Product Data Sheet DV4118 NPR-197

ebmpapst

The engineer's choice



GREEN TECH

DV4118 NPR-197

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1 General

Fan type	Mixed-flow fan	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

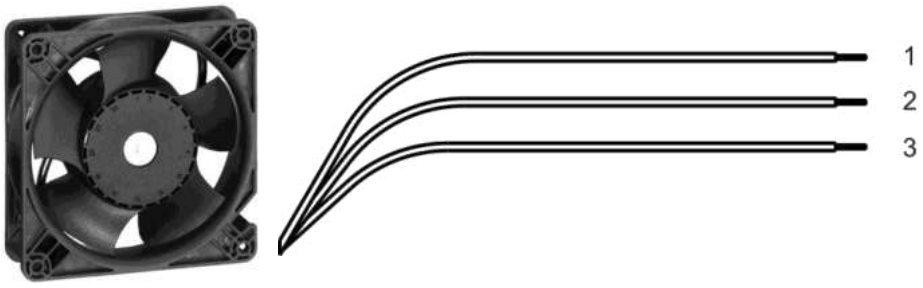
2 Mechanics

2.1 General

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Mass	0,450 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 240 Ncm Remaining corners: 420 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires - Plug	
Lead wire length Tolerance	L = 200 mm +- 10,0 mm	
Tube length Tolerance	S = 165 mm +- 5,0 mm	
Wire size (AWG)	20	
Insulation diameter	1,85 mm	
Plug	See drawing	
Contact	See drawing	



Wire	Color	Operation	Plug connection
1	red	+ UB	Pin 1
2	blue	- GND	Pin 3
3	violet	PWM	Pin 2

3 Operating Data

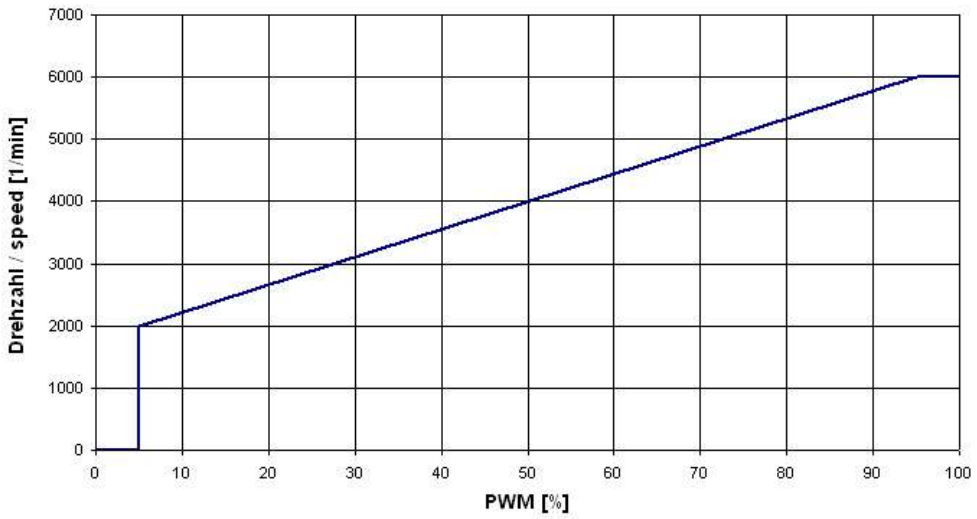
3.1 Electrical Interface - Input

Control input	PWM

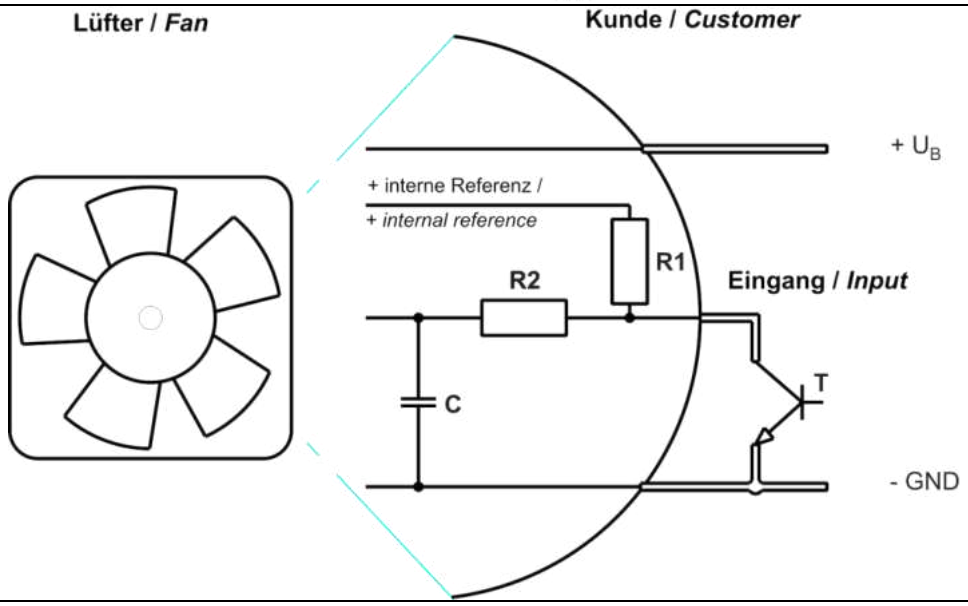
Features

Inpute type	Open collector	
PWM - Frequency		1 kHz - 10 kHz typical: 2 kHz

Characteristics



Schematics



Speed control:
0...100 % PWM; 5 V pull-up, max 2 mA

Without input signal fan is running at maximum Speed.
Internal pullup resistor 10k to 5V.

3.2 Electrical Operating Data

Measurement conditions:	Normal air density = 1,2 kg/m3; Temperature 23°C +/- 3°C; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

$\Delta p = 0$: corresp. to free air flow (see chapter aerodynamics)
I: corresp. to arithm. mean current value

Name	Condition		
PWM 0001	PWM: 100 %; f: 2 kHz		

Note:
No inrush current at Unom means:

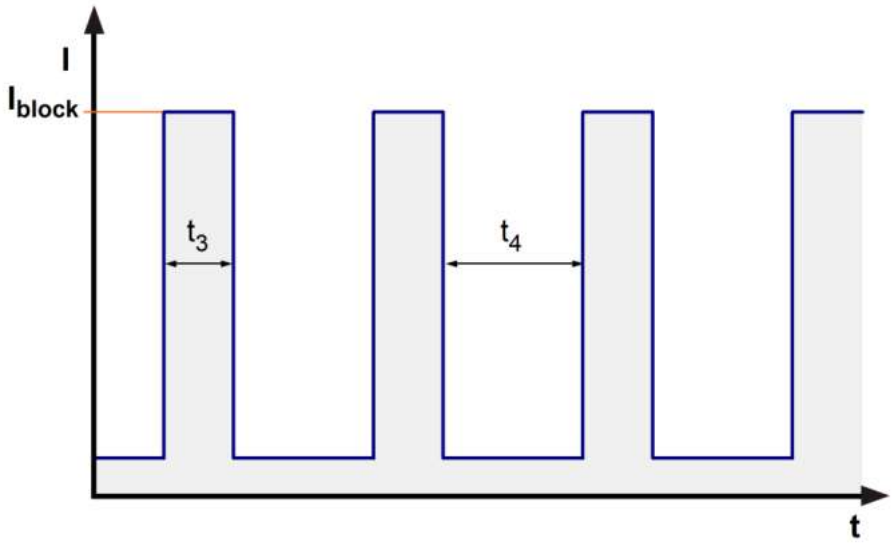
The internal electrolytic capacitor 39uF/100V has no resistor or inrush current limitation, essentially the power supply and the type and length of the connecting cable is limiting the Inrush current.

Note Power supply voltage:
The electronics of the fan is designed for high endurance voltage up to 85V

Features	Condition	Symbol	Values		
Voltage range		U	33 V		60,0 V
Nominal voltage		U_N		48,0 V	
Power consumption Tolerance	$\Delta p = 0$ PWM 0010	P		22,0 W +- 15,0 %	
Current consumption Tolerance	$\Delta p = 0$ PWM 0010	I		450 mA +- 15,0 %	
Speed Tolerance	$\Delta p = 0$ PWM 0010	n		6.000 1/min +- 10,0 %	6.000 1/min +- 10,0 %
Starting current consumption				1.500 mA	

3.3 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 1.600 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,5 s / 5 s	



Internal Fuse:
Littlefuse NANO2(R) FUSE; Very fast acting 451 Series; 2 A (Art.-Nr.: 451002)

Current during braking of the rotor
Max. current when decelerate at Unom. = < 2.800mA peak

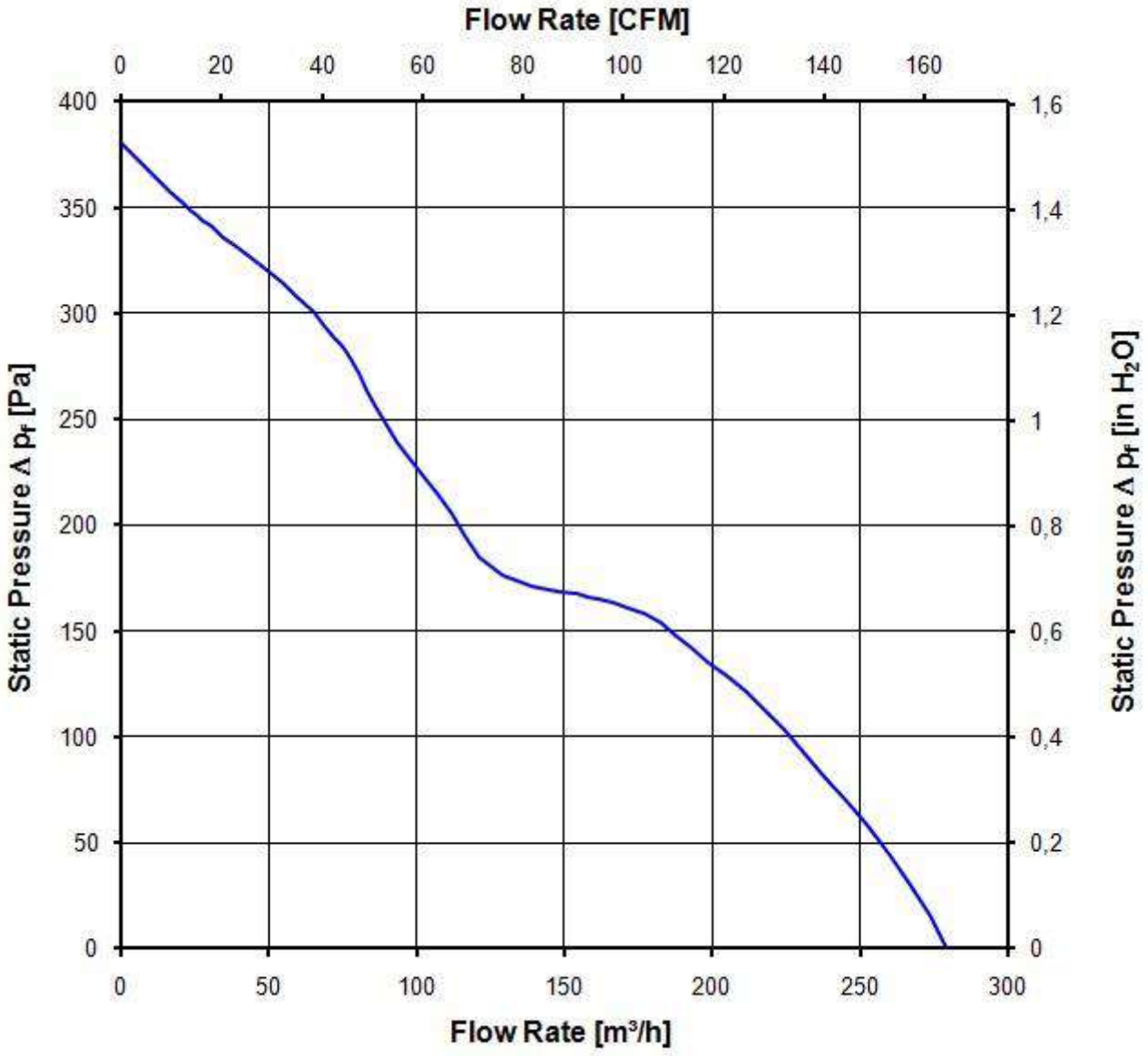
3.4 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23°C +/- 3°C; In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal. The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions.

a.) Operation condition:

6.000 1/min at free air flow	PWM 100 %; f: 2 kHz		

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	280,0 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	380 Pa	



3.5 Sound Data

Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: Acc. to DIN 45635 part 38 (ISO 10302) Measured in a semianchoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

6.000 1/min at free air flow	PWM 100 %; f: 2 kHz		

Optimal operating point	185,0 m3/h @ 137 Pa	
Sound power level at the optimal operating point	6,9 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	61,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	75 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

Humidity requirements	humid heat, cyclic; according to DIN EN 60068-2-30, 6 cycle	
Water exposure	None	
Dust requirements	Dust check; according to DIN EN 60068-2-68, 6g/m2d, 1 day	
Salt fog requirements	None	

Permitted application area:
The product is for the use in sheltered rooms with limited controlled temperature. Occasionally condensed water is allowed. Direct exposure to water must be avoided. Saline ambient conditions must be avoided.

Pollution degree 2 (according DIN EN 60664-1)
It occurs only non-conductive pollution. Occassionally, temporary conductivity caused by condensation occurs.

Please require severity levels and specification parameters from the responsible development departments.

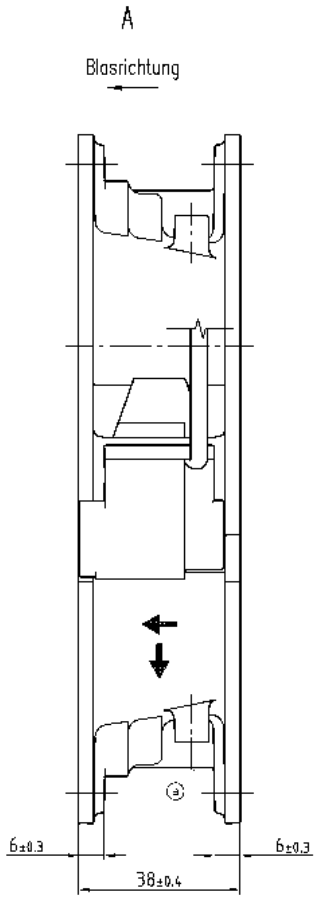
5 Safety

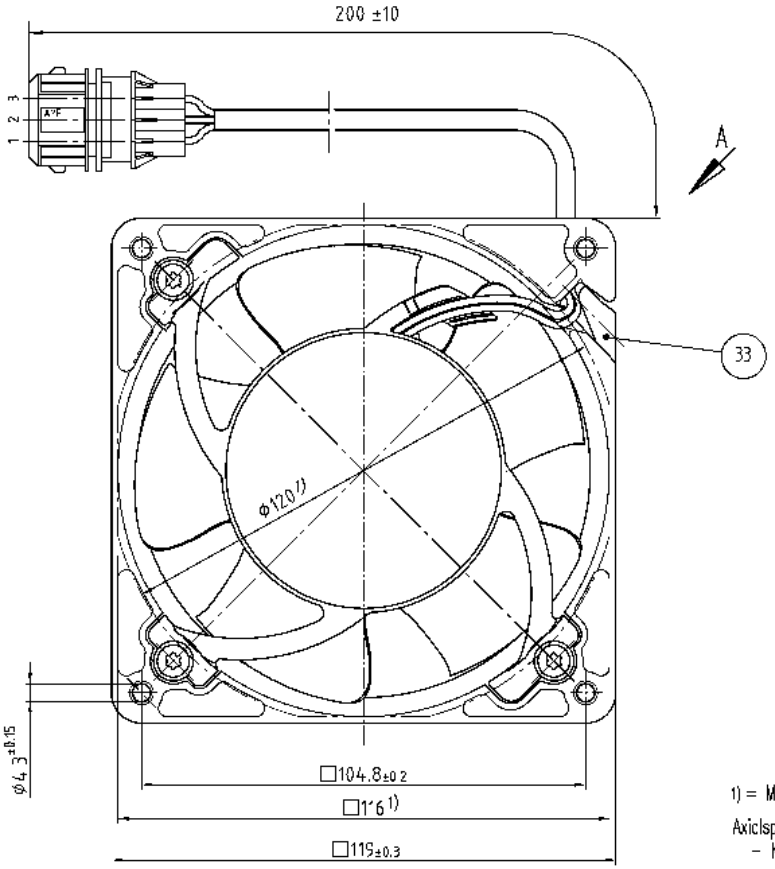
5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25°C. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 500 VAC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25°C measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Clearance / creepage distance	1,0 mm / 1,5 mm	
Protection class	III	

5.2 Approval Tests

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	No
VDE	Association for Electrical, Electronic and Information Technologies	No
CSA	Canadian Standards Association	No
CCC	China Compulsory Certification	Yes / GB 12350 Safety Requirements for small Power Motors





5-eckergehäuse
AMP 1-962581-1
Kontakt
AMP 1-962915-1
Dichtung
AMP 828 904-1

Steckerbelegung
Pin 1 = rot (+)
Pin 2 = violett (PWM)
Pin 3 = blau (-)

1) = Maß für Montagewand

Axialspiel bei
- Kugellagerung (K): 0 (mit Federausgleich)

Toleranzen/Tolerances: DIN 7167 Allgemeintoleranzen/Gen. tolerances: DIN ISO 2768-mK				
	Datum/Date	Name/Name	ebmpapst	Artikel/Title
Bearb./Drawn				Passmaß/Scale
	Index/Index	Aenderung/Change-No.		Zchg. Nr./Dwg.-No.
Gepr. u. zur Verwendung freigegeben/Checked for release von/by / am/on			ebm-papst St. Georgen GmbH & Co. KG	Blatt/Page
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