



The engineer's choice

**ebmpapst**

# 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	

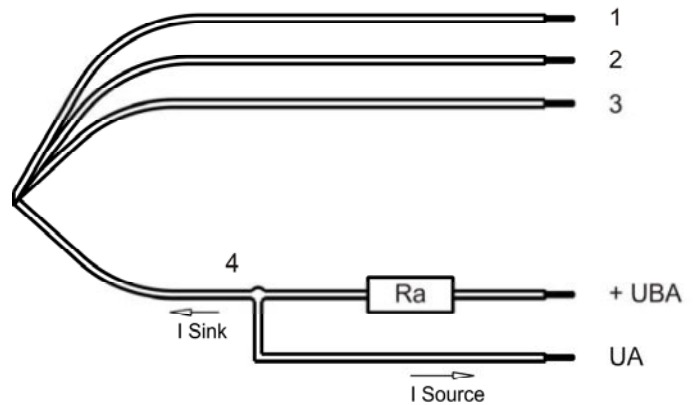
**2 Mechanics**

**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><b>Characteristics</b></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><b>Schematics</b></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 power supply through a resistor and to the ground through an NTC (Negative Temperature Coefficient) sensor. The NTC sensor is used to monitor the fan's temperature and provide feedback to the control system.</p>																						

**3.2 Electrical Operating Data**

Measurement conditions: Normal air density = 1,2 kg/m<sup>3</sup>; 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: $\geq 50$ °C
NTC 0001	NTC: $\leq 20$ kOhm

Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	36,0 V		74,9 V
Nominal voltage	$\Delta p = 0$	$U_N$		48,0 V	
Power consumption	$\Delta p = 0$	P	3,2 W +/- 25,0 %	5,3 W +/- 25,0 %	7,1 W +/- 25,0 %
Tolerance	TU / NTC: 0001				
Current consumption	$\Delta p = 0$	I	90 mA +/- 25,0 %	110 mA +/- 25,0 %	95 mA +/- 25,0 %
Tolerance	TU / NTC: 0001				
Speed	$\Delta p = 0$	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: $\leq 25$ °C
NTC 0002	NTC: $\geq 120$ kOhm

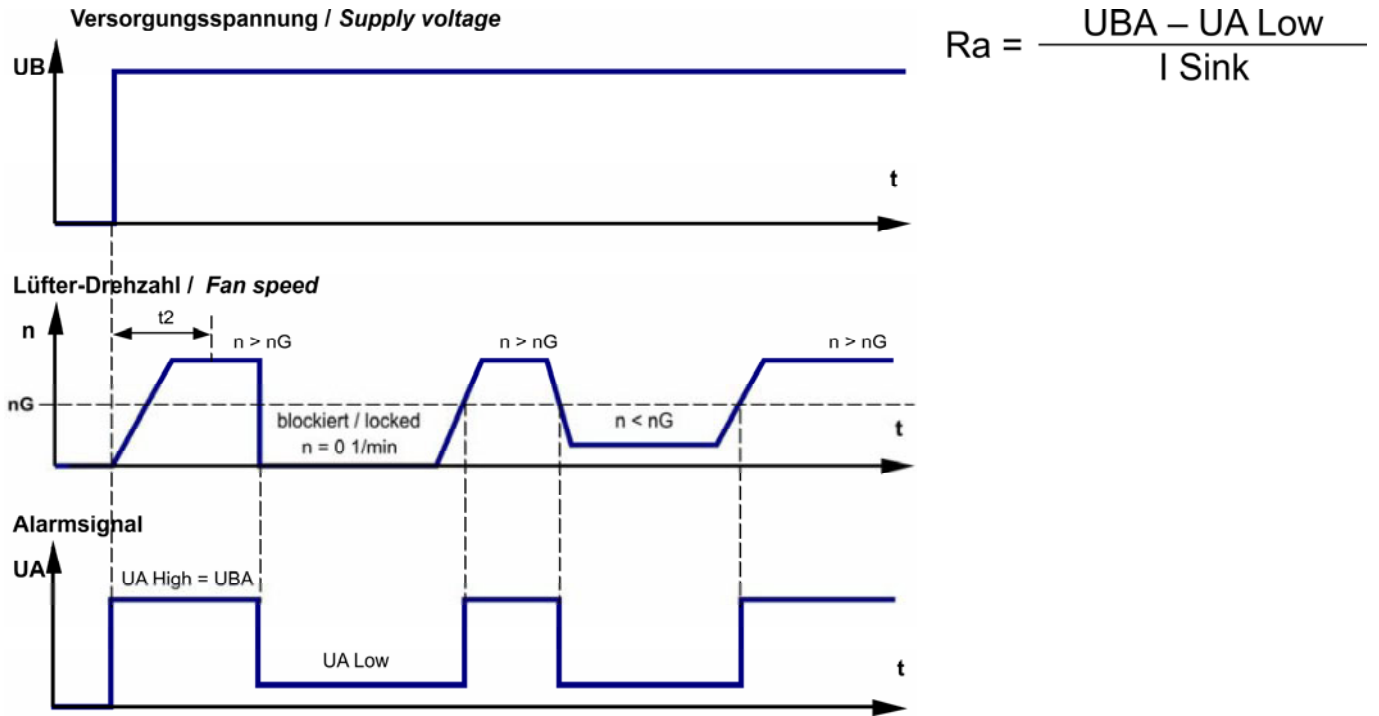
Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	36,0 V		74,9 V
Nominal voltage	$\Delta p = 0$	$U_N$		48,0 V	
Power consumption	$\Delta p = 0$	P	0,9 W +/- 25,0 %	1,2 W +/- 25,0 %	1,9 W +/- 25,0 %
Tolerance	TU / NTC: 0002				
Current consumption	$\Delta p = 0$	I	25 mA +/- 25,0 %	25 mA +/- 25,0 %	25 mA +/- 25,0 %
Tolerance	TU / NTC: 0002				
Speed	$\Delta p = 0$	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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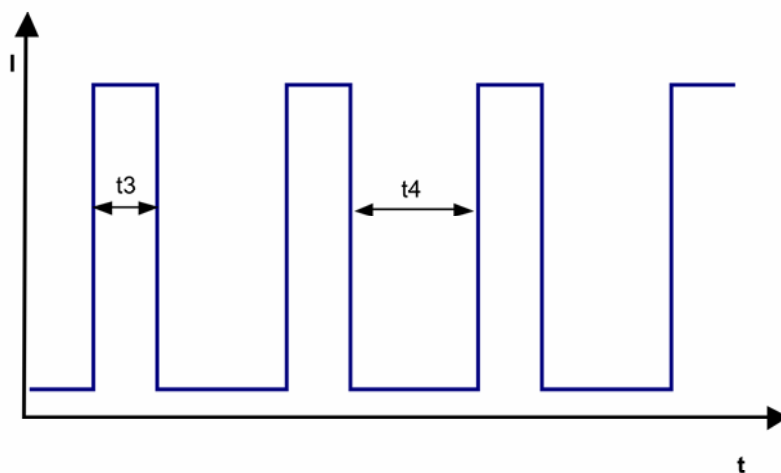
Alarm type	/17 (high = ok, Open collector)
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Features	Note	Values
Alarm operating voltage (UBA)		<= 60 V
Alarm signal Low *)	I sink: 2 mA	<= 0,4 V
Alarm signal High *)	I source: 0 mA	60 V
Maximum sink current		20 mA
External resistor	External resistor 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	



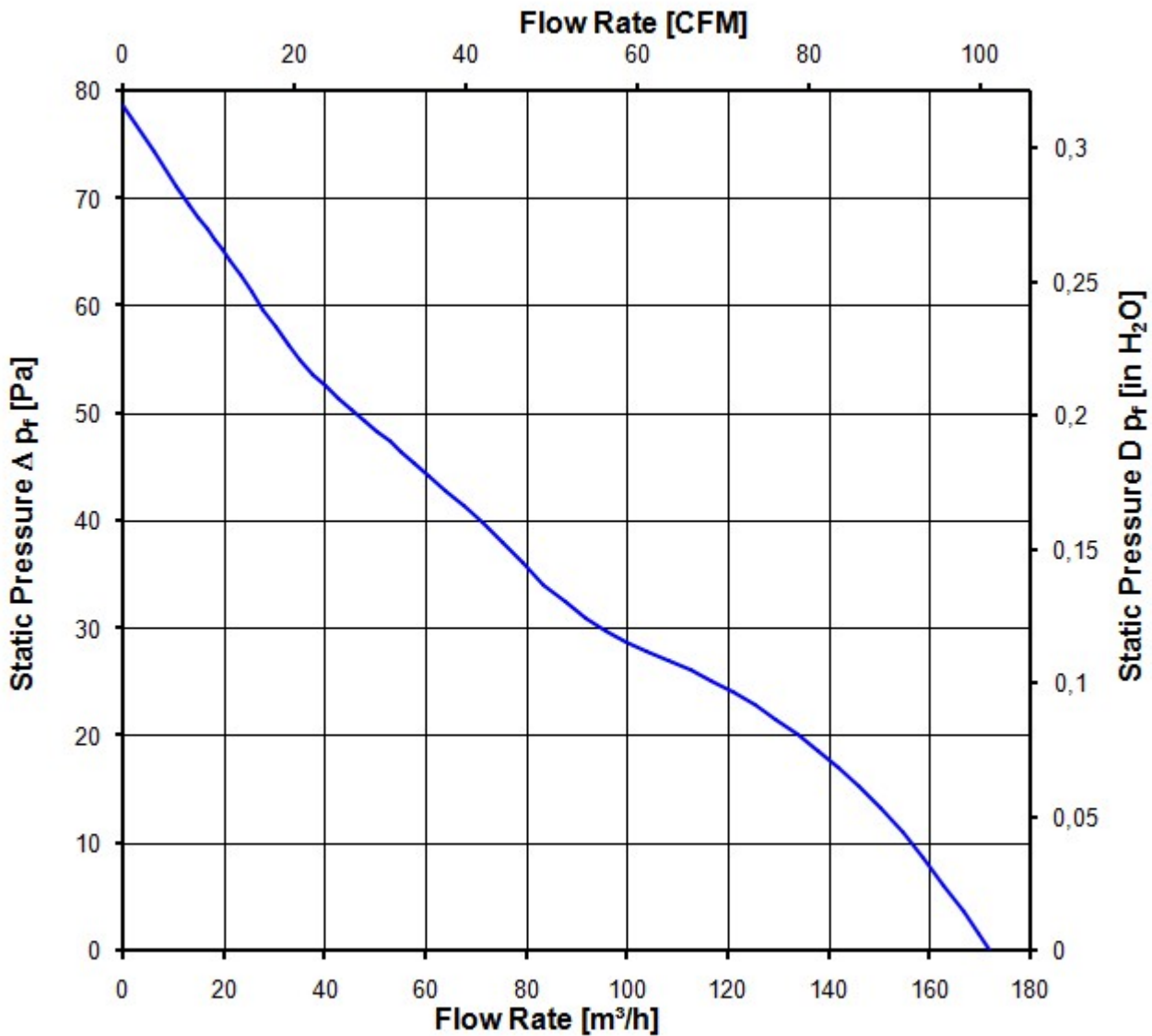
### 3.5 Aerodynamic

Measurement conditions: Measured with a double chamber intake rig acc. to DIN EN ISO 5801.  
 Normal air density = 1,2 kg/m<sup>3</sup>; 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 <sup>3</sup> /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 <sup>3</sup> /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.

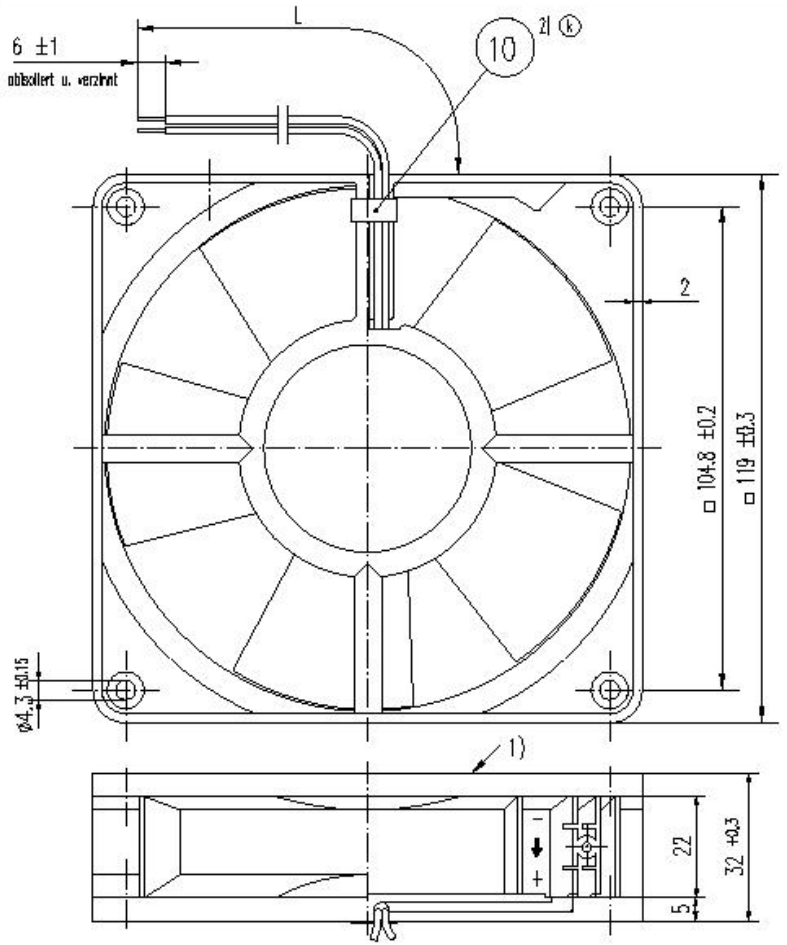
**6 Reliability**

**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	Helfstab
l				Erstellt			
h				Geprüft			
g							
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