"A"
DOKUMENT MIT BESONDERER ARCHIVIERUNG

Product Specification 8300101153

AxiFlow60

Customer specification: No
Version: 1.2
Created: 22.01.2026

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INDEX

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	15,4 g	

Note: To comply with the specified voltage range, an additional external circuit may be necessary from a cable length of 1m.

2 Mechanics

2.1 General

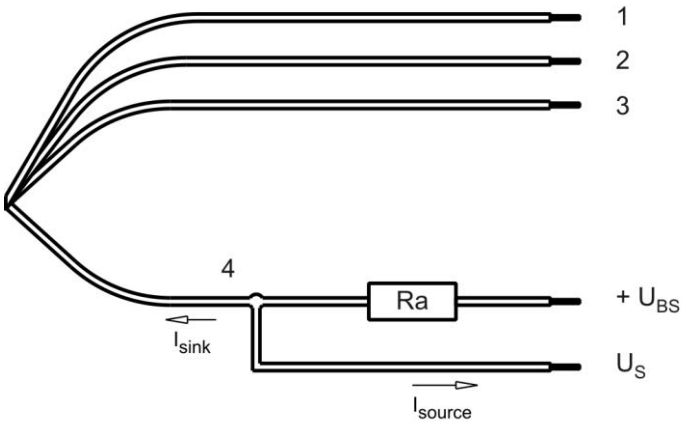
Width	60 mm	
Height	60 mm	
Depth	25 mm	
Diameter	0,0 mm	
Mass	59,2 g	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	Wire outlet corner: 30 Ncm Remaining corners: 30 Ncm ISO 4762 - M3 degreased, without an additional brace and without washer	

2.2 Motor

Type of motor	Electronically commutated external rotor	
Diameter of the motor	19,5 mm	
Height of the motor	5 mm	
Number of phases	1	
Number of windings	1	
Operating mode	Continuous duty	
Insulation material class	B	

2.3 Connections

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



Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 26	1,0 mm
2	blue	- GND	AWG 26	1,0 mm
3	violet	PWM	AWG 26	1,0 mm
4	white	Tacho	AWG 26	1,0 mm

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

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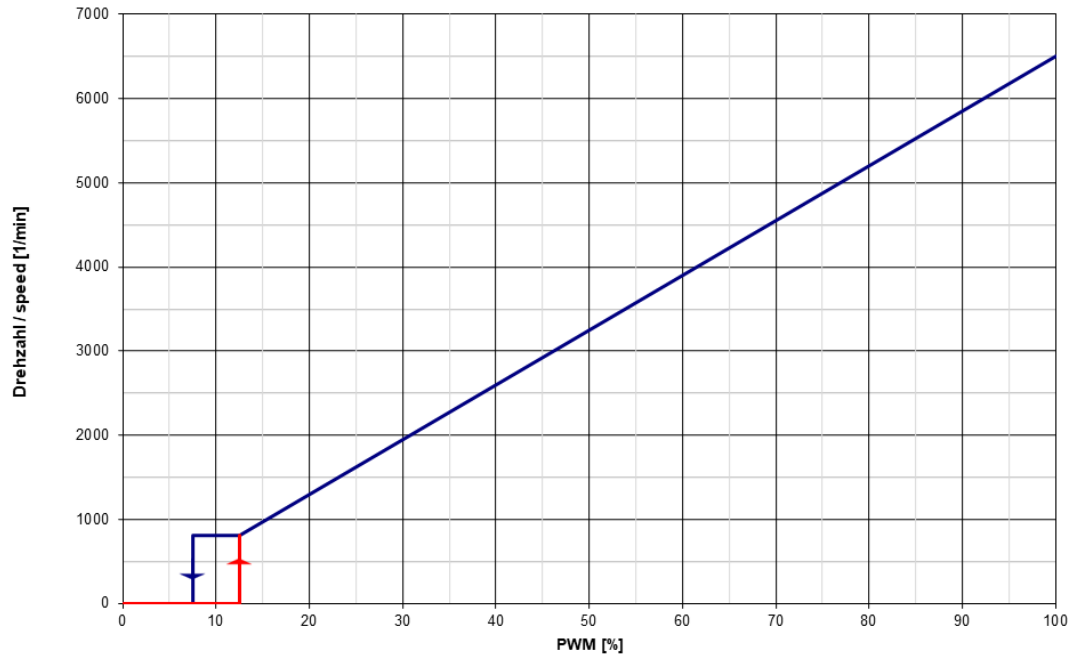
3 Operating Data

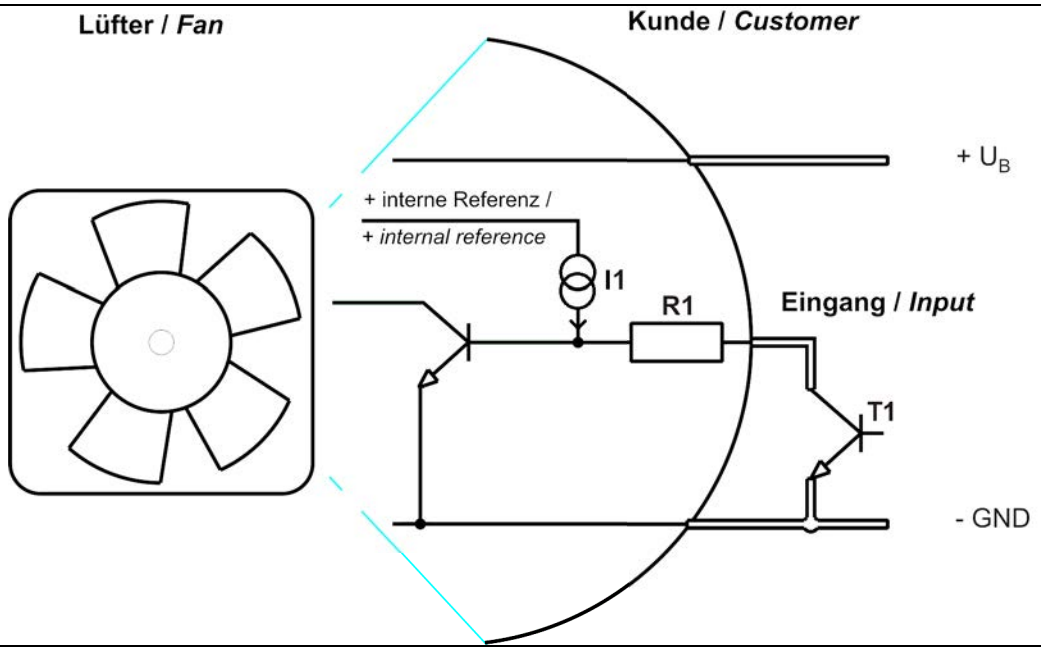
3.1 Electrical Interface - Input

Control input	PWM	
Inpute type	Open collector	
PWM - Frequency		1 kHz - 30 kHz typical: 2 kHz

Characteristics



Schematics



Speed control: 0... 100 %, PWM-Low < 0,2V

The current source I1 connected to the internal reference (+3,3V) has a current of 50µA during standby and up to 300µA when the fan

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 15 minutes.
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

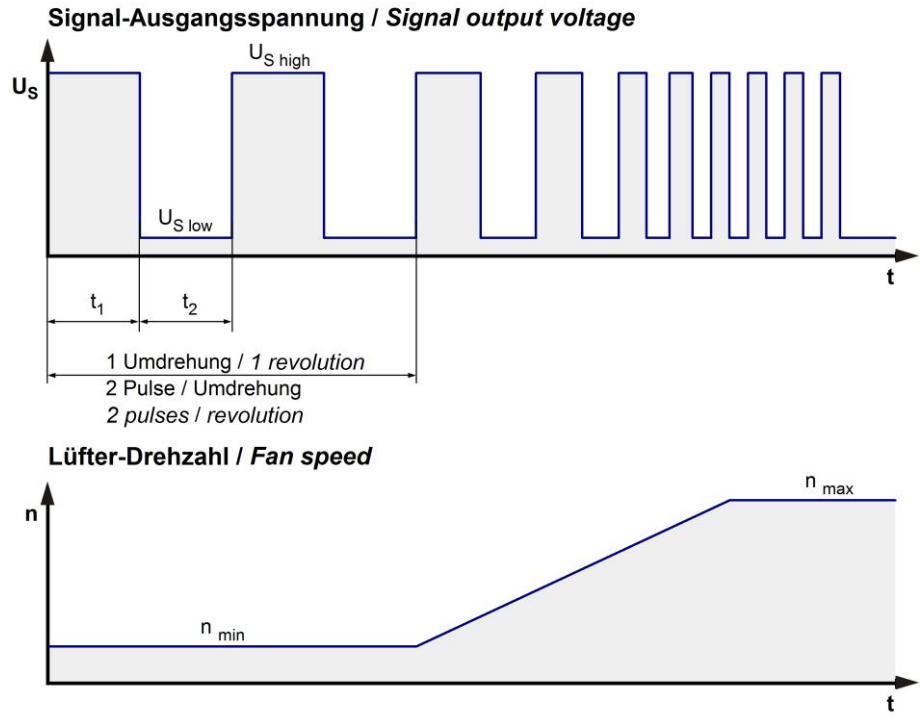
Name	Condition		
PWM 0001	PWM: 100 %; f: 2 kHz		

Features	Condition	Symbol	Values		
Voltage range		U	6 V		13,8 V
Nominal voltage		U_N		12 V	
Power consumption Tolerance	Δp = 0 PWM 0001	P	2,1 W +- 20 %	2,1 W +- 20 %	2,1 W +- 20 %
Current consumption Tolerance	Δp = 0 PWM 0001	I	350 mA +- 20 %	180 mA*) +- 20 %	150 mA +- 20 %
Speed Tolerance	Δp = 0 PWM 0001	n	6.500 1/min +- 5,0 %	6.500 1/min*) +- 5,0 %	6.500 1/min +- 5,0 %
Starting current consumption				<= 2.300 mA	

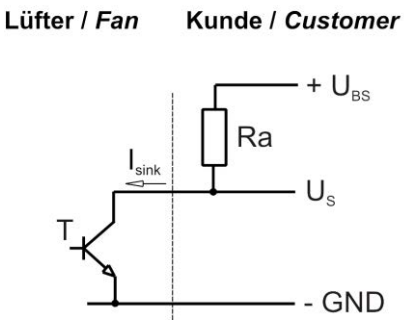
*) Attention: Marked values are "FK" features

3.3 Electrical Interface - Output

Tacho type	/2 (open collector)



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



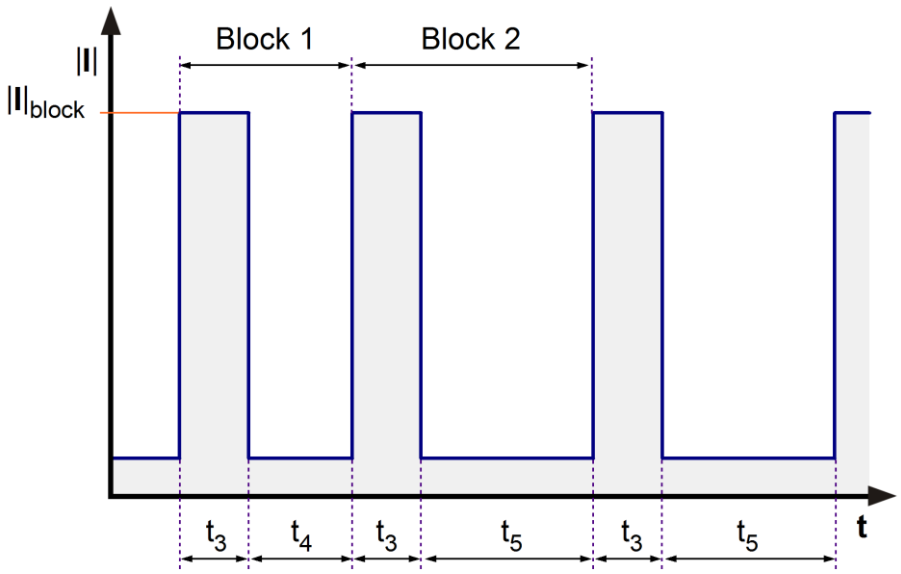
Features		Note	Values
Tacho operating voltage	U_{BS}		<= 30 V
Tacho signal Low *)	$U_{S\,low}$	I sink: 2 mA	<= 0,4 V
Tacho signal High *)	$U_{S\,high}$	I source: 0 mA	<= 30 V
Maximum sink current	I_{sink}		4 mA
External resistor		External resistor Ra from UBS to US required. All voltages measured to GND.	
Tacho frequency *)		(2 x n) / 60	
Tacho isolated from motor		No	
Slew rate			>= 0,5 V/us

n = revolutions per minute (1/min)

*) Attention: Marked values are "FK" features

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at U_N	Rectifying diode I_F <= 1 mA	**A**
Locked rotor protection	Auto restart	**A**
Locked rotor current at U_N	I_{block} approx. 2.300 mA	
Clock signal at locked rotor Extended Downtime	t_3/t_4 typical: 0,33 s / 0,33 s t_5: 9,4 s after 3 start-up tests	
Internal fuse	None	



Block1: (The first 2 cycles) t3/t4 = 0,33s/0,33s;
Block2: locked rotor protection t3/t5 = 0,33s/9,4s

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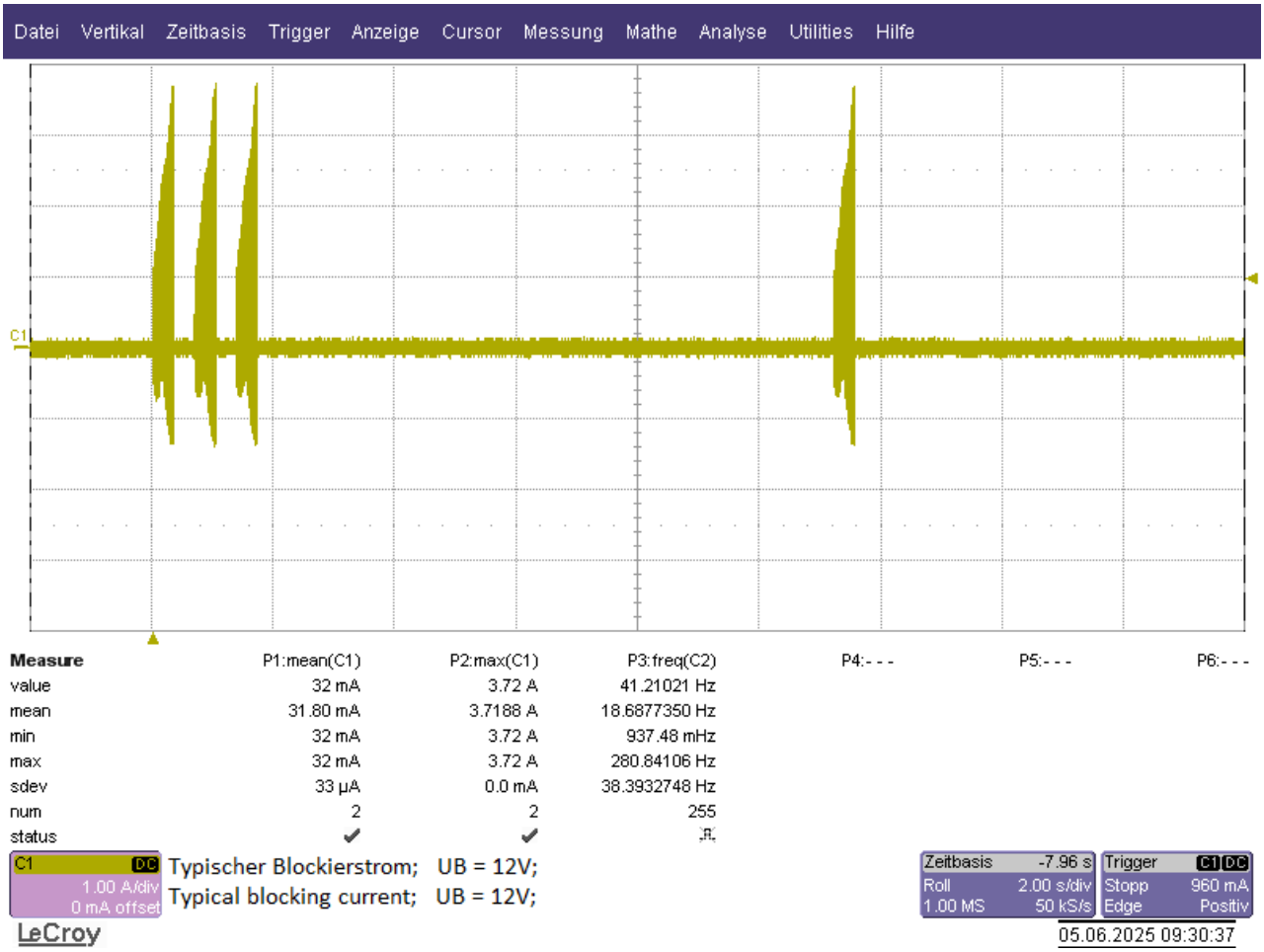

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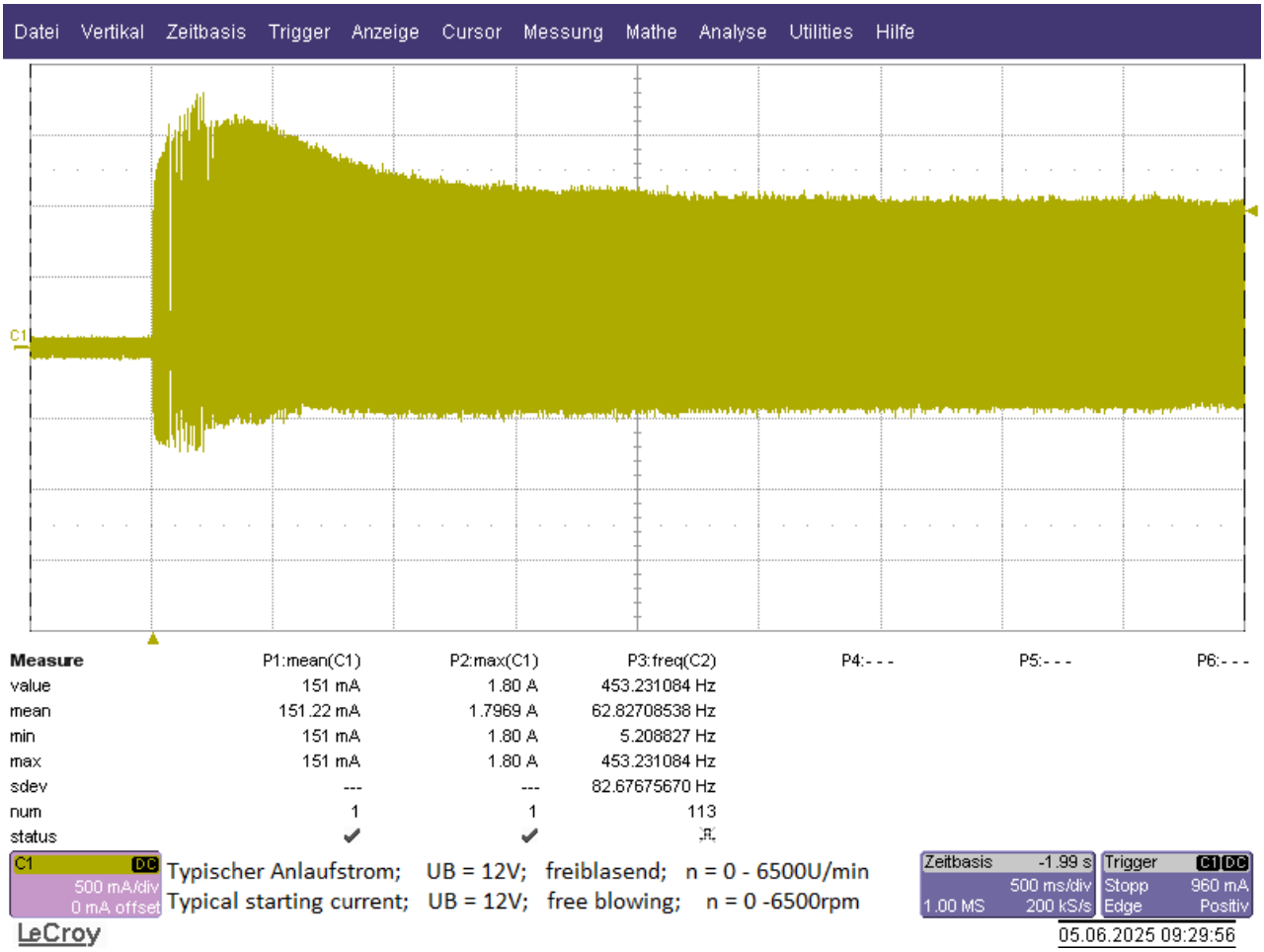

Measure	P1:mean(C1)	P2:max(C1)	P3:freq(C2)	P4:- - -	P5:- - -	P6:- - -
value	151 mA	1.80 A	453.231084 Hz			
mean	151.22 mA	1.7969 A	62.82708538 Hz			
min	151 mA	1.80 A	5.208827 Hz			
max	151 mA	1.80 A	453.231084 Hz			
sdev	---	---	82.67675670 Hz			
num	1	1	113			
status	✔	✔				

C1 DC
500 mA/div
0 mA offset

Typischer Anlaufstrom; UB = 12V; freiblasend; n = 0 - 6500U/min
Typical starting current; UB = 12V; free blowing; n = 0 -6500rpm

Zeitbasis -1.99 s
500 ms/div
1.00 MS 200 kS/s

Trigger C1 DC
Stopp 960 mA
Edge Positiv

LeCroy

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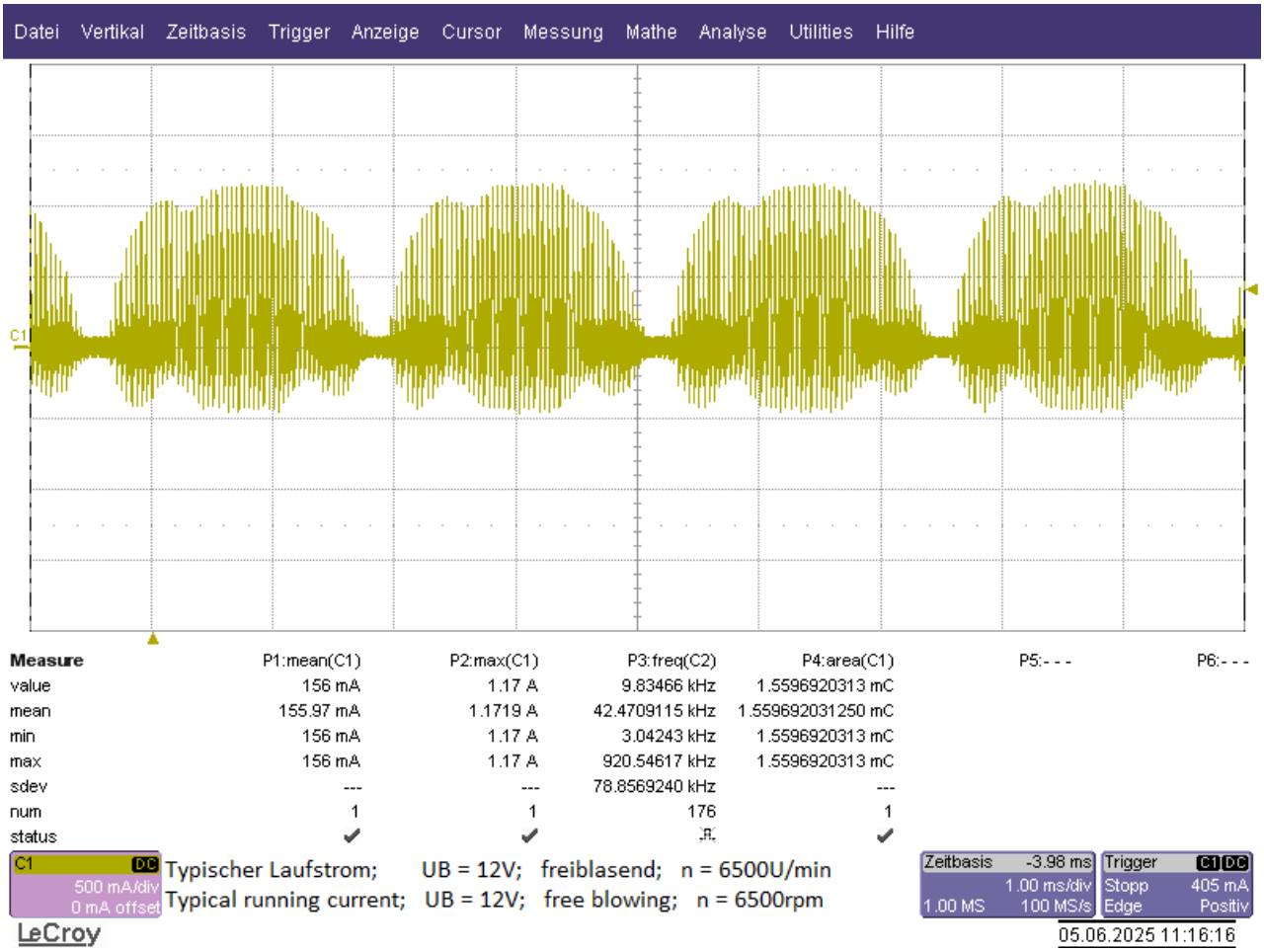

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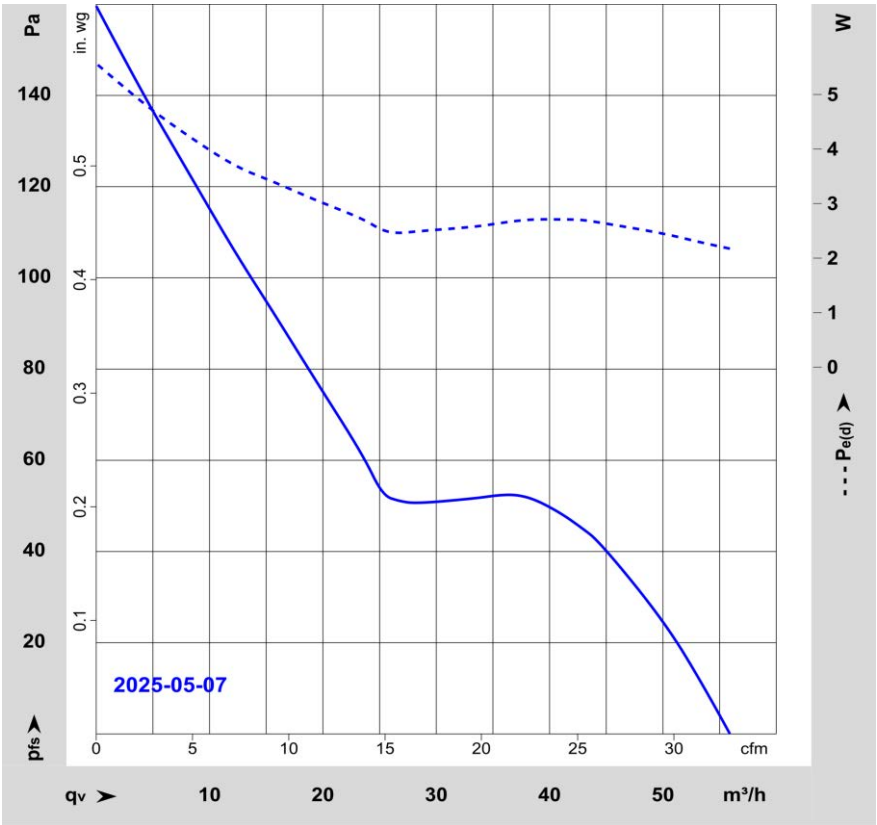
3.5 Aerodynamics

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. 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:

6.500 1/min at free air flow	PWM 100 %; f: 2 kHz		

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	56 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	160 Pa	



3.6 Sound Data

Measurement conditions:	Sound pressure level: 1 meter distance between microphone and the air intake. Sound power level: According to ISO 10302-1 Measured in a semianechoic chamber with a background noise level of Lp(A) < 5 dB(A) For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

6.500 1/min at free air flow	PWM 100 %; f: 2 kHz		

Optimal operating point	39 m3/h @ 50 Pa	
Sound power level at the optimal operating point	5,2 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	43 dB(A)	

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-40 °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 (for fan only, not for connector if applicable) **)	

**) 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: The fan test according to IP68 (Based on IEC 60529), is conducted in non-operating mode. The fan is tested by a complete immersion in water for a period of 2h at a water-level of 1,2m. Electrical connections are not immersed since they are customer specific.

4.3 Mechanical Requirements

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

4.4 EMC

Kind	**Radiated Emission; 30 MHz - 1000 MHz (without PE)**
According	DIN EN 55032:2016-02
Ceck accuracy / Limit	Class B
Result	Below limit Class B

Kind	**Electrostatic Discharge Immunity Test**
According	DIN EN 61000-4-2:2001-12
Ceck accuracy / Limit	Contact Discharge +/- 4 kV; Air Discharge +/- 8 kV
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

Kind	**Electromagnetic Field Immunity Test**
According	DIN EN 61000-4-3:2006-12
Ceck 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**
According	DIN EN 61000-4-4:2005-07
Ceck accuracy / Limit	+/- 2 kV on Power Lines; Coupling: POS, NEG, {PE}, ALL, 5 kHz and 100 kHz; 1 min
Result	A: The monitored function operates as designed during and after exposure to a disturbance.

Kind	**Immunity to Conducted Disturbances, Induced by RF-Fields**
According	DIN EN 61000-4-6:2001-12
Ceck 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	Yes
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	70.000 h	
Life expectancy L10 at TU max.	35.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	120.000 h	

6.2 Additional Data

not specified

7 Information

contact person

A/B-Projects:
project leader: Serowy, Boris
mechanics: Houver, Philipp
electronics: Mueller, Hannes

C-Projects:
applicator: -

Fan key data
Reference fan: 8300101153

Integrated test software: NO EDM Dok:
Locked rotor test needed: NO

Quality of data:
1. First values RnD: -
2. 10´s Protokoll values: YES/ NO EDM Dok:
3. Final PPAP Values (EHSxxxx): YES/ NO EDM Dok:
4. Adjusted series values: YES/ NO EDM Dok:

Änderungen/Changes:

07.08.2025: die Lüfter werden mit allen Zulassungszeichen angelegt. Es ist allerdings noch nicht sicher welche Zulassungen der Lüfter tatsächlich erhält.

15.01.2026 Tacho hinzugefügt 014/Mueller