

DVC453

DC/DC converter

DC/DC converter for vehicles and other applications

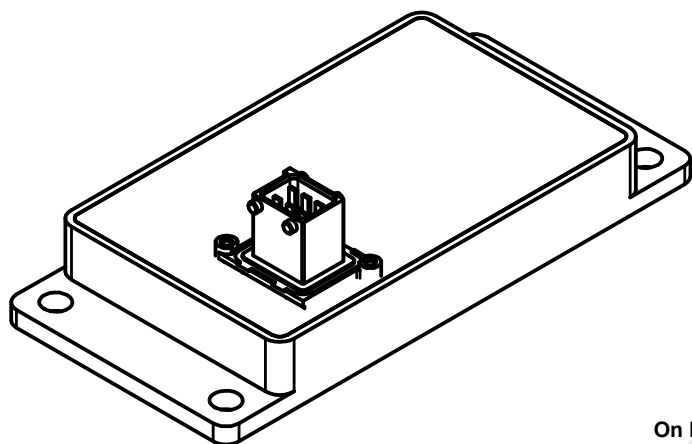


Abbildung ähnlich / device similar to figure

- wide range input
- Power range up to 450W
- High efficiency - typ. 93%
- Short-circuit, no load and over temperature protection
- IP-protection class IP65
- Parallel connectable
- Galvanical isolated switching regulator
- Particularly flat and compact design

On Request: Extended input voltage range

On Request: additional output voltages



DVC453 - derivate table

Type	Input voltage Nom. (Tol.)	Output voltage	Max. output current	Cat. No.
DVC453-24/36-24	24 - 36VDC (17 - 54VDC)	24,3VDC	18,5A	105176
DVC453-48/80-24	48 - 80VDC (34 - 104VDC)	24,3VDC	18,5A	105177

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Technische Änderungen und Irrtümer vorbehalten. I Technical modifications and mistakes reserved.

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1 Input

Input voltage range		see DVC453 - derivate table (valid for continuous operation)
Input capacity	< 20µF < 50µF	DVC453-24/36-24 DVC453-48/80-24 recommendation: provide precharging section in the application
Input fuse		No integrated input fuse. A fuse must be provided externally by the customer application.
Reverse polarity protection		Reverse polarity protected by connector plug
No-load power	typ. 1,4W (24VDC) typ. 1,3W (36VDC) typ. 2,3W (48VDC) typ. 1,7W (80VDC)	-
No-load current consumption	typ. 58mA (24VDC) typ. 37mA (36VDC) typ. 48mA (48VDC) typ. 21mA (80VDC)	-
Input current at full load	typ. 19A (24VDC) typ. 13,5A (36VDC) typ. 10A (48VDC) typ. 6,5A (80VDC)	-

2 Output

Output voltage U_{nom}	24,3VDC	-
initial setting accuracy	$\pm 0,5\% U_{nom}$	-
Max. continuous output current I_{nom}	18,5A	-
Output power	$\leq 450W$	DVC453-24/36-24: max. 300W @ $U_{IN} < 24VDC$
Current limiting	$1,1 \times I_{nom}$	above $1,0 \times I_{nom}$ U_{out} may decrease
Load regulation static (0-100%)	$\pm 0,85\%$	-
Load regulation dynamic (20-80%)	< 1,5%	at $\frac{dI}{dt} < 2,3A/\mu s$
Recovery time	< 1ms	After this time, the output voltage is within the permissible tolerances.

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3 Enviroment

Max. allowed mounting surface temperature	< 50°C	-
Cooling		Cooling via contact to mounting surface. For safe operating, a good thermal connection between mounting surface and the heat sink (application) have to be provided.
Ambient temperature	-25°C ... +50°C	-
Operation temperature	< 85°C	measured at temperature reference point, see fig. 7.1
Overtemperature protection	internal approx. 95°C	Protective switch-off with automatic reset
Storage temperature	-40°C ... +85°C	-
Humidtiy	95%	-
Condensation	allowed	-
Shock test (acc. to EN 60068-2-27)		half sinusoidal (Excitation) 250m/s ² (Peak acceleration) 6ms (Duration) 1.000 shocks to each axis (Quantity) ±X, ±Y, ±Z (Axis)
Vibration test (acc. to EN 60068-2-6)		sinusoidal (Excitation) 30m/s ² (Peak acceleration) 10 - 500Hz (frequency, floating) 2h per axis (Duration) X, Y, Z (Axis)
Degree of protection acc. to EN60529	IP65	-

4 General data

Insulation strenght	500V _{RMS} 500V _{RMS}	Input / output and enclosure Output / enclosure
Installation orientation	any	-
Efficiency	typ. 93%	-
Dimensions (LxWxH)	approx. (180 x 85 x 46,5)mm approx. (180 x 85 x 23,5)mm	with connectors see fig. 7.1 without connectors see fig. 7.1
Enclosure	Aluminium	-
Weight	approx. 700g	-

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5 Standards

EMC (Electromagnetic Compatibility)

Title	Standard	Data
Emitted interference	EN12895	-
Immunity	EN12895	-

Electrical safety

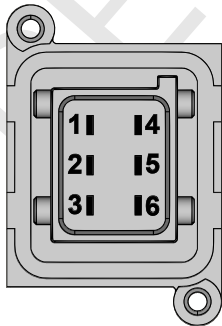
Title	Standard	Data
Safety of industrial trucks - Electrical requirements	DIN EN 1175 (PRN2014)	-

Other standards

Title	Standard	Data
Fire hazard testing	DIN EN 60695	-
Requirements Fire behaviour of materials and components	DIN EN 45545-2	-

6 Connectors

Input / Output



TE Connectivity 1-929180-1, 6-pole:

PIN "1": $V_{OUT, +}$ (24,3VDC)
PIN "2": $V_{OUT, -}$ (GND)
PIN "3": $V_{IN, +}$
PIN "4": $V_{OUT, +}$ (24,3VDC)
PIN "5": $V_{OUT, -}$ (GND)
PIN "6": $V_{IN, -}$

- Matching mating connector TE Connectivity 1-963212-1
- Connection cross-section at mating connector min. 2,5 mm²
- max. number of mating cycles: 10

Figure 6.1: Pin - assignment

7 Dimensions

All dimensions are given in millimeters and have a general tolerance according to DIN ISO 2768 - m.

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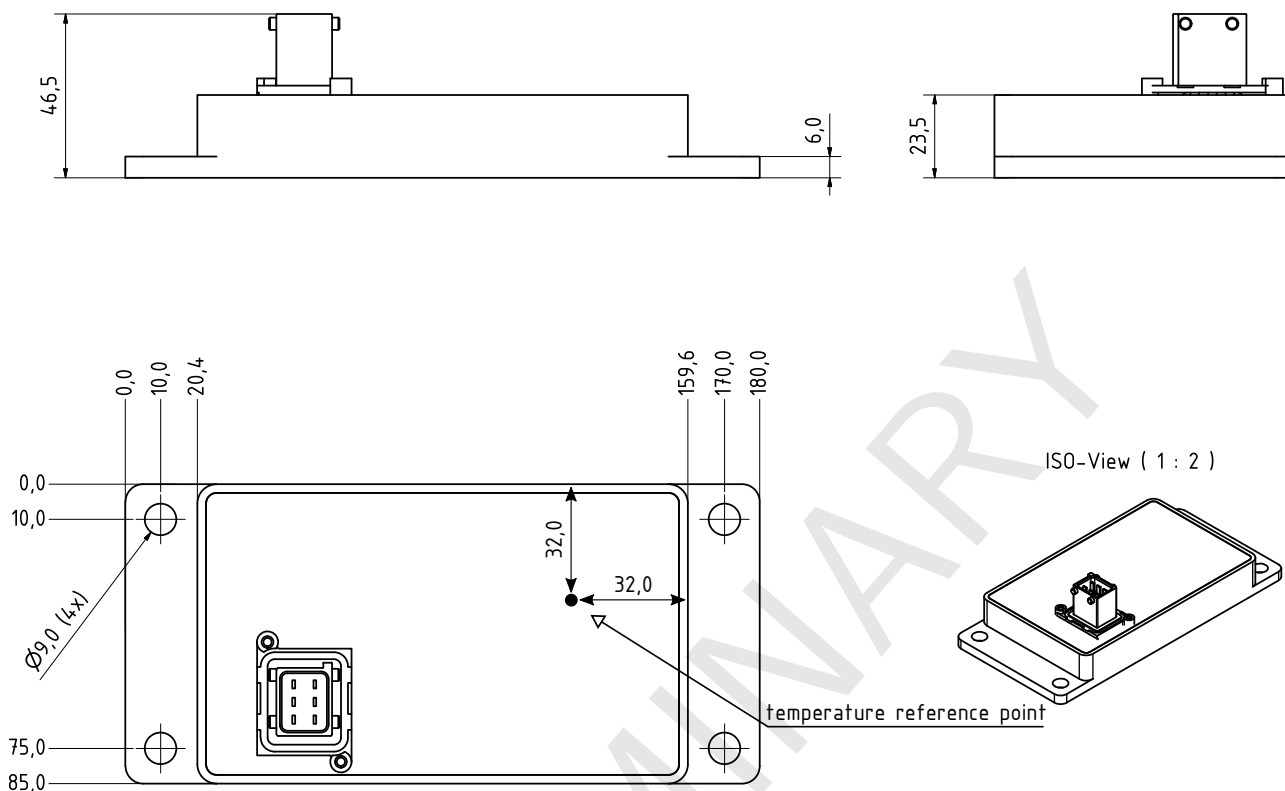


Figure 7.1: dimensions

8 Important (safety-) notes

Generally it is recommended to use by Deutronic released equipment, only. Because only in this way an appropriate technical suitability and an adequate dimensioning can be ensured for professional use.

Equipment and accessories have to be selected and installed in accordance with the requirements and under attention of the existing safety guidelines.

Moreover pay attention of a safety interlocksystem at the respective device to ensure the operational safety and to avoid damages. If worn, the cables must be replaced immediately!

If an external energy source (e.g. battery) is connected to the output of the converter, the supply line (+ pole) must be fused close by the source.

Recommended fusing: 1,1... 1,2 x I_{nom}

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