Product Data Sheet 6314N/2HHIR-312

ebmpapst

The engineer's choice



GREEN TECH

6314N/2HHIR-312

INDEX

1 General 3

2 Mechanics 3

2.1 General 3
2.2 Connections 3

3 Operating Data 5

3.1 Electrical Interface - Input 5
3.2 Electrical Operating Data 6
3.3 Electrical Interface - Output 7
3.4 Electrical Features 8
3.5 Aerodynamics 8
3.6 Sound Data 9

4 Environment 9

4.1 General 9
4.2 Climatic Requirements 9

5 Safety 10

5.1 Electrical Safety 10
5.2 Approval Tests 10

6 Reliability 10

6.1 General 10

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

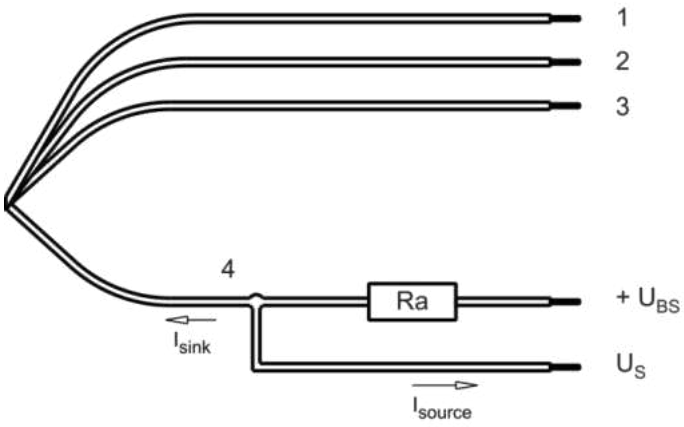
2.1 General

Depth	51,0 mm	
Diameter	172,0 mm	
Mass	0,685 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	Cable - Plug	
Lead wire length Tolerance	L = 520 mm +- 10,0 mm	
Tube length Tolerance	S = 30 mm +- 5,0 mm	
Plug	See drawing	
Contact	See drawing	





Wire	Color	Operation	Plug connection	Wire size	Insulation diameter
1	red	+ UB	Pin 1	AWG 22	1,7 mm
2	blue	- GND	Pin 2	AWG 22	1,7 mm
3	orange	CONTR	Pin 4	AWG 22	1,7 mm
4	white	Tacho	Pin 3	AWG 22	1,7 mm

Lead wire 1 - 4: AWG22 (Insulation diameter 1,70 mm)

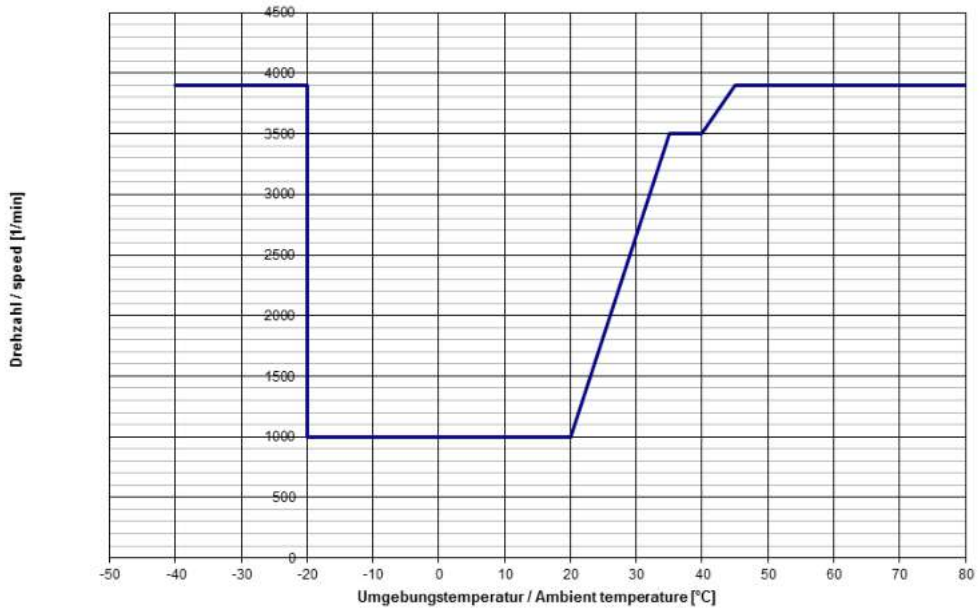
3 Operating Data

3.1 Electrical Interface - Input

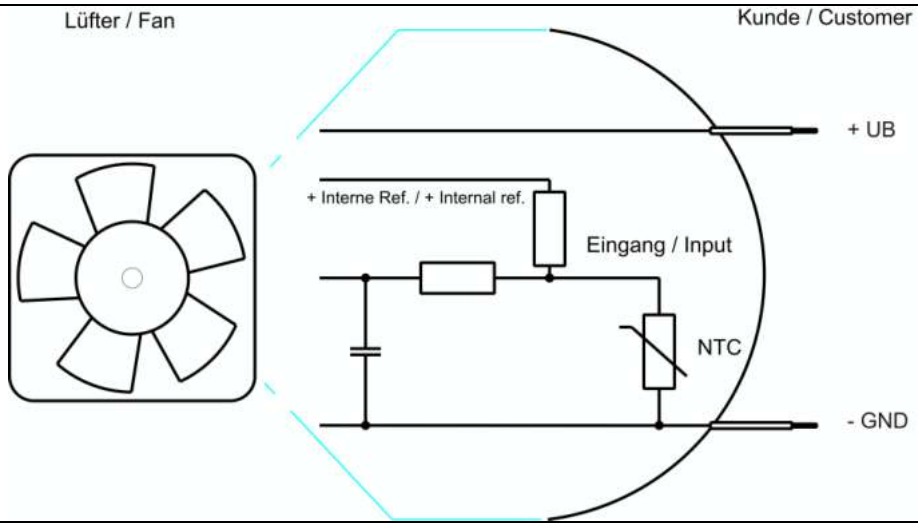
Control input	External Temperature Sensor

Features

Characteristics



Schematics



Information to the curve:
3.900 1/min.....<-20°C (lost sensor)
1.000 1/min.....-20°C bis +20°C
linear1/min.....+20°C bis 35°C
3.500 1/min.....+35°C bis +40°C
linear1/min.....+40°C bis +45°C
3.900 1/min.....>+45°C

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 chapter aerodynamics)
I: corresp. to arithm. mean current value

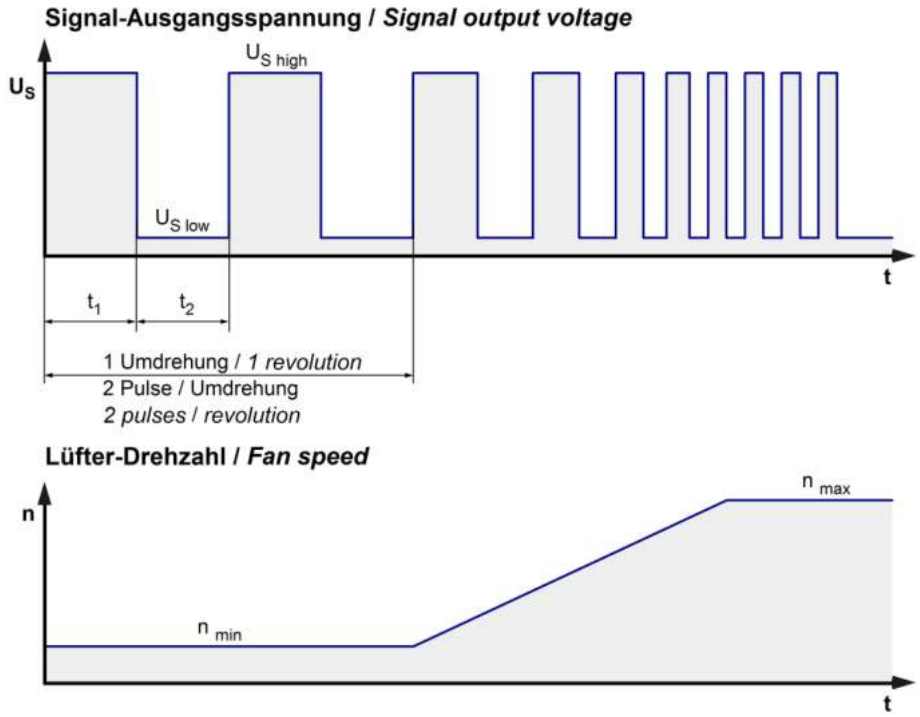
Name	Condition		
TU 0001	TU: > 40 °C		
NTC 0001			

Check control input and sensor function test
temperature >40°C complies to wire 4 CONTR (orange) is connected to GND. If the wire 4 CONTR (orange) is connected to GND the NTC and temperature reguation is functionless.
If the wire 4 CONTR (orange) is not connected to GND the speed reached a value according temperature-speed graph.
Is the NTC sensor defective or not connected and the wire 4 CONTR (orange) is not connected to GND the speed reached 3900rpm.
Atention: The wire 4 (orange) is only used to check temperature-speed and senor function.

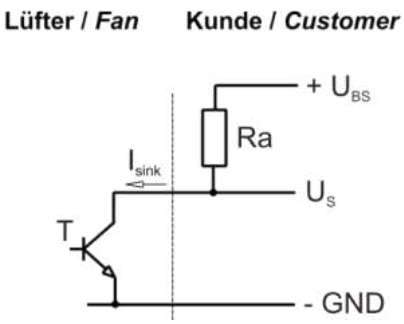
Features	Condition	Symbol	Values		
Voltage range		U	16 V		36,0 V
Nominal voltage		U_N		24,0 V	
Power consumption Tolerance	Δp = 0 TU / NTC 0010	P	19 W +- 10 %	30 W +- 10 %	29 W +- 10 %
Current consumption Tolerance	Δp = 0 TU / NTC 0010	I	1.200 mA +- 10 %	1.250 mA +- 10 %	800 mA +- 10 %
Speed Tolerance	Δp = 0 TU / NTC 0010	n	3.300 1/min +- 15 %	3.900 1/min +- 5 %	3.900 1/min +- 5 %

3.3 Electrical Interface - Output

Tacho type	/2 (open collector)



$$Ra = \frac{U_{BS} - U_{S\,low}}{I_{sink}}$$

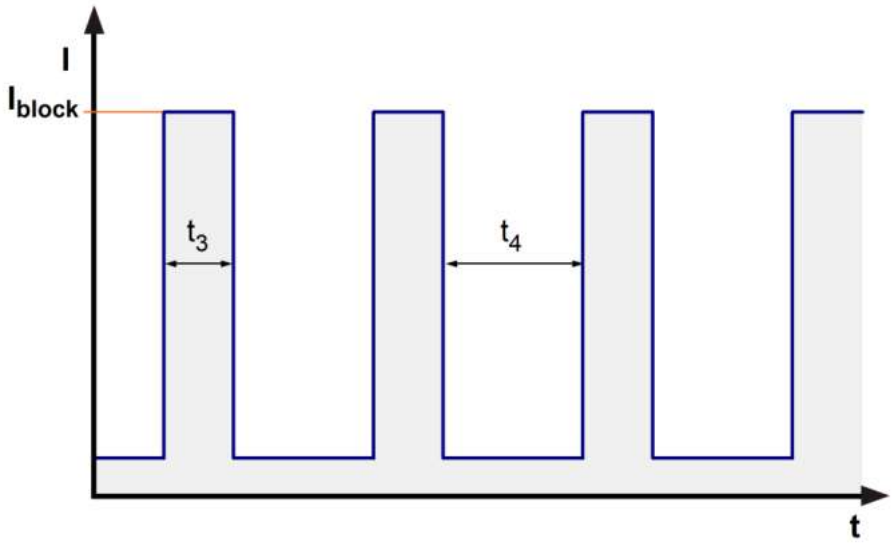


Features		Note	Values
Tacho operating voltage	U_{BS}		<= 32 V
Tacho signal Low	$U_{S\,low}$	I sink: 2 mA	<=0,4 V
Tacho signal High	$U_{S\,high}$	I source: 0 mA	32 V
Maximum sink current	I_{sink}		<= 20 mA
External resistor		External resistor Ra from UBS to US required. All voltages measured to GND.	
Tacho frequency		(2 x n) / 60	130 Hz
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 Max. residual current at U_N	Rectifying diode I_F <= 5 mA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 1.000 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,5 s / 10,0 s	



This fan has a startup delay of 2,2 seconds after applying supply voltage.

Internal Fuse: Littelfuse Nano2 Fuse Very Fast-Acting 451/453 Series 4A / 75V

3.5 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig. 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. Motor shaft horizontal. 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:

at free air flow	

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 chapter aerodynamics.

a.) Operation condition:

at free air flow	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	75 °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. 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	
Clearance / creepage distance	1,0 mm / 1,5 mm	
Protection class	III	

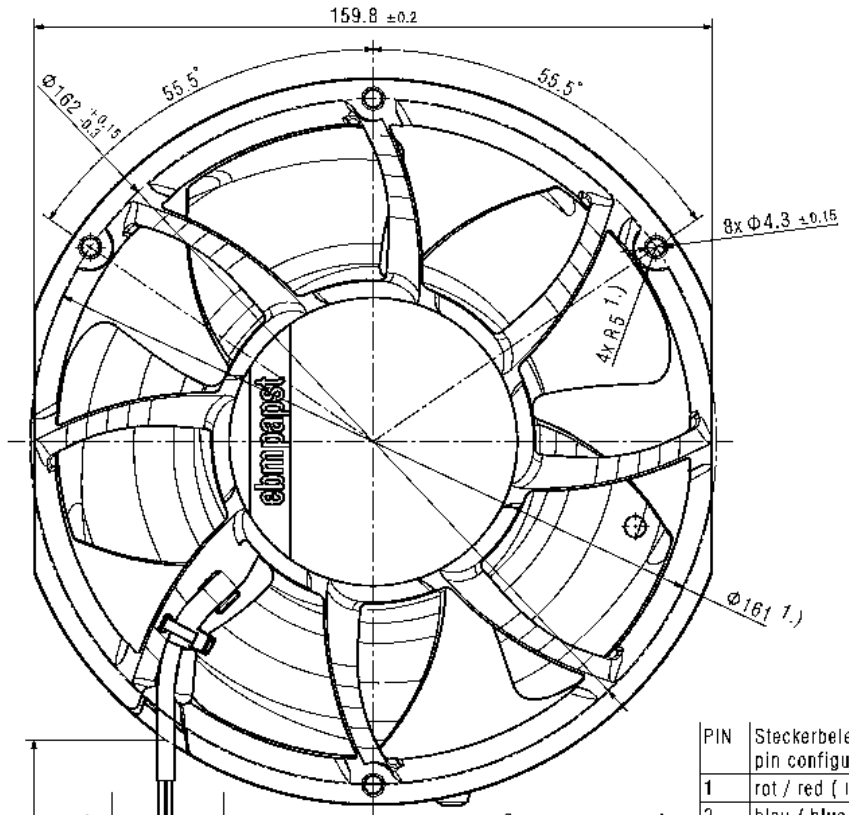
5.2 Approval Tests

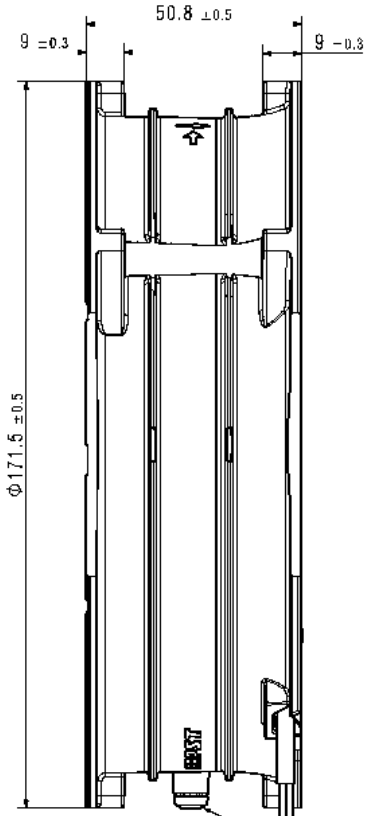
CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

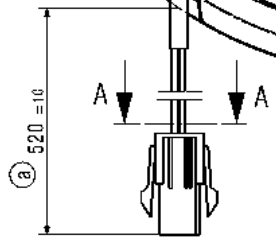
6 Reliability

6.1 General

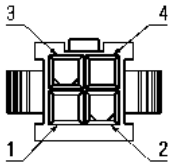
Life expectancy L10 at TU = 40 °C	80.000 h	
Life expectancy L10 at TU max.	40.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	135.000 h	







A-A
2:1



PIN	Steckerbelegung pin configuration
1	rot / red (+ UB)
2	blau / blue (-GND)
3	weiß / white (Tacho)
4	orange (Prüflitze / test wire)

Schraube: Duo-Taptite,
DIN 7500, CM 4x8, Torx
screw: Duo-Taptite,
DIN 7500, CM 4x8, Torx

Kontakte / contacts
Molex 39-00-0040

Steckergehäuse / plug housing
Molex 39-01-2046

- Axialspiel der Kugellager mit Feder spielfrei verspannt.
1.) Maße von Montageausschnitt.

- Ball bearings without clearance by a pre-load spring.
1.) Measures of mounting cut-out.

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