

Product Data Sheet 4312/17T

ebmpapst

Die Wahl der Ingenieure



4312/17T

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1 General

Fan type	Fan	
Rotational direction looking at rotor	clockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position	any	

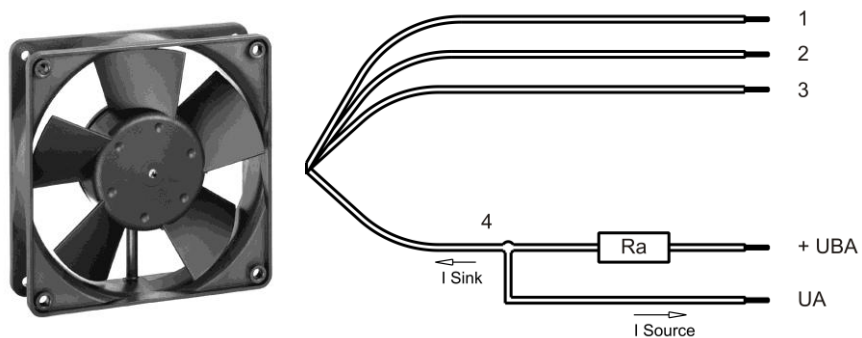
2 Mechanics

2.1 General

Width	119,0 mm	
Height	119,0 mm	
Depth	32,0 mm	
Weight	0,230 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	wire outlet corner: 20 Ncm remaining corners: 20 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Length of lead wire	L = 310 mm	
Tolerance	+ - 10,0 mm	
Wire gauge (AWG)	24	
Insulation diameter	1,55 mm	
Contact	see drawing	



	Colour	Operation
Wire 1	red	+ UB
Wire 2	blue	- GND
Wire 3	violet	NTC
Wire 4	white	Alarm

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 Operating Data - Electrical Interface - Input

Control input	cExternal Temperature Sensor
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Features

<p>Characteristics</p>	<table border="1"> <caption>Graph Data: Drehzahl / speed [1/min] vs Umgebungstemperatur / Ambient temperature [°C]</caption> <thead> <tr> <th>Umgebungstemperatur / Ambient temperature [°C]</th> <th>Drehzahl / speed [1/min]</th> </tr> </thead> <tbody> <tr><td>-20</td><td>1400</td></tr> <tr><td>-10</td><td>1400</td></tr> <tr><td>0</td><td>1400</td></tr> <tr><td>10</td><td>1400</td></tr> <tr><td>20</td><td>1400</td></tr> <tr><td>25</td><td>1400</td></tr> <tr><td>30</td><td>1600</td></tr> <tr><td>40</td><td>2200</td></tr> <tr><td>50</td><td>2800</td></tr> <tr><td>60</td><td>2800</td></tr> </tbody> </table>	Umgebungstemperatur / Ambient temperature [°C]	Drehzahl / speed [1/min]	-20	1400	-10	1400	0	1400	10	1400	20	1400	25	1400	30	1600	40	2200	50	2800	60	2800
Umgebungstemperatur / Ambient temperature [°C]	Drehzahl / speed [1/min]																						
-20	1400																						
-10	1400																						
0	1400																						
10	1400																						
20	1400																						
25	1400																						
30	1600																						
40	2200																						
50	2800																						
60	2800																						
<p>Schematics</p>	<p>The schematic shows a fan (Lüfter / Fan) connected to a customer's (Kunde / Customer) electrical interface. The fan's power supply is connected to + UB and - GND. The customer interface includes an internal reference (+ Interne Ref. / + Internal ref.), an input (Eingang / Input) with a resistor, and an NTC sensor connected to - GND.</p>																						

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 section 3.5)
I: corresp. to arithm. mean current value

Name	Condition
TU 0001	TU: ≥ 50 °C
NTC 0001	NTC ≤ 34

Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	8,0 V		13,2 V
Nominal voltage	$\Delta p = 0$	U_N		12,0 V	
Power consumption	$\Delta p = 0$	P	2,2 W +/- 25,0 %	5,0 W +/- 25,0 %	5,3 W +/- 25,0 %
Tolerance	TU / NTC 0001				
Current consumption	$\Delta p = 0$	I	280 mA +/- 25,0 %	420 mA +/- 25,0 %	400 mA +/- 25,0 %
Tolerance	TU / NTC 0001				
Speed	$\Delta p = 0$	n	2.020 1/min +/- 12,5 %	2.800 1/min +/- 5,0 %	2.800 1/min +/- 5,0 %
Tolerance	TU / NTC 0001				
Starting current consumption				1.950 mA	

Name	Condition
TU 0002	TU: ≤ 25 °C
NTC 0002	NTC ≥ 100

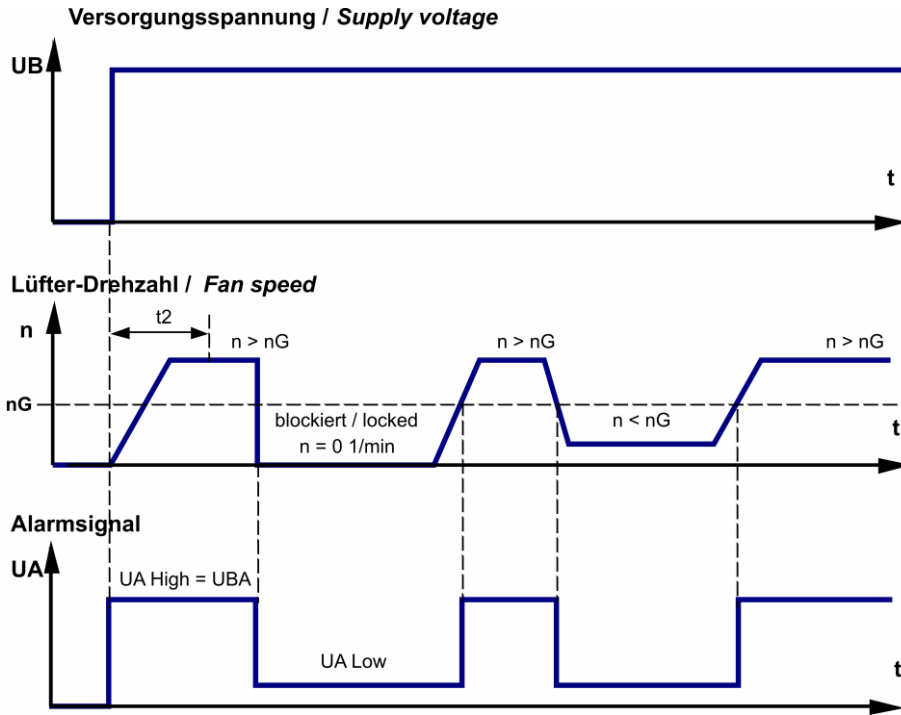
Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	8,0 V		13,2 V
Nominal voltage	$\Delta p = 0$	U_N		12,0 V	
Power consumption	$\Delta p = 0$	P	1,1 W +/- 25,0 %	1,7 W +/- 25,0 %	2,1 W +/- 25,0 %
Tolerance	TU / NTC 0002				
Current consumption	$\Delta p = 0$	I	140 mA +/- 25,0 %	145 mA +/- 25,0 %	160 mA +/- 25,0 %
Tolerance	TU / NTC 0002				
Speed	$\Delta p = 0$	n	1.400 1/min **)	1.400 1/min **)	1.400 1/min **)
Tolerance	TU / NTC 0002				

****)** *Vario Pro*: Unless otherwise specified in the table a general fan speed tolerance applies, relating to the maximum value of the required characteristic curve. Tolerance: +/- 5,0 %

3.3 Operating Data - Electrical Interface -Output

Tacho type	None
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Alarm type	/17 (high = ok, Open collector)
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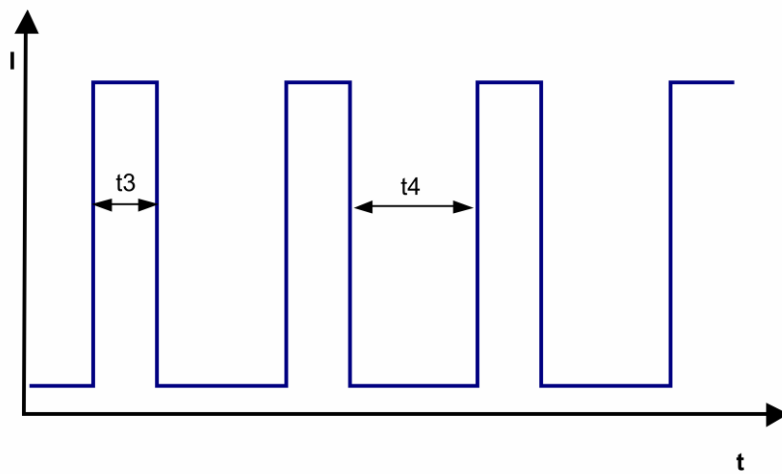


$$R_a = \frac{U_{BA} - U_{A \text{ Low}}}{I_{\text{Sink}}}$$

Features	Note	Values
Alarm operating voltage (UBA)		<= 60 V
Alarm signal Low *)	I sink: 2 mA	<= 0,4 V
Alarm signal High *)	I source: 0 mA	60 V
Maximum sink current		20 mA
External resistor	External resistor Ra from UBA to UA required. All voltage measured to GND.	
Alarm start-up delay time (t2)		<= 15 s
Alarm trip speed limit (nG)		1.150 1/min
Tolerance		+ - 100 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	Rectifying diode	
Max. residual current at U_n	$I_F \leq 10 \text{ mA}$	
Locked rotor protection	Auto restart	
Locked rotor current at U_n	approx. 1.950 mA	
Clock signal t_3/t_4 at locked rotor	Typical: 0,6 s / 10 s	



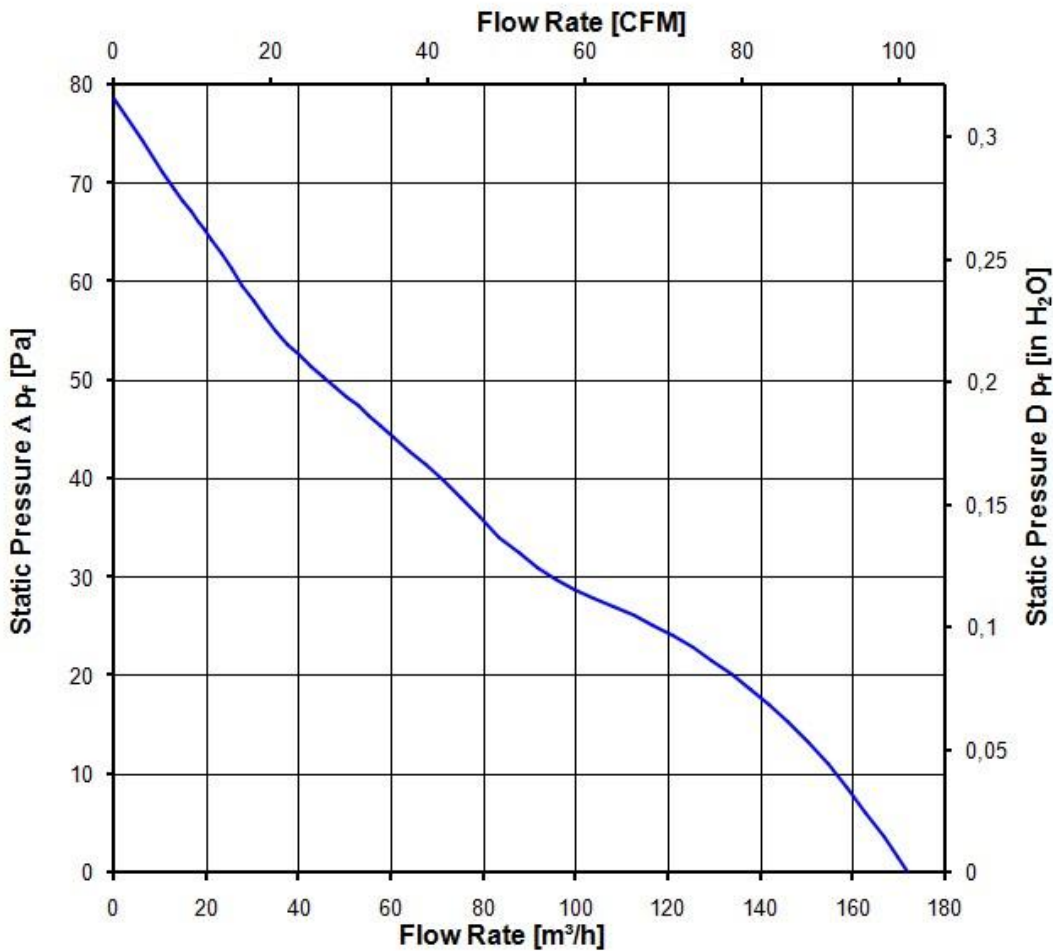
3.5 Aerodynamic

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.
 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:

2.800 1/min at free air flow	TU >= 50 °C NTC <= 34		
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Max. free-air flow ($\Delta p = 0 / \dot{V} = \text{max.}$)	170,0 m ³ /h	
Max. static pressure ($\Delta p = \text{max.} / \dot{V} = 0$)	78 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 section 3.5

a.) Operation condition:

2.800 1/min at free air flow	TU $\geq 50 \text{ }^\circ\text{C}$ NTC ≤ 34		
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Optimal operating point	134,0 m3/h @ 17 Pa	
Sound power level at the optimal operating point	5,8 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	45,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 $^\circ\text{C}$	
Max. permitted ambient temperature TU max.	65 $^\circ\text{C}$	
Min. permitted storage temperature TL min.	-40 $^\circ\text{C}$	
Max. permitted storage temperature TL max.	80 $^\circ\text{C}$	

4.2 Climatic requirements *)

Humidity requirements	humid heat, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Dust requirements	None	
Salt fog requirements	None	

*) Permitted application area:

The product is intended for use in sheltered rooms with controlled temperature and controlled humidity. Directly exposure to water must be avoided.

Pollution degree 1 (according DIN EN 60664-1)

There is either no pollution or it occurs only dry, non-conductive pollution. The pollution has no negative impact. 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.	500 VAC / 1 Min.	
B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	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 / 1,2 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	No

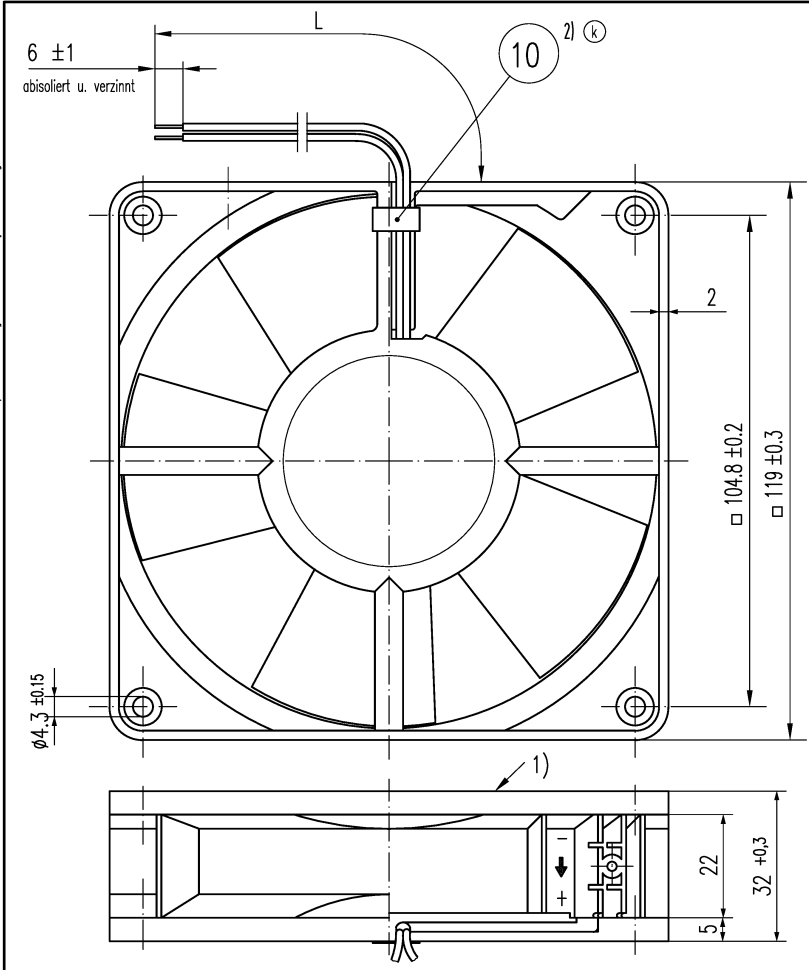
6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	65.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 Delta (40 °C)	132.500 h	

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Schutzmerk nach DIN 24, beachten



- 1) Rotorüberstand bis max. 0.4 mm zulässig.
- 2) nur wenn in Stückliste vermerkt
- Axialspiel bei: - Kugellagerung (K) : 0 (mit Federausgleich)
- Gleitlagerung (G) : 0.1 - 0.5

① Anzahl und Länge der Litzen siehe BV - Blatt1

082
516
3...
240
235
231
210

Allgemeintoleranzen				DIN ISO 2768 - c				
k				Datum	Name	Artikel		Maßstab
i				Erstellt				
h				Geprüft				
g								
Index	Änd.-Nr.	Datum	Geändert von	PAPST PAPST-MOTOREN GmbH & Co KG D-78112 St.Georgen Germany			Zchg.-Nr.	Blatt
Zur Verwendung im Verteiler freigegeben von							Ers.f.Zchg.:	