

DVC75

DC/DC Converter

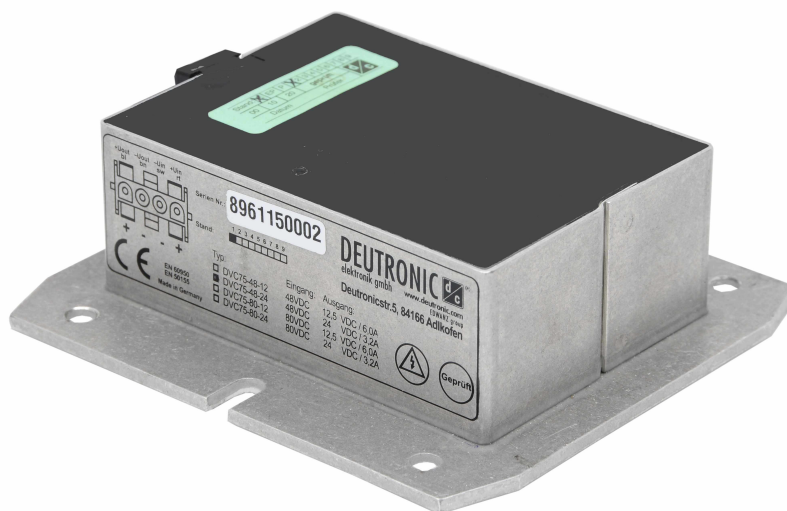


Abbildung ähnlich / device similar to figure



DVC75-derivate table

Type	Input voltage		Output voltage	Output current Max.	Cat. No.
	Nom.	Range			
DVC75-24-5	24 VDC	17 - 40 VDC	5 VDC	8 A	105100
DVC75-24-12	24 VDC	17 - 40 VDC	12,5 VDC	4 A	105101
DVC75-24-20	24 VDC	17 - 40 VDC	20 VDC	2,5 A	105103
DVC75-24-24	24 VDC	17 - 40 VDC	24,5 VDC	2 A	105102
DVC75-36-12	36 VDC	25 - 70 VDC	12,5 VDC	5 A	105051
DVC75-36-24	36 VDC	25 - 70 VDC	24,5 VDC	2,8 A	105053
DVC75-48-12	48 VDC	33 - 90 VDC	12,5 VDC	6 A	105083
DVC75-48-15	48 VDC	33 - 90 VDC	15 VDC	5 A	105049
DVC75-48-24	48 VDC	33 - 90 VDC	24,5 VDC	3,2 A	105092
DVC75-80-12	80 VDC	56 - 154 VDC	12,5 VDC	6 A	105085
DVC75-80-14	80 VDC	64 - 154 VDC	14,5 VDC	5,2 A	105056
DVC75-80-24	80 VDC	56 - 154 VDC	24,5 VDC	3,2 A	105093
DVC75-80-24/RA	80 VDC	56 - 154 VDC	24,5 VDC	3,2 A	105048
DVC75-80-24/RA	80 VDC	56 - 154 VDC	24,5 VDC	3,2 A	105048/2

Options (on request):

- Customized devices (e.g. individual cable loom, alternative input and output voltages etc.)
- Version with "E" mark (E1 approval) for road vehicle use

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All parameters are specified at 25°C ambient, if not marked otherwise.
 Technical modifications and mistakes reserved.

Products are described by information contained in catalogs and data-sheets. It is not be considered as assured qualities. Stresses listed under „Maximum Rating“(one at a time) may be applied to devices without resulting in permanent damage. The operation of the equipment for extended periods may affect device reliability. Limiting value tolerance are subject to usual fluctuation margins.

1 Input

Input voltage range	-	see DVC75-derivate table (valid for continuous operation)
Undervoltage range	0 - 16 VDC (@24 VDC) 0 - 22 VDC (@36 VDC) 0 - 24 VDC (@48 VDC) 0 - 40 VDC (@80 VDC)	Class C*
Lower restricted operation range	16 - 17 VDC (@24 VDC) 22 - 25 VDC (@36 VDC) 24 - 33 VDC (@48 VDC) 40 - 56 VDC (@80 VDC)**	Continuous operation, class B*
** Attention: Lower restricted operation range for DVC75-80-14 variant 40 - 64 VDC.		
Unrestricted operation range	17 - 40 VDC (@24 VDC) 25 - 70 VDC (@36 VDC) 33 - 90 VDC (@48 VDC) 56 - 154 VDC (@80 VDC)***	Continuous operation, class A*
*** Attention: Unrestricted operation range for DVC75-80-14 variant 64 - 154 VDC.		
Transient over voltage (20 ms, one time)	50 VDC (@24 VDC) 80 VDC (@36 VDC) 100 VDC (@48 VDC) 220 VDC (@80 VDC)	-
Filtering	-	Filtered against vehicle on board disturbances

* 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.

2 Output

Output voltage U_{nom}	-	see DVC75-derivate table (valid for continuous operation)
Initial accuracy	$\pm 3,0\% U_{nom}$ $\pm 1,0\% U_{nom}$	@ $U_{out} = 5VDC$ for all other variants
Current limiting	$1,1 \times I_{nom}$ (@24/36 VDC) $1,2 \times I_{nom}$ (@48/80 VDC)	-
Ripple & Noise	≤ 100 mVpp	measurement bandwidth 20 MHz
Load regulation static (10-90% / 0-100% P_{nom})	$\pm 0,5\%$ / $\pm 1,0\% U_{nom}$	-
Load regulation dynamic (20-80% P_{nom})	$\pm 1,5\% U_{nom}$	-
Recovery time	< 0,5ms	Duration from leaving the tolerance band until the permanently return to the tolerance band after a load step.
Input regulation N_{input}	$\pm 0,1\% U_{nom}$	-
Temperature drift	0-60°C < 2%	-
Parallel connectable for power increase	-	No control lead necessary (can be connected in series)
Over voltage protection (output)	-	Safety redundant regulation circuit, limiting action to $U_{nom} + 20\%$ (typ.)

3 Environment

Working temperature	-40°C ... +75°C	max. temperature base plate 100°C at low temperature reduced output voltage under load
Storage temperature	-40°C ... +85°C	-
Over temperature protection	-	Protective shut down, self reset after cool down
Humidity	100%	-
Dewing	allowed	-
Cooling	-	Natural convection/Cooling via contact to mounting surface
Degree of protection (without connector)	IP67	-

4 General data

Insulation strength	1,5 kVDC 1,5 kVDC 500 VDC	Input / Output Input / Enclosure Output / Enclosure
Efficiency	typ. 84-90% (82% @ $U_{out}=5VDC$)	-
Dimensions (LxWxH)	ca. (110 (93) x 100 (68) x 39) mm	without connections, see fig. 8.1
Enclosure	Aluminium	-
Weight	ca. 600 g	-

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5 Standards

EMC (Elektromagnetic Compatibility)

Title	Standard	Data
Emitted interference	EN 61204-3	acc. to 6.4.2, table H.3, for residential, commercial and light industrial environments, class B (cable length < 3 m)
Immunity	EN 61204-3	acc. to 7.2.3, Noise immunity level for industrial environment (cable length < 3 m)

Electrical Safety

Title	Standard	Data
Low-voltage switch mode power supplies - Safety requirements	DIN EN 61204-7	-

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	-	4x Mounting holes (Ø5 mm) see fig. 8.1
Installation orientation	-	any
Connection input / output	-	see chapter 7
Input fuse	T10A / 250V T10A / 32V (@24VDC)	to switch external in series
Reverse polarity protection	-	Reverse polarity diode integrated
Important safety note	-	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}

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

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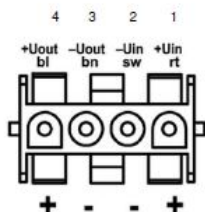
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7 Connections

Input / Output



STANDARD - VERSION

Pin	Belegung: Pin assignment:	Farbe: color:
1	+ Uin	rot (red)
2	Masse / GND in	schwarz (black)
3	Masse / GND out	braun (brown)
4	+ Uout	blau (blue)

RA - VERSION

Pin	Belegung: Pin assignment:	Farbe: color:
1	+ Uin	rot (red)
2	Masse / GND in	schwarz (black)
3	Masse / GND out	braun (brown)
4	+ Uout	weiß (white)

Standard version:

- AMP connector MATE-N-LOK, 4 poles, length: ca. 100mm
- different cable/connector possible on customers request

PIN 1: + Uin (red)

PIN 2: - Uin (black)

PIN 3: - Uout (brown)

PIN 4: + Uout (blue)

Cat.-No. 105048:

- length: ca. 1m (cable ends tinned)
- type of cable halogen-free

PIN 1: + Uin (red)

PIN 2: - Uin (black)

PIN 3: - Uout (brown)

PIN 4: + Uout (white)

Cat.-No. 105048/2:

- like 105048 only output cable length is 225mm

8 Dimensions

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

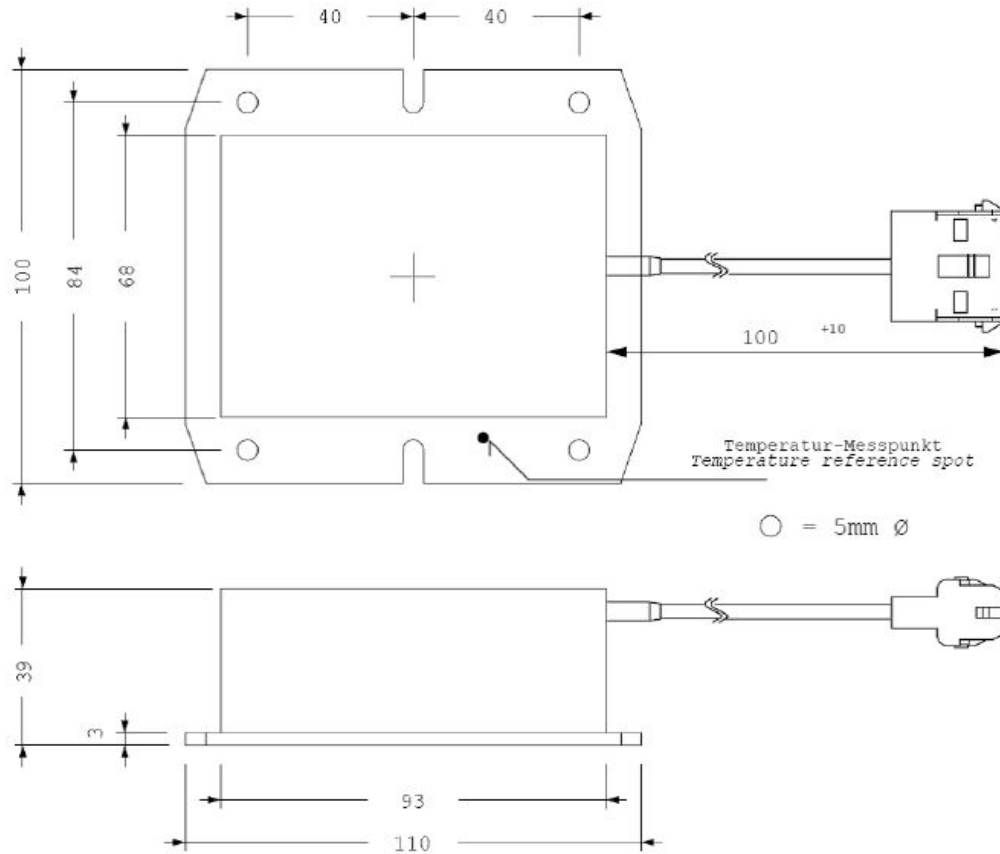


Figure 8.1: Dimensions