

Product Data Sheet 4114 N/37HHPR-211

ebmpapst

The engineer's choice



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1 General

Fan type	Fan	
Rotating direction looking at rotor	Clockwise	
Airflow direction	Air intake over struts	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

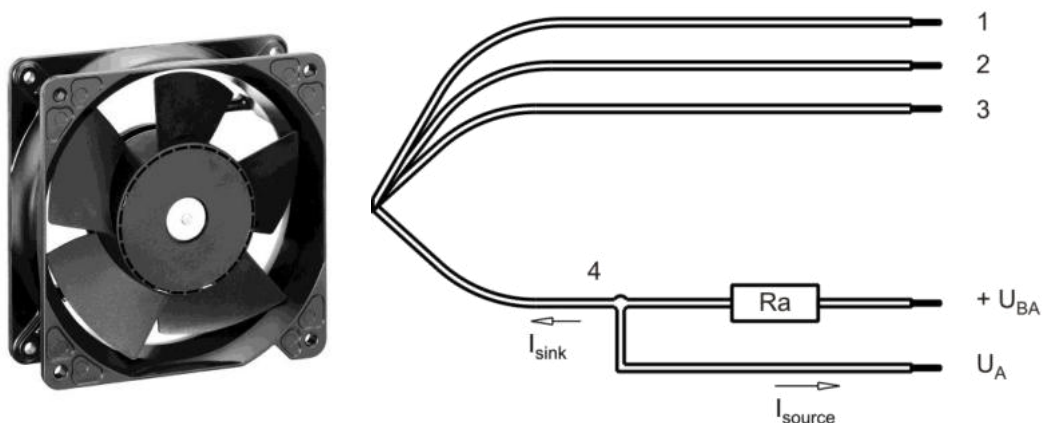
2 Mechanics

2.1 General

Width	119,0 mm	
Height	119,0 mm	
Depth	38,0 mm	
Mass	0,380 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	Wire outlet corner: 420 Ncm Remaining corners: 600 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires - Plug	
Lead wire length	L = 126 mm	
Tolerance		
Plug	See drawing	
Contact	See drawing	



Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 22	1,7 mm
2	blue	- GND	AWG 22	1,7 mm
3	violet	PWM	AWG 22	1,7 mm
4	white	Alarm	AWG 22	1,7 mm

The auxiliaries shown on the schematic diagram (which are required for the intended use) are not part of our delivery.

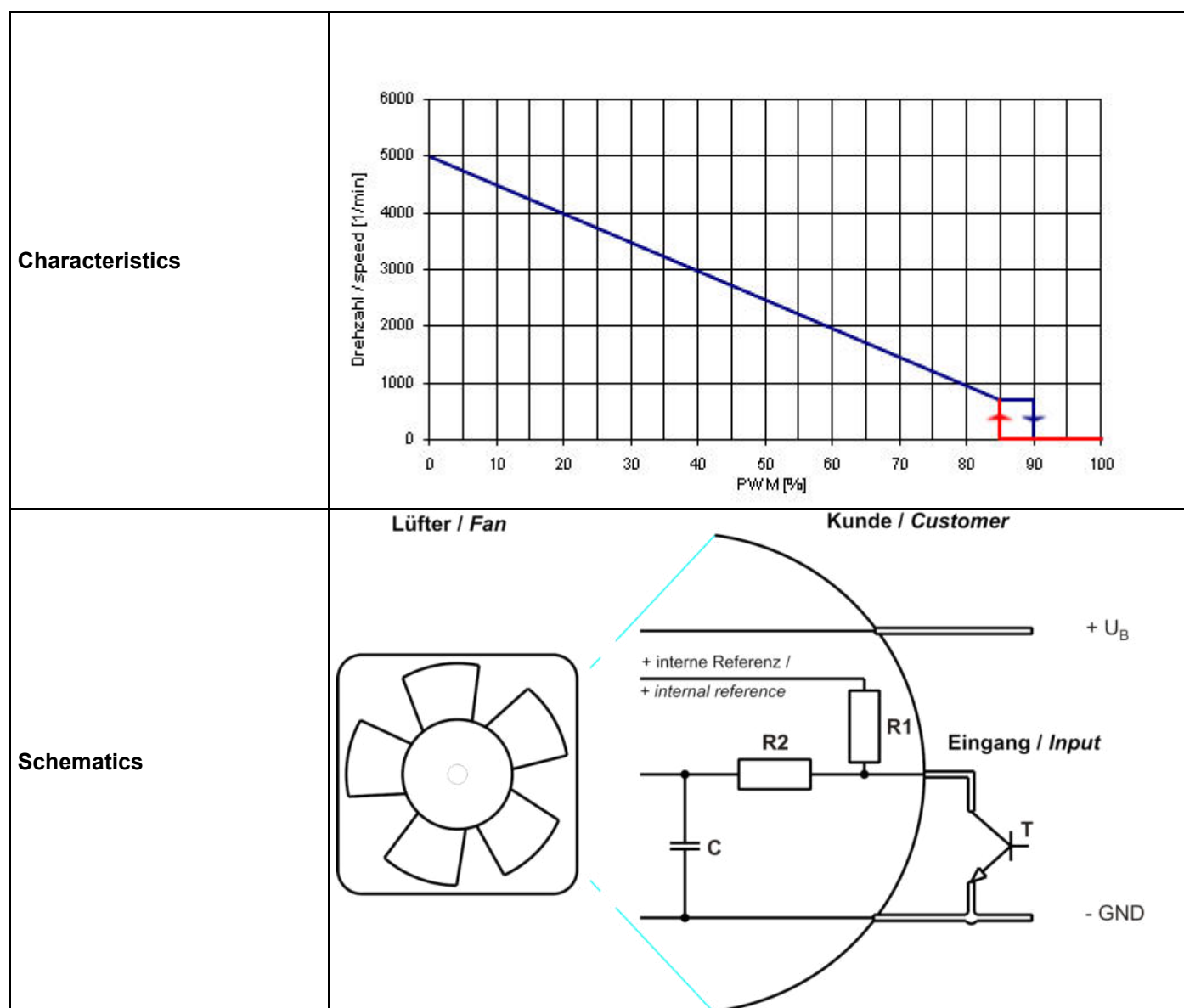
3 Operating Data

3.1 Electrical Interface - Input

Control input	PWM
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Features

Input type	Open collector	
PWM - Frequency		typical: 1 kHz



PWM input transistor requirements:

$U_{CEsat.} < 0,2 \text{ V}$

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)

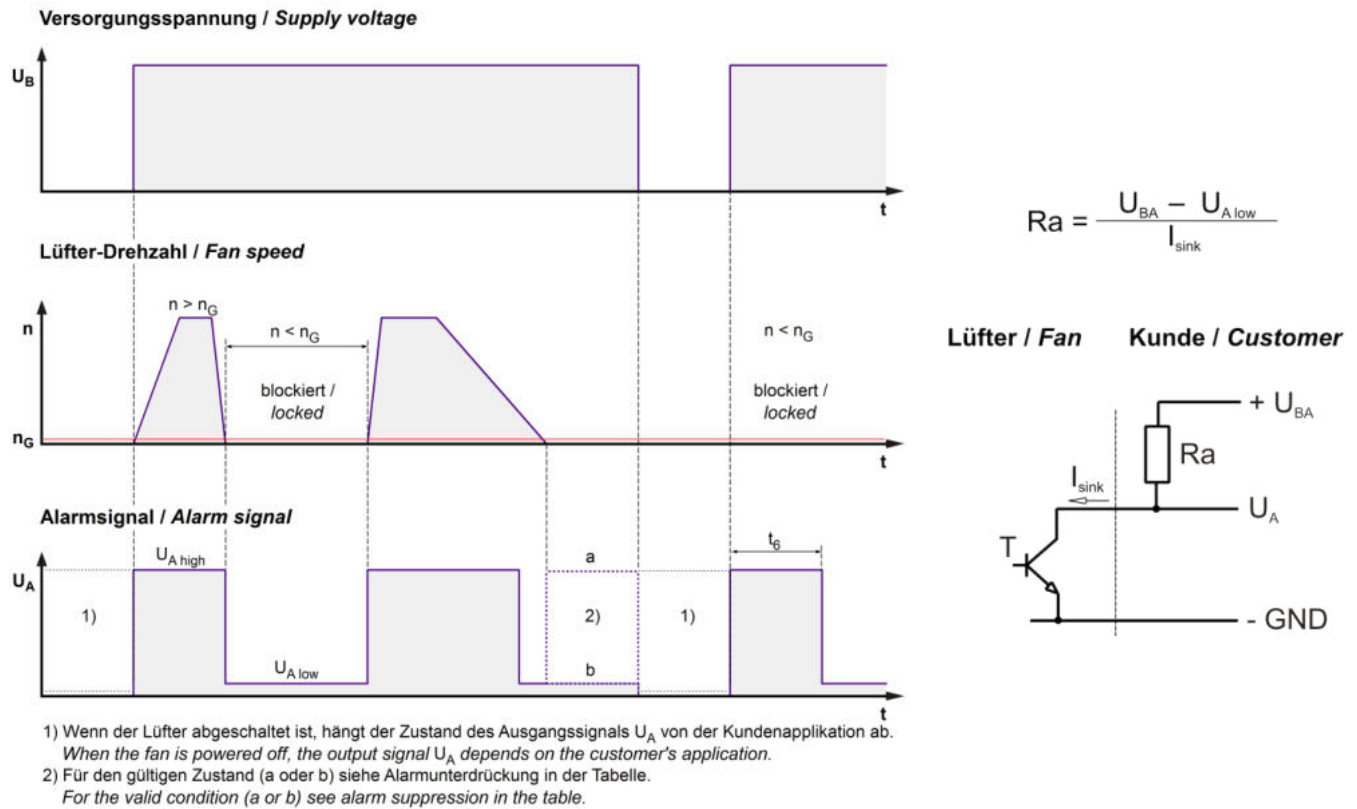
I: corresp. to arithm. mean current value

Name	Condition
PWM 0001	PWM: 0 %; f: 1 kHz

Features	Condition	Symbol	Values		
Voltage range		U	20 V		26,4 V
Nominal voltage		U_N		24 V	
Power consumption	$\Delta p = 0$	P	10,8 W	15,6 W	15,1 W
Tolerance	PWM 0010		+/- 25 %	+/- 25 %	+/- 25 %
Current consumption	$\Delta p = 0$	I	540 mA	650 mA	570 mA
Tolerance	PWM 0010		+/- 25 %	+/- 25 %	+/- 25 %
Speed	$\Delta p = 0$	n	4.350 1/min	5.000 1/min	5.000 1/min
Tolerance	PWM 0010		**)	**)	**)
Starting current consumption				3.250 mA	

3.3 Electrical Interface - Output

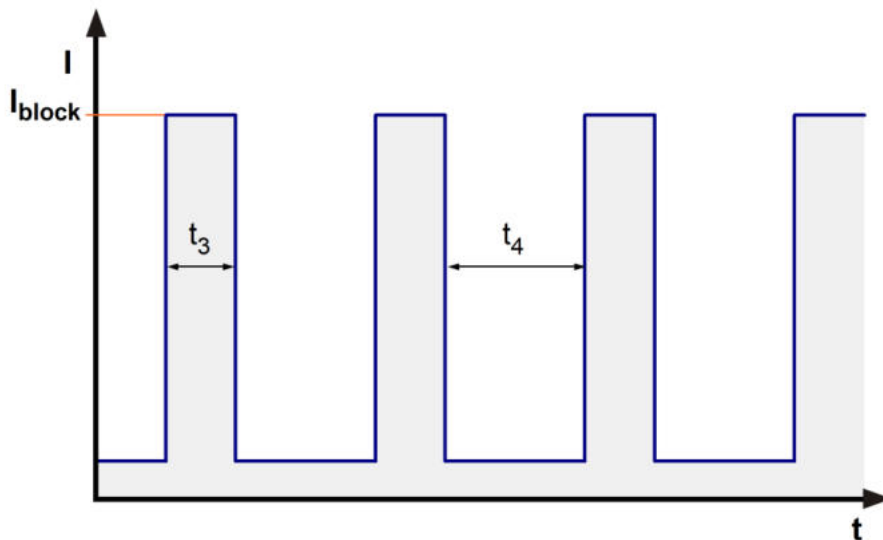
Alarm type	/37 (high = ok, open collector inverse)
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Features	Note	Values
Alarm operating voltage U_{BA}		$\leq 60 \text{ V}$
Alarm signal Low $U_{A \text{ low}}$	$I_{\text{sink}}: 2 \text{ mA}$	$\leq 0,4 \text{ V}$
Alarm signal High $U_{A \text{ high}}$	$I_{\text{source}}: 0 \text{ mA}$	60 V
Maximum sink current I_{sink}		$\leq 20 \text{ mA}$
External resistor	External resistor R_a from U_{BA} to U_A required. All voltage measured to GND.	
Alarm start-up delay time t_6		$< 15 \text{ s}$
Alarm trip speed limit n_G		0 1/min
Alarm at sense failure	No	
Alarm latch	No	
Alarm isolated from motor	No	

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection	None	
Max. residual current at U_N		
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 3.250 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,25 s / 20,0 s	



3.5 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;

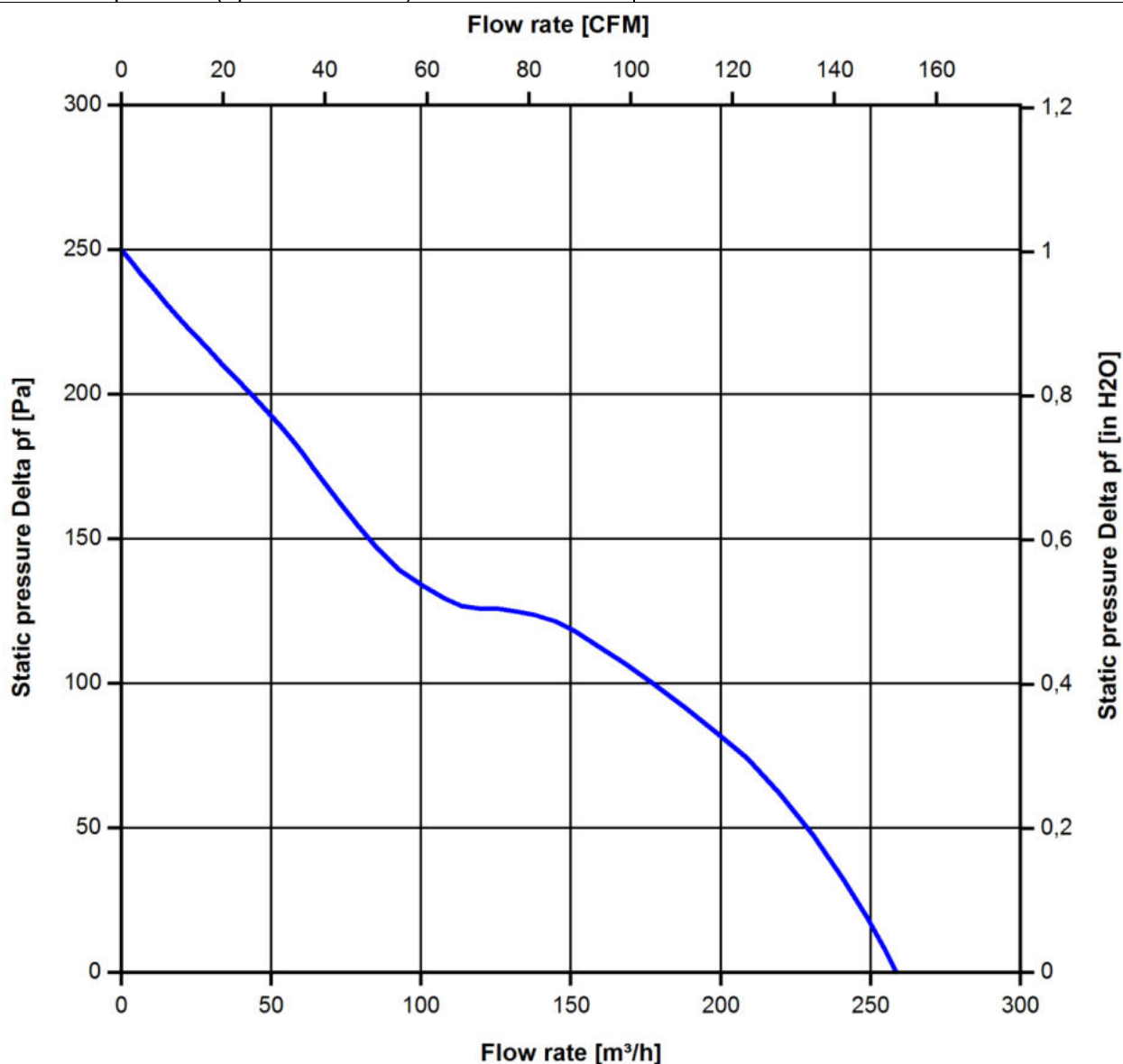
In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.

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:

5.000 1/min at free air flow	PWM 0 %; f: 1 kHz		
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Max. free-air flow ($\Delta p = 0$ / $\dot{V} = \max.$)	260,0 m ³ /h	
Max. static pressure ($\Delta p = \max.$ / $\dot{V} = 0$)	250 Pa	



3.6 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 $L_p(A) < 5 \text{ dB(A)}$
 For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

5.000 1/min at free air flow	PWM 0 %; f: 1 kHz		
Optimal operating point	160,0 m ³ /h @ 100 Pa		
Sound power level at the optimal operating point	6,7 bel(A)		
Sound pressure level at free air flow, measured in rubber bands	60,0 dB(A)		

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	60 °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/m ² d, 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. Occasionally, 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. 850 VDC / 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 / 1,2 mm	
Protection class	III	

5.2 Approval Tests

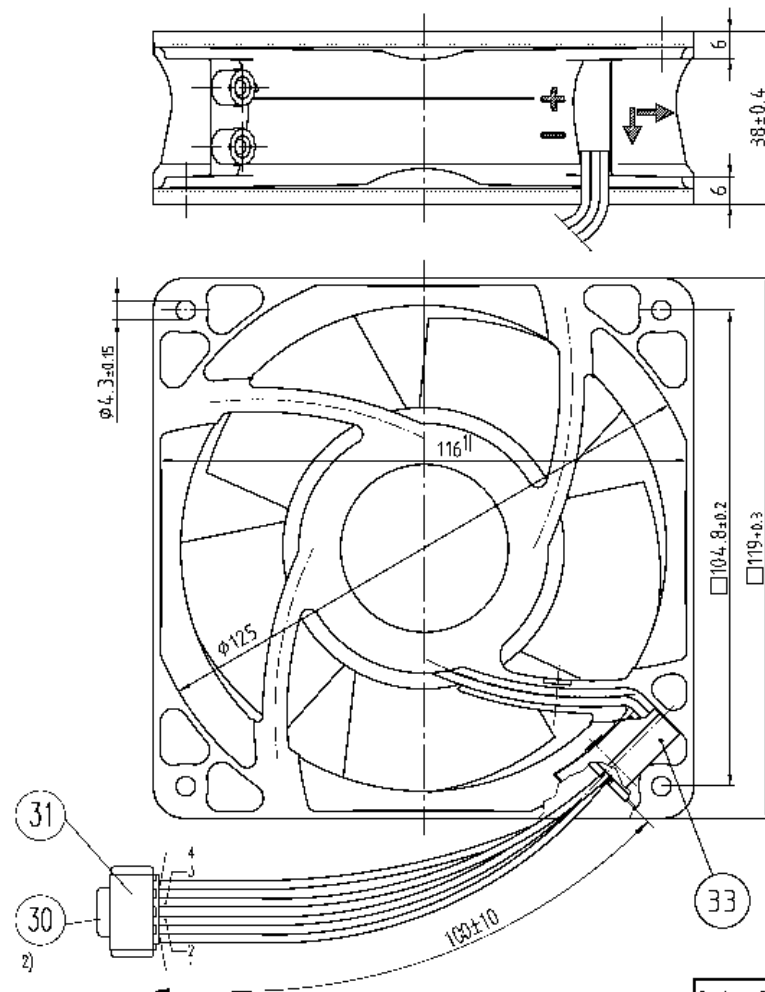
CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	70.000 h	
Life expectancy L10 at TU max.	45.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	117.500 h	

Schutzmark - art. 105. 615 beachten!
Lieferb. p. e. f. on nicht 2. 6. 52



1x Schneidkettenslecker
AMP-V. 641 43/-4
1x Zügelanordnung
AMP V. 643067 4

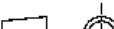
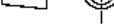
Steckerbelegung:

1=red	+ 24V
2=blue	- GND
3=violet	PWM
4=white	ALARM

- 1) Maße für Montagewand
- 2) Lützen auf 105mm nachschneiden und Stecker montieren.

Wahlspiel bei

- Kugellagerung (K): D (mit Federausgleich)
- Gleitlagerung (G): 0.1 – 0.6

Tolerierungstolerances: DIN 7167 Allgemeintoleranzen: DIN ISO 2768-mK Gr.: classes					
				Symbol / Title	Version / Stage
	Zulassung Name / Unterschrift			Zeich. Nr. / Design-Ver.	3. Entwurf
	Freigegeben Name / Unterschrift				
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