Product Data Sheet 614J/2HHPR-010

ebmpapst

Die Wahl der Ingenieure



GREEN TECH

614J/2HHPR-010

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6.1 General 11

1 General

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

2 Mechanics

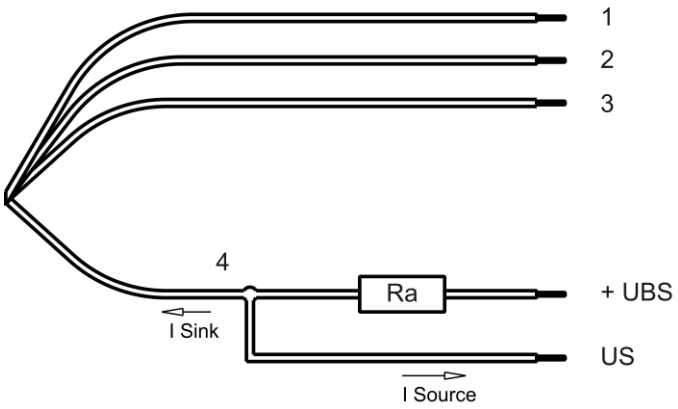
2.1 General

Width	60,0 mm	
Height	60,0 mm	
Depth	32,0 mm	
Weight	0,100 kg	
Housing material	Plastic	
Impeller material	Plastic	

2.2 Connections

Electrical connection	Wires	
Length of lead wire Tolerance	L = 400 mm +- 10,0 mm	
Wire gauge (AWG)	24	
Insulation diameter	1,45 mm	
Contact	see drawing	





	Colour	Operation
Wire 1	red	+ UB
Wire 2	blue	- GND
Wire 3	black	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

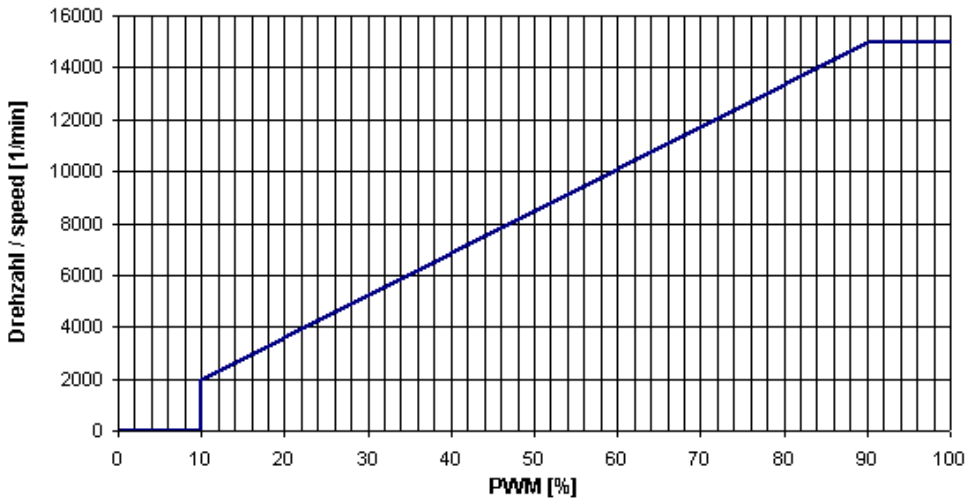
3.1 Operating Data - Electrical Interface - Input

Control input	PWM

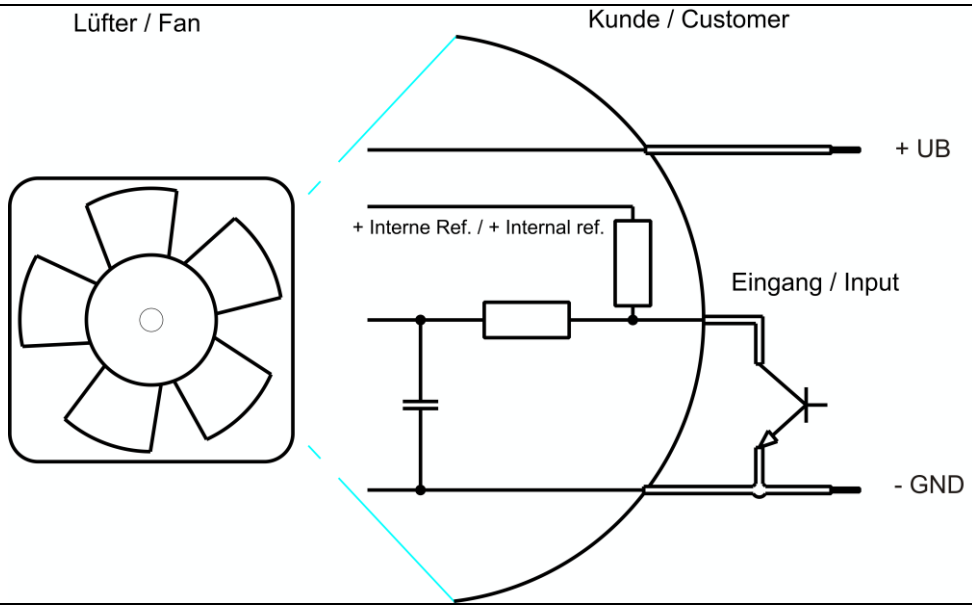
Features

Inpute type	Open collector	
PWM - Frequency		1 kHz - 30 kHz Typical: 5 kHz

Characteristics



Schematics



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: 95 %;	f: 1 kHz	f: 30 kHz

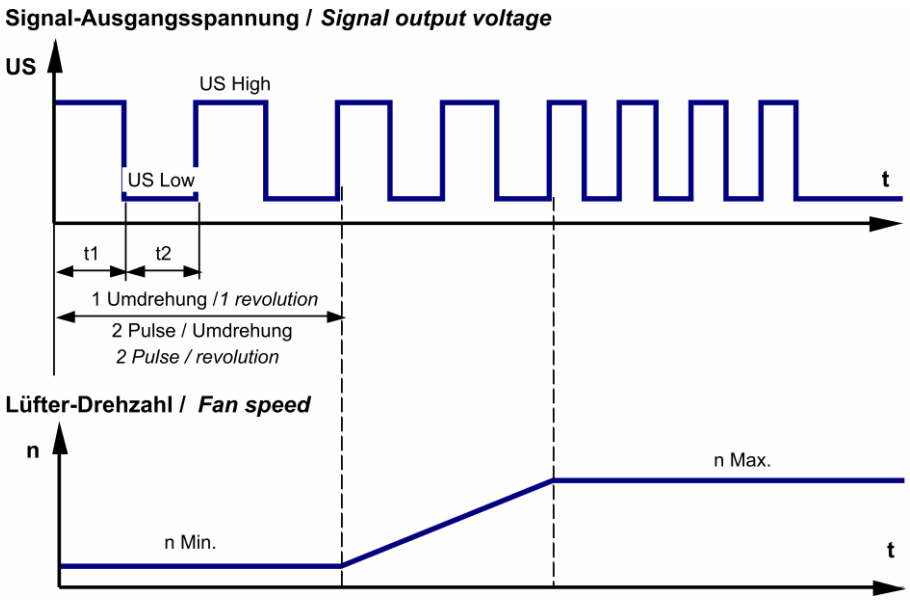
Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	18,0 V		30,0 V
Nominal voltage	Δp = 0	U_N		24,0 V	
Power consumption Tolerance	Δp = 0 PWM 0001	P	7,5 W +- 17,5 %	14,2 W +- 25,0 %	14,7 W +- 25,0 %
Current consumption Tolerance	Δp = 0 PWM 0001	I	415 mA +- 17,5 %	590 mA +- 25,0 %	490 mA +- 25,0 %
Speed Tolerance	Δp = 0 PWM 0001	n	11.900 1/min +- 12,5 %	15.000 1/min +- 6,0 %	15.000 1/min +- 6,0 %
Starting current consumption				2.000 mA	

Name	Condition		
PWM 0002	PWM: 9 %;	f: 1 kHz	f: 30 kHz

Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	18,0 V		30,0 V
Nominal voltage	Δp = 0	U_N		24,0 V	
Power consumption Tolerance	Δp = 0 PWM 0002	P	0,5 W +- 25,0 %	0,7 W +- 25,0 %	0,8 W +- 25,0 %
Current consumption Tolerance	Δp = 0 PWM 0002	I	29 mA +- 25,0 %	28 mA +- 25,0 %	28 mA +- 25,0 %
Speed Tolerance	Δp = 0 PWM 0002	n	2.000 1/min +- 6,0 %	2.000 1/min +- 6,0 %	2.000 1/min +- 6,0 %

3.3 Operating Data - Electrical Interface -Output

Tacho type	/2 (Open collector)



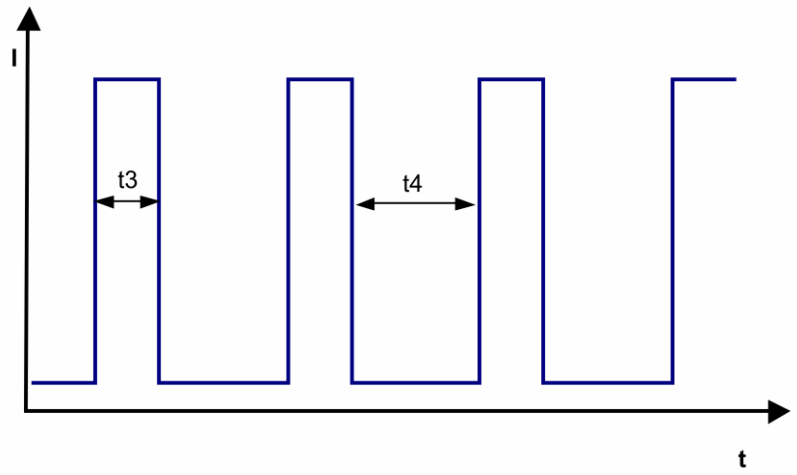
$$Ra = \frac{UBS - US\ Low}{I\ Sink}$$

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		<= 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 <= 2 mA	
Locked rotor protection	Auto restart	
Locked rotor current at Un	approx. 1.650 mA	
Clock signal t3/t4 at locked rotor	Typical: 0,3 s / 5,3 s	



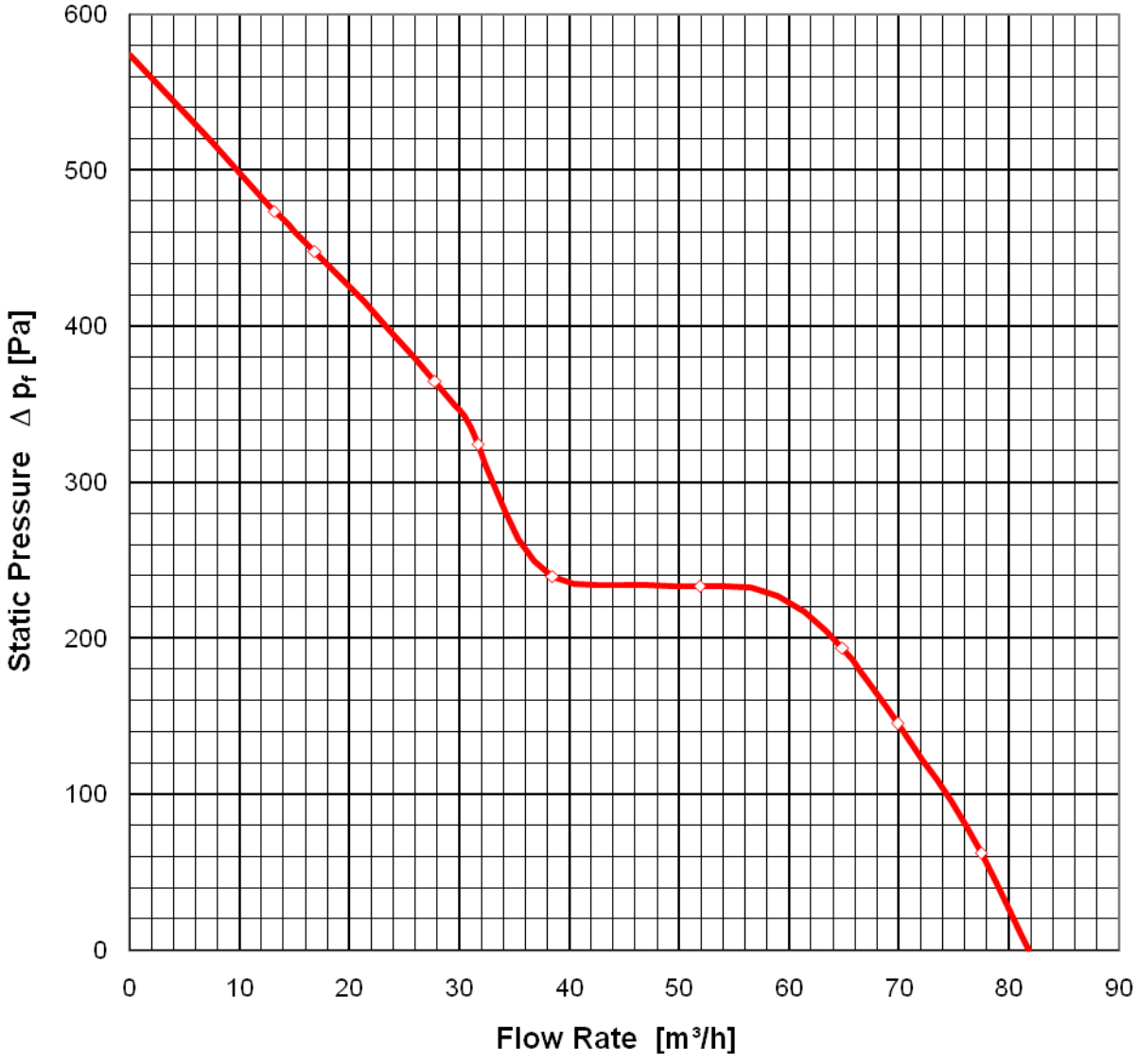
3.5 Aerodynamic

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. 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:

15.000 1/min at free air flow	PWM 95 %;	f: 1 kHz	f: 30 kHz

Max. free-air flow (Δp = 0 / V̇ = max.)	82,0 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	570 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:

15.000 1/min at free air flow	PWM 95 %	PWM min.: ; f: 1 kHz	PWM max.:; f: 30 kHz

Optimal operating point	75,0 m3/h @ 121 Pa	
Sound power level at the optimal operating point	7,6 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	62,0 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-40 °C	
Max. permitted ambient temperature TU max.	78 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

For start-up conditions, the ambient temperature has to be > - 20°C !!

4.2 Climatic requirements*)

Humidity requirements	humid heat, cyclic; according to DIN EN 60068-2-30, 6 cycle	
Water exposure	None	
Dust requirements	Dust check; according to DIN EN 60068-2-68, 6g/m2d, 1 day	
Salt fog requirements	None	

*) Permittet application area:
The product is for the use in sheltered rooms with limited controlled temperature. Occasionally condensed water is allowed. Direct exposure to water must be avoided. Saline ambient conditions must be avoided.

Pollution degree 2 (according DIN EN 60664-1)
It occurs only non-conductive pollution. Occassionally, temporary conductivity caused by condensation occurs.

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 / 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	No
CCC	China Compulsory Certification	No

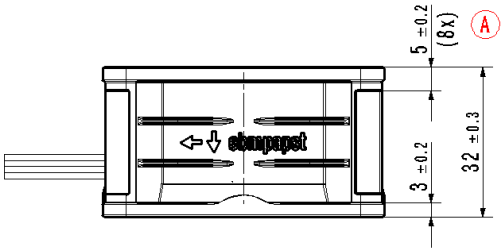
6 Reliability

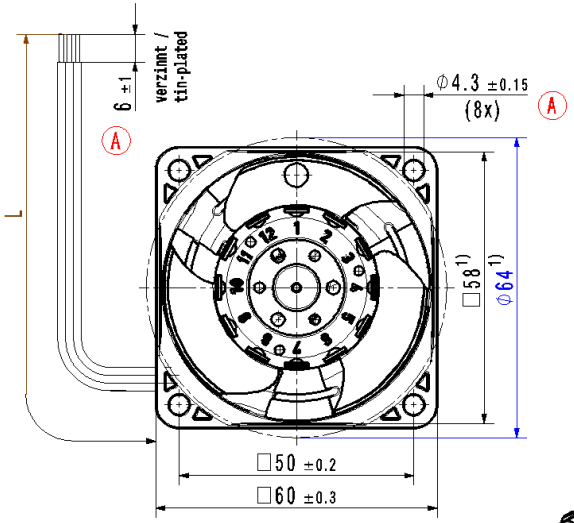
6.1 General

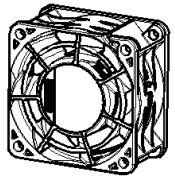
Life expectancy L10 at TU = 40 °C	65.000 h	
Life expectancy L10 at TU = 75 °C	25.000 h	
Life expectancy L10 IPC at TU = 40 °C	110.000 h	

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1.) Maße für Montagewand
- Anzahl und Laenge der Litzen siehe Produktspezifikation
- Kein Axialspiel bei Kugellager durch Federausgleich

1.) Dimensions for worktop mounting
- Number and length of the wires see product specification
- No axial clearence in ball bearings by spring compensation

SAP-Status/State	Aend.-Nr./ Change-No.	CATIA-System-Version/ CATIA-System-Version	CAD-Umgebung/ CAD-Environment	Werkstoff / Material:	Volumen / Volume (mm^3):
					Gewicht / Mass (g):
		9982510099 CFR000A		Artikel / Title:	
		3D-Referenzmodell / 3D-Referencemodel			
Tolerierung / Tolerances:		Datum	Name		
	Bearb./ Drawn				
Allgemeintoleranzen / Gen. Tolerances:	Gepr./ Checked			Zchg.-Nr./ Drawing No:	Ers.f.Zchg. / Replaces:
	Freig./ Releas.				
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