



4318/17T

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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	

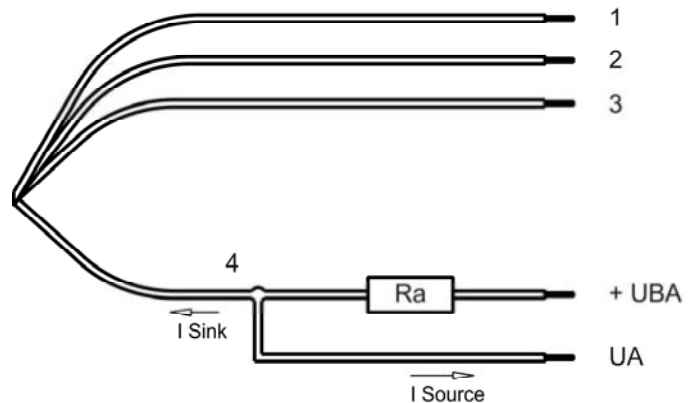
2 Mechanics

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	310 mm	
Tolerance	+/- 10 mm	
Wire gauge (AWG)	24	
Insulation diameter	1,55 mm	



	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 [°C]</th> <th>Drehzahl / speed [1/min]</th> </tr> </thead> <tbody> <tr><td>-20</td><td>1000</td></tr> <tr><td>-10</td><td>1000</td></tr> <tr><td>0</td><td>1000</td></tr> <tr><td>10</td><td>1000</td></tr> <tr><td>20</td><td>1000</td></tr> <tr><td>25</td><td>1000</td></tr> <tr><td>30</td><td>1200</td></tr> <tr><td>40</td><td>2000</td></tr> <tr><td>50</td><td>2800</td></tr> <tr><td>60</td><td>2800</td></tr> </tbody> </table>	Umgebungstemperatur [°C]	Drehzahl / speed [1/min]	-20	1000	-10	1000	0	1000	10	1000	20	1000	25	1000	30	1200	40	2000	50	2800	60	2800
Umgebungstemperatur [°C]	Drehzahl / speed [1/min]																						
-20	1000																						
-10	1000																						
0	1000																						
10	1000																						
20	1000																						
25	1000																						
30	1200																						
40	2000																						
50	2800																						
60	2800																						
<p>Schematics</p>	<p>The schematic diagram illustrates the electrical connection between the fan (Lüfter / Fan) and the customer's (Kunde / Customer) control system. The fan is connected to a power supply (+ UB) and a ground (- GND). An internal reference (+ Interne Ref. / + Internal ref.) is also shown. The input terminal (Eingang / Input) is connected to the customer's control system, which includes an NTC (Negative Temperature Coefficient) sensor. The NTC sensor is connected to the input terminal and ground (- 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.

Δp = 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: <= 20 kOhm

Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	36,0 V		74,9 V
Nominal voltage	Δp = 0	U _N		48,0 V	
Power consumption	Δp = 0	P	3,2 W +/- 25,0 %	5,3 W +/- 25,0 %	7,1 W +/- 25,0 %
Tolerance	TU / NTC: 0001				
Current consumption	Δp = 0	I	90 mA +/- 25,0 %	110 mA +/- 25,0 %	95 mA +/- 25,0 %
Tolerance	TU / NTC: 0001				
Speed	Δp = 0	n	2.350 1/min +/- 10,0 %	2.800 1/min +/- 5,0 %	2.800 1/min +/- 5,0 %
Tolerance	TU / NTC: 0001				
Starting current consumption				370 mA	

Name	Condition
TU 0002	TU: <= 25 °C
NTC 0002	NTC: >= 120 kOhm

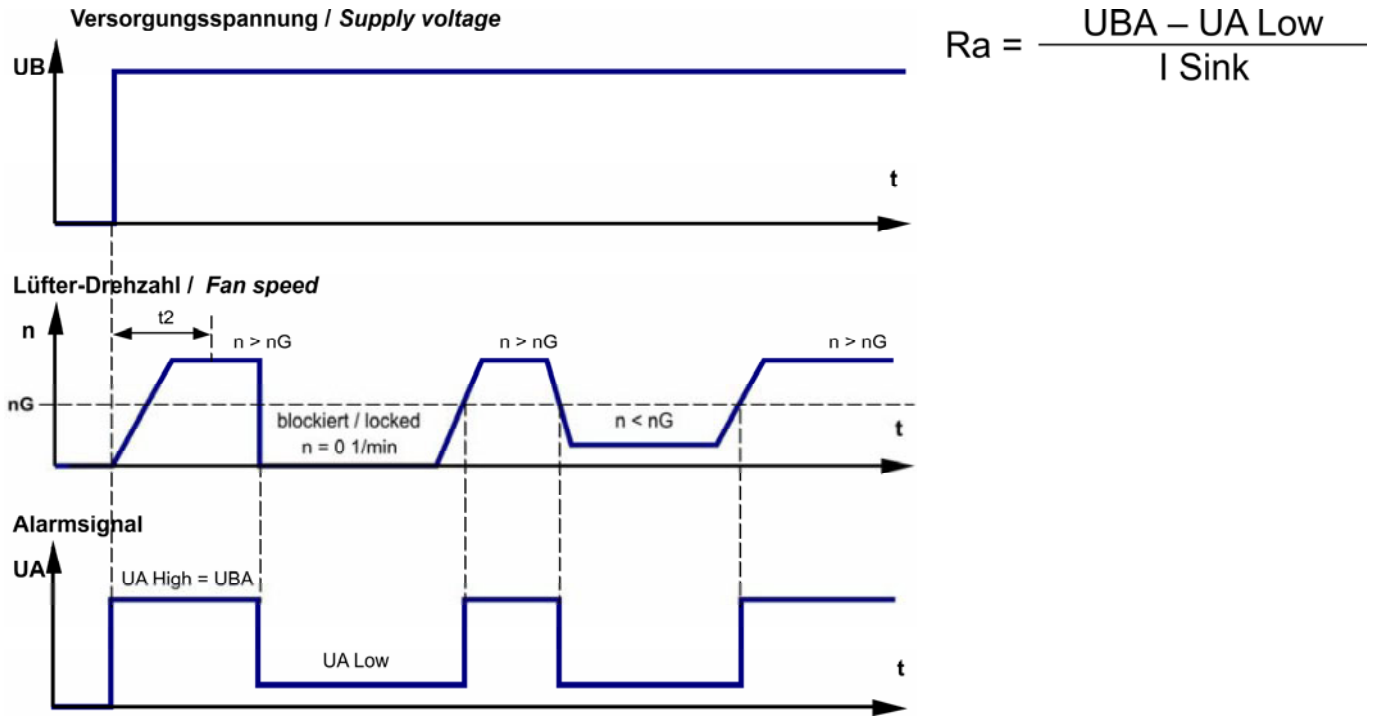
Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	36,0 V		74,9 V
Nominal voltage	Δp = 0	U _N		48,0 V	
Power consumption	Δp = 0	P	0,9 W +/- 25,0 %	1,2 W +/- 25,0 %	1,9 W +/- 25,0 %
Tolerance	TU / NTC: 0002				
Current consumption	Δp = 0	I	25 mA +/- 25,0 %	25 mA +/- 25,0 %	25 mA +/- 25,0 %
Tolerance	TU / NTC: 0002				
Speed	Δp = 0	n	1.000 1/min **)	1.000 1/min **)	1.000 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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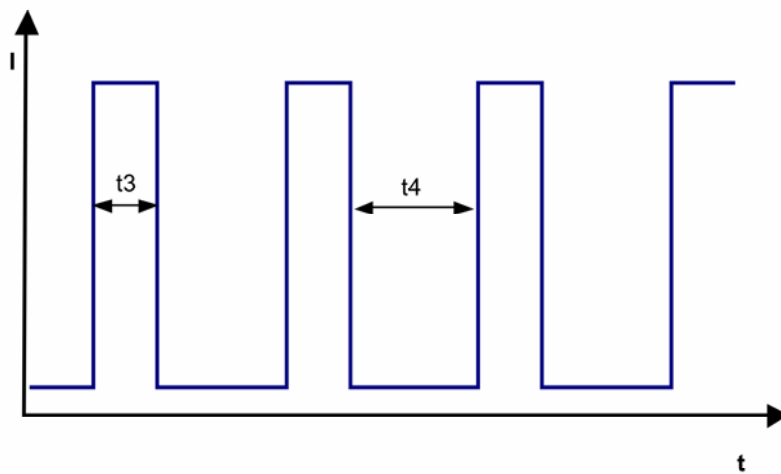
Alarm type	/17 (high = ok, Open collector)
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Features	Note	Values
Alarm operating voltage (UBA)		<= 60 V
Alarm signal Low *)	I sink: 2 mA	<= 0,4 V
Alarm signal High *)	I source: 0 mA	60 V
Maximum sink current		20 mA
External resistor	External resistor Ra from UBA to UA required. All voltage measured to GND.	
Alarm start-up delay time (t2)		<= 15 s
Alarm trip speed limit (nG)		850 1/min +- 100 1/min
Tolerance		
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	$I_F \leq 50 \mu\text{A}$	
Locked rotor protection	Auto restart	
Locked rotor current at U_n	approx. 370 mA	
Clock signal t_3/t_4 at locked rotor	Typical: 0,6 s / 20 s	



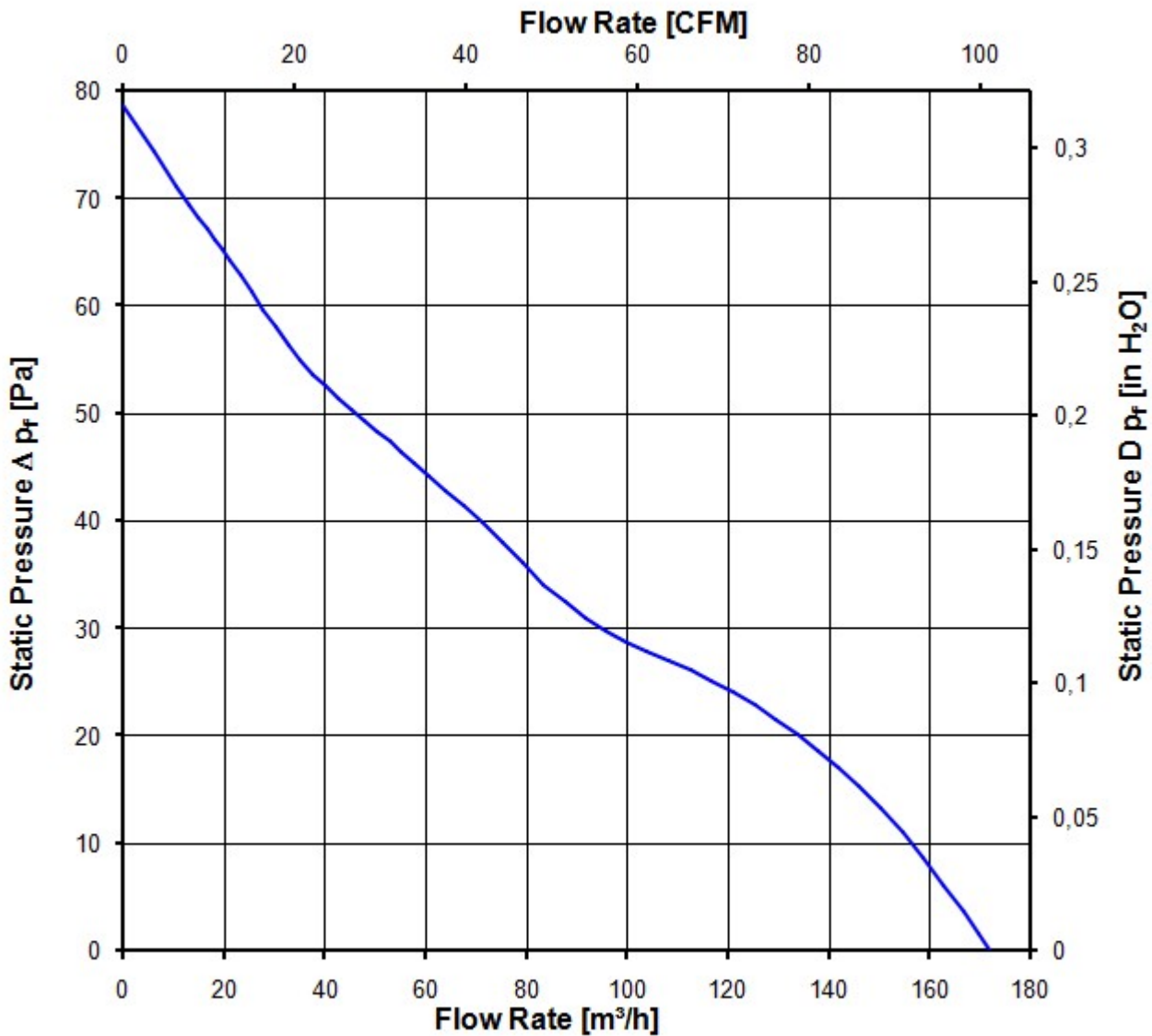
3.5 Aerodynamic

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.

a.) Operation condition:

2.800 1/min at free air flow	TU >= 50 °C NTC: <= 20 kOhm		
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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: $\leq 20 \text{ k}\Omega$		
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Optimal operating point	134,0 m ³ /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 °C	
Max. permitted ambient temperature TU max.	66 °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, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Radiation exposure	None	
Dust requirements	None	
Salt fog requirements	None	
Harmful gas 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.

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.	1000 VAC / 1 Min. 1000 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	
Air and leakage distances	1,0 mm / 1,5 mm	
Protection class	I	

5.2 Approval Tests

CE	Yes
UL	Yes / UL507, Electric Fans
VDE	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Yes / C22.2 No. 113 Fans and Ventilators
CCC	Yes / GB 12350 Safety Requirements for small Power Motors

The approval tests are observed to:

Maximal permitted operating voltage (see section 3.1) and max. permitted ambient temperature TU max.

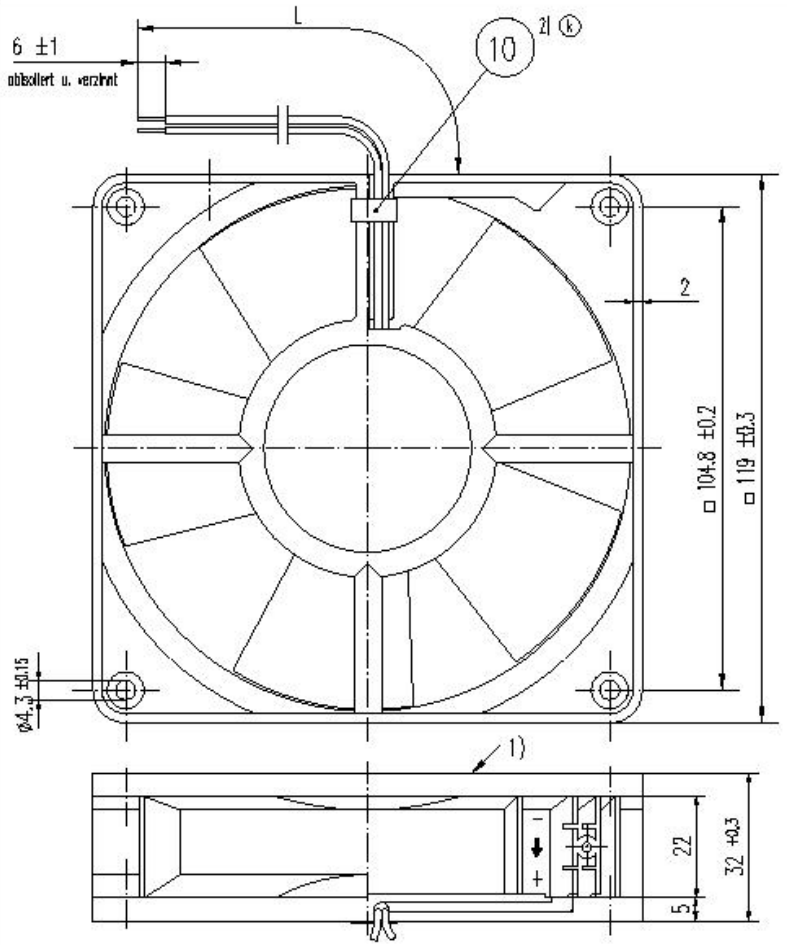
6 Reliability

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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Schnittzeichnung nach DIN 31. Beschriftungen



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
 (i) Anzahl und Länge der Litzen siehe BV - Blatt

082
 516
 3...
 240
 235
 231
 210

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