

EC axial panel fan - AxiBlade

sickle-shaped blades (S series)
Fan housing with guide vanes

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Amtsgericht (court of registration) Stuttgart · HRA 590344

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Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	W3G910-LV12-D1	
Motor	M3G150-NA	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min ⁻¹	1070
Power consumption	W	3250
Current draw	A	5.0
Max. back pressure	Pa	300
Max. back pressure	in. wg	1.2
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	60

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

Occasional start-up at temperatures between -40 °C and -25 °C is permitted. For continuous operation at ambient temperatures below -25 °C (such as refrigeration applications), a fan design with special low-temperature bearings must be used.

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

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	59.3	36.8	09 Power consumption P_{ed}	kW	3.12
02 Measurement category		A		09 Air flow q_v	m³/h	24750
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	256
04 Efficiency grade N		62.5	40	10 Speed (rpm) n	min ⁻¹	1070
05 Variable speed drive		Yes		11 Specific ratio*		1.00

Data obtained at optimum efficiency level.

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

LU-190226

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

Weight	56.1 kg
Size	910 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted gray
Impeller material	PP plastic
Fan housing material	Sheet steel, galvanized and coated with black plastic (RAL 9005)
Material guide vanes	PP plastic
Guard grille material	Steel, coated with black plastic (RAL 9005)
Internal diffuser material including cover	PP plastic
Number of blades	5
Blade pitch	0°
Airflow direction	V
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H2
Ambient temperature note	Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), use must be made of a fan design with special low-temperature bearings.
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	Shaft horizontal or rotor on bottom; rotor on top on request
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- Operation and alarm display with LED - External 15-50 VDC input (parameterization) - Alarm relay - Integrated PI controller - Configurable inputs/outputs (I/O) - MODBUS V6.3 - Motor current limitation - RS-485 MODBUS-RTU - Soft start - Voltage output 3.3-24 VDC, Pmax = 800 mW - Control interface with SELV potential safely disconnected from the mains - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
Power Factor Correction (PFC)	Passive (through low-capacitance DC link)
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC interference emission	According to EN 61000-6-3 (household environment), except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW

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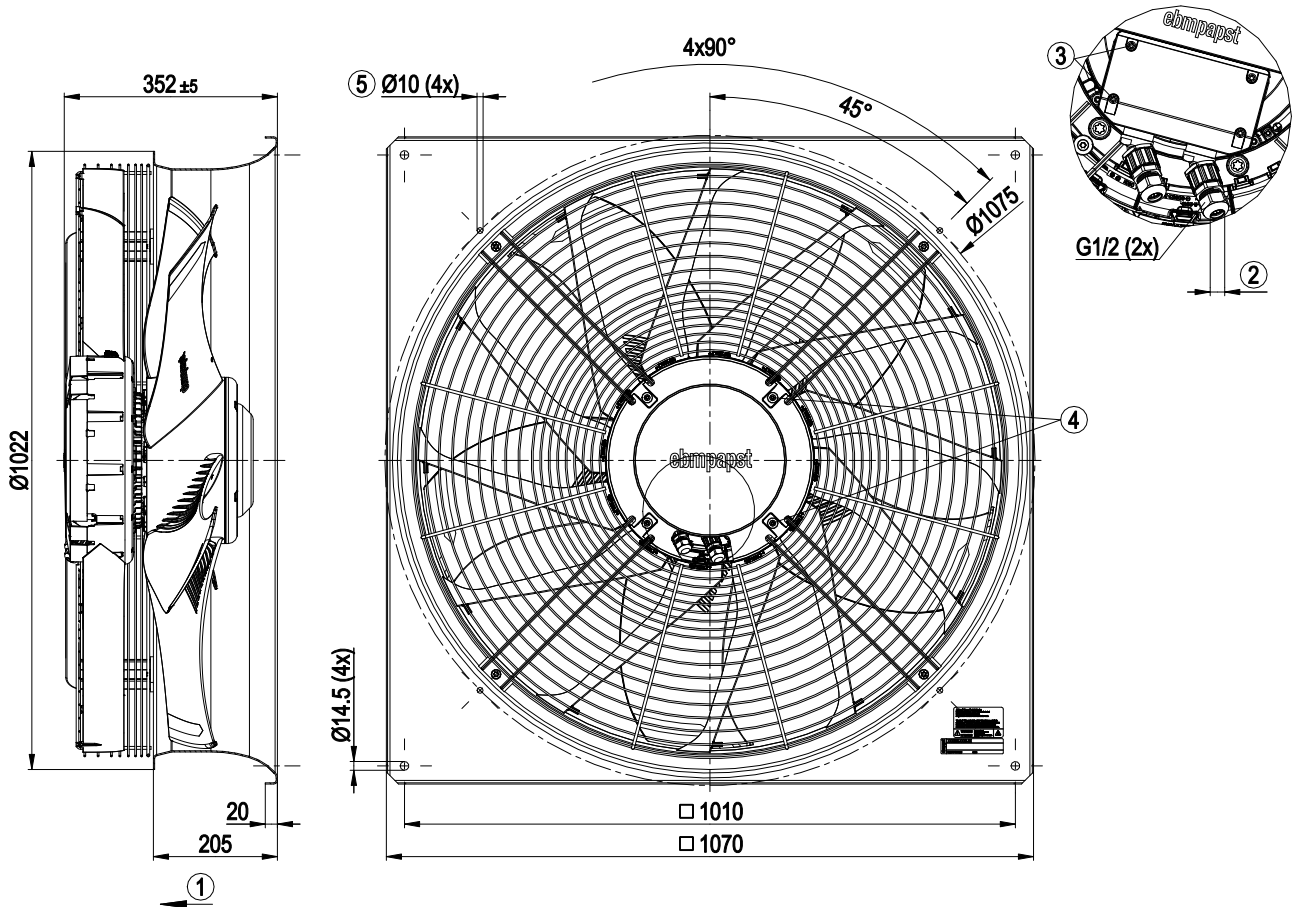
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box
Motor protection	Reverse polarity and locked-rotor protection
Protection class assignment	I; If a protective earth is connected. The built-in component has several local protection class assignments. The final protection class is determined by the intended installation.
Conformity with standards	EN 61800-5-1; CE
Approval	EAC; UL 1004-7 + 60730-1; CSA C22.2 No. 77 + CAN/CSA-E60730-1

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Product drawing



1	Airflow direction "V"
2	Cable diameter min. 6 mm, max. 12 mm, tightening torque 4 ± 0.6 Nm
3	Tightening torque 3.5 ± 0.5 Nm
4	Tightening torque 3 ± 0.3 Nm
5	Mounting holes for FlowGrid

Mounting dimensions



Diameter of the necessary recess for mounting the fan housing in the end device

BG630: D = Ø785 mm

BG710: D = Ø830 mm

BG800: D = Ø950 mm

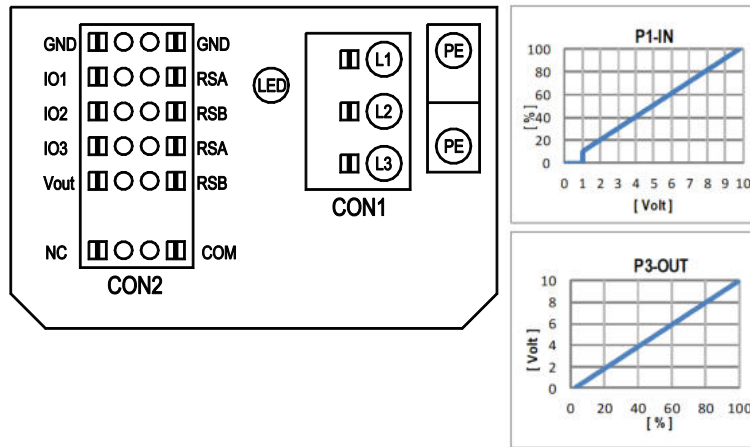
BG910: D = Ø1050 mm

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Connection diagram



No.	Conn.	Designation	Function/assignment
	CON1	L1, L2, L3	Power supply, phase, see nameplate for voltage range
	PE	PE	Protective earth
	CON2	RSA	RS485 interface for MODBUS, RSA; SELV
	CON2	RSB	RS485 interface for MODBUS, RSB; SELV
	CON2	GND	Reference ground for control interface, SELV
	CON2	IO1	Function parameterizable (see "Optional interface functions" table) Factory setting: Digital input - high active, function: Disable input, SELV - inactive: Pin open or applied voltage < 1.5 VDC - active: applied voltage 3.5-50 VDC Reset function: Triggering of error reset on change of state from "enabled" to "disabled"
	CON2	IO2	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog input 0-10 V / PWM, Ri=100 kΩ, function: Set value Characteristic curve parameterizable (see input characteristic curve P1-IN), SELV
	CON2	IO3	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog output 0-10 V, max. 5 mA, function: Fan modulation level Characteristic curve parameterizable (see output characteristic curve P3-OUT), SELV
	CON2	Vout	Voltage output 3.3-24 VDC ±5%, Pmax=800 mW, voltage parameterizable Factory setting: 10 VDC short-circuit-proof, supply for external devices, SELV alternatively: 15-50 VDC input for parameterization via MODBUS without line voltage
	CON2	COM	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) / min. 10 mA, reinforced insulation on supply side and on control interface side
	CON2	NC	Status relay, floating status contact, break for failure
		LED	green: status = good, ready for operation orange: status = warning red: status = failure
		P1-IN	Input characteristic curve
		P3-OUT	Output characteristic curve

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Terminal/plug assignment

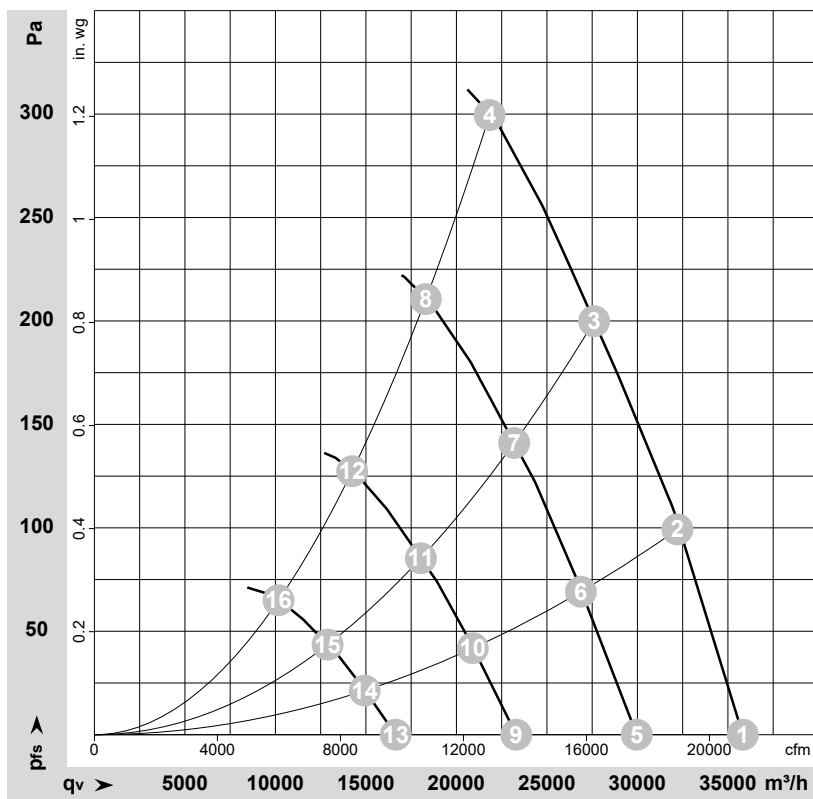
o configurable option For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.3																							configurable IO functions: normal / inverse	MODBUS Register for IO mode configuration	electrical specification	configurable IO mode	CON2	OUTPUT																				
INPUT																																																
IO1	Din1 (active high): digital input	D158 [0]	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D158 [2]	RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D158 [5]	U _{max} = 50VDC, I _{max} = 20mA, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D158 [6]	U _{max} = 50VDC, I _{max} = 20mA, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
IO2	Din2 (active high): digital input	D159 [0]	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D159 [2]	RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D159 [3]	RI = 125R, characteristic curve parameterizable, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D15A [0]	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
IO3	Din3 (active low): digital input	D15A [1]	active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D15A [7]	PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D15A [8]	40Hz - 10KHz, characteristics parameterizable active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1.5VDC, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D15A [4]	function parameterizable, max. 5mA max output frequency 300Hz, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
IO3	Aout3 0-10V: analog output	D15A [5]	0-10V max. 5mA max output frequency 300Hz, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D15A [6]	0-10V max. 5mA max output frequency 300Hz, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D15A [6]	0-10V max. 5mA max output frequency 300Hz, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		D15A [6]	0-10V max. 5mA max output frequency 300Hz, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
RSA	RSB	RS485 bus connection,	MODBUS RTU, specification V6.3, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
Vout	voltage output	D16E [...] voltage output	voltage parameterizable 3.3..24VDC +/- 5%, P _{max} =800mW, short-circuit-proof, supply for external devices, SELV	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									
		alternatively: input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	15...50VDC	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o																									

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Curves: Air performance 50 Hz



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

Measurement: LU-190226-1
Date: 2017-12-05
Housing: 15953-2-4037

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. 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

	Wired	U	f	n	P _{ed}	I	LpA _{in}	LwA _{in}	LwA _{out}	q _v	p _{fs}	q _v	p _{fs}
		V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	dB(A)	m ³ /h	Pa	cfm	in. wg
1	3~	400	50	1070	2143	3.34	74	82	83	35825	0	21085	0.00
2	3~	400	50	1070	2624	4.05	72	81	81	32205	100	18955	0.40
3	3~	400	50	1070	2945	4.52	74	82	82	27610	200	16250	0.80
4	3~	400	50	1070	3250	5.00	84	91	92	21835	300	12855	1.20
5	3~	400	50	900	1254	1.95	70	77	79	29965	0	17635	0.00
6	3~	400	50	900	1511	2.33	67	76	77	26880	70	15820	0.28
7	3~	400	50	900	1745	2.68	70	78	78	23190	141	13650	0.57
8	3~	400	50	900	1925	2.95	79	87	87	18310	211	10775	0.85
9	3~	400	50	700	590	0.92	63	71	72	23305	0	13715	0.00
10	3~	400	50	700	711	1.10	61	70	70	20905	42	12305	0.17
11	3~	400	50	700	821	1.26	63	72	71	18035	85	10615	0.34
12	3~	400	50	700	906	1.39	73	80	81	14240	128	8380	0.51
13	3~	400	50	500	215	0.34	55	62	64	16645	0	9795	0.00
14	3~	400	50	500	259	0.40	52	61	62	14935	22	8790	0.09
15	3~	400	50	500	299	0.46	55	63	63	12885	44	7585	0.18
16	3~	400	50	500	330	0.51	64	72	72	10170	65	5985	0.26

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_{ed} = Power consumption · I = Current draw · LpA_{in} = Sound pressure level intake side · LwA_{in} = Sound power level intake side
LwA_{out} = Sound power level outlet side · q_v = Air flow · p_{fs} = Pressure increase