

DIN EN ISO 9001
certified

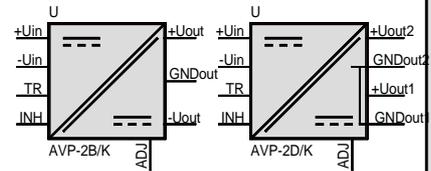
Autronic

Steuer- u. Regeltechnik GmbH & Co KG D-74343 Sachsenheim

DC-DC Converter AVP-2B/K and ...-2D/K

Output power up to 51 Watts

Isolated - bipolar (...2B...) and dual (...-2D...) Output
PCB mounting (.../Ksp) and Chassis Mounting (.../Ks)



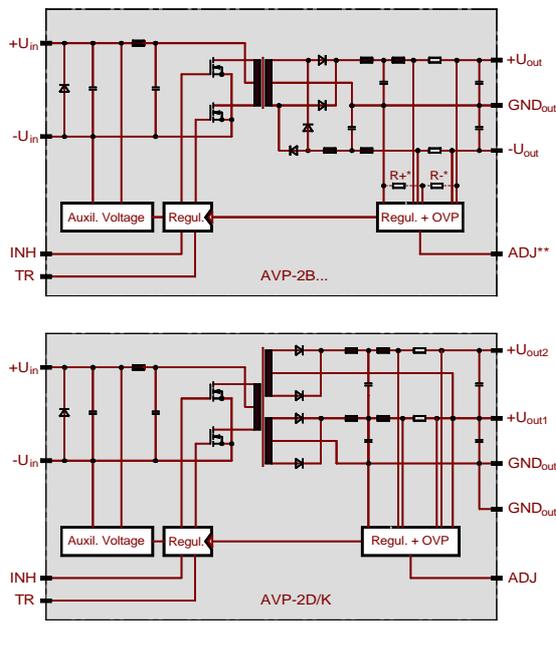
Technology

- Power section in 67 kHz-MOSFET-technology
- Regulator section in SMT

Special Features

- Series meets Generic Immunity Standard according to EN 50082-2:1995 with additional improvements, criterion A:
 - Burst transients: Input and output filtering according to EN 61000-4-4:1995 (class 3): 2 kV
 - Surge: Input and output filtering according to EN 61000-4-5:1995 (class 2): 1 kV symmetric
 - Electrostatic discharge according to EN 61000-4-2:1995 (testing level 4): 8 kV contact (base plate)/15 kV air
- Conducted RFI:
 - Input filtering according EN 55022:1994, class B
 - Output filtering according Vfg 243/1991
- Reverse polarity protection
- Zero load operation and short circuit protected
- Distribution of the total output power on to both outputs is possible up to a proportion of 1:4****
- Overtemperature shutdown
- No overshoot of output voltage at switching on
- Remote off (inhibit) with TTL - signal
- Overvoltage protection in the output circuit, at the main voltage even in case of external supply (OVP)
- Extremely low thermal stress of sensitive components due to dissipated power loss over lateral heatsink
- Vibration resistant and indifferent to humidity due to encapsulated case

Block diagrams



Specifications

at $J_{amb} = 25^{\circ}C$, $U_{in\ nom}$, $0,77 I_{out\ nom}$

Temperature

Ambient air	$J_{amb} = -40...+85^{\circ}C$
Storage	$J_S = -40...+100^{\circ}C$
Rise in case	$DJ_C \leq 20\ K$
Rise on heat sink	$DJ_H \leq 25\ K$

Output voltages

Tolerance $DU_{out1} / DU_{out2} / \%$	$\leq \pm 0,25^* / \pm 3$
Output ripple u_{out} / mV_{rms} at $J_{amb} = -40^{\circ}C...+85^{\circ}C$	$\leq 3,5$
Temperature coefficient $TC / \%/K$	$\leq 0,016$

Regulation at $J_{amb} = -40^{\circ}C...+85^{\circ}C$

Line regulation DU_{out} / mV for 100% DU_{in}	≤ 2
Load regul. $DU_{out1} / DU_{out2} / mV$ per A load static	$\leq 0,6 / 100^{***}$
$DU_{out1} / DU_{out2} / mV$ per A load change ($25^{\circ}C$)**	$\leq 55 / 130 (25/85)^{***}$

OVP

Starting point $U_{out\ nom} / \%$	≤ 130
admissible continuous ext. current I_{ext} / A	$\leq 3,5$

Isolation voltage-strength

In-/Output U_{rms} / kV	$\geq 1,5$
Input to heatsink U_{rms} / kV	$\geq 1,5$
Output to heatsink U_{rms} / kV	$\geq 0,3$
Resistance R_{iso} / Ω	$\geq 10^{11}$
Capacitance C_{iso} / pF	$= 2200$

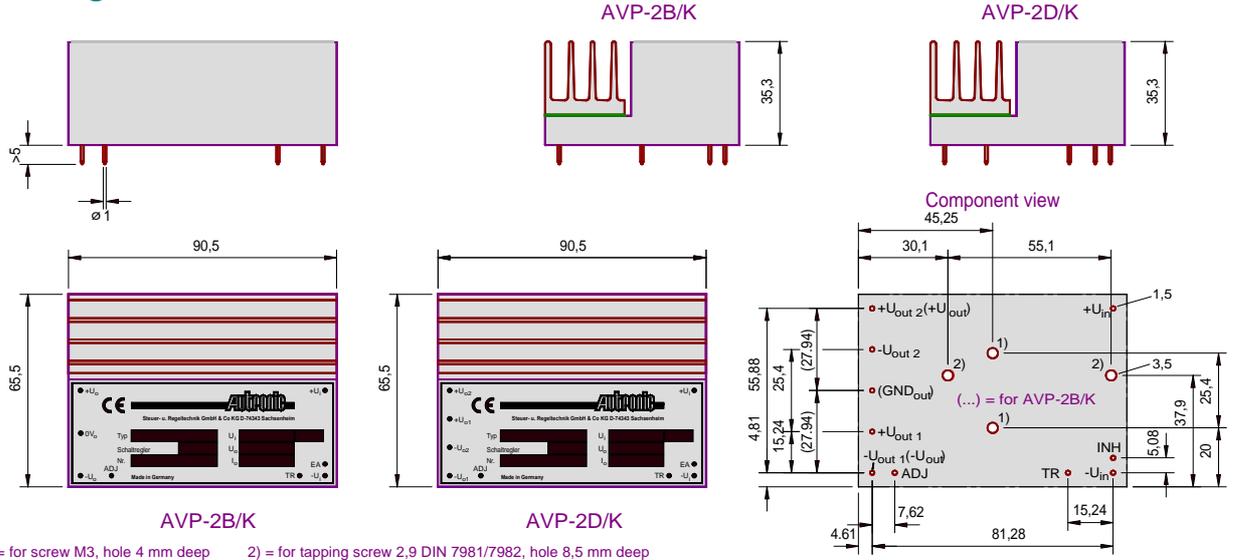
Weight M/g

$= 330$

* At 5 V: 0,5%
 ** $I_{o\ min} = 0,1 I_{o\ nom}$
 *** The respective other output burdens with $I_{o\ nom}$.
 **** At 09 18 62 01 17 9 up to a proportion of 1:3.

Drawings

Dimensions in mm with a outside dimensions tolerance of +1 mm



Operating instructions

Installation: The converters have to be installed according to the guidelines currently in force, like other open electronic component assemblies. Attention must be paid to sufficient ventilation, fastening and protection against accidental contact!

Reverse polarity protection: If reverse polarity connection of the input voltage can not be excluded, an external time-lag fuse must be installed. Size: $I_{rat} = 1,5 I_{in max}$ (max. 10 A). Pay attention on sufficient current of current source in case of short-circuit ($t_s < 300$ ms)!

Excess temperature protection: In case temperature exceeds 101°C , typ. 105°C , (due to inadmissible operation conditions) the output voltages are automatically switched off and restarted after cooling down about 10 K.

Overvoltage protection: Internally caused overvoltages at the outputs lead to a thyristor-controlled short-circuit of output 1 for AVP-2B and of output 2 for AVP-2D and all outputs shut down. External caused overvoltages at output 1 for AVP-2B and at output 2 for AVP-2D lead also to a thyristor-controlled short-circuit of these outputs. After elimination of the overvoltages the outputs restart automatically.

External shut down (inhibit): $U < 0,8$ V at pin "INH" to pin $-U_{in}$ switches off the output. I_{source} 500 μA .

Current limiting: $I_{out lim} = 1,1 \dots 1,2 I_{out nom}$. At more than 50% overload and in case of short circuit (even at one output only) both outputs switch off and restart automatically latest after 1 s of elimination of the overload.

Tracking-operation: If the TR pins of two or more converters are connected, the output voltages in case of short-circuit or overload go synchronously down.

Adjustment: Connection of the pins "ADJ" and "GND_{out}" for the AVP-2B respectively pins "ADJ" and "GND_{out}" for the AVP-2D increases at the AVP-2B both output voltages of about 8%, at the AVP-2D $U_{out 1}$ of about 8% and $U_{out 2}$ of about 6%. Intermediate values are obtained by means of a resistor. By connecting "ADJ" and " $+U_{out}$ " pins with a resistor (AVP-2B) i.e. "ADJ" and " $+U_{out 1}$ " pins (AVP-2D) ensures that the output voltages may be lowered down by max. 8%.

Standard converters AVP-2B/K and AVP-2D/K

$\frac{U_{out1/2}}{V}$	$\frac{I_{out1/2nom}}{A}$ **	$\frac{U_{in nom}}{V}$	$\frac{U_{in range}}{V}$	$\frac{I_{in max}}{A}$	$\frac{h^{***}}{\%}$	$\frac{f}{\text{kHz}}$	Type	Order Number
+12/-12	1,7/1,7	12/24	9...40	5,6	83	67	AVP-2B/K	09 18 62 0112 7
	2,0/2,0****	12/24	9...40	5,6	83			09 18 62 0117 9
	1,9/1,9	24	15...36	3,8	86			09 18 92 0112 1
	2,0/2,0	48	32...74	1,8	87			09 18 52 0112 9
	2,0/2,0	110	66...154	0,9	88			09 18 72 0112 5
+15/-15	1,3/1,3	12/24	9...40	5,2	83	67	AVP-2B/K	09 18 63 0112 6
	1,6/1,6	24	15...36	3,6	87			09 18 93 0112 9
	1,7/1,7	48	32...74	1,8	88			09 18 53 0112 8
	1,7/1,7	110	66...154	0,9	89			09 18 73 0112 4
+5*/+12	3,2/1,4	12/24	9...40	4,9	80	67	AVP-2D/K	09 20 62 0112 7
	3,6/1,6	24	15...36	3,1	81			09 20 92 0112 1
	3,9/1,8	48	32...74	1,7	81			09 20 52 0112 9
	3,9/1,8	110	66...154	0,8	82			09 20 72 0112 5
+5*/+15	3,2/1,2	12/24	9...40	4,9	80	67	AVP-2D/K	09 20 63 0112 6
	3,6/1,4	24	15...36	3,4	81			09 20 93 0112 9
	3,9/1,4	48	32...74	1,7	81			09 20 53 0112 8
	3,9/1,4	110	66...154	0,9	82			09 20 73 0112 4

* Adjusted to 5,1 V

** For $\vartheta_{amb} = -40^\circ\text{C} \dots 55^\circ\text{C}$. Derating from 55°C to 85°C : $0,77\%/^\circ\text{C}$, I_{out} between 85°C and 95°C linear decreasing to 0 A.

*** At $U_{in nom}$ and $0,77 I_{Anom}$

**** Derating from 50°C : $0,8\%/^\circ\text{C}$; Distribution of the output power up to a proportion of 1:3 possible.

Specifications subject to change without notice

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