

EC axial fan - HyBlade

sickle-shaped blades (S series)
Fan housing with guard grille

W3G710-GS31-15 ebmpapst Datasheet
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www.fansco.com

Nominal data

Type	W3G710-GS31-15	
Motor	M3G150-FF	
Phase		3~
Nominal voltage	VAC	200
Nominal voltage range	VAC	200 .. 240
Frequency	Hz	50/60
Method of obtaining data		ml
Status		prelim.
Speed (rpm)	min ⁻¹	1250
Power consumption	W	2200
Current draw	A	6.7
Max. back pressure	Pa	240
Max. back pressure	in. wg	0.96
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	70

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

Data according to Commission Regulation (EU) 327/2011

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	43.9	35.8
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		48.1	40
05 Variable speed drive		Yes	

Data obtained at optimum efficiency level.
The ErP data is determined using a motor-impeller combination in a standardized measurement setup.

09 Power consumption P_{ed}	kW	2.21
09 Air flow q_v	m ³ /h	13860
09 Pressure increase p_{fs}	Pa	251
10 Speed (rpm) n	min ⁻¹	1240
11 Specific ratio*		1.00

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

LU-195910



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Technical description

Weight	37.3 kg
Size	710 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted gray
Blade material	Sheet aluminum insert, sprayed with PP plastic
Fan housing material	Sheet steel, galvanized and coated with traffic white plastic (RAL 9016)
Guard grille material	Steel, coated with black plastic (RAL 9005)
Number of blades	5
Blade pitch	-5°
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 V6.0 - Motor current limitation - RFID - ISO 15693 compatible - 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
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	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1

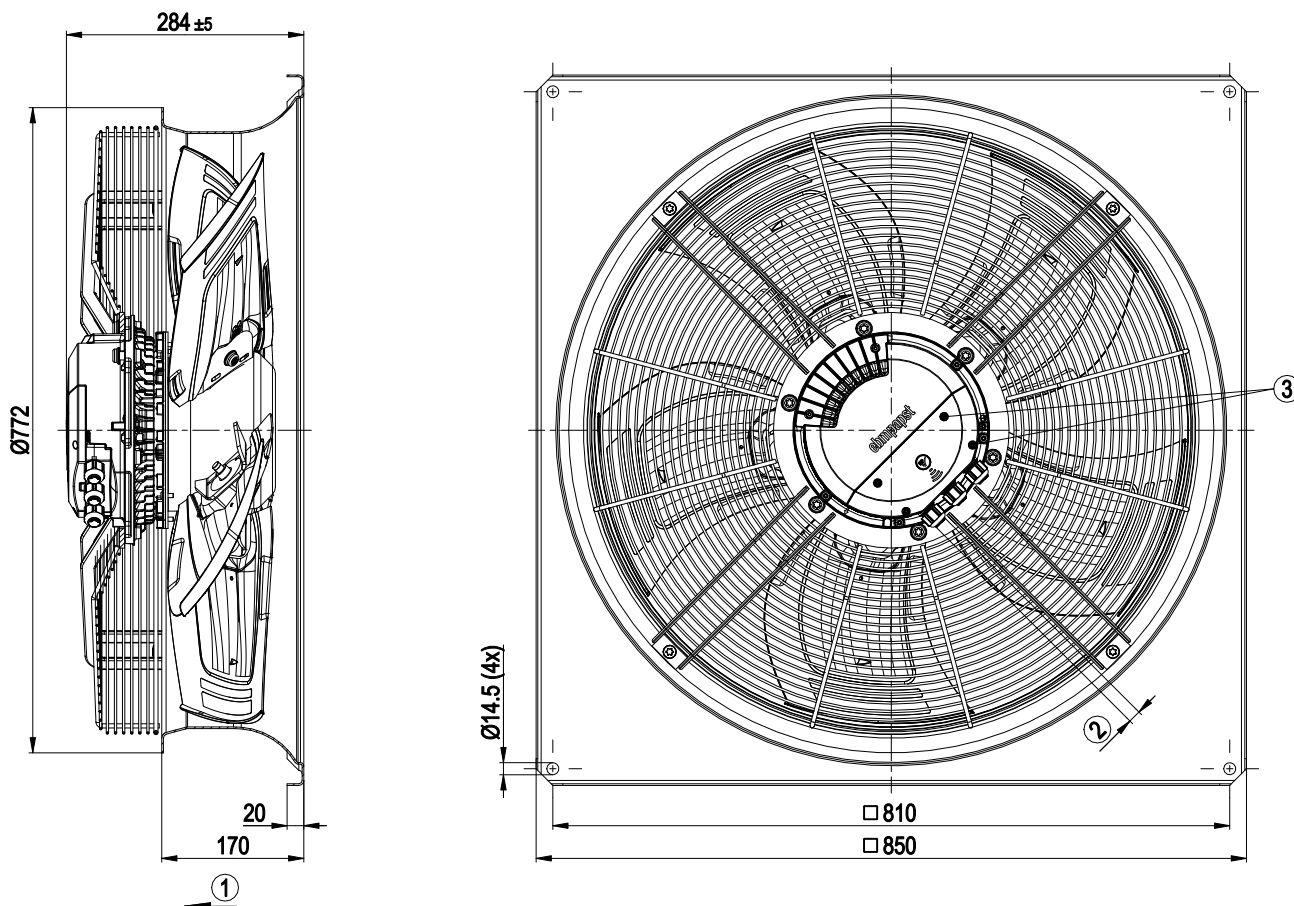


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Product drawing



1	Airflow direction "V"
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
3	Tightening torque 1.5 ± 0.2 Nm

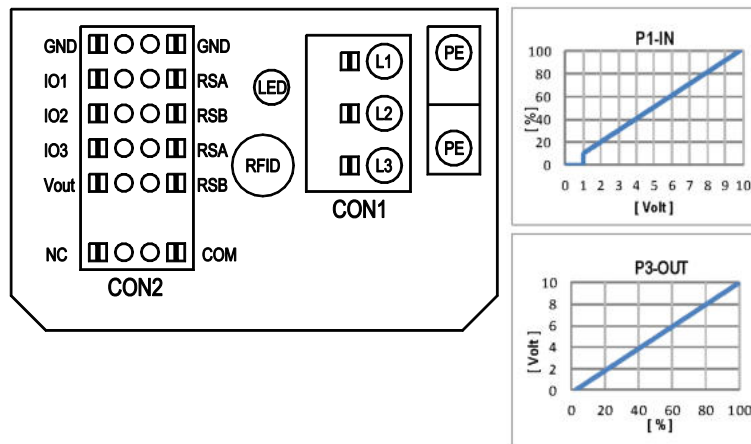


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Connection diagram



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

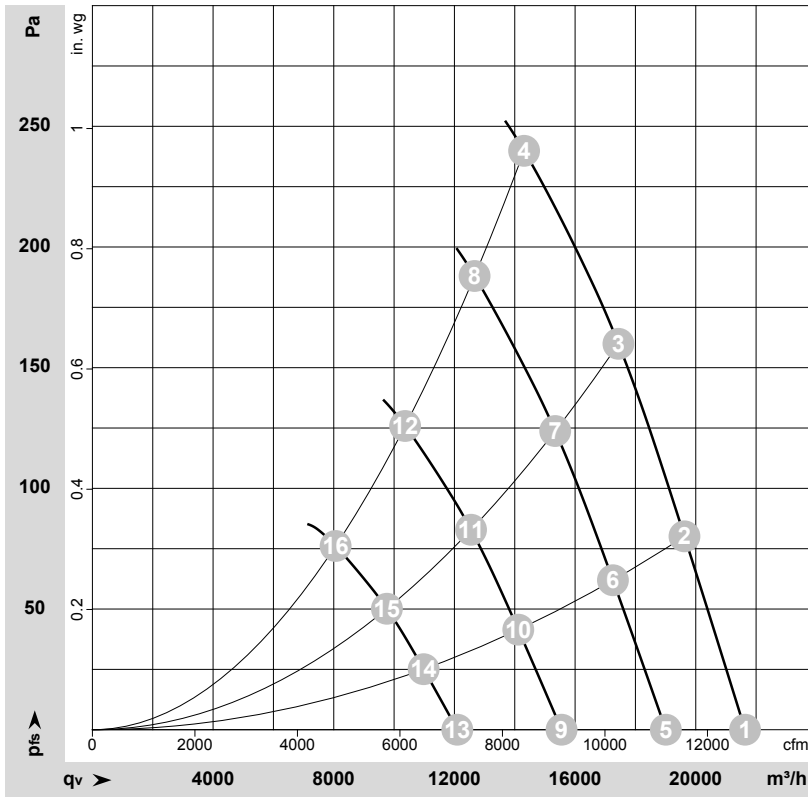
configurable IO functions: normal / inverse		MODBUS Register for IO mode configuration	electrical specification	configurable IO mode		CON2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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IO1	Ain1 0-10V/PWM: analog input	not active: pin open or applied voltage < 1,5VDC active: applied voltage 3,5-50VDC, SELV	D158 [0]	source: set value	source: sensor value	D101 [...]	D147 [...]	D104 [...]	D12E [...]	D148 [...]	D16C [...]	D16A [...]	(selected directly via IO mode)	(selected directly via IO mode)	D130 [0]	D130 [1]	D130 [2]	D130 [5]	D130 [1]	signal: fan modulation level %	signal: tach out	signal: diagnostics out	(selected directly via IO mode)	D130 [0]	D130 [1]	D130 [2]	D130 [5]	D130 [1]	signal: remote control output 0-10V	signal: system modulation level %	signal: actual speed	signal: fan modulation level %	signal: tach out	switch: fan enable / disable	switch: direction of rotation: cw / ccw	switch: set value source	switch: control function: heating (pos.), cooling (neg.)	switch: parameter set: #1 / #2	source: set value	source: sensor value	switch: fan enable / disable	switch: direction of rotation: cw / ccw	switch: set value source	switch: control function: heating (pos.), 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cooling (neg.)	switch: parameter set: #1 / #2	source: set value	source: sensor value	switch: fan enable / disable	switch: direction of rotation: cw / ccw	switch: set value source	switch: control function: heating (pos.), cooling (neg.)	switch: parameter set: #1 / #2	source: set value	source: sensor value	switch: fan enable / disable	switch: direction of rotation: cw / ccw	switch: set value source	switch: control function: heating (pos.), cooling (neg.)	switch: parameter set: #1 / #2	source: set value	source: sensor value	switch: fan enable / disable	switch: direction of rotation: cw / ccw	switch: set value source	switch: control function: heating (pos.), cooling (neg.)	switch: parameter set: #1 / #2	source: set value	source: sensor value	switch: fan enable / disable	switch: direction of rotation: cw / ccw	switch: set value source	switch: control function: heating (pos.), cooling (neg.)	switch: parameter set: #1 / #2	source: set value	source: sensor value	switch: fan enable / 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cooling (neg.)	switch: parameter set: #1 / #2	source: set value	source: sensor value	switch: fan enable / disable	switch: direction of rotation: cw / ccw	switch: set value source	switch: control function: heating (pos.), cooling (neg.)	switch: parameter set: #1 / #2	source: set value	source: sensor value	switch: fan enable / disable	switch: direction of rotation: cw / ccw	switch: set value source	switch: control function: heating (pos.), cooling (neg.)	switch: parameter set: #1 / #2	source: set value	source: sensor value	switch: fan enable / disable	switch: direction of rotation: cw / ccw	switch: set value source	switch: control function: heating (pos.), cooling (neg.)	switch: parameter set: #1 / #2	source: set value	source: sensor value	switch: fan enable / disable	switch: direction of rotation: cw / ccw	switch: set value source	switch: control function: heating (pos.), cooling (neg.)	switch: parameter set: #1 / #2	source: set value	source: sensor value	switch: fan enable / 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cooling (neg.)	switch: parameter set: #1 / #2	source

◦ configurable option

For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.0



Curves: Air performance 50 Hz



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

Measurement: LU-195910-1

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~	200	50	1250	1562	4.81	69	76	77	21635	0	12735	0.00
2	3~	200	50	1250	1824	5.59	68	75	76	19625	80	11550	0.32
3	3~	200	50	1250	2048	6.25	69	76	76	17435	160	10265	0.64
4	3~	200	50	1250	2200	6.70	75	81	80	14310	240	8425	0.96
5	3~	200	50	1100	1060	3.26	65	73	73	19010	0	11190	0.00
6	3~	200	50	1100	1240	3.80	65	72	73	17255	63	10155	0.25
7	3~	200	50	1100	1393	4.25	66	73	73	15340	125	9030	0.50
8	3~	200	50	1100	1526	4.65	72	78	77	12670	188	7455	0.75
9	3~	200	50	900	580	1.79	60	68	68	15550	0	9155	0.00
10	3~	200	50	900	679	2.08	60	67	68	14115	42	8310	0.17
11	3~	200	50	900	763	2.33	61	68	68	12550	84	7385	0.34
12	3~	200	50	900	836	2.54	67	73	72	10365	126	6100	0.51
13	3~	200	50	700	273	0.84	54	61	62	12095	0	7120	0.00
14	3~	200	50	700	320	0.98	54	61	61	10980	25	6465	0.10
15	3~	200	50	700	359	1.10	55	61	61	9760	51	5745	0.20
16	3~	200	50	700	393	1.20	60	67	66	8060	76	4745	0.31

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

