

632/2HPU

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1 General

Fan type	Fan	
Rotational direction looking at rotor	clockwise	
Airflow direction	Air outlet over struts	
Bearing system	Stainless steel bearing	
Mounting position	any	

2 Mechanics

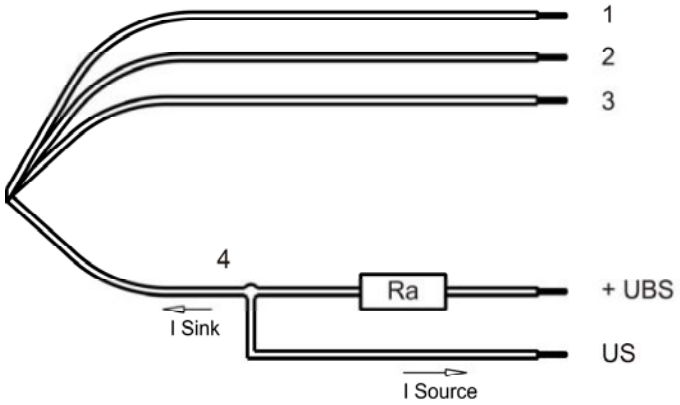
2.1 General

Width	60,0 mm	
Height	60,0 mm	
Depth	25,4 mm	
Weight	0,070 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	wire outlet corner: 30 Ncm remaining corners: 70 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires	
Length of lead wire Tolerance	310 mm +- 10 mm	
Wire gauge (AWG)	24	
Insulation diameter	1,10 mm	





	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

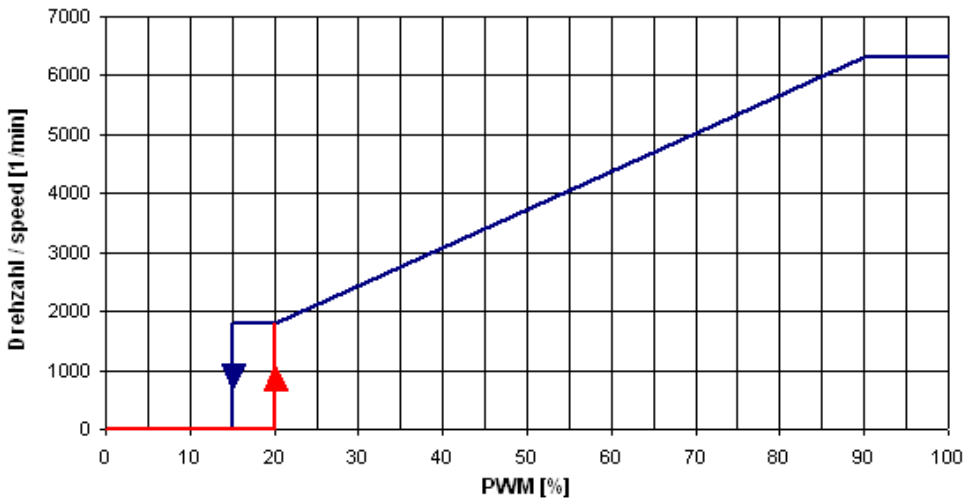
3.1 Operating Data - Electrical Interface - Input

Control input	PWM

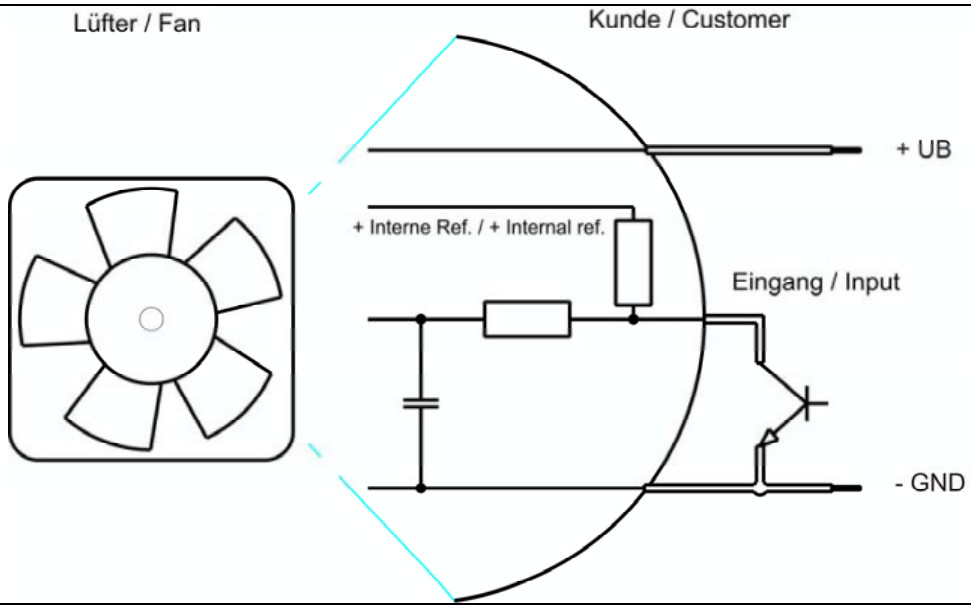
Features

Inpute type	Open collector	
PWM - Frequency		1 kHz - 30 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.

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

Name	Condition		
PWM 0001	PWM: 100 %;		

Features	Condition	Symbol	Values		
Voltage range	$\Delta p = 0$	U	10,8 V		13,2 V
Nominal voltage	$\Delta p = 0$	U_N		12,0 V	
Power consumption Tolerance	$\Delta p = 0$ PWM 0001	P	1,35 W +- 25 %	1,5 W +- 17,5 %	1,5 W +- 17,5 %
Current consumption Tolerance	$\Delta p = 0$ PWM 0001	I	125 mA +- 25 %	125 mA +- 17,5 %	115 mA +- 17,5 %
Speed Tolerance	$\Delta p = 0$ PWM 0001	n	6.200 1/min +- 12,5 %	6.300 1/min +- 5,0 %	6.300 1/min +- 5,0 %
Starting current consumption				<= 520 mA	

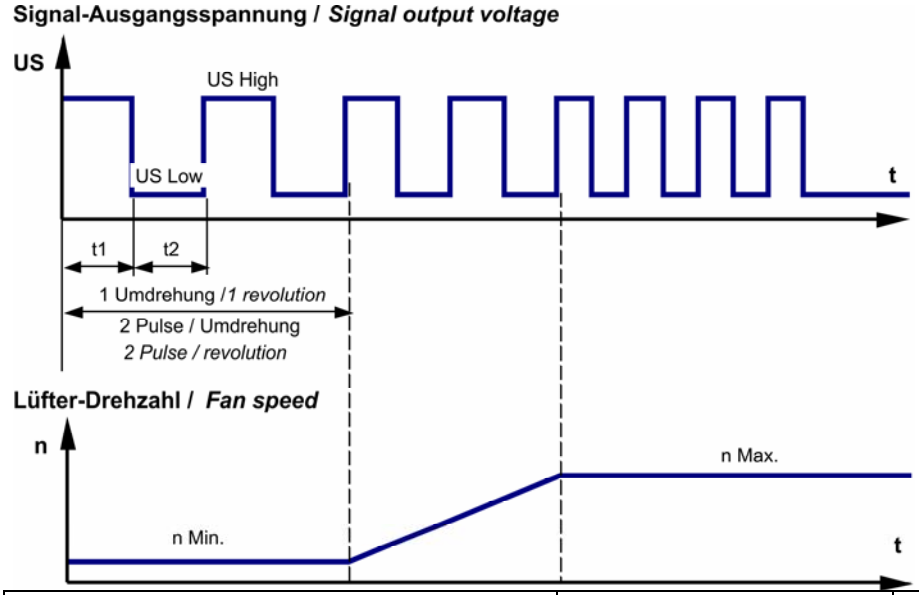
Startup peakpulse current: Ipmax = 1.300mA

Startup peakpulse duration: tp = 2 x 500us

****) *Vario Pro:***	Unless otherwise specified in the table a general fan speed tolerance applies, relating to the maximum value of the required characteristic curve. Tolerance:+- 5,0 %

3.3 Operating Data - Electrical Interface -Output

Tacho type	/2 (Open collector)



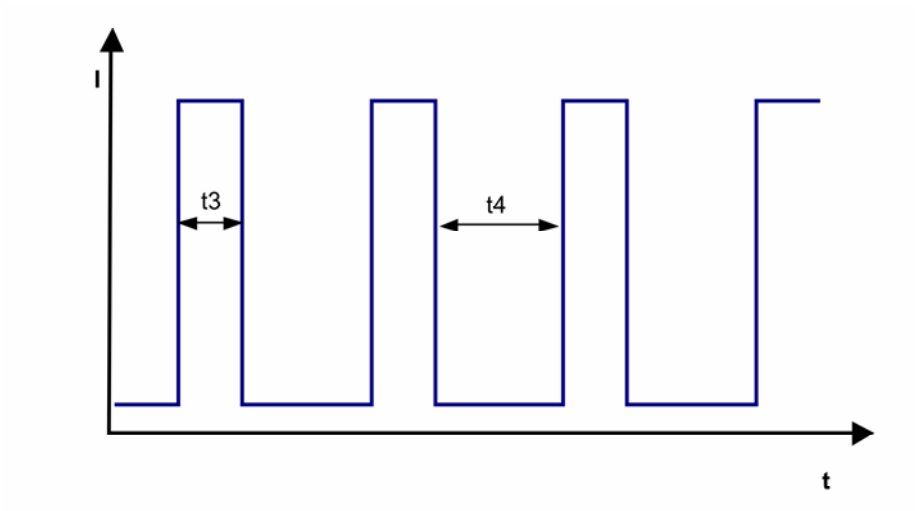
$$Ra = \frac{UBS - US\ Low}{I\ Sink}$$

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		4 mA
External resistor	External resistor Ra from UBS to US required. All voltages measured to GND.	
Tacho frequency	(2 x n) / 60	210 Hz
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 < 1 mA	
Locked rotor protection	Auto restart	
Locked rotor current at Un	approx. 520 mA	
Clock signal t3/t4 at locked rotor	Typical: 0,12 s / 20,7 s	


I
t3
t4
t

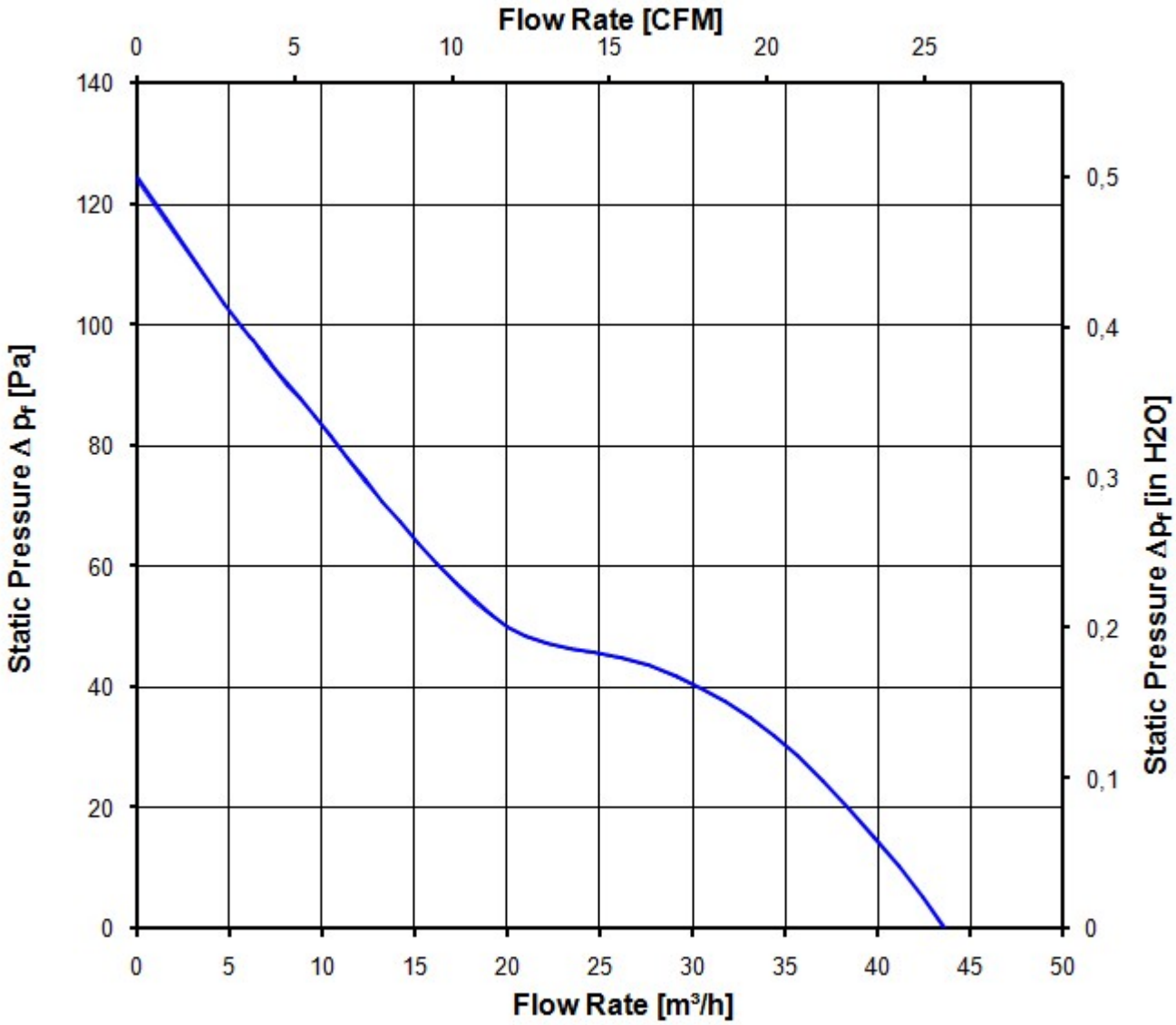
3.5 Aerodynamic

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.

a.) Operation condition:

6.300 1/min at free air flow	PWM 100 %;		

Max. free-air flow (Δp = 0 / V̇ = max.)	44,0 m3/h	
Max. static pressure (Δp = max. / V̇ =0)	125 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:

6.300 1/min at free air flow	PWM 100 %	PWM min.:	PWM max.:

Optimal operating point	41,0 m3/h @ 10 Pa	
Sound power level at the optimal operating point	5,4 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	35,0 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*)

IP-protection type (certified)	IP 68 **)	
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	
Radiation exposure	Solar radiation; according to DIN EN 60068-2-5	
Salt fog requirements	Salt fog, constant, (Bellcore II); according to DIN EN 60068-2-22, 30 days, operation at nominal speed	
Harmful gas requirements	Mixed gas corrosion test; according to DIN EN 60068-2-60	

*) Permittet application area:
The product is for the use in open and unsheltered areas. Direct exposure to water as well as saline ambient conditions are allowed provided that this does not prevent the normal operation.

Pollution degree 4 (according DIN EN 60664-1)
It occurs permanent conductivity caused by conductive dust, rain or moisture.

**) The specification of the IP protection refers to the conditions mentioned in certification of the fan. The above mentioned short description of the protection scope is not final. For detailed information of the respective protection scope and definitions, see certification as well as DIN EN 60529 (protection by housings) and ISO 20653 (for vehicles) with the letter K.

Short description of the IP-protection type:
Solid particle Protection: Dust tight.
Protection against deliberate contact: Protected against contact to hazardous parts with a wire.
Protection against water: Protected against the effects of continuous immersion in water.

5 Safety

5.1 Electrical Safety

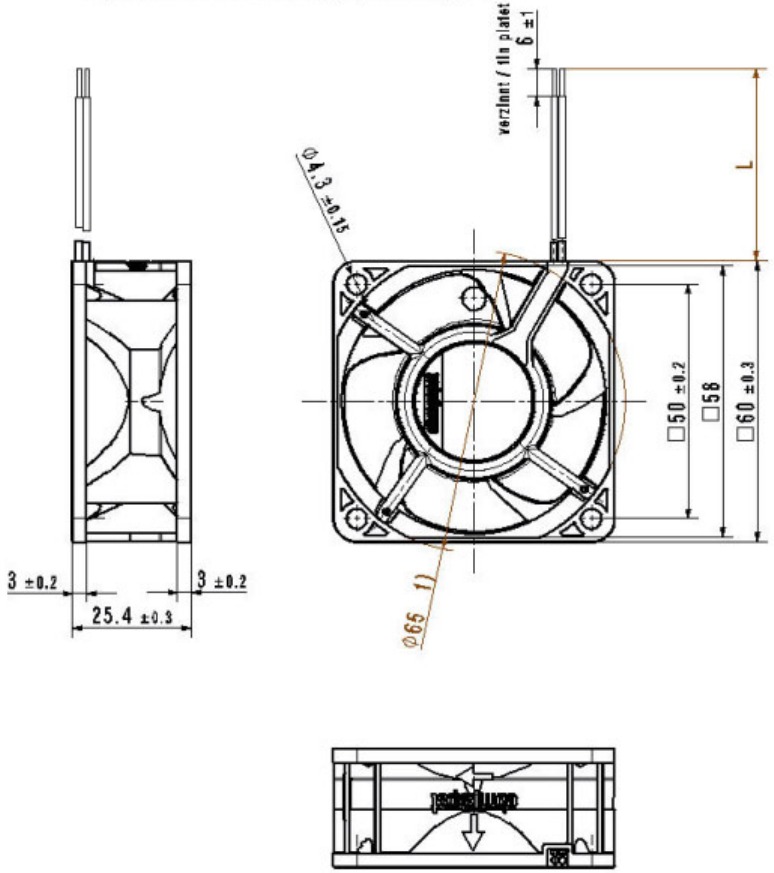
Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25°C. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown 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	
Air and leakage distances	1,0 mm / 1,2 mm	
Protection class	III	

5.2 Approval Tests

CE	Yes
UL	Yes / UL audited by CSA according to UL507, Electric Fans
VDE	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Yes / C22.2 No. 113 Fans and Ventilators
CCC	No

The approval tests are observed to:
U approval max.:13,2 V @ TU approval max.: 70,0 °C

Anzahl und Länge der Litzen siehe BV - Blatt 1
length and number of wires see design specification page 1



1) Maße fuer Montagewand / measures for mounting plate
Axialspiel bei Kugellagerung (K): 0 (mit Federausgleich) /
by ballbearing (K): 0 (by pre-loaded spring)

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Gültigkeit nach EBM 200 3010 beachten !
Refer to protection note ISO 16016 !

BV-Status/State	Änd.-Nr./ Change no.	Datum/Name/Abteilung/ Date/Name/Division	Ers.-Baujahrgang/ Ers.-Serialnumber	Werkstoff / Material:	Volumen / Volume (m³):
					Gewicht / Mass (g):
		3D-Referenzmodell / 3D-Reference-model		Artikel / Title:	
Tolerierung / Tolerances:		Datum	Name		
	Bearb./ Drawn				
Allgemeintoleranzen / Gen. Tolerances:	Gepr./ Checked			Zchg.-Nr./ Drawing no:	Ers.f.Zchg. / Replaces:
	Freig./ Release				
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