12,2V	24,2V	12,2V	24,2V	48,2V	12,2V	24,2V	48,2V
Output voltage adjust range	10-15V	20-30V	10-15V	20-30V	40-60V	10-15V	20-30V	40-60V
Output voltage tolerance	+/- 0,2V							
Output noise	2mV rms							
Cont. output current at nominal output voltage and 40°C	18A	10A	20A	12A	6A	20A	12A	6A
Maximum output current (10 s) at nominal output voltage	25A	15A	25A	15A	8A	25A	15A	8A
Short circuit output current	40A	25A	50A	30A	25A	50A	30A	25A
Cont. output power at 25°C	280W	280W	300W	320W	320W	280W	320W	320W
Cont. output power at 40°C	220W	240W	240W	280W	280W	240W	280W	280W
Efficiency	87%	88%	88%	89%	89%	87%	89%	89%
Off load current	< 80mA	< 100mA	< 100mA	< 80mA	< 120 mA	< 80mA	< 80mA	< 80mA
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 hwxwd	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							

Isolated converters 360 - 400 Watt	Orion-Tr 12/12-30 (360W)	Orion-Tr 12/24-15 (360W)	Orion-Tr 24/12-30 (360W)	Orion-Tr 24/24-17 (400W)	Orion-Tr 24/48-8,5 (400W)	Orion-Tr 48/12-30 (360W)	Orion-Tr 48/24-16 (380W)	Orion-Tr 48/48-8 (380W)
Input voltage range (1)	10-17V	10-17V	20-35V	20-35V	20-35V	40-70V	40-70V	40-70V
Under voltage shut down	7V	7V	14V	14V	14V	28V	28V	28V
Under voltage restart	7,5V	7,5V	15V	15V	15V	30V	30V	30V
Nominal output voltage	12,2V	24,2V	12,2V	24,2V	48,2V	12,2V	24,2V	48,2V
Output voltage adjust range	10-15V	20-30V	10-15V	20-30V	40-60V	10-15V	20-30V	40-60V
Output voltage tolerance	+/- 0,2V							
Output noise	2mV rms							
Cont. output current at nominal output voltage and 40°C	30A	15A	30A	17A	8,5A	30A	16A	8A
Maximum output current (10 s) at nominal output voltage minus 20%	40A	25A	45A	25A	15A	40A	25A	15A
Short circuit output current	60A	40A	60A	40A	25A	60A	40A	25A
Cont. output power at 25°C	430W	430W	430W	480W	480W	430W	430W	430W
Cont. output power at 40°C	360W	360W	360W	400W	400W	360W	380W	380W
Efficiency	87%	88%	88%	89%	89%	87%	89%	89%
Off load current	< 80mA	< 100mA	< 100mA	< 80mA	< 120 mA	< 80mA	< 80mA	< 80mA
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 hwxwd	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							

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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.