

DVC301

DC/DC converter

galvanically isolated



Abbildung ähnlich / device similar to figure



DVC301-derivate table

Type	Input voltage		Output voltage		Cat. No.
	Nom.	Range	Nom.	Max.	
DVC301-24-12	24 VDC	20 - 45 VDC	12,5 VDC	22 A	105604
DVC301-24-24	24 VDC	20 - 45 VDC	24 VDC	12,5 A	105601
DVC301-48-24	48 VDC	32 - 100 VDC	24 VDC	12,5 A	105600
DVC301-80-24	80 VDC	54 - 154 VDC	24 VDC	12,5 A	105602

Version EUT: EXTENDED HOLD-UP TIME

Type	Input voltage		Output voltage		Cat. No.
	Nom.	Range	Nom.	Max.	
DVC301-EUT-24-24	24 VDC	20 - 45 VDC	24 VDC	12,5 A	105603

EUT: To bridge voltage break down e.g. at an engine start (output capacity approx. 18800 µF)

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1 Input

Input voltage range	-	see DVC301-derivate table
Undervoltage range	0-20VDC(@IN 24VDC) 0-32VDC(@IN 48VDC) 0-54VDC(@IN 80VDC)	Class C*
Lower restricted operation range	20VDC-21VDC(@IN 24VDC) 32VDC-34VDC(@IN 48VDC) 54VDC-56VDC(@IN 80VDC)	Continuous operation, class B*
Unrestricted operation range	21VDC-45VDC(@IN 24VDC) 34VDC-100VDC(@IN 48VDC) 56VDC-154VDC(@IN 80VDC)	Continuous operation, class A*
Overvoltage range (≤ 20ms)	≤ 52VDC (@IN 24VDC) ≤ 110VDC (@IN 48VDC) ≤ 220VDC (@IN 80VDC)	Class C*
Max. current consumption	20 A (@IN 24VDC) 11 A (@IN 48VDC) 6,5 A (@IN 80VDC)	-
Filtering	-	Filtered against vehicle on board disturbances
No-load current consumption	< 100 mA	-

* Evaluation criteria for the operation behavior

The following evaluation criteria describe the functional state of the DC/DC converter as a function of the operation input voltage.

Class A	Unrestricted operation range	The DC/DC converter operates as designed in compliance with the tolerances specified in the data sheet.
Class B	Lower and upper restricted operation range	One or more functions may go beyond the specified tolerance. After returning to the unrestricted operation range, the DC/DC converter operates again as designed.
Class C	Undervoltage and overvoltage range	One or more functions do not work as intended. After returning to the unrestricted operation range, the DC/DC converter operates again as designed.

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2 Output

Output voltage U_{nom}	-	see DVC301-derivate table
Initial accuracy (0 - 20 Hz)	$\pm 0,2\% U_{nom}$ $\pm 0,8\% U_{nom}$ $\pm 0,1\% U_{nom}$	@IN 24VDC @IN 48VDC @IN 80VDC
Load regulation tolerance N_{load}	$+0,4\% / -0,2\% U_{nom}$ $\pm 0,2\% U_{nom}$ $+0,6\% / -0,2\% U_{nom}$	@IN 24VDC @IN 48VDC @IN 80VDC
Ripple & Noise N_{RN}	$\pm 0,8\% U_{nom}$ $\pm 0,5\% U_{nom}$ $\pm 1,1\% U_{nom}$	< 200 mVpp (@IN 24VDC) < 120 mVpp (@IN 48VDC) < 270 mVpp (@IN 80VDC)
Overall toleranz $N_{overall}$ 0 - 20 MHz	$+1,4\% / -1,2\% U_{nom}$ $\pm 1,5\% U_{nom}$ $+1,8\% / -1,4\% U_{nom}$	@IN 24VDC @IN 48VDC @IN 80VDC
Max. continuous output current I_{nom}	22 A 12,5 A	@OUT 12VDC @OUT 24VDC
Max. continuous output power P_{nom}	300 W	-
Current limiting	$1,1 \times I_{nom}$	above $1,0 \times I_{nom}$ U_{out} may sink
Output capacity	ca. 880 μF ca. 18800 μF	@OUT 24VDC @OUT 24VDC EUT

3 Environment

Working temperature (environment)	-30°C ... +75°C	max. temperature of base plate 75°C
Overtemperature protection	-	Automatic shutdown in case of overtemperature, self reset after cool down
Storage temperature	-40°C ... +85°C	-
Humidity	100%	-
Dewing	allowed	-
Degree of protection acc. to EN 60529	IP67	without plug

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4 General data

Insulation strength	1,5 kVDC 500 VDC	Input voltage against output voltage and enclosure Output against enclosure
Efficiency	88% (@IN 24VDC) 88% (@IN 48VDC) 90% (@IN 80VDC)	Averaging of the efficiency values at 25%, 50%, 75% and 100% of the nominal output power.
Dimensions (LxWxH)	153 (147)x 131 (97) x 50 (47) mm	without connections, see fig. 8.1
Enclosure	Aluminium	-
Weight	< 1500g	-

5 Standards

EMC (Electromagnetic Compatibility)

Title	Standard	Data
Emitted interference	EN12895 EN 61204-3	- acc. to 6.4.2, table H.3, for industrial environment (class A, cable length < 3 m)
Immunity	EN12895 EN 61204-3	- acc. to 7.2.3, Noise immunity level for industrial environment (cable length < 3 m)

Electrical safety

Title	Standard	Data
Safety of industrial trucks - Electrical requirements	designed according to DIN EN 1175	-
Low-voltage switch mode power supplies - Safety requirements	DIN EN 61204-7	-
Designed according to Industrial trucks - Electrical requirements	ISO 20898	-

* The system integrator is responsible for compliance of all product-specific requirements in the final application.

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6 Installation and safety instructions

In addition to the general installation and safety instructions for DC/DC converters, the following values and supplements apply:

Mounting points	Ø5,5 mm Ø4,5 mm	4 mounting holes each see fig. 8.1
Mounting position	-	any
Connection input / output	approx. 10 cm cable with 6-pole AMP connector Mate-N-Lok	see chap. 7 different cable/connector possible on customers request
Input fuse	T10A/250V (@IN 80/48 VDC) T20A/32V (@IN 36/24VDC) T35A/32V (@IN 12VDC)	No integrated input fuse. A fuse must be provided externally by the customer application.
Inrush current limitation	-	Attention: No inrush current limitation in the device. Provide a precharging section in the application, otherwise there is a risk of an overvoltage damage to the input of the DC/DC converter.
Reverse polarity protection	-	On reverse polarity external input fuse (upstream) is blown
Parallel operation	Power increase	Connectable in parallel without limitation, no additional control cable needed Smart output regulation for optimized DC current distribution in parallel operation
Series operation	Voltage increase	Up to 4 units connectable in series ATTENTION: Follow safety requirements (PELV, SELV)

The general installation and safety instructions for DC/DC converters can be found at: www.deutronic.com

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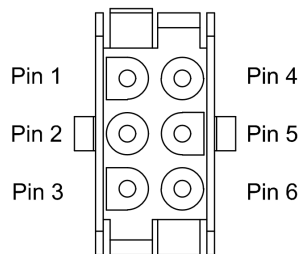
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7 Connections

Input / Output

AMP Universal Mate-N-Lok, 6-pole:



PIN "1|4": $V_{OUT, -}$
PIN "2|5": $V_{OUT, +}$
PIN "3": $V_{IN, -}$
PIN "6": $V_{IN, +}$

Figure 7.1: Pin assignment

8 Dimensions

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

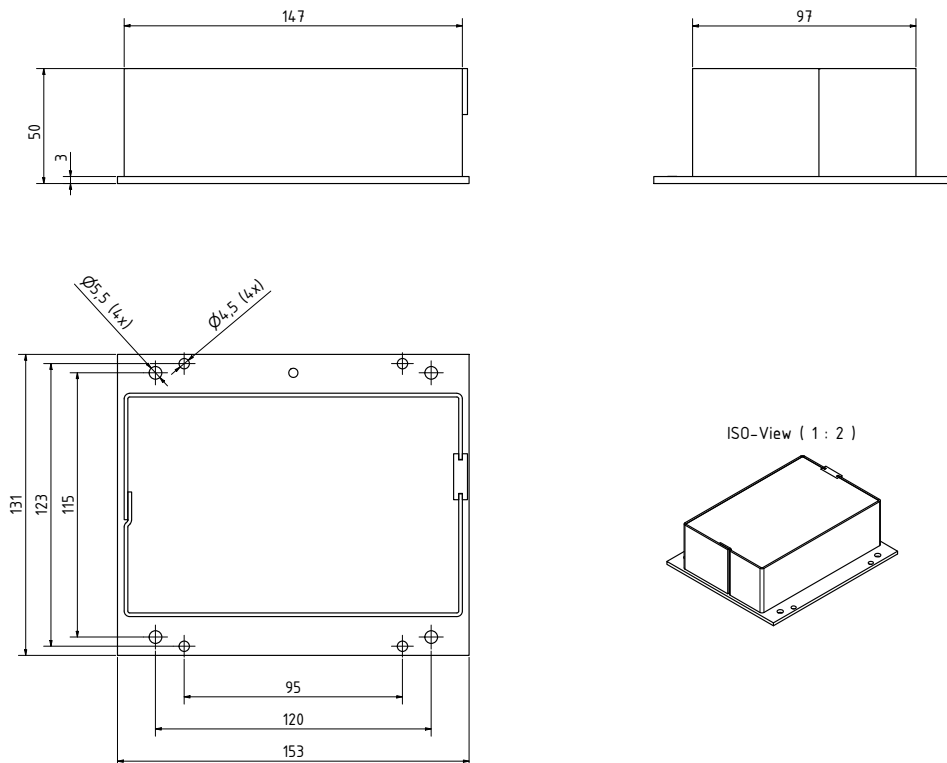


Figure 8.1: Dimensions

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