

# DVC75

## DC/DC Converter

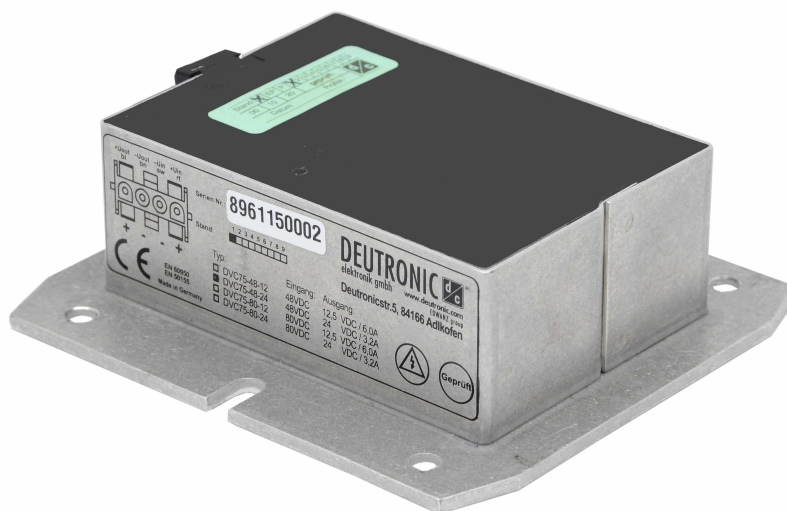


Abbildung ähnlich / device similar to figure



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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 Technical modifications and mistakes reserved.

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# 1 Input

<b>Input voltage range</b>	-	see DVC75-derivate table (valid for continuous operation)
<b>Undervoltage range</b>	0 - 16 VDC (@24 VDC) 0 - 22 VDC (@36 VDC) 0 - 24 VDC (@48 VDC) 0 - 40 VDC (@80 VDC)	Class C*
<b>Lower restricted operation range</b>	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.		
<b>Unrestricted operation range</b>	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.		
<b>Transient over voltage (20 ms, one time)</b>	50 VDC (@24 VDC) 80 VDC (@36 VDC) 100 VDC (@48 VDC) 220 VDC (@80 VDC)	-
<b>Filtering</b>	-	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.

<b>Class A</b>	Unrestricted operation range	The DC/DC converter operates as designed in compliance with the tolerances specified in the data sheet.
<b>Class B</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.
<b>Class C</b>	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

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

## 3 Environment

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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

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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
Inrush current limitation	-	Attention: No inrush current limitation in the device. Provide a pre-charging section in the application, otherwise there is a risk of an overvoltage damage to the input of the DC/DC converter.
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 <sub>nom</sub>

The general installation and safety instructions for DC/DC converters can be found at: [www.deutronic.de](http://www.deutronic.de)

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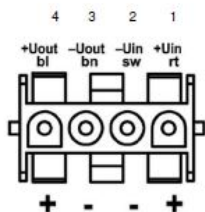
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## 7 Connections

### 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

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## 8 Dimensions

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

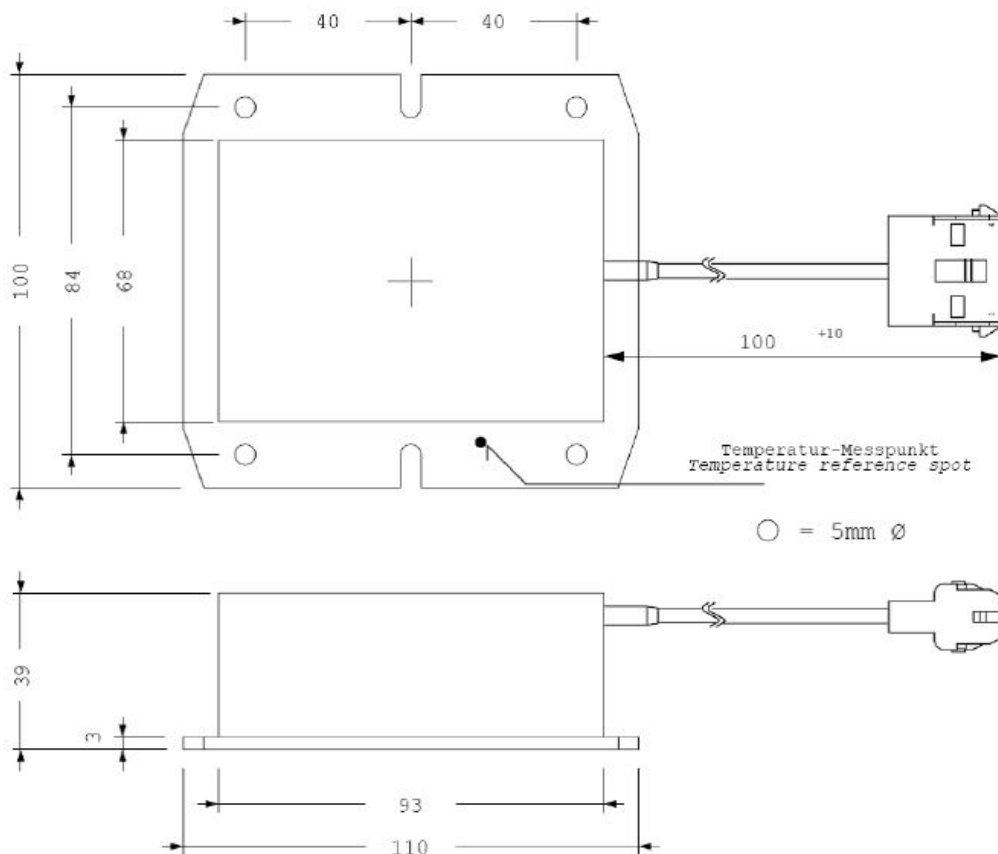


Figure 8.1: Dimensions