

Product Data Sheet 6314/2NP

ebmpapst

The engineer's choice



6314/2NP

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1 General

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

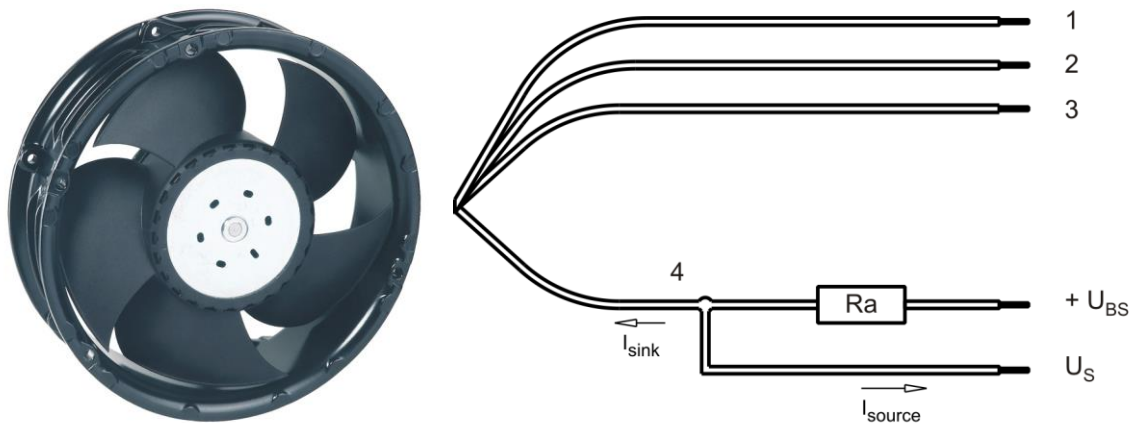
2 Mechanics

2.1 General

Depth	51,0 mm	
Diameter	172,0 mm	
Mass	0,825 kg	
Housing material	Metal	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	Wire outlet corner: 600 Ncm Remaining corners: 600 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Lead wire length	L = 365 mm	
Tolerance	+ - 10,0 mm	
Tube length	S = 10 mm	
Tolerance	+ - 2,0 mm	
Wire size (AWG)	22	
Insulation diameter	1,7 mm	



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

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

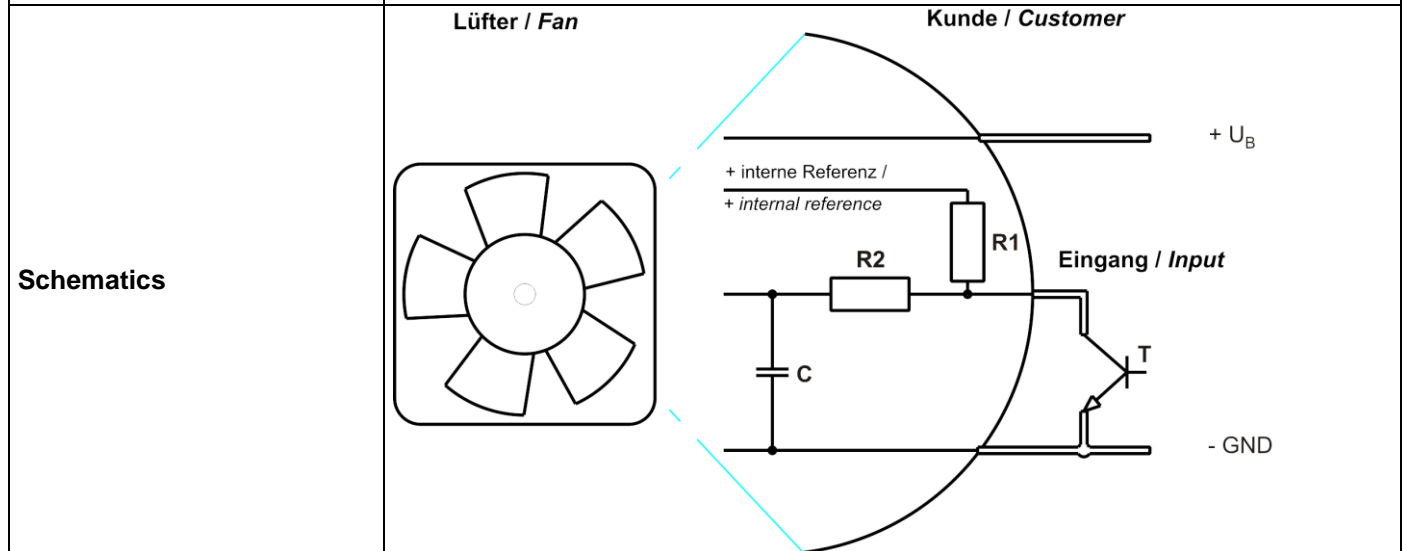
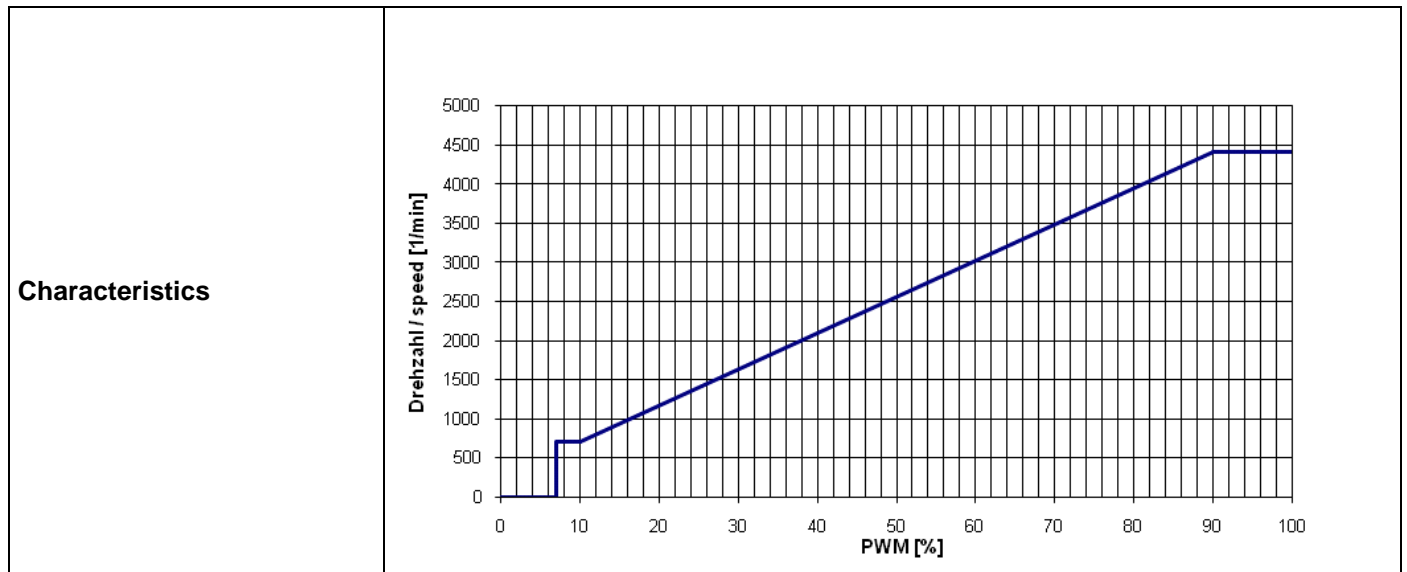
3 Operating Data

3.1 Electrical Interface - Input

Control input	PWM
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Features

Input type	Open collector	
PWM - Frequency		1 kHz - 20 kHz typical: 2 kHz



Transistor requirements:

Vce max. >= 12V; Isink max. >=5mA

Vce sat. <= 0,15V

Information to the curve:

- 0% - 7% PWM: 0 1/min
- 7% - 10% PWM: 700 1/min (corresponding to min. speed)
- 10% - 90% PWM: linear increasing curve
- 90% - 100% PWM: 4.400 1/min (corresponding to max. speed)

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.

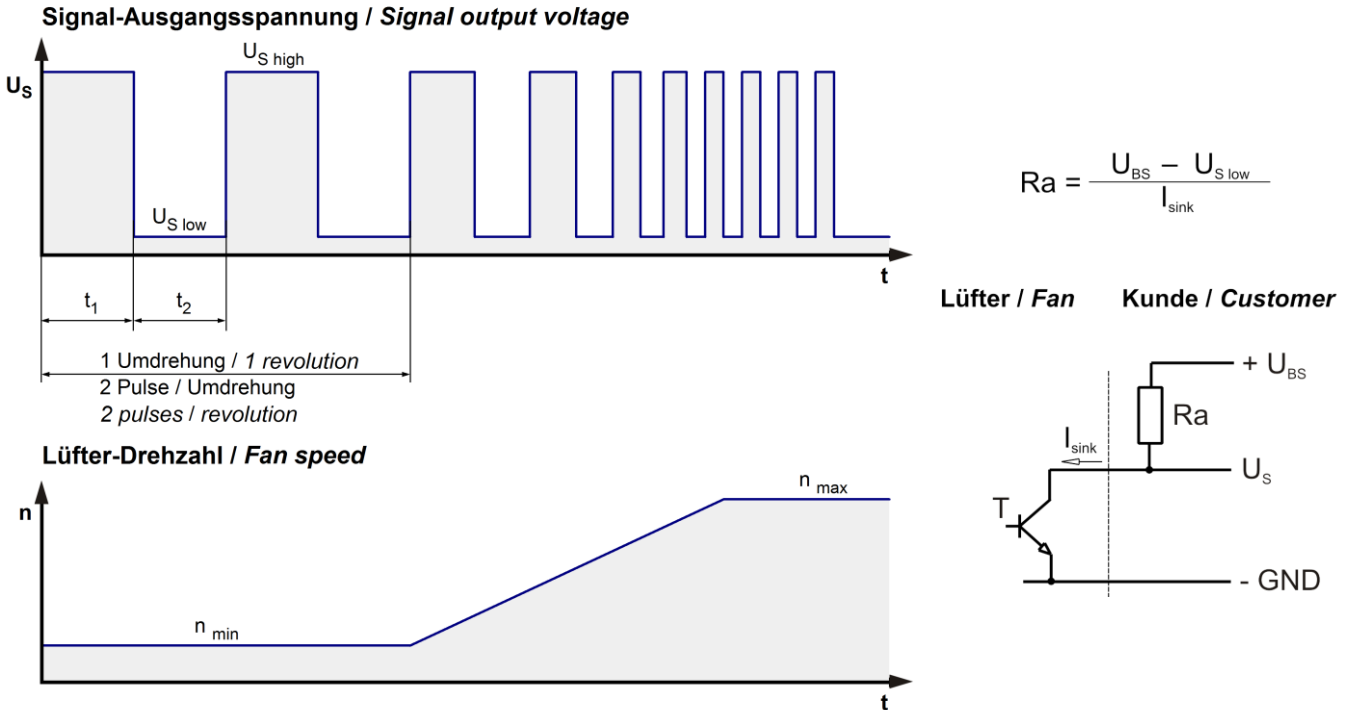
$\Delta p = 0$: corresp. to free air flow (see section 3.5)
 I: corresp. to arithm. mean current value

Name	Condition
PWM 0001	PWM: 100 %; f: 2 kHz

Features	Condition	Symbol	Values		
Voltage range		U	16 V		30 V
Nominal voltage		U_N		24 V	
Power consumption Tolerance	$\Delta p = 0$ PWM 0010	P	13,3 W +- 20 %	23 W +- 10 %	23 W +- 10 %
Current consumption Tolerance	$\Delta p = 0$ PWM 0010	I	840 mA +- 20 %	950 mA +- 10 %	780 mA +- 10 %
Speed Tolerance	$\Delta p = 0$ PWM 0010	n	3.500 1/min +- 10 %	4.400 1/min +- 5 %	4.400 1/min +- 5 %

3.3 Electrical Interface - Output - Tacho

Tacho type	/2 (open collector)
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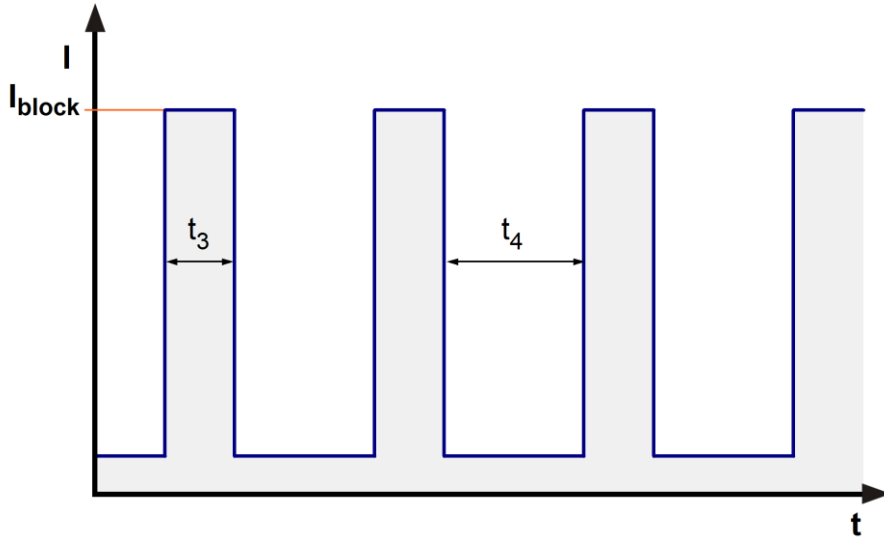


Features	Note	Values
Tacho operating voltage	U _{BS}	<= 32,0 V
Tacho signal Low	U _{S low}	I sink: 2 mA <= 0,4 V
Tacho signal High	U _{S high}	I source: 0 mA <=32,0 V
Maximum sink current	I _{sink}	<= 20 mA
External resistor	External resistor Ra from UBS to US required. All voltages measured to GND.	
Tacho frequency	(2 x n) / 60	
Tacho isolated from motor	No	
Slew rate		=> 0,5 V/us

n = revolutions per minute (1/min)

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection	Rectifying diode	
Max. residual current at U_N	$I_F \leq 5 \text{ mA}$	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 900 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,5 s / 5,0 s	



Internal Fuse:

Littlefuse NANO2(R) FUSE; Very fast acting 451 Series; 4 A

Note:

The internal electrolytic capacitor 470uF/35V has no resistor or inrush current limitation, essentially the power supply and the type and length of the connecting cable is limiting the Inrush current.

3.5 Aerodynamics

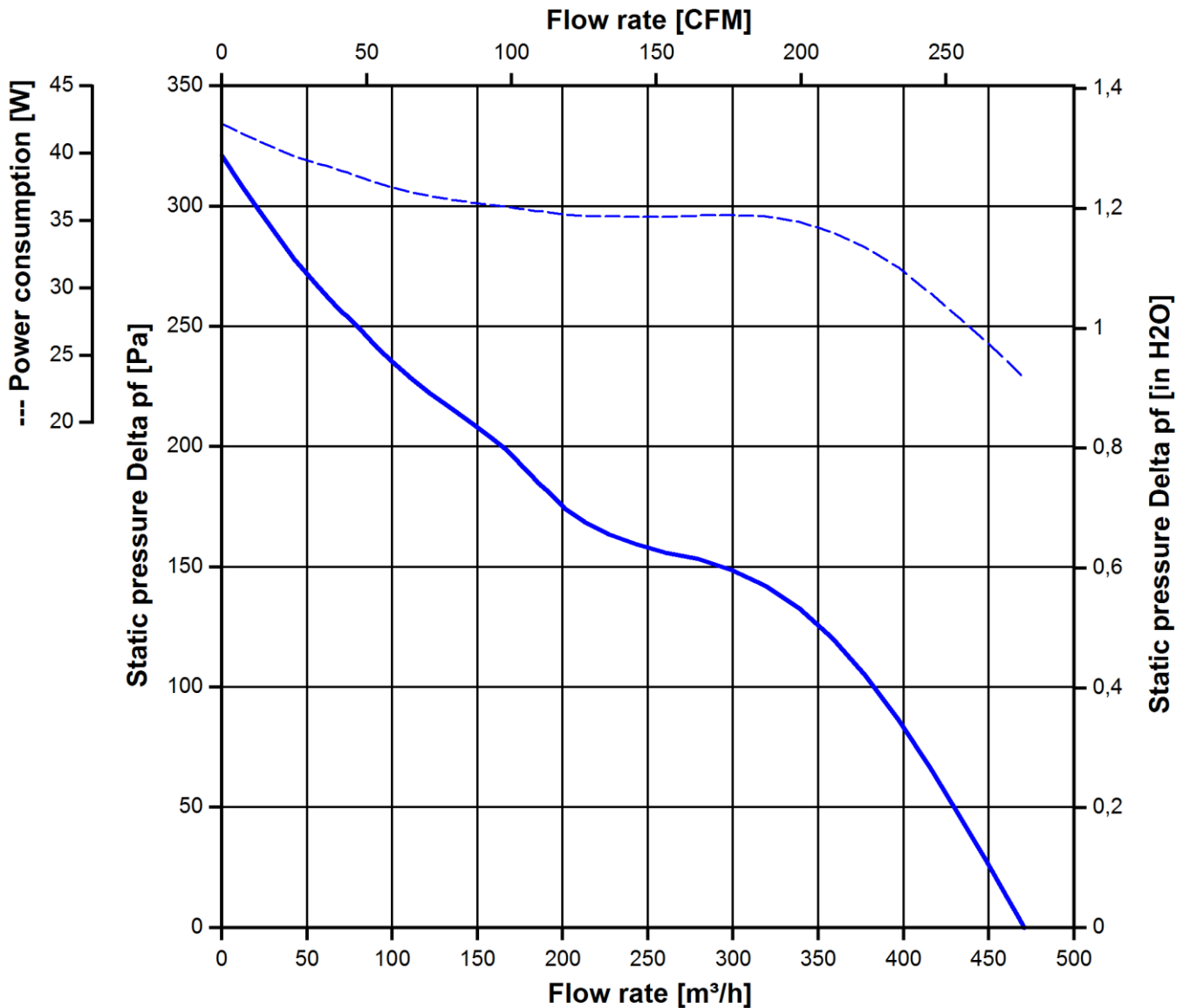
Measurement conditions:

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.
 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. Power consumption of the fan motor when operating at normal voltage is shown. Depending on the operating conditions of the application, the power input may be higher.

a.) Operation condition:

4.400 1/min at free air flow	PWM 100 %; f: 2 kHz		
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Max. free-air flow ($\Delta p = 0 / \dot{V} = \text{max.}$)	470,0 m ³ /h	
Max. static pressure ($\Delta p = \text{max.} / \dot{V} = 0$)	320 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:

4.400 1/min at free air flow	PWM 100 %; f: 2 kHz	PWM min.:	PWM max.:
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Optimal operating point	385,0 m ³ /h @ 88 Pa	
Sound power level at the optimal operating point	6,5 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	56,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	70 °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	
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	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	80.000 h	
Life expectancy L10 at TU max.	40.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	135.000 h	

