

# EC axial fan - HyBlade

sickle-shaped blades (S series)

with guard grille for full nozzle

S3G910-CZ01-06 ebmpapst Datasheet

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General partner Elektrobau Muldingen GmbH · Headquarters Muldingen

Amtsgericht (court of registration) Stuttgart · HRB 590142

## Nominal data

<b>Type</b>	<b>S3G910-CZ01-06</b>	
<b>Motor</b>	<b>M3G150-NA</b>	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min <sup>-1</sup>	1195
Power consumption	W	3040
Current draw	A	4.9
Max. back pressure	Pa	180
Max. back pressure	in. wg	0.72
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	60

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment  
Subject to change

## Data according to Commission Regulation (EU) 327/2011 (prEN 17166)

		Actual	Req. 2015			
01 Overall efficiency $\eta_{es}$	%	48.2	37	09 Power consumption $P_{ed}$	kW	3.32
02 Measurement category		A		09 Air flow $q_v$	m <sup>3</sup> /h	23725
03 Efficiency category		Static		09 Pressure increase $p_{fs}$	Pa	231
04 Efficiency grade N		51.2	40	10 Speed (rpm) n	min <sup>-1</sup>	1165
05 Variable speed drive		Yes		11 Specific ratio*		1.00

Data obtained at optimum efficiency level.

\* Specific ratio =  $1 + p_s / 100\,000\text{ Pa}$

LU-164595

The efficiency values displayed for achieving conformity with the Ecodesign Regulation EU 327/2011 has been reached with defined air duct components (e.g. inlet rings).  
The dimensions must be requested from ebm-papst. If other air conduction geometries are used on the installation side, the ebm-papst evaluation loses its validity/the conformity must be confirmed again.  
The product does not fall within the scope of Regulation (EU) 2019/1781 due to the exception specified in Article 2 (2a) (motors completely integrated into a product).



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## Technical description

<b>Weight</b>	40.5 kg
<b>Size</b>	910 mm
<b>Motor size</b>	150
<b>Rotor surface</b>	Painted black
<b>Electronics housing material</b>	Die-cast aluminum, painted black
<b>Blade material</b>	Sheet aluminum insert, sprayed with PP plastic
<b>Guard grille material</b>	Steel, coated with black plastic (RAL 9005)
<b>Number of blades</b>	5
<b>Blade pitch</b>	-5°
<b>Airflow direction</b>	V
<b>Direction of rotation</b>	Clockwise, viewed toward rotor
<b>Degree of protection</b>	IP55
<b>Insulation class</b>	"F"
<b>Moisture (F) / Environmental (H) protection class</b>	H2
<b>Max. permitted ambient temp. for motor (transport/storage)</b>	+80 °C
<b>Min. permitted ambient temp. for motor (transport/storage)</b>	-40 °C
<b>Installation position</b>	Shaft horizontal or rotor on bottom; rotor on top on request
<b>Condensation drainage holes</b>	On rotor side
<b>Mode</b>	S1
<b>Motor bearing</b>	Ball bearing
<b>Technical features</b>	<ul style="list-style-type: none"> <li>- Output 10 VDC, max. 10 mA</li> <li>- Output 20 VDC, max. 50 mA</li> <li>- Output for slave 0-10 V</li> <li>- Input for sensor 0-10 V or 4-20 mA</li> <li>- External 24 V input (parameter setting)</li> <li>- External release input</li> <li>- Alarm relay</li> <li>- Integrated PID controller</li> <li>- Power limiter</li> <li>- Motor current limitation</li> <li>- PFC, passive</li> <li>- RS-485 MODBUS-RTU</li> <li>- Soft start</li> <li>- EEPROM write cycles: 100,000 maximum</li> <li>- Control input 0-10 VDC / PWM</li> <li>- Control interface with SELV potential safely disconnected from the mains</li> <li>- Thermal overload protection for electronics/motor</li> <li>- Line undervoltage / phase failure detection</li> </ul>
<b>EMC immunity to interference</b>	According to EN 61000-6-2 (industrial environment)
<b>EMC interference emission</b>	According to EN 61000-6-3 (household environment)
<b>Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)</b>	<= 3.5 mA
<b>Electrical hookup</b>	Terminal box
<b>Motor protection</b>	Reverse polarity and locked-rotor protection
<b>Protection class</b>	I (with customer connection of protective earth)



S3G910-CZ01-06

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<b>Conformity with standards</b>	EN 61800-5-1; UKCA; CE
<b>Approval</b>	UL 1004-7 + 60730-1; CSA C22.2 No. 77 + CAN/CSA-E60730-1

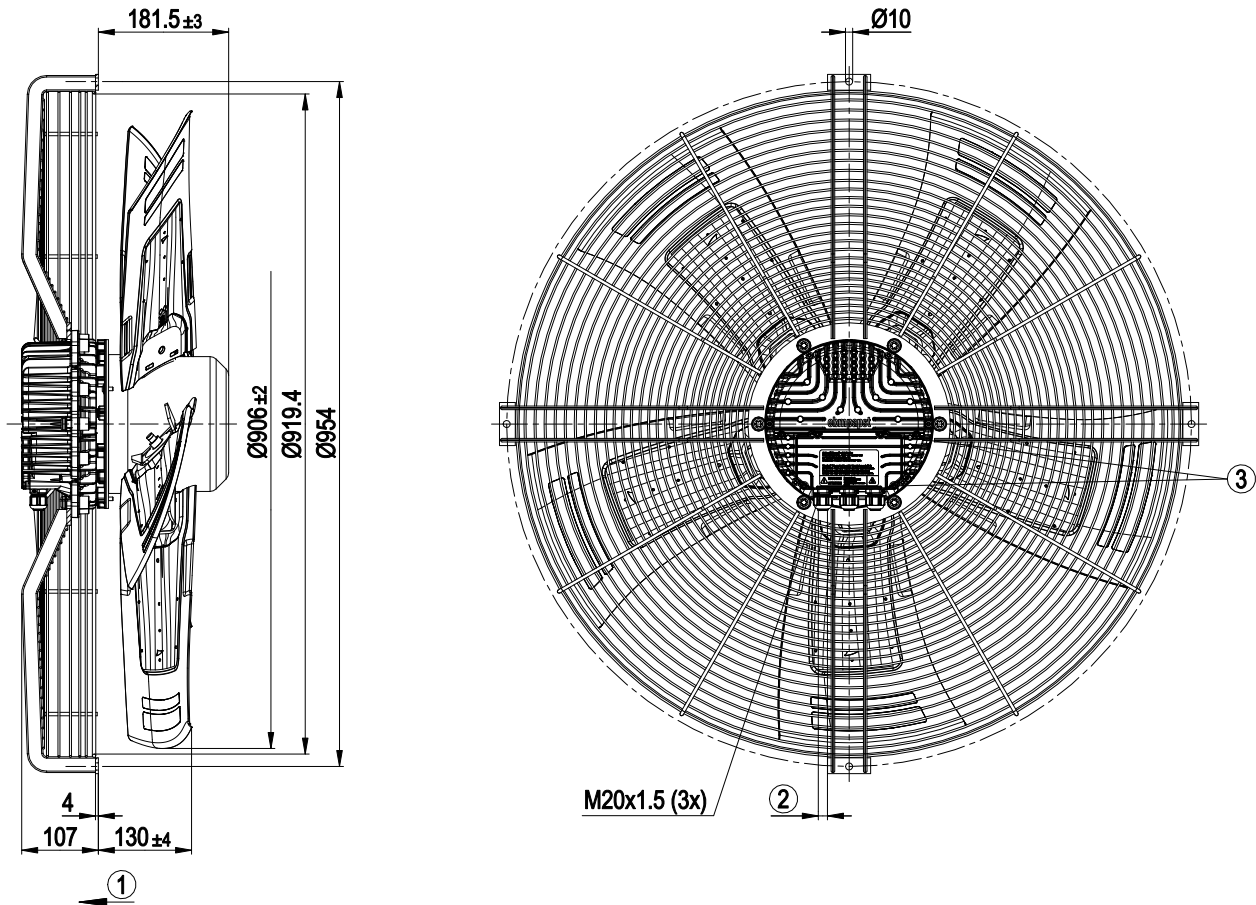


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## Product drawing



1	Direction of air flow "V"
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque $4 \pm 0.6$ Nm
3	Tightening torque $3.5 \pm 0.5$ Nm

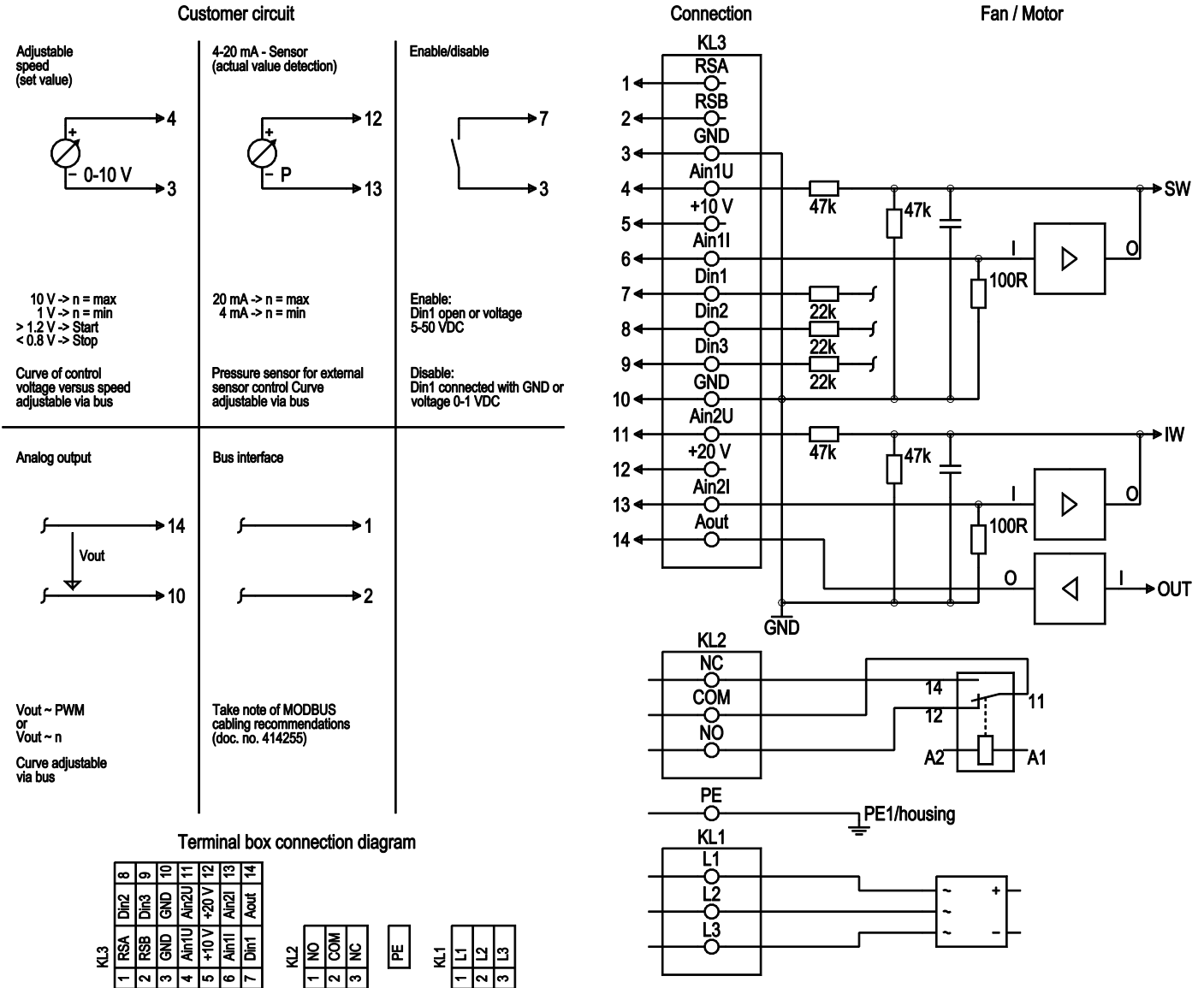


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## Connection diagram



No.	Conn.	Designation	Function/assignment
KL 1	1	L1	Supply connection, power supply; for nominal voltage range see technical data
KL 1	2	L2	Supply connection, power supply; for nominal voltage range see technical data
KL 1	3	L3	Supply connection, power supply; for nominal voltage range see technical data
PE		PE	Ground connection, PE connection
KL 2	1	NO	Status relay, floating status contact, make for failure
KL2	2	COM	Status relay, floating status contact, changeover contact, common connection, contact rating 250 VAC / max. 2 A (AC1) / min. 10 mA
KL2	3	NC	Status relay, floating status contact, break for failure
KL 3	1	RSA	Bus connection RS485, RSA, MODBUS-RTU; SELV
KL 3	2	RSB	Bus connection RS485, RSB, MODBUS-RTU; SELV
KL 3	3 / 10	GND	Reference ground for control interface; SELV
KL 3	4	Ain1 U	Analog input 1, set value: 0-10 V, Ri = 100 kΩ, adjustable curve, only usable as alternative to input Ain1I; SELV



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No.	Conn.	Designation	Function/assignment
KL 3	5	+ 10 V	Fixed voltage output 10 VDC, +10 V $\pm$ 3%, max. 10 mA, short-circuit-proof power supply for external devices (e.g. pot); SELV
KL 3	6	Ain1 I	Analog input 1, set value: 4-20 mA, $R_i = 100 \Omega$ , adjustable curve, only usable as alternative to input Ain1U; SELV
KL 3	7	Din1	Digital input 1: enable electronics, enable: pin open or applied voltage 5-50 VDC disable: bridge to GND or applied voltage < 1 VDC reset function: triggers software reset after a level change to < 1 VDC; SELV
KL 3	8	Din2	Digital input 2: Switching parameter sets 1/2, according to EEPROM setting, the valid or used parameter set can be selected via bus or via digital input DIN2. Parameter set 1: pin open or applied voltage 5-50 VDC Parameter set 2: bridge to GND or applied voltage < 1 VDC; SELV
KL 3	9	Din3	Digital input 3: according to EEPROM setting, the integrated controller's direction of action can be selected via bus or digital input Din3; normal: pin open or applied voltage 5-50 VDC inverse: bridge to GND or applied voltage < 1 VDC; SELV
KL 3	11	Ain2 U	Analog input 2, measured value: 0-10 V, $R_i = 100 \text{ k}\Omega$ , adjustable curve, only usable as alternative to input Ain2I; SELV
KL 3	12	+ 20 V	Fixed voltage output 20 VDC, +20 V $\pm$ 25/-10%, max. 50 mA, short-circuit-proof power supply for external devices (e.g. sensors); SELV or: +24 VDC input for parameter setting without line voltage
KL 3	13	Ain2 I	Analog input 2, measured value: 4-20 mA, $R_i = 100 \Omega$ , adjustable curve, only usable as alternative to input Ain2U; SELV
KL 3	14	Aout	Analog output 0-10 VDC, max. 5 mA, output of current motor modulation level / motor speed adjustable curve; SELV

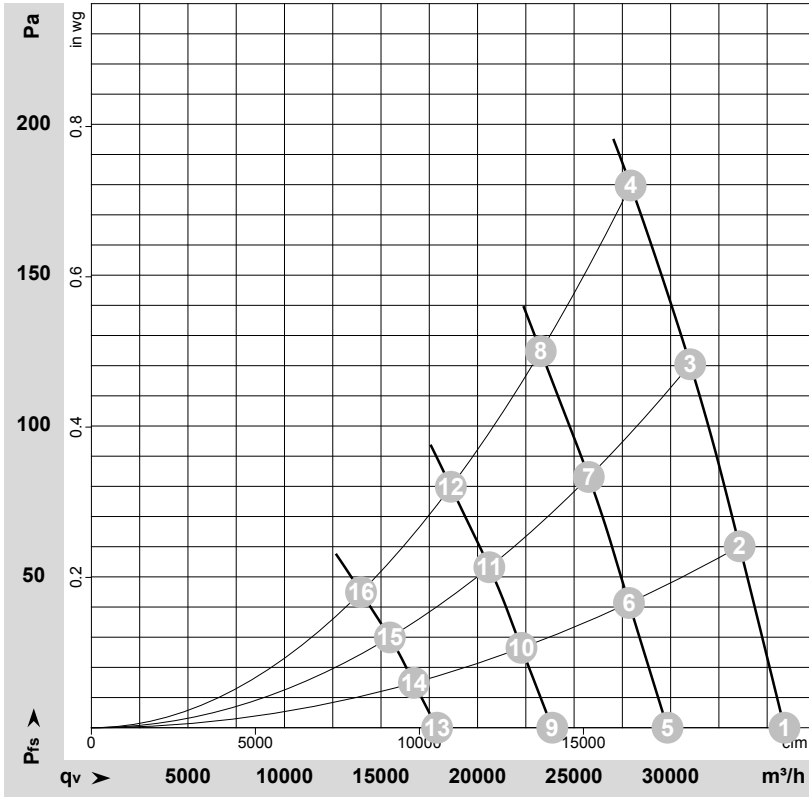


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## Curves: Air performance 50 Hz



$\rho = 1.15 \text{ kg/m}^3 \pm 2 \%$

Measurement: LU-134645-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebmpapst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

## Measured values

	U	f	n	P <sub>ed</sub>	I	LpA <sub>in</sub>	LwA <sub>in</sub>	LwA <sub>out</sub>	q <sub>v</sub>	P <sub>fs</sub>	q <sub>v</sub>	P <sub>fs</sub>
	V	Hz	min <sup>-1</sup>	W	A	dB(A)	dB(A)	dB(A)	m <sup>3</sup> /h	Pa	cfm	in. wg
1	400	50	1195	2109	3.49	78	85	85	35895	0	21125	0.00
2	400	50	1195	2538	4.10	76	84	84	33575	60	19760	0.24
3	400	50	1195	2827	4.61	75	83	83	31015	120	18255	0.48
4	400	50	1195	3040	4.90	75	82	82	27930	180	16440	0.72
5	400	50	1000	1211	2.01	73	80	80	29840	0	17560	0.00
6	400	50	1000	1441	2.33	71	79	79	27845	41	16390	0.16
7	400	50	1000	1621	2.64	71	78	79	25760	84	15165	0.34
8	400	50	1000	1812	2.93	70	78	78	23275	125	13700	0.50
9	400	50	800	620	1.03	68	75	75	23870	0	14050	0.00
10	400	50	800	738	1.19	66	73	73	22275	26	13110	0.10
11	400	50	800	830	1.35	65	72	73	20610	53	12130	0.21
12	400	50	800	928	1.50	64	72	72	18620	80	10960	0.32
13	400	50	600	262	0.43	60	68	67	17905	0	10535	0.00
14	400	50	600	311	0.50	59	66	66	16705	15	9835	0.06
15	400	50	600	350	0.57	58	65	66	15455	30	9100	0.12
16	400	50	600	391	0.63	57	65	65	13965	45	8220	0.18

U = Voltage · f = Frequency · n = Speed (rpm) · P<sub>ed</sub> = Power consumption · I = Current draw · LpA<sub>in</sub> = Sound pressure level intake side · LwA<sub>in</sub> = Sound power level intake side  
 LwA<sub>out</sub> = Sound power level outlet side · q<sub>v</sub> = Air flow · P<sub>fs</sub> = Pressure increase

