



The engineer's choice

**ebmpapst**

## 624/2H3P

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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	

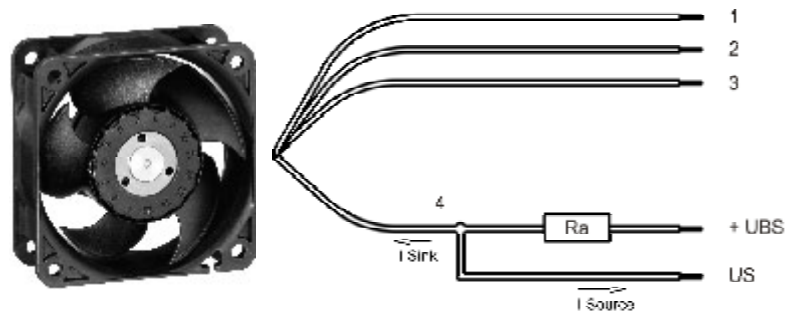
## 2 Mechanics

### 2.1 General

Width	60,0 mm	
Height	60,0 mm	
Depth	25,0 mm	
Weight	0,070 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	wire outlet corner: 10 Ncm remaining corners: 20 Ncm	
Screw size	ISO 4762 - M3 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	1,5 mm	
Contact	see drawing	



	Colour	Operation
Wire 1	red	+ UB
Wire 2	blue	- GND
Wire 3	violet	PWM
Wire 4	white	Tacho

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	PWM
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#### Features

Input type	Open collector	
PWM - Frequency		2 kHz - 5 kHz

<p><b>Characteristics</b></p>	
<p><b>Schematics</b></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
PWM 0001	PWM: > 90 %;

Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	18,0 V		28,0 V
Nominal voltage	$\Delta p = 0$	$U_N$		24,0 V	
Power consumption	$\Delta p = 0$	P	3,3 W	5,6 W	5,9 W
Tolerance	PWM 0001		+/- 17,5 %	+/- 17,5 %	+/- 17,5 %
Current consumption	$\Delta p = 0$	I	185 mA	235 mA	210 mA
Tolerance	PWM 0001		+/- 17,5 %	+/- 17,5 %	+/- 17,5 %
Speed	$\Delta p = 0$	n	8.000 1/min	9.700 1/min	9.700 1/min
Tolerance	PWM 0001		+/- 12,5 %	+/- 5,0 %	+/- 5,0 %
Starting current consumption				750 mA	

Name	Condition
PWM 0002	PWM: 10 %;

Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	18,0 V		28,0 V
Nominal voltage	$\Delta p = 0$	$U_N$		24,0 V	
Power consumption	$\Delta p = 0$	P	1,25 W	1,45 W	1,7 W
Tolerance	PWM 0002		+/- 17,5 %	+/- 17,5 %	+/- 17,5 %
Current consumption	$\Delta p = 0$	I	70 mA	60 mA	60 mA
Tolerance	PWM 0002		+/- 17,5 %	+/- 17,5 %	+/- 17,5 %
Speed	$\Delta p = 0$	n	4.850 1/min	4.850 1/min	4.850 1/min
Tolerance	PWM 0002		**)	**)	**)

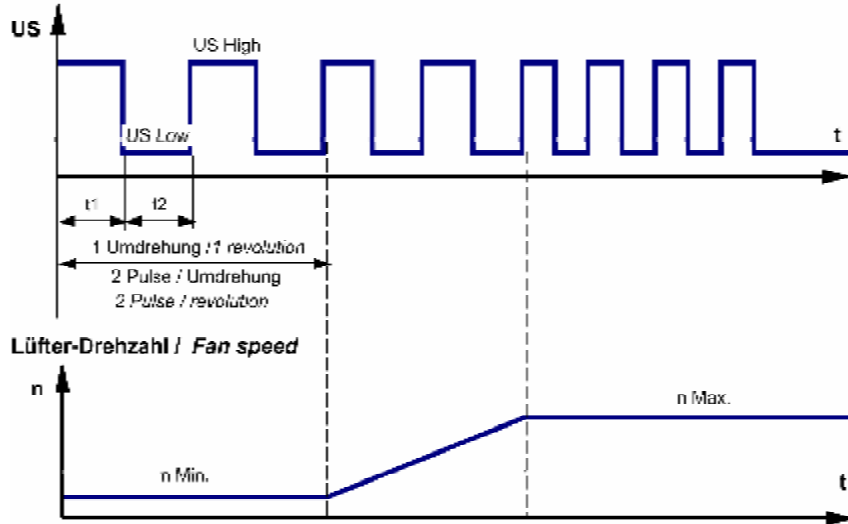
\*\*) **Vario Pro:** Unless otherwise specified in the table a general fan speed tolerance applies, relating to the maximum value of the required characteristic curve. Tolerance: +/- 5,0 %

3.3 Operating Data - Electrical Interface -Output

Tacho type	/2 (Open collector)
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Signal-Ausgangsspannung / Signal output voltage

$$R_a = \frac{U_{BS} - U_{S\ Low}}{I_{Sink}}$$

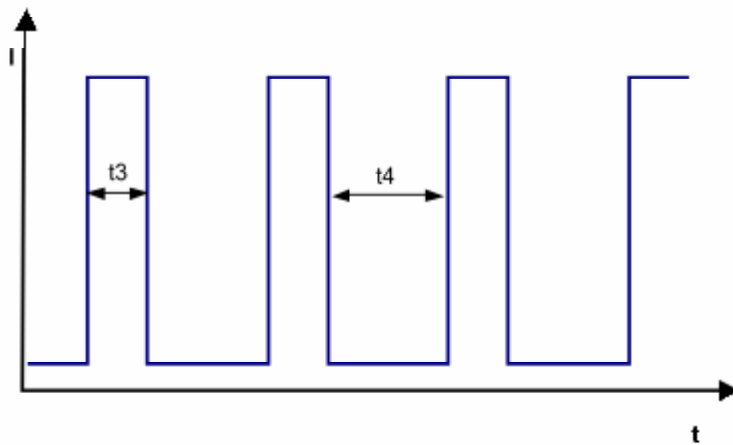


Features	Note	Values
Tacho operating voltage (UBS)		<= 60 V
Tacho signal Low	I sink: 2 mA	<= 0,4 V
Tacho signal High	I source: 0 mA	60 V
Maximum sink current		<= 4 mA
External resistor	External resistor Ra from UBS to US required. All voltages measured to GND.	
Tacho frequency	(2 x n) / 60	
Tacho isolated from motor	No	
Slew rate		=> 0,5 V/us

Alarm type	None
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### 3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection	Rectifying diode	
Max. residual current at $U_n$	$I_F \leq 50 \mu A$	
Locked rotor protection	Auto restart	
Locked rotor current at $U_n$	approx. 750 mA	
Clock signal $t_3/t_4$ at locked rotor	Typical: 0,5 s / 10 s	



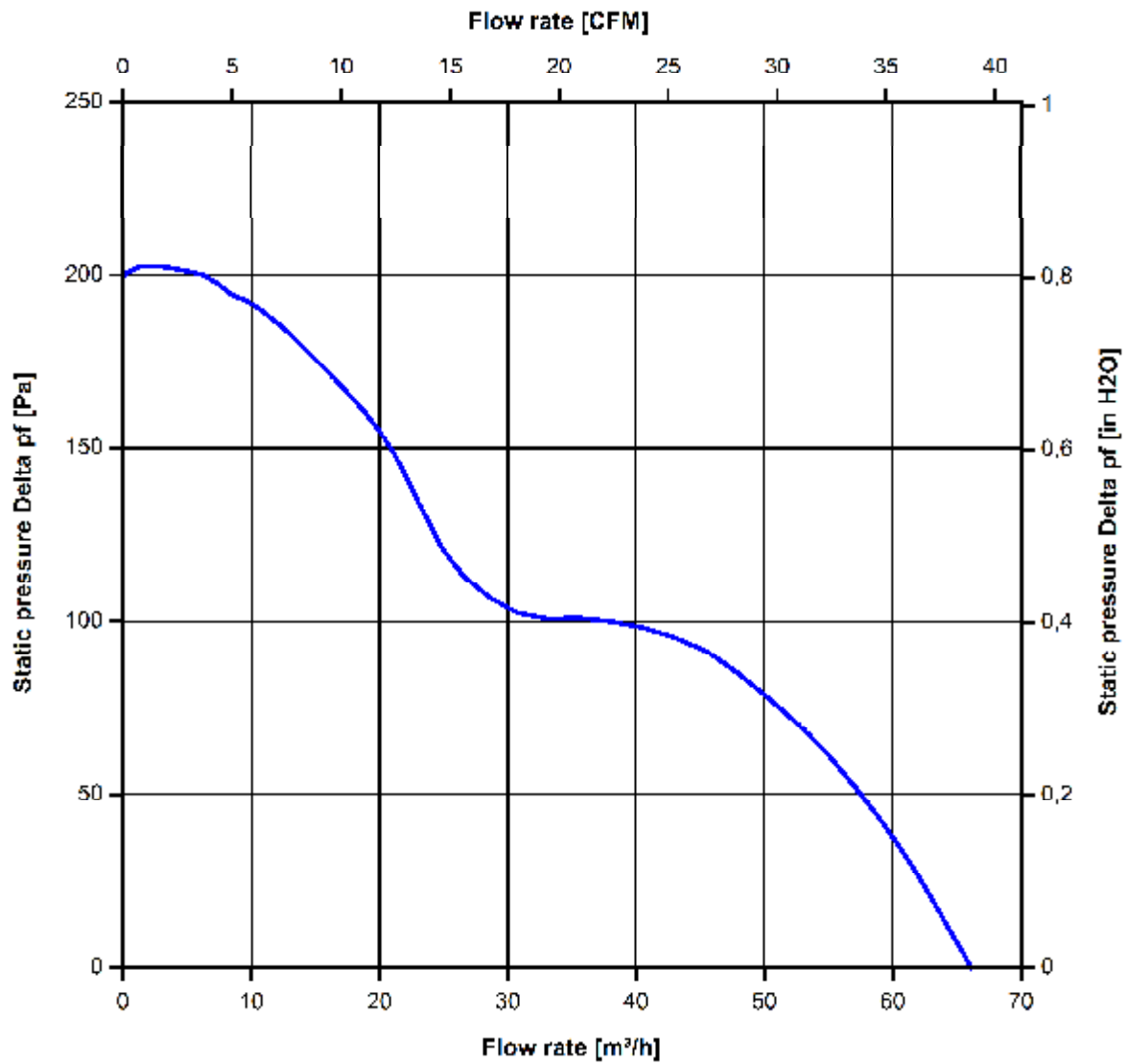
**3.5 Aerodynamic**

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

9.700 1/min at free air flow	PWM > 90 %;		
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Max. free-air flow ( $\Delta p = 0 / \dot{V} = \text{max.}$ )	67,0 m <sup>3</sup> /h	
Max. static pressure ( $\Delta p = \text{max.} / \dot{V} = 0$ )	200 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 Lp(A) < 5 dB(A)  
 For further measurement conditions see section 3.5

a.) Operation condition:

9.700 1/min at free air flow	PWM > 90 %	PWM min.:	PWM max.:
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Optimal operating point	44,0 m3/h @ 86 Pa	
Sound power level at the optimal operating point	6,1 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	48,0 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, 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. 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	
Air and leakage distances	1,0 mm / 1,2 mm	
Protection class	III	

### 5.2 Approval Tests

CE	No
UL	No
VDE	No
CSA	No
CCC	No

The approval tests are observed to:

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

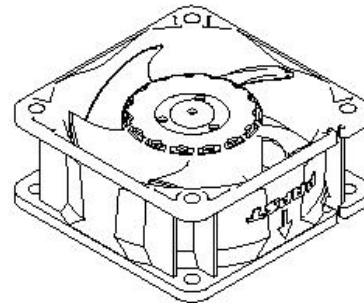
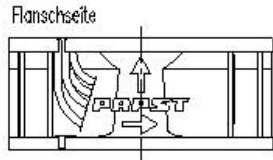
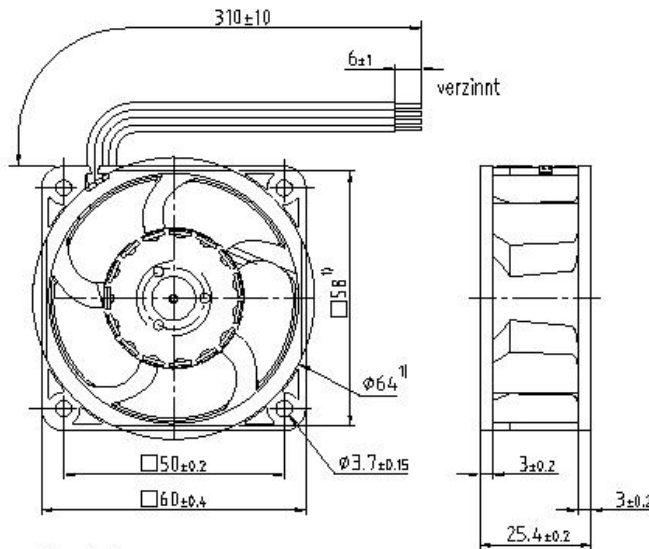
## 6 Reliability

### 6.1 General

Life expectancy L10 at TU = 40 °C	52.500 h	
Life expectancy L10 at TU max.	32.500 h	
Life expectancy L10 Delta (40 °C)	105.000 h	

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Spindelvermerk nach DIN ISO 1030 beachten



Anzahl und Länge der Litzen s. Stückliste

1) Maße für Montagewand

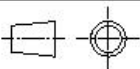
Axialspiel bei

- Kugellagerung (K) : 0 (mit Federausgleich)
- Gleitlagerung (G) :

Tolerierung: DIN 7167  
Allgemeintoleranzen:

DIN ISO 2768-mK-E

Datum		Name		Artikel	Maßstab
Bearbeitet					
	Index		Änd.-Nr.	Zchg.-Nr.	Blatt
Geprüft u. zur Verwendung freigegeben von				Erst-Zchg.	A4



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