

EC axial panel fan - AxiBlade

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

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Nominal data

Type	W3G800-LV05-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	1190
Power consumption	W	3500
Current draw	A	5.3
Max. back pressure	Pa	350
Max. back pressure	in. wg	1.41
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}	%	56.6	37	09 Power consumption P_{ed}	kW	3.32
02 Measurement category		A		09 Air flow q_v	m³/h	19225
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	337
04 Efficiency grade N		59.6	40	10 Speed (rpm) n	min ⁻¹	1195
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-187998

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	51.4 kg
Size	800 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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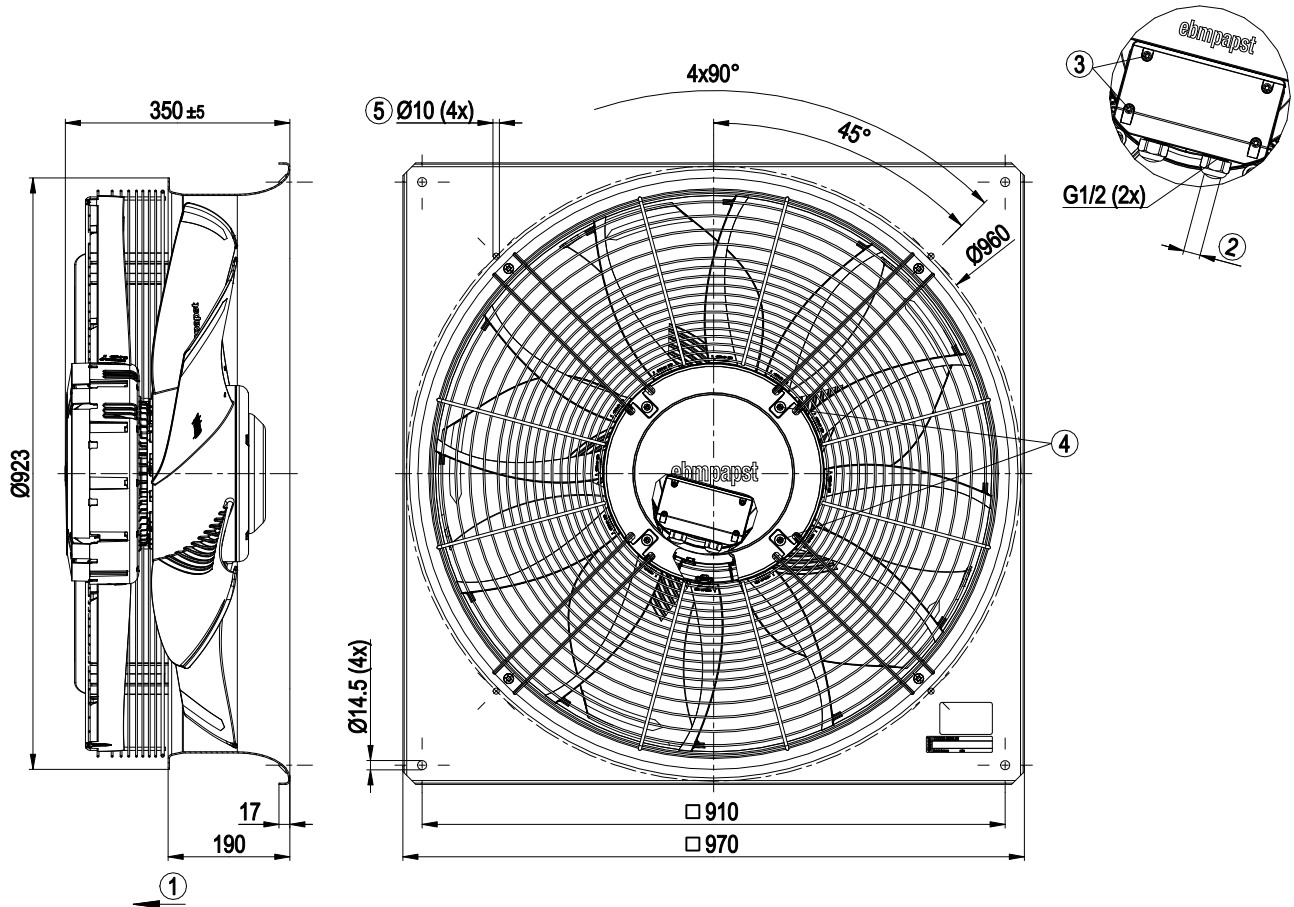
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box
Motor protection	Reverse polarity and locked-rotor protection
Protection class assignment	I; If a protective earth is connected. The built-in component has several local protection class 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



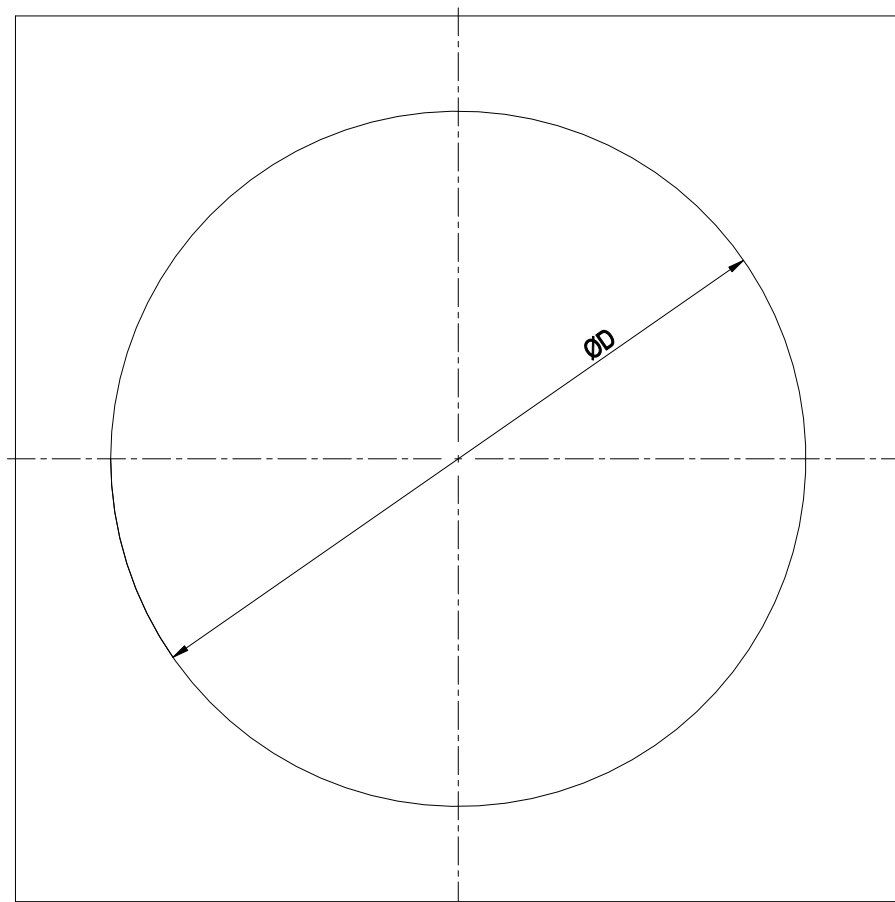
1	Airflow direction "V"
2	Cable diameter min. 6 mm, max. 12 mm, tightening torque 4 ± 0.6 Nm
3	Tightening torque 3.5 ± 0.5 Nm
4	Tightening torque 3 ± 0.3 Nm
5	Mounting holes for FlowGrid

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Mounting dimensions



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

BG630: D = $\varnothing$ 785 mm

BG710: D = $\varnothing$ 830 mm

BG800: D = $\varnothing$ 950 mm

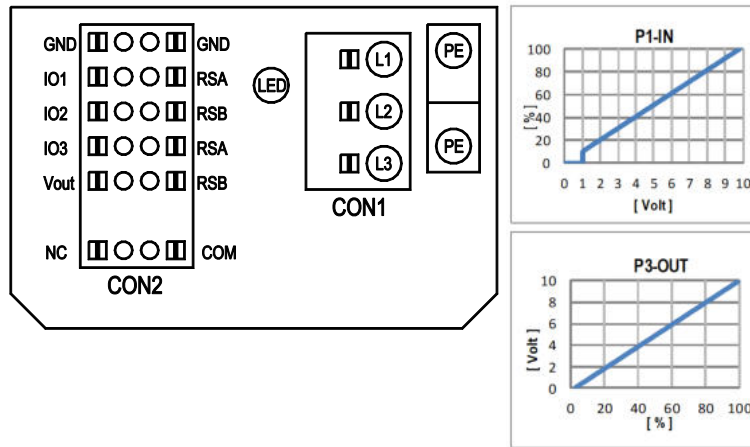
BG910: D = $\varnothing$ 1050 mm

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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

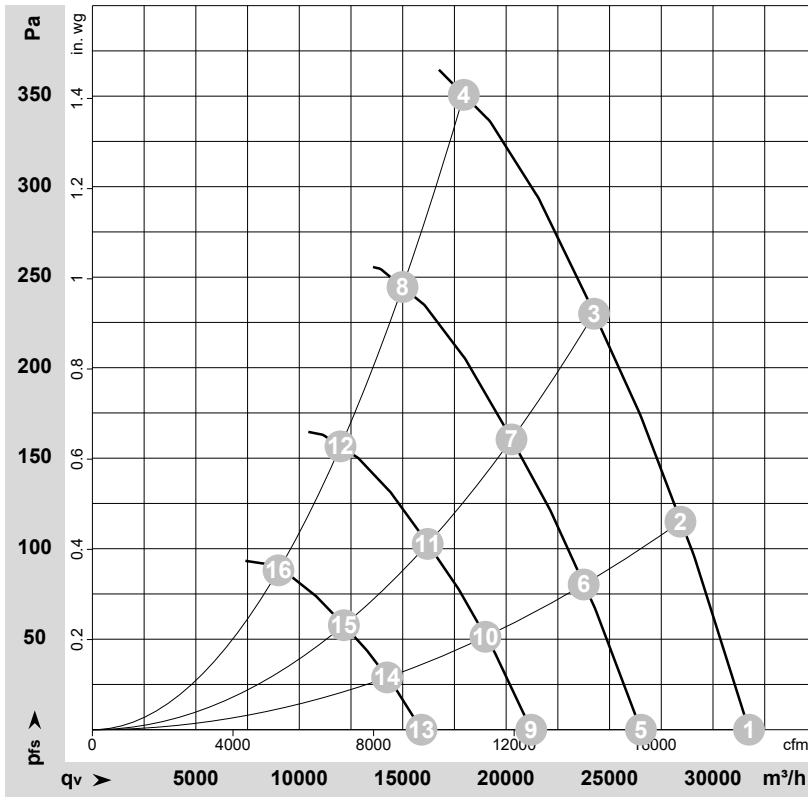
CON2		configurable IO mode	electrical specification	configurable IO functions: normal / inverse	INPUT										OUTPUT									
					D101 [...] source: set value	D147 [...] source: sensor value	D104 [...] switch: parameter set: #1 / #2	D12E [...] switch: control function: heating (pos.) / cooling (neg.)	D148 [...] switch: direction of rotation: cw / ccw	D16C [...] switch: set value source	D16A [...] switch: fan enable / disable	(selected directly via IO mode)	D130 [0] signal: fan modulation level %	D130 [1] signal: actual speed	D130 [2] signal: system modulation level %	D130 [5] signal: remote control output 0-10V	D130 [1] pulse input for auto-addressing	D130 [4] pulse output for auto-addressing						
IO1	Din1 (active high): digital input	D158 [0]	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	MODBUS Register for IO mode configuration	D158 [2]																			
			RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV		D158 [5]																			
			U _{max} = 50VDC, I _{max} = 20mA, SELV		D158 [6]																			
			U _{max} = 50VDC, I _{max} = 20mA, SELV		D159 [0]																			
IO2	Din2 (active high): digital input	D159 [2]	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	MODBUS Register for IO mode configuration	D159 [2]																			
			RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV		D159 [3]																			
			RI = 125R, characteristic curve parameterizable, SELV		D15A [0]																			
			active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC		D15A [1]																			
IO3	Din3 (active low): digital input	D15A [7]	active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage < 1.5VDC	MODBUS Register for IO mode configuration	D15A [7]																			
			active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC		D15A [8]																			
			PWM = 40Hz - 10KHz, characteristics parameterizable		D15A [4]																			
			active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV		D15A [5]																			
IO3	PWWMin3: digital input, idle level low	D15A [8]	40Hz - 10KHz, characteristics parameterizable active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1.5VDC, SELV	MODBUS Register for IO mode configuration	D15A [8]																			
			active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1.5VDC, SELV		D15A [4]																			
			function parameterizable, max. 5mA max output frequency 300Hz, SELV		D15A [5]																			
			0-10V max. 5mA max output frequency 300Hz, SELV 0-10V max. 5mA max output frequency 300Hz, SELV		D15A [6]																			
RSA RSB	RS485 bus connection,		MODBUS RTU, specification V6.3, SELV																					
Vout	voltage output	D16E [...] voltage output	voltage parameterizable 3.3..24VDC +/- 5%, P _{max} =800mW, short-circuit-proof, supply for external devices, SELV	configurable IO functions: normal / inverse	D16E [...] voltage output																			
			alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage																					

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Curves: Air performance 50 Hz



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

Measurement: LU-187998-1
Date: 2017-08-11
Housing: 15863-2-4037

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	1190	2377	3.68	75	82	85	31740	0	18680	0.00
2	3~	400	50	1190	2825	4.34	73	81	83	28425	115	16730	0.46
3	3~	400	50	1190	3160	4.85	76	83	83	24250	230	14275	0.92
4	3~	400	50	1190	3500	5.30	86	93	94	17955	350	10565	1.41
5	3~	400	50	1000	1386	2.15	70	78	80	26515	0	15605	0.00
6	3~	400	50	1000	1647	2.53	69	76	78	23750	81	13980	0.33
7	3~	400	50	1000	1843	2.83	71	78	79	20260	161	11925	0.65
8	3~	400	50	1000	1979	3.02	81	89	89	14990	245	8825	0.98
9	3~	400	50	800	710	1.10	65	72	75	21215	0	12485	0.00
10	3~	400	50	800	843	1.30	63	71	72	19000	52	11180	0.21
11	3~	400	50	800	943	1.45	66	73	73	16210	103	9540	0.41
12	3~	400	50	800	1013	1.55	76	83	84	11995	157	7060	0.63
13	3~	400	50	600	299	0.46	57	65	67	15910	0	9365	0.00
14	3~	400	50	600	356	0.55	56	63	65	14250	29	8385	0.12
15	3~	400	50	600	398	0.61	58	66	66	12155	58	7155	0.23
16	3~	400	50	600	427	0.65	68	76	76	8995	88	5295	0.35

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