Product Data Sheet 6314/2NP

ebmpapst

Die Wahl der Ingenieure



GREEN TECH

6314/2NP

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1 General

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

2 Mechanics

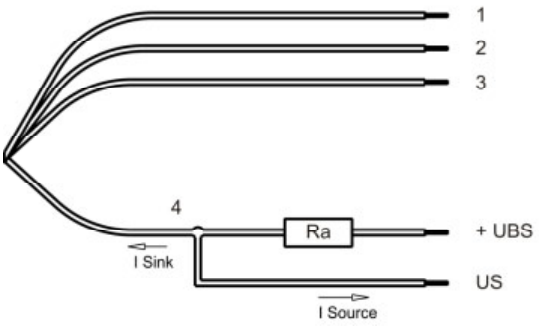
2.1 General

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

2.2 Connections

Electrical connection	Wires	
Length of lead wire Tolerance	L = 365 mm +- 10,0 mm	
Length of tube Tolerance	S = 10 mm +- 2,0 mm	
Wire gauge (AWG)	22	
Insulation diameter	1,7 mm	
Contact	see drawing	





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

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

3 Operating Data

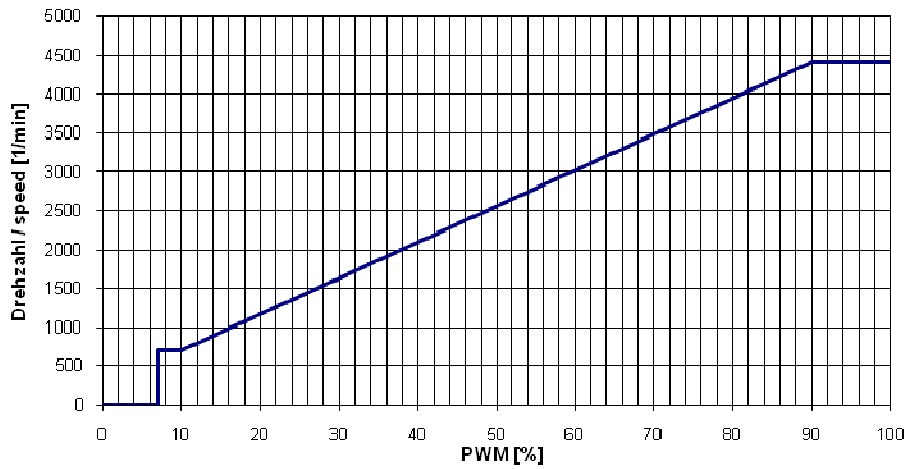
3.1 Operating Data - Electrical Interface - Input

Control input	PWM

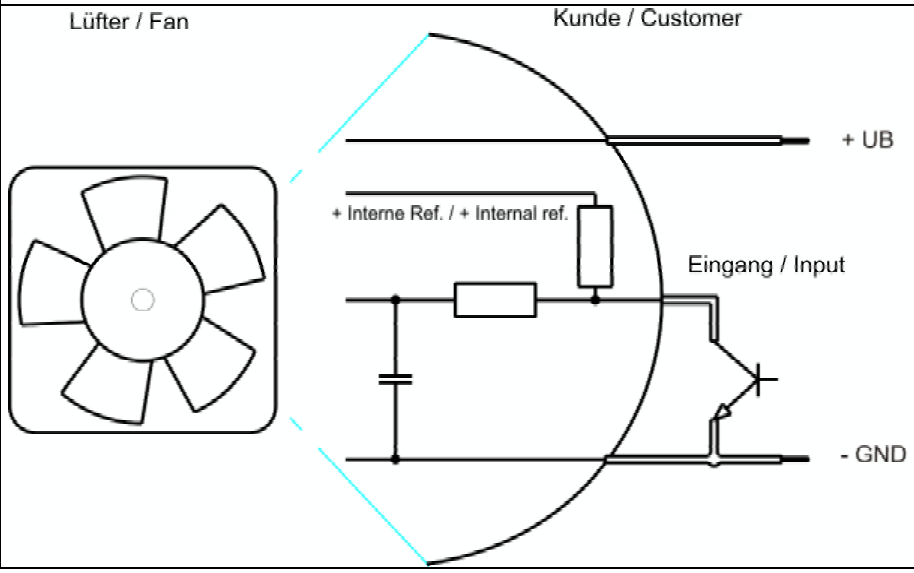
Features

Inpute type	Open collector	
PWM - Frequency		1 kHz - 20 kHz Typical: 2 kHz

Characteristics



Schematics



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.

Δp = 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	Δp = 0	U	16,0 V		30,0 V
Nominal voltage	Δp = 0	U_N		24,0 V	
Power consumption Tolerance	Δp = 0 PWM 0001	P	13,3 W +- 20 %	23 W +- 10,0 %	23 W +- 10,0 %
Current consumption Tolerance	Δp = 0 PWM 0001	I	840 mA +- 20 %	970 mA +- 10,0 %	780 mA +- 10,0 %
Speed Tolerance	Δp = 0 PWM 0001	n	3.500 1/min +- 10,0 %	4.400 1/min +- 5,0 %	4.400 1/min +- 5,0 %

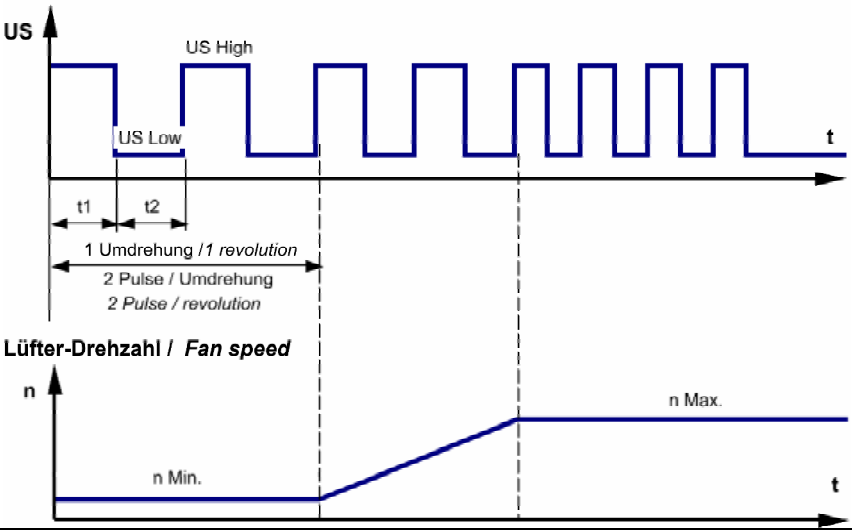
Name	Condition		
PWM 0002	PWM: 50 %; f: 2 kHz		

Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	16,0 V		30,0 V
Nominal voltage	Δp = 0	U_N		24,0 V	
Power consumption Tolerance	Δp = 0 PWM 0002	P	5,9 W +- 10,0 %	6,0 W +- 10,0 %	6,6 W +- 10,0 %
Current consumption Tolerance	Δp = 0 PWM 0002	I	360 mA +- 12,5 %	250 mA +- 10,0 %	220 mA +- 10,0 %
Speed Tolerance	Δp = 0 PWM 0002	n	2.450 1/min +- 7,5 %	2.450 1/min +- 7,5 %	2.450 1/min +- 7,5 %

3.3 Operating Data - Electrical Interface -Output

Tacho type	/2 (Open collector)

Signal-Ausgangsspannung / *Signal output voltage*



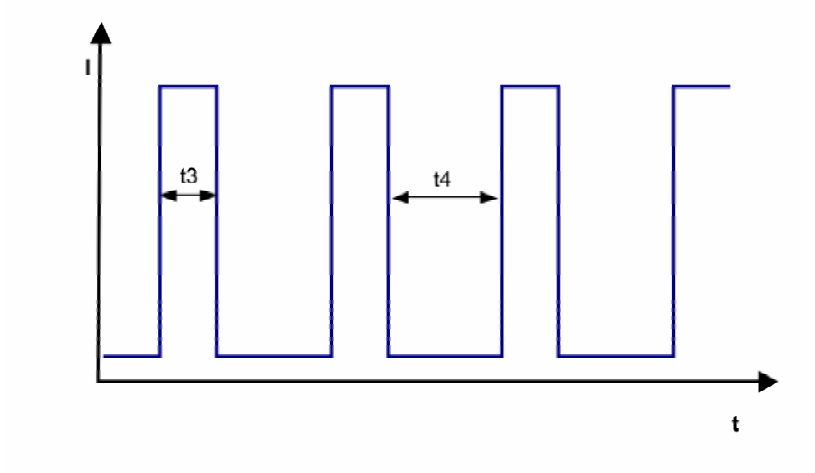
$$Ra = \frac{UBS - US\ Low}{I\ Sink}$$

Features	Note	Values
Tacho operating voltage (UBS)		<= 32,0 V
Tacho signal Low	I sink: 2 mA	<= 0,4 V
Tacho signal High	I source: 0 mA	<= 32,0 V
Maximum sink current		<= 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

Alarm type	None

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at Un	Rectifying diode IF <= 5 mA	
Locked rotor protection	Auto restart	
Locked rotor current at Un	approx. 900 mA	
Clock signal t3/t4 at locked rotor	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.

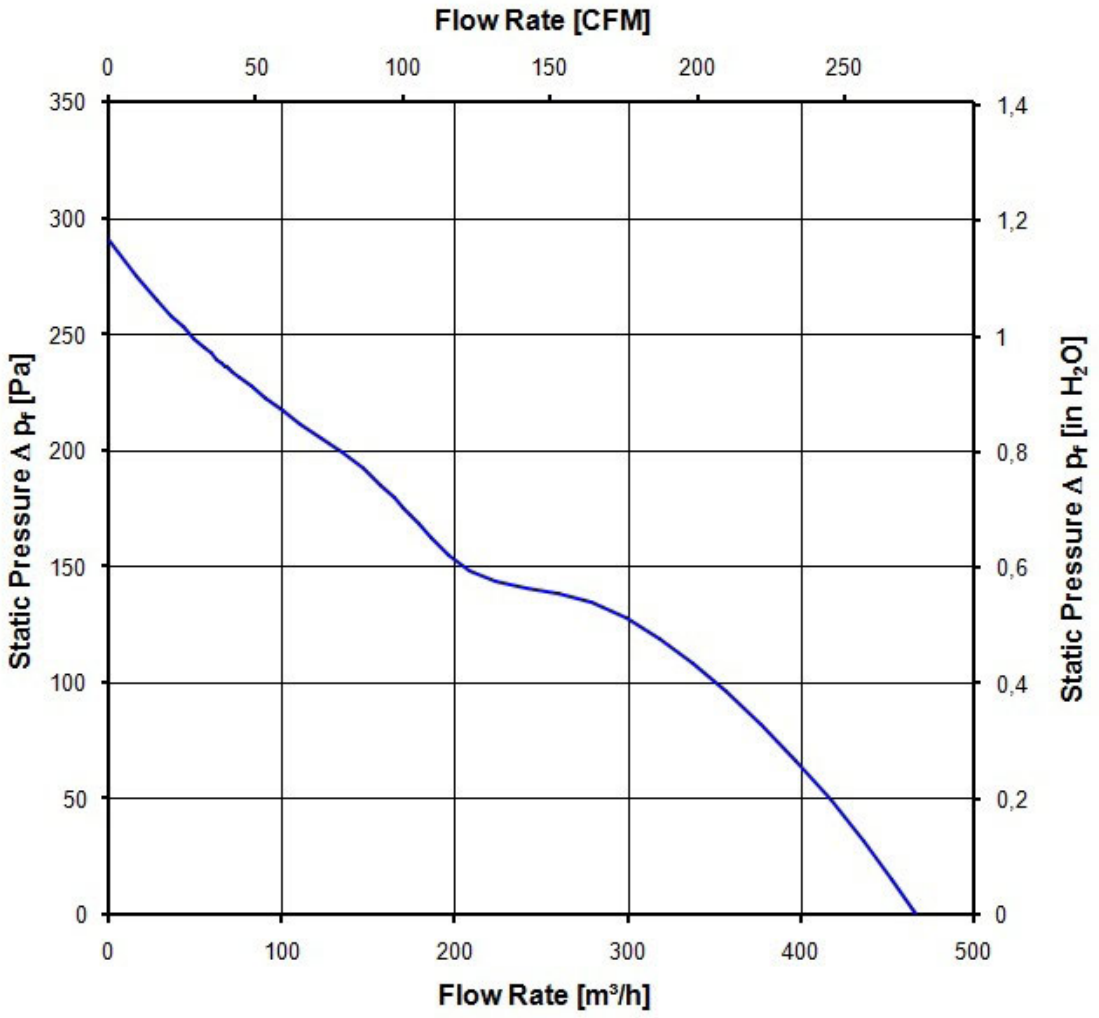
3.5 Aerodynamic

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:

4.400 1/min at free air flow	PWM 100 %; f: 2 kHz		

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	465,0 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	290 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:

4.400 1/min at free air flow	PWM 100 %; f: 2 kHz	PWM min.:	PWM max.:

Optimal operating point	365,0 m3/h @ 80 Pa	
Sound power level at the optimal operating point	6,4 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	55,0 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	

*) Permittet 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

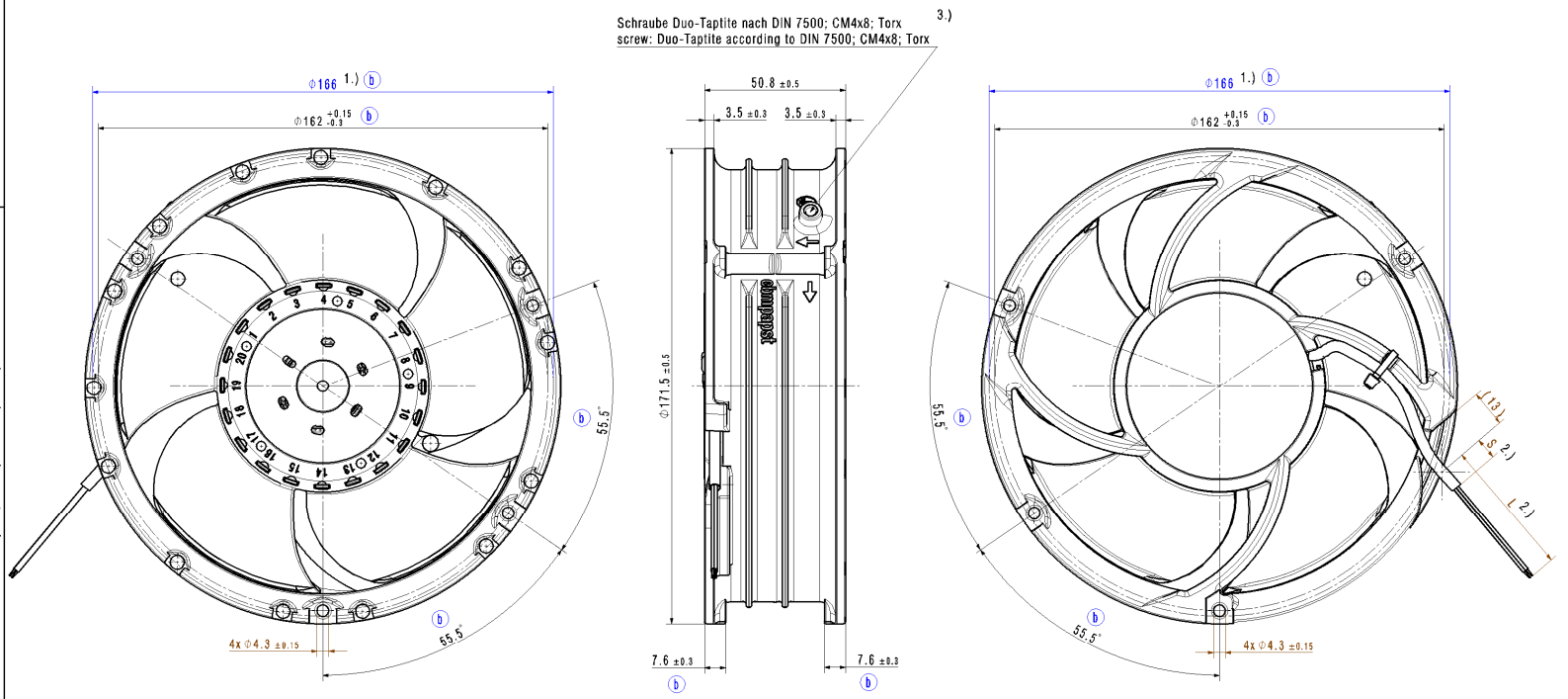
Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25°C. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 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
VDE	Association for Electrical, Electronic and Information Technologies	Yes
CSA	Canadian Standards Association	Yes
CCC	China Compulsory Certification	No

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1.) Maße aus Montageausschnitt
2.) Anzahl und Länge der Litzen/Schlauch siehe Produktspezifikation
3.) Nur wenn in Stückliste enthalten

- Axialspiel der Kugellager mit Feder spielfrei gelagert

1.) measures of mounting cut out
2.) length an number of wires/tube see product specification
3.) only it is included in bill of material

- ball bearing without clearance by a pre-load spring

						Werkstoff / Material: -	Volumen / Volume (m³/h):
BAP-Rhythmik/Stufe	Aend.-Nr./ Change-No.	CATIA-System-Version/ CATIA-System-Version		CAD-Zeichnung/ CAD-Zeichnung			Gewicht / Mass (g):
		0555400101 CFK300-					
		KD-Referenznetz13 / KD-Referenznetz13				Artikel / Title:	
Toleranzen / Tolerances:			Datum	Name			
		Bearb./ Drawn					
Allgemeintoleranzen / Gen. Tolerances:		Gepr./ Checked				Zchg.-Nr./ Drawing No:	Ers.f.Zchg. / Replaces:
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