



Product Specification 8315100134

AF80-00134 24V P/2 16.500

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8315100134 ebmpapst Datasheet
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Special features according to company standard 1-23.00 have the following definitions:

"A" : Product features or process parameters which influence the safety of a product or the compliance of legal requirements. (Must not necessary verified and documented 100%. Standards and legal requirements must be considered.)

"FK" : Product features or process parameters which influence the fit and function of a product or which have to be controlled or documented for some other reasons (e.g. Customer requirements).

Product features or process parameters which do not have the status of a special characteristic in case of FMEA, but which still require inspection from the point of view of development. For more information take a look at WN 1-23.00.



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1 General

Fan type	Axial-Panel-Fan	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Lubrication	See sectional drawing of the bearing	
Mounting position - shaft Tolerance	Any	
Balancing grade	6,3	FK
Impeller weight	70,0 g	

2 Mechanics

2.1 General

Width	80,0 mm	
Height	80,0 mm	
Depth	38,0 mm	
Diameter	0,0 mm	
Mass	0,220 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 50 Ncm Remaining corners: 110 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Motor

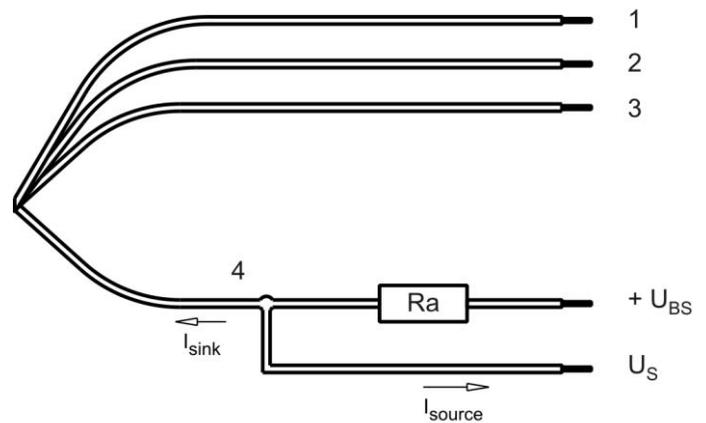
Type of motor	Electronically commutated external rotor	
Diameter of the motor	30,0 mm	
Height of the motor	15,0 mm	
Number of phases	3	
Number of windings	3	
Operating mode	Continuous duty	
Insulation material class	B	



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2.3 Connections

Electrical connection	Wires	
Lead wire length	L = 310 mm	FK
Tolerance	+/- 10,0 mm	
Tube length	See drawing	
Tolerance		
Plug	See drawing	
Contact	See drawing	



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

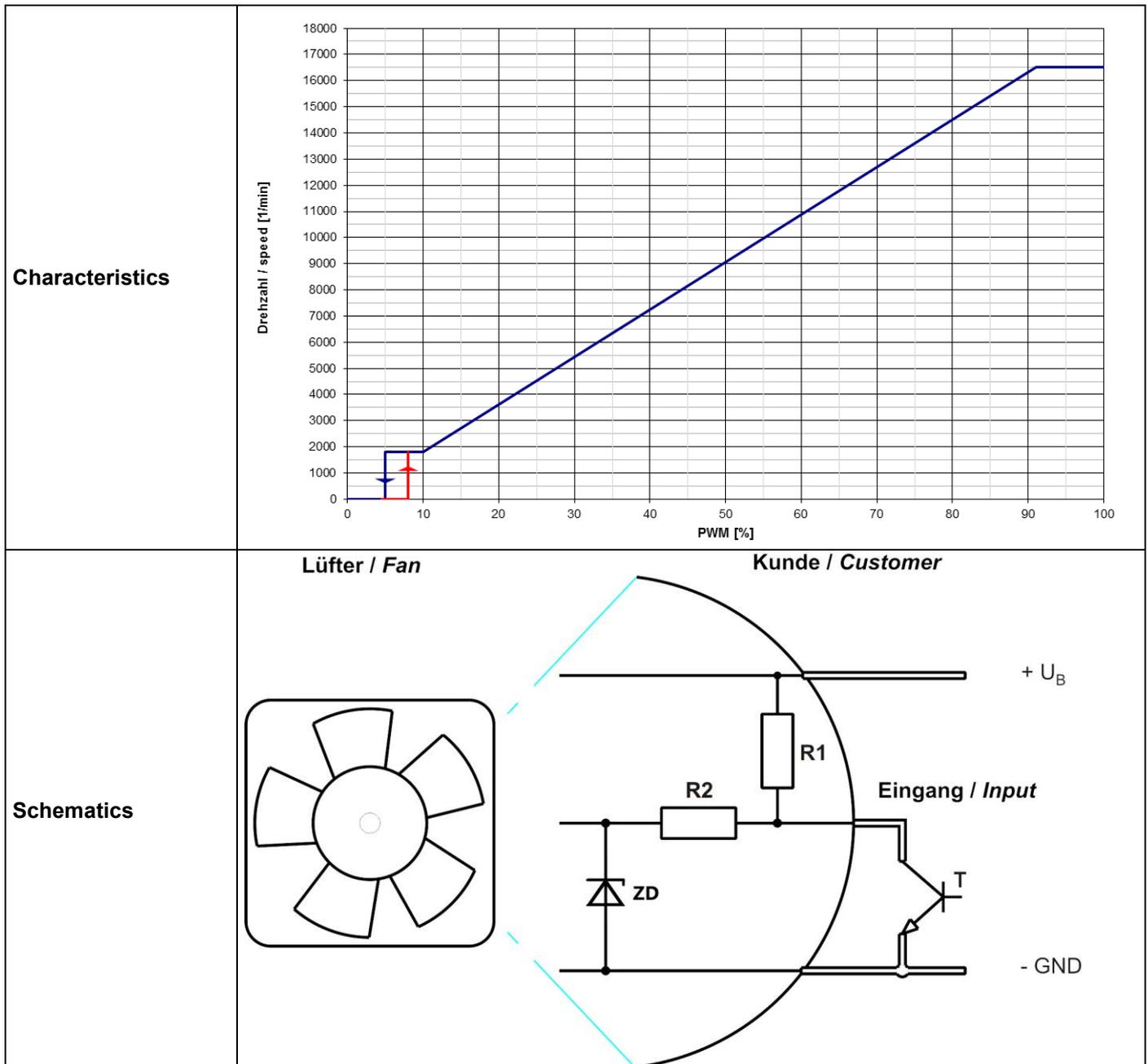
The auxiliaries shown on the schematic diagram (which are required for the intended use) are not part of our delivery.



3 Operating Data

3.1 Electrical Interface - Input

Control input	PWM	
Input type	Open collector	
PWM - Frequency		1,5 kHz - 25 kHz typical: 2 kHz



The shown pull-up resistor R1 to the internal reference voltage (Supply voltage +UB) has 10kOhm.



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Transistor requirements:

VCE max. $\geq 32V$; Isink max $> 5mA$; VCEsat $< 0,2V$

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

Name	Condition
PWM 0001	PWM: 100 %; f: 2 kHz

Features	Condition	Symbol	Values		
Voltage range		U	16 V		32 V
Nominal voltage		U _N		24 V	
Power consumption	$\Delta p = 0$	P	24 W	46,5 W	46,7 W
Tolerance	PWM 0001		+/- 17,5 %	+/- 17,5 %	+/- 17,5 %
Current consumption	$\Delta p = 0$	I	1.500 mA	1.930 mA*)	1.460 mA
Tolerance	PWM 0001		+/- 17,5 %	+/- 17,5 %	+/- 17,5 %
Speed	$\Delta p = 0$	n	13.300 1/min	16.500 1/min*)	16.500 1/min
Tolerance	PWM 0001		+/- 12,5 %	+/- 5 %	+/- 5 %
Starting current consumption				4.500 mA	
Inrush current				18.000 mA	

Name	Condition
PWM 0002	PWM: 8 %; f: 2 kHz

Features	Condition	Symbol	Values		
Voltage range		U	16 V		32 V
Nominal voltage		U _N		24 V	
Power consumption	$\Delta p = 0$	P	0,51 W	0,7 W	0,9 W
Tolerance	PWM 0002		+/- 25,0 %	+/- 25,0 %	+/- 25,0 %
Current consumption	$\Delta p = 0$	I	32 mA	29 mA	28 mA
Tolerance	PWM 0002		+/- 25,0 %	+/- 25,0 %	+/- 25,0 %
Speed	$\Delta p = 0$	n	1.800 1/min	1.800 1/min	1.800 1/min
Tolerance	PWM 0002		+/- 7,5 %	+/- 7,5 %	+/- 7,5 %



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Name	Condition
PWM 0004	PWM: 0 %; f: 2 kHz

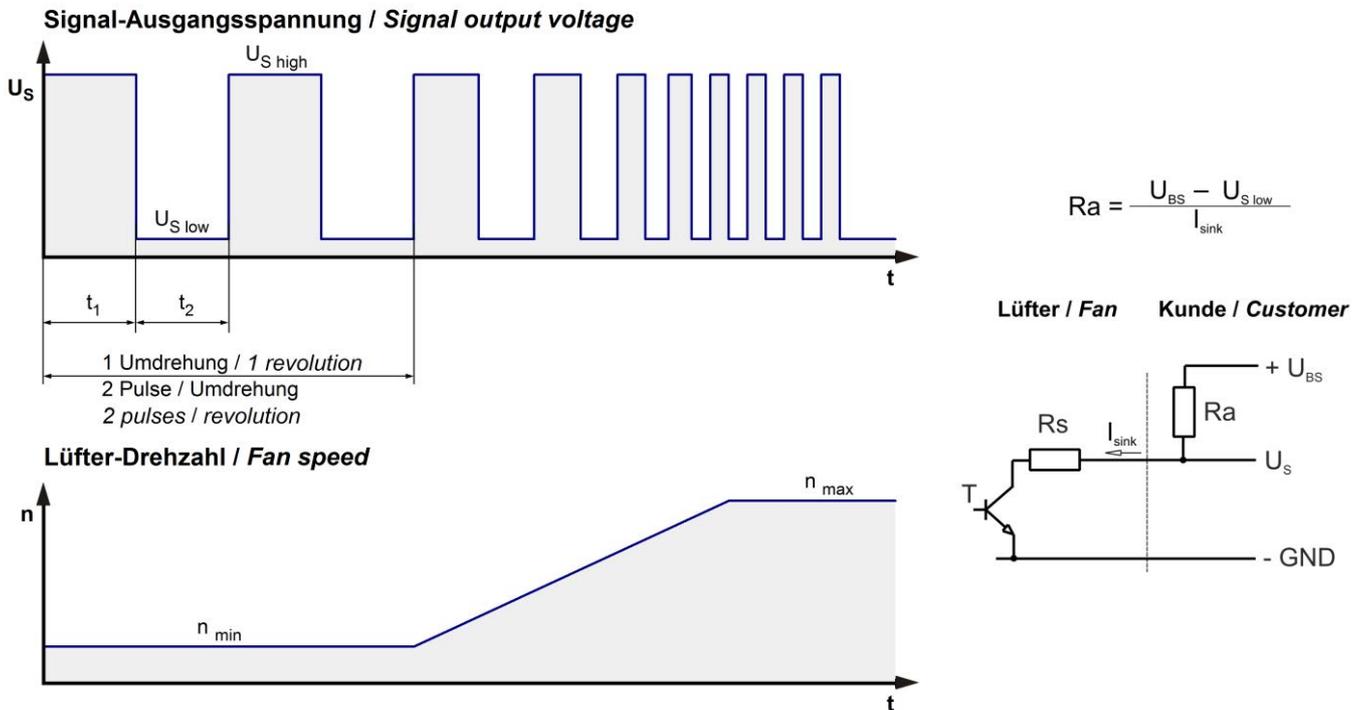
Features	Condition	Symbol	Values		
Voltage range		U	16 V		32 V
Nominal voltage		U _N		24 V	
Power consumption	$\Delta p = 0$	P	0,17 W +- 25,0 %	0,28 W +- 25,0 %	0,45 W +- 25,0 %
Tolerance	PWM 0004				
Current consumption	$\Delta p = 0$	I	11 mA +- 25,0 %	12 mA +- 25,0 %	14 mA +- 25,0 %
Tolerance	PWM 0003				
Speed	$\Delta p = 0$	n	0 1/min	0 1/min	0 1/min
Tolerance	PWM 0003				

*) Attention: Marked values are "FK" features



3.3 Electrical Interface - Output

Tacho type	/2 (open collector)
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Features	Note	Values
Tacho operating voltage	U _{BS}	<= 32 V
Tacho signal Low *)	U _{S low}	<= 0,4 V + I _{sink} x R _s
Resistor	R _s	180 Ohm
Tacho signal High *)	U _{S high}	<= 32 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	550 Hz @ 16.500 1/min
Tacho isolated from motor	No	
Slew rate		>= 0,5 V/us

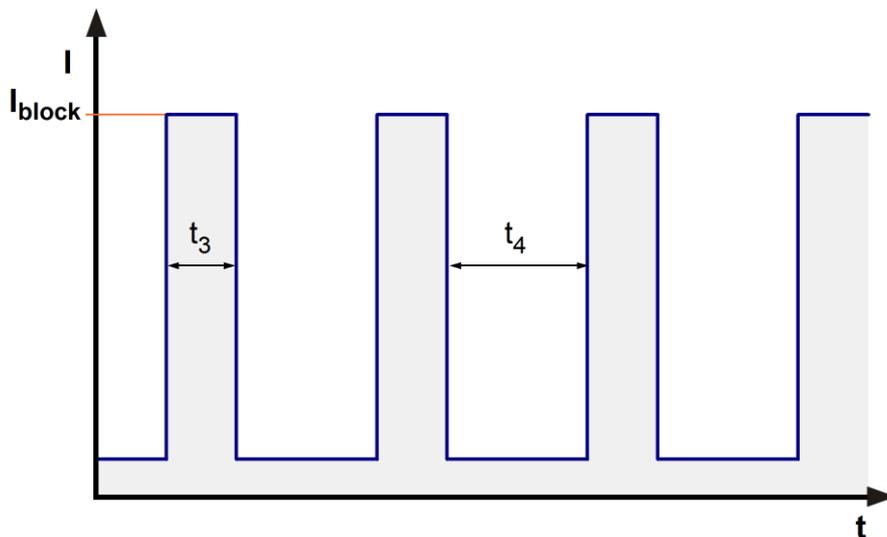
n = revolutions per minute (1/min)

*) Attention: Marked values are "FK" features



3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at U_N	P-CH FET $I_F \leq 1 \text{ mA}$	A
Locked rotor protection	Auto restart	A
Locked rotor current at U_N	I_{block} approx. 150 mA	
Clock signal at locked rotor	t_3/t_4 typical: 2,7 s / 10,0 s	
Internal fuse	None	





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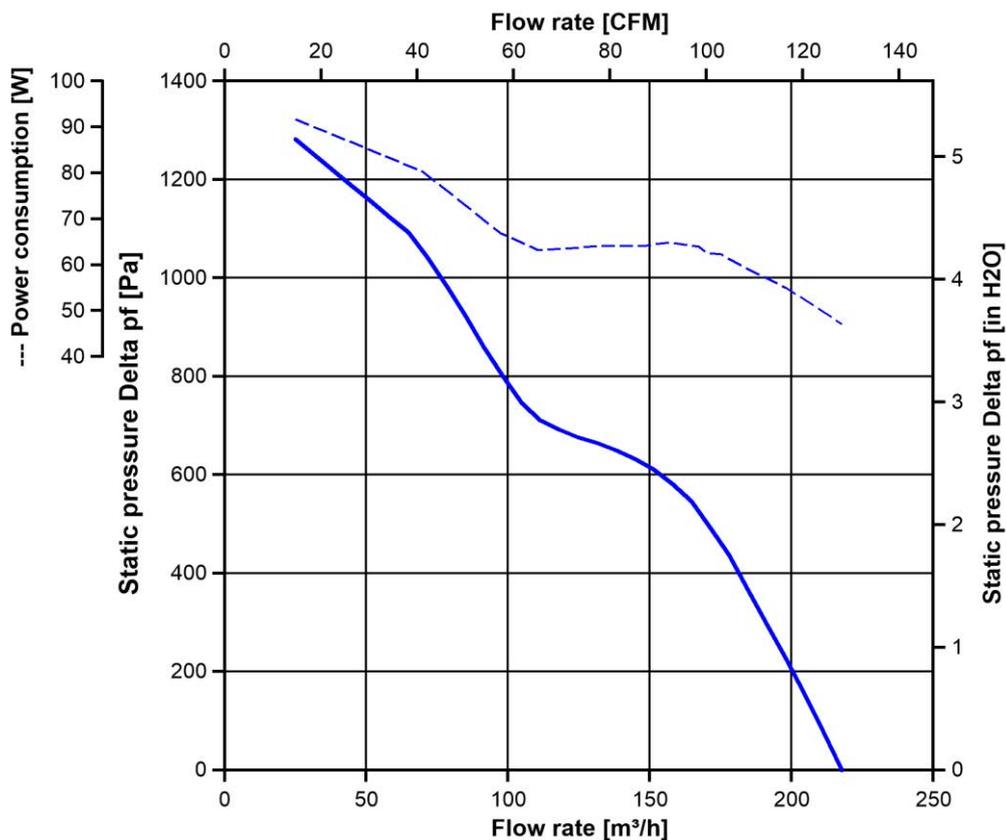
3.5 Aerodynamics

Measurement conditions: Measured with a double chamber intake rig acc. to DIN EN ISO 5801.
 Normal air density = 1,2 kg/m³; Temperature 23°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.

a.) Operation condition:

16.500 1/min at free air flow	PWM 100 %; f: 2 kHz		
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Max. free-air flow ($\Delta p = 0 / \dot{V} = \text{max.}$)	217 m ³ /h	<input type="text"/>
Max. static pressure ($\Delta p = \text{max.} / \dot{V} = 0$)	1.300 Pa	<input type="text"/>





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3.6 Sound Data

Measurement conditions: Sound pressure level: 1 meter distance between microphone and the air intake.
 Sound power level: According to ISO 13347-3.
 Measured in a semianechoic chamber with a background noise level of $L_p(A) < 5 \text{ dB(A)}$
 For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

16.500 1/min at free air flow	PWM 100 %; f: 2 kHz		
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Optimal operating point	170 m ³ /h @ 508 Pa	
Sound power level at the optimal operating point	8,4 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	76 dB(A)	

Parts made with parts with pre-series tool.

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	
Radiation exposure	None	
Dust requirements	None	
Salt fog requirements	None	
Harmful gas 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.

4.3 Mechanical Requirements

Please require severity levels and specification parameters from the responsible development departments.



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4.4 EMC

Kind	Conducted Emission; Voltage; 150 kHz-30 MHz (without PE)
Accordinging	DIN EN 55032:2016-02
Check accuracy / Limit	Class B
Result	Below limit Class A

Kind	Radiated Emission; 30 MHz - 1000 MHz
Accordinging	DIN EN 55032:2016-02
Check accuracy / Limit	Class B
Result	Below limit Class B

Kind	Electrostatic Discharge Immunity Test
Accordinging	DIN EN 61000-4-2:2001-12
Check accuracy / Limit	Contact Discharge +/- 4 kV; Air Discharge +/- 8 kV
Result	D: The device/function shall not sustain any permanent damage as result of exposure to a disturbance. Technican action may be required to return the function to normal operating condition after the disturbance is removed.

Kind	Electromagnetic Field Immunity Test
Accordinging	DIN EN 61000-4-3:2006-12
Check accuracy / Limit	10 V/m; 80 - 1000 MHz; AM; m = 0,8; f = 1 kHz; 1%; t = 3 s
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

Kind	Electrical Fast Transient / Burst Immunity Test
Accordinging	DIN EN 61000-4-4:2005-07
Check accuracy / Limit	+/- 2 kV on Power Lines; Coupling: POS, NEG, {PE}, ALL, 5 kHz and 100 kHz; 1 min
Result	C: The monitored function may deviate from designed performance during exposure to a disturbance. User action may be required to return the monitored function to normal operation condition after the disturbance is removed (reset).

Kind	Immunity to Conducted Disturbances, Induced by RF-Fields
Accordinging	DIN EN 61000-4-6:2001-12
Check accuracy / Limit	10 Vrms; 150 kHz - 80 MHz; AM; m = 0,8; f = 1 kHz; 1%; t = 3 s
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

The information to the EMC corresponding only to a summary of a comprehensive test report.



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5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 62368 and DIN EN 60335 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. 850 VDC / 1 Sec.	A
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
UKCA	UK Conformity Assessed	Not applicable
EAC	Eurasian Conformity	Yes
America	UL - Underwriters Laboratories	Yes / UL507, Electric Fans E38324
Europe	VDE - Association for Electrical or UL - Underwriters Laboratories or comparable	Yes / Approval acc. to EN 62368 - Audio/video, information and communication technology equipment
Canada	UL - Underwriters Laboratories or CSA - Canadian Standards Association	Yes / CSA audited by UL according to C22.2 No. 113 Fans and Ventilators
China	CCC - China Compulsory Certification or CQC - China Quality Certification	Not applicable

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	50.000 h	
Life expectancy L10 at TU max.	20.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	85.000 h	



6.2 Additional Data

not specified

7 Information:

contact persons:

A/B-Projects:

project leader: Brucker, Tobias

mechanics:

electronics: Rapp, Thomas (D. Haas Sen.)

C-Projects:

applicator: -

Fan key data

Reference fan: -

Integrated test software: NO EDM Dok: -

Locked rotor test needed: NO

Quality of data:

- | | | |
|---------------------------------|---|----------|
| 1. First values RnD: | - | |
| 2. 10's Protokoll values: | - | EDM Dok: |
| 3. Final PPAP Values (EHSxxxx): | - | EDM Dok: |
| 4. Adjusted series values: | - | EDM Dok: |

Änderungen/Changes:

17.07.25 014 Nocita: Spec korrigiert, Lüfter ist unverändert.

Toleranzen sind noch recht grob. Spec wurde ohne Lüfter angepasst, kann noch Fehler haben.