Product Data Sheet

9793520198
VBS0101XUGDZ
RER101-
36/18N/2HHPU-198

ebmpapst
The engineer's choice



GREEN TECH

RER101-36/18N/2HHPU-198

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1 General

Fan type	Blower without chassis with intake nozzle	
Rotating direction looking at rotor	Clockwise	
Airflow direction	Air in axially, Air out radially	
Bearing system	Ball bearing	
Mounting position - shaft	Any	

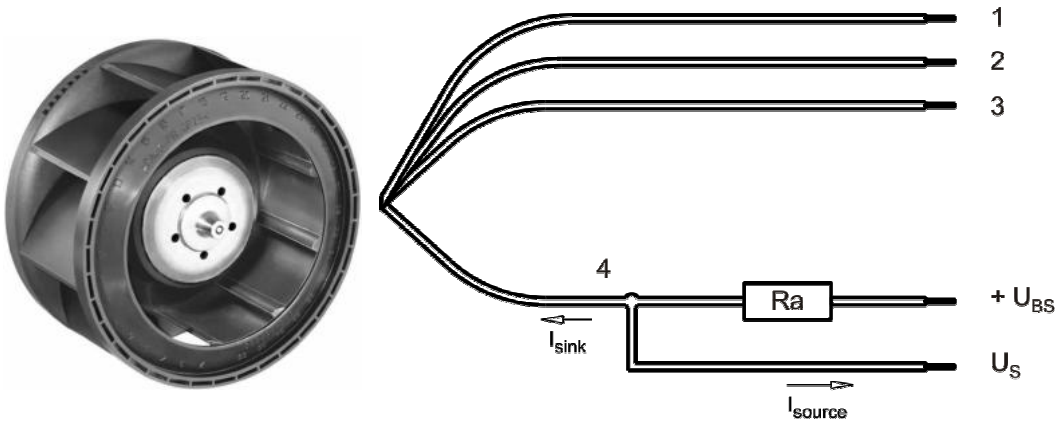
2 Mechanics

2.1 General

Depth	36,0 mm	
Diameter	101,0 mm	
Mass	0,300 kg	
Housing material		
Impeller material	Plastic	

2.2 Connections

Electrical connection	Wires	
Lead wire length Tolerance	L = 405 mm +- 10 mm	



Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 22	1,70 mm
2	blue	- GND	AWG 22	1,70 mm
3	violet	PWM	AWG 22	1,70 mm
4	white	Tacho	AWG 22	1,70 mm

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

3 Operating Data

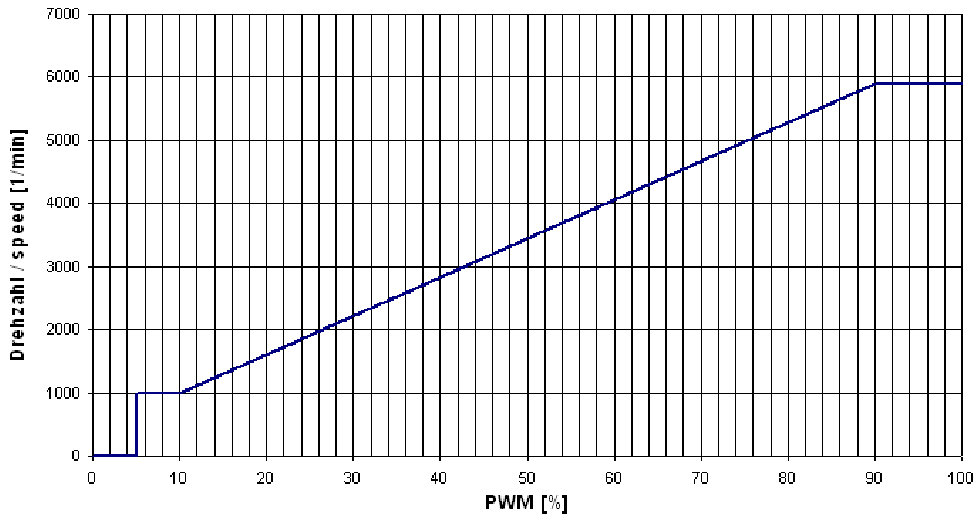
3.1 Electrical Interface - Input

Control input	PWM

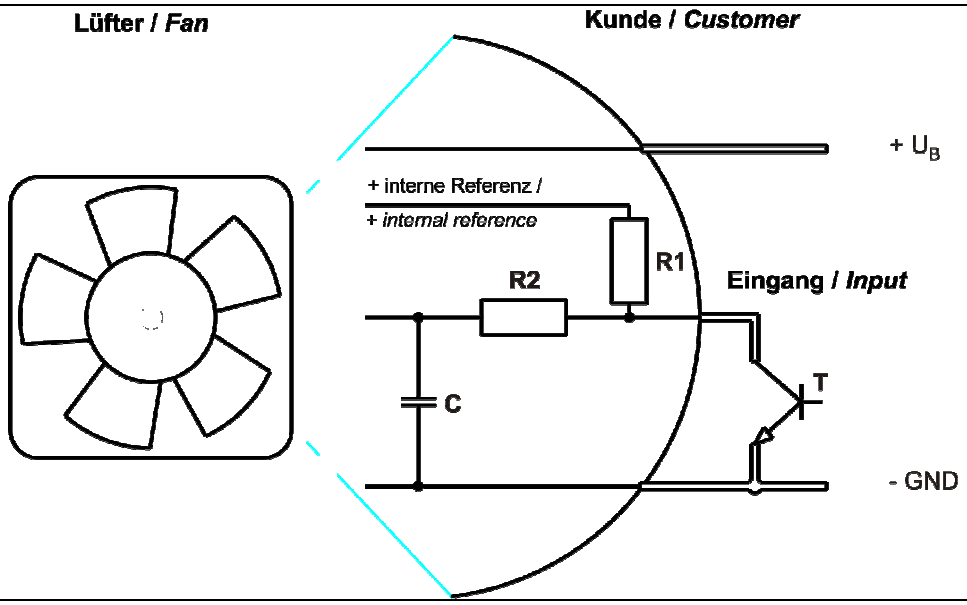
Features

Inpute type	Open collector	
PWM - Frequency		10 kHz - 20 kHz

Characteristics



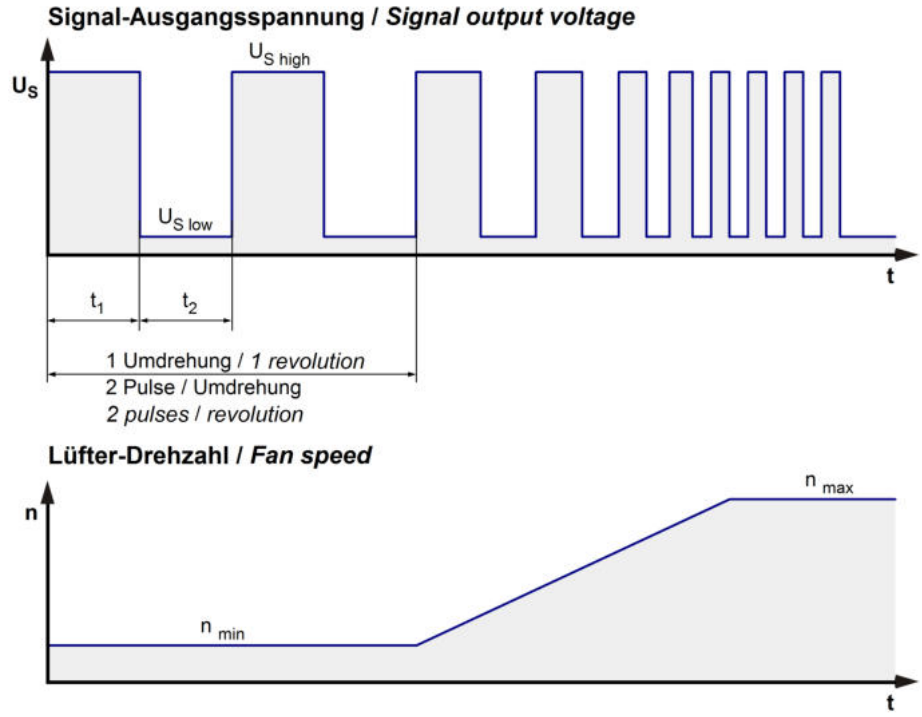
Schematics



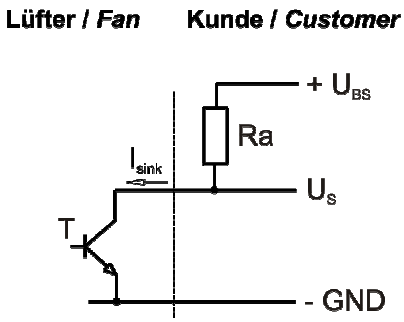
3.2 Electrical Operating Data

3.3 Electrical Interface - Output

Tacho type	/2 (open collector)



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

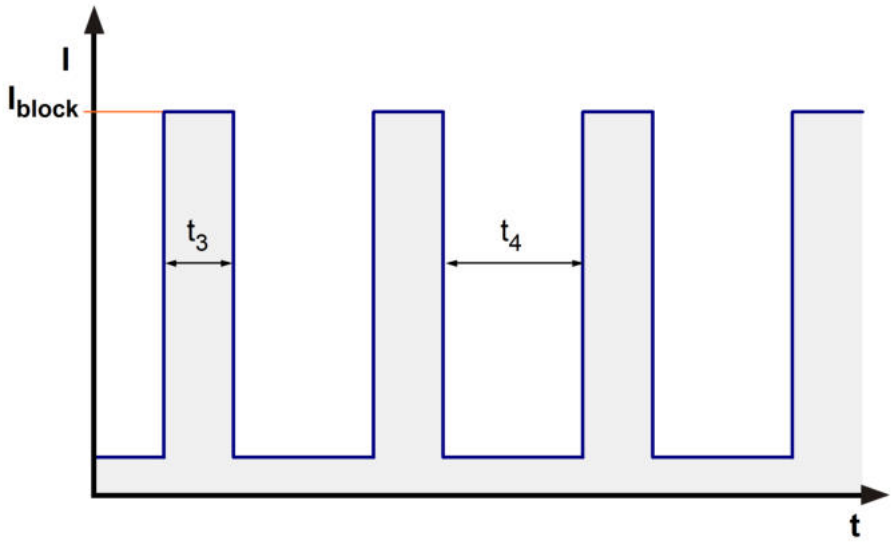


Features		Note	Values
Tacho operating voltage	U_{BS}		<= 60,0 V
Tacho signal Low	$U_{S\,low}$	I sink: 2 mA	<= 0,4 V
Tacho signal High	$U_{S\,high}$	I source: 0 mA	<=60,0 V
Maximum sink current	I_{sink}		<= 4 mA
External resistor		External resistor Ra from UBS to US required. All voltages measured to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

n = revolutions per minute (1/min)

3.4 Electrical Features

Electronic function	Speed-Current-Controlled	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F < 10 uA	
Locked rotor protection	Auto restart	
Locked rotor current at U_N	I_{block} approx. 700 mA	
Clock signal at locked rotor	t_3 / t_4 typical: 0,25 s / 20,0 s	



3.5 Aerodynamics

Measurement conditions:

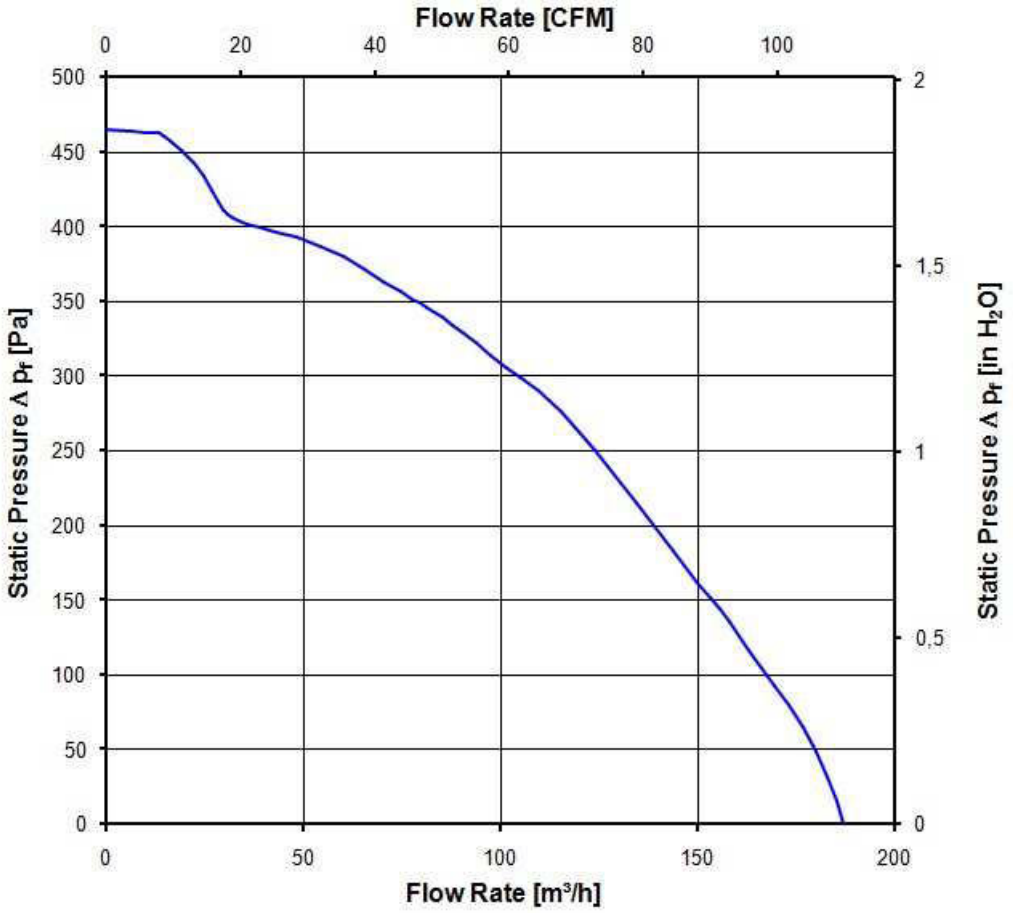
Measured with a double chamber intake rig acc. to DIN EN ISO 5801.
Normal air density = 1,2 kg/m3; Temperature 23℃ +/ - 3℃;
In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.
The information is only valid under the specified test conditions and may 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.

Measurement setup:	Measured between two steel plates
Steel plate:	148 mm x 148 mm
Intake nozzle:	D: 66 mm; R: 7 mm
Distance between bottom and top plate:	
Overlapping impeller / nozzle:	1 mm

a.) Operation condition:

5.900 1/min at free air flow			

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	187,0 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	460 Pa	
at free air flow		
at free air flow		


Flow Rate [CFM]
0
20
40
60
80
100
500
450
400
350
300
250
200
150
100
50
0
Static Pressure Δ pf [Pa]
2
1,5
1
0,5
0
Static Pressure Δ pf [in H2O]
0
50
100
150
200
Flow Rate [m³/h]

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:

5.900 1/min at free air flow			

Optimal operating point	18,0 m3/h @ 400 Pa	
Sound power level at the optimal operating point	7,3 bel(A)	
Sound pressure level at free air flow, measured in rubber bands		
at free air flow		
at free air flow		

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-33 ℃	
Max. permitted ambient temperature TU max.	70 ℃	
Min. permitted storage temperature TL min.	-40 ℃	
Max. permitted storage temperature TL max.	80 ℃	

4.2 Climatic Requirements

Humidity requirements	humid temperature, cyclic; according to DIN EN 60068-2-38, 10 cycle and condensation water check; according to DIN EN ISO 6270-2, 14 days	
Water exposure	Splash water check IPX4; according to DIN EN 60529 VDE 0470, not certified	
Dust requirements	Dust check IP5X; according to DIN EN 60529 VDE 0470, not certified	
Salt fog requirements	None	

Permitted application area:
The product is for the use in partial sheltered rooms or open, roofed areas. Direct exposure to water is allowed provided that this does not prevent the normal operation. Saline ambient conditions must be avoided.

Pollution degree 3 (according DIN EN 60664-1)
It occurs conductive pollution or dry non-conductive pollution which becomes conductive due to condensation.

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℃. 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. 850 VDC / 1 Sec.	
Isolation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25℃ 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

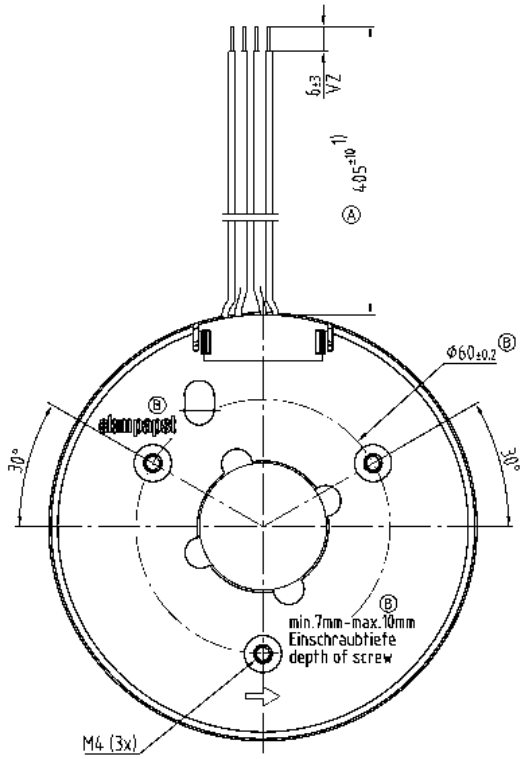
CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans E38324
VDE	Association for Electrical, Electronic and Information Technologies	No
CSA	Canadian Standards Association	Yes / CSA audited by UL according to C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Yes / GB 12350 Safety Requirements for small Power Motors

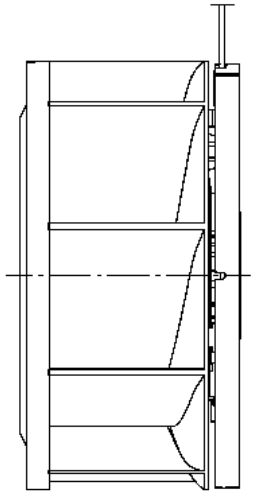
6 Reliability

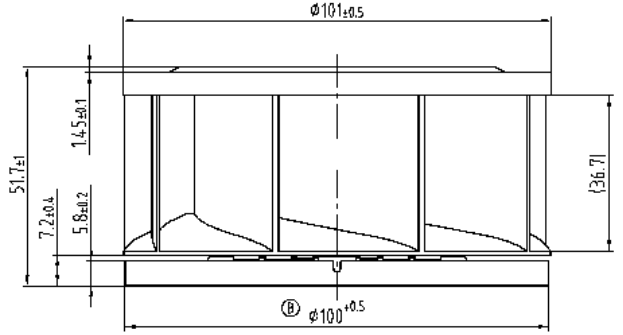
6.1 General

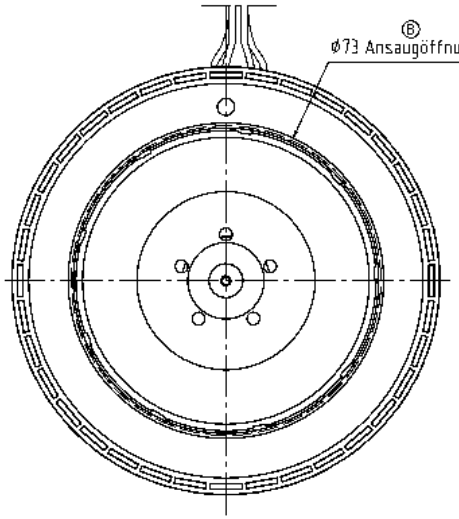
Life expectancy L10 at TU = 40 ℃	60.000 h	
Life expectancy L10 at TU max.	30.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 ℃	102. 500 h	

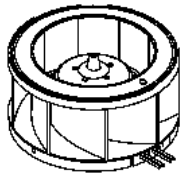
Schutzvermerk nach DIN 34 beachten!
Folien bitte nur an den Kanten anfassen!











Ⓐ 1) Litzen auf Maß kürzen und verzinnen

UV = unverzinnt / not tin plated
VZ = verzinnt / tin plated
AV = angeschnitten u. vorgezogen / truncated and pulled

			ebmpapst	Werkstoff/Material:
SAP-Status/Scale	Änd.-Index/Change-Nr.	Art/CAD-System-Version	CAD Umgebung/ CAD Environment	Volumen/Volume [m³]
		Datum/Date	Name/Name	Gewicht/Mass [g]
Toleranzen/Tolerances:		Bearb./ Drawn		Artikel/Title
Allgemeintoleranzen/Gen. tolerances		Gepr./ Checked		
		Freig./ Released		
ebmpapst		Zeichn.-Nr./Drawing-No.:		Ers. f. Zeichn./Replaces
ebm-papst St. Georgen GmbH & Co. KG		Dokumentenart/Type of Document	Verfahren/Method	Blatt/Sheet
				Format/Size

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