

EC axial panel fan - AxiCool

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

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Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	W3G800-NU21-08	
Motor	M3G150-IF	
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	1080
Power consumption	W	2450
Current draw	A	3.8
Max. back pressure	Pa	270
Max. back pressure	in. wg	1.08
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	36.1	09 Power consumption P_{ed}	kW	2.43
02 Measurement category		A		09 Air flow q_v	m³/h	19525
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	238
04 Efficiency grade N		59.9	40	10 Speed (rpm) n	min ⁻¹	1080
05 Variable speed drive		Yes		11 Specific ratio*		1.00

Data obtained at optimum efficiency level.
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).

* Specific ratio = $1 + p_{fs} / 100\,000\text{ Pa}$ LU-190330

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Technical description

Weight	41.8 kg
Size	800 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted gray
Blade material	PP plastic
Fan housing material	PP plastic
Material guide vanes	PP plastic
Guard grille material	Steel, coated with black plastic (RAL 9005)
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	See fitting instructions
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
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Motor protection	Reverse polarity and locked-rotor protection

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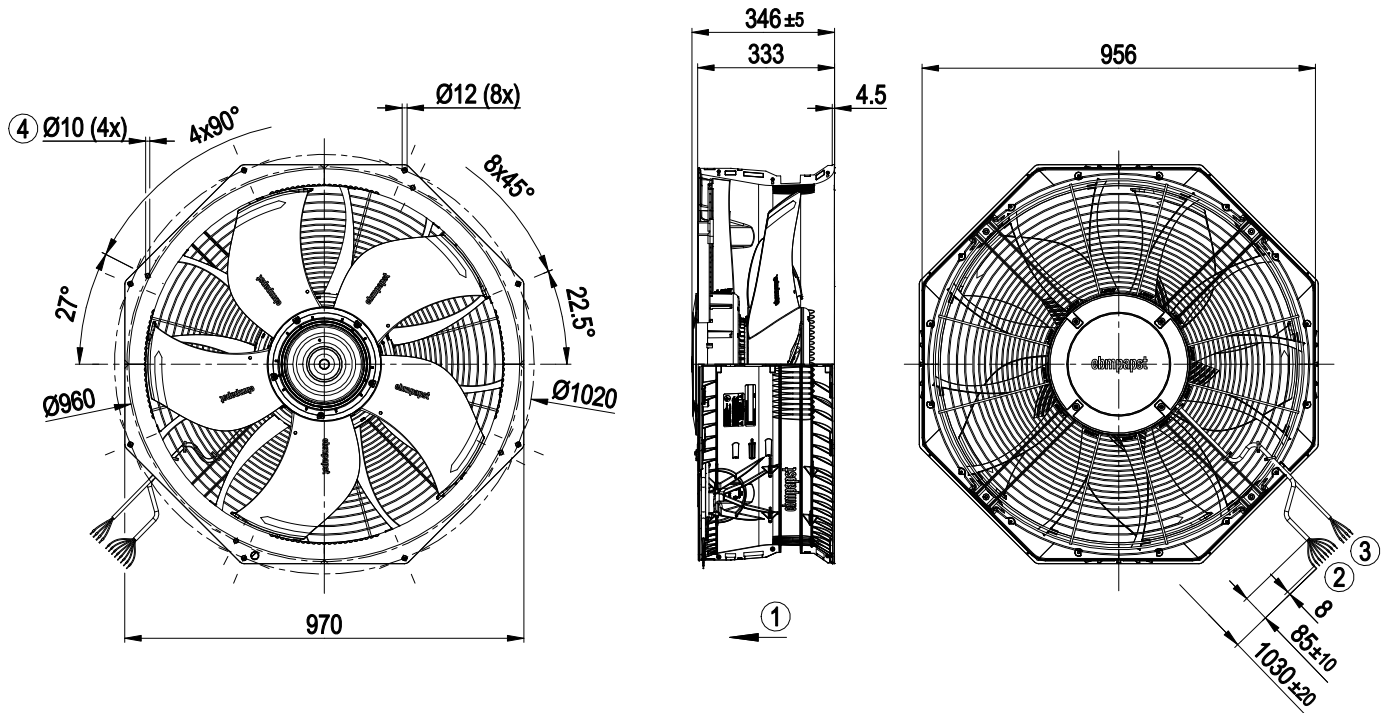
Protection class assignment	I; If a protective earth is connected. The built-in component has several local protection class assignments. The final protection class is determined by the intended installation.
Conformity with standards	EN 61800-5-1; CE
Approval	UL 1004-7 + 60730-1; EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1

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Product drawing

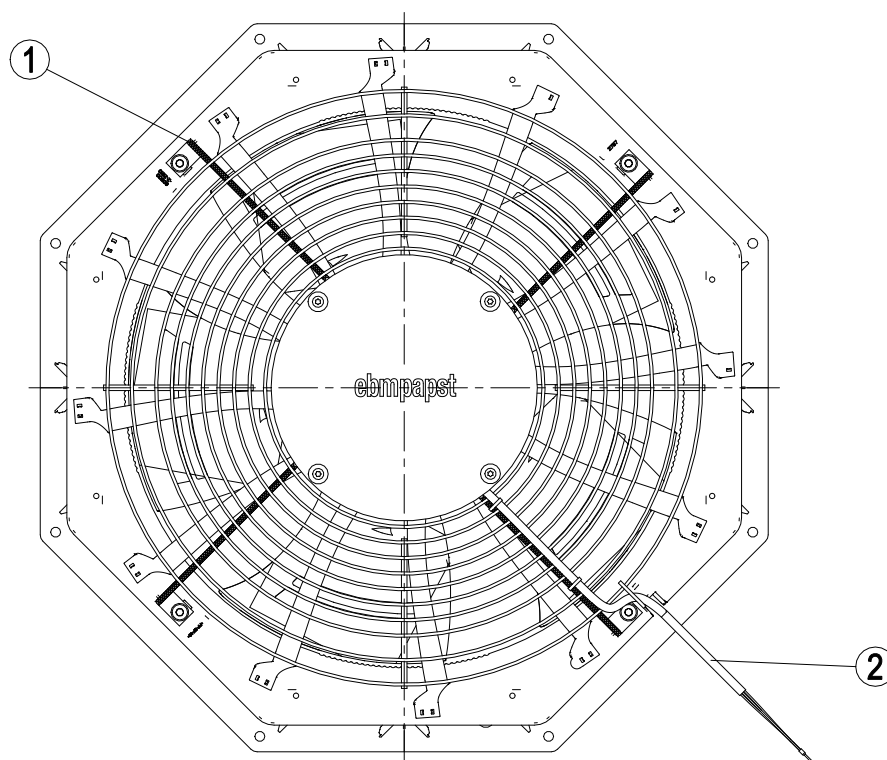


1	Airflow direction "V"
2	Cable silicone 8x0.5 mm ²
	8x wire-end ferrule
3	Cable silicone 4G 1.5 mm ²
	4x wire-end ferrule
4	Mounting holes for FlowGrid

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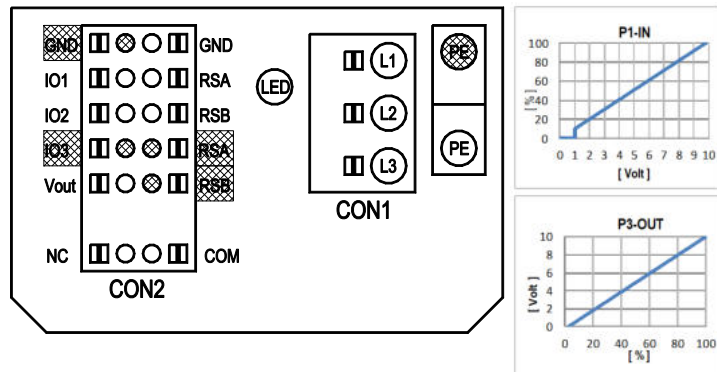
- | | |
|---|---|
| 1 | Installation position: Shaft horizontal (install support struts only in X-position as illustrated) or rotor on bottom |
| 2 | For horizontal shaft installation position, the cable exit must be at the bottom right. |

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Connection diagram



shaded gray => not brought out via leads

No.	Conn.	Designation	Color	Function/assignment
	CON1	L1	black	Power supply, phase, see nameplate for voltage range
	CON1	L2	brown	Power supply, phase, see nameplate for voltage range
	CON1	L3	blue	Power supply, phase, see nameplate for voltage range
	PE	PE	green/yellow	Protective earth
	CON2	RSA	gray	RS485 interface for MODBUS, RSA; SELV
	CON2	RSB	brown	RS485 interface for MODBUS, RSB; SELV
	CON2	GND	blue	Reference ground for control interface, SELV
	CON2	IO1	green	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	yellow	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	red	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	white 1	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	white 2	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

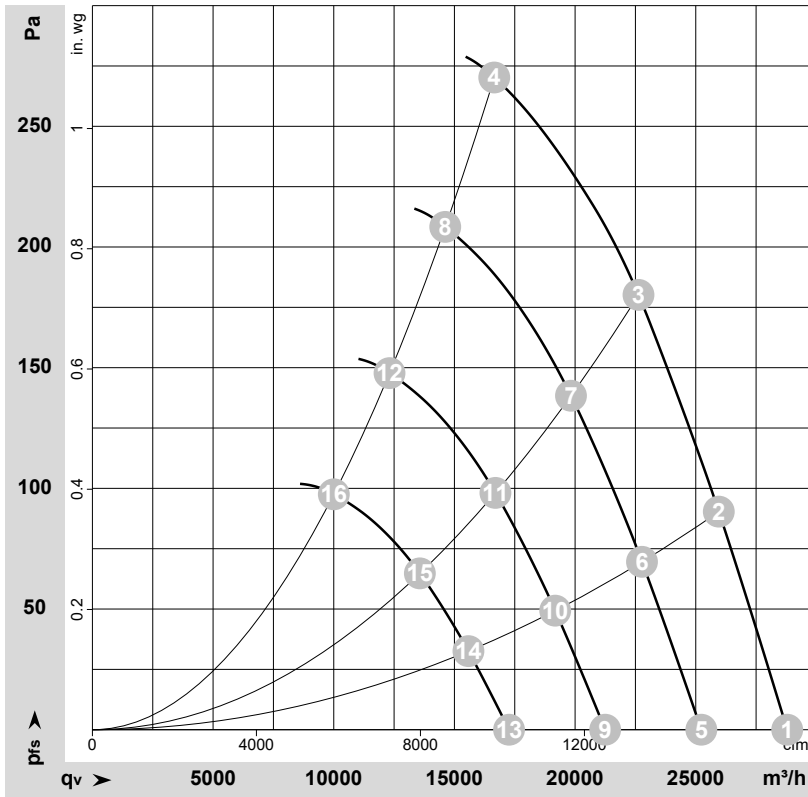
configurable option		For further information and additional functions see EC Control Software, Fan-Set-App. or MODBUS Parameter Specification V6.3	configurable IO functions: normal / inverse	MODBUS Register for IO mode configuration	electrical specification	CON2	configurable IO mode	Din1 (active high): digital input	Din1 0-10V/PWM: analog input	Din2 (active high): digital input	Din2 0-10V/PWM: analog input	Din3 (active high): digital input	Din3 (active low): digital input	PWMIn3: digital input, idle level high	PWMIn3: digital input, idle level low	Aout3 0-10V: analog output	Tacho out (pulses), analog output	Diagnostics out (pulses)	RS485 bus connection,	voltage output	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without fine voltage	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...]	D16A [...] switch: fan enable / disable	D16C [...] switch: set value source	D148 [...] switch: direction of rotation: cw / ccw	D12E [...] switch: control function: heating (pos.) / cooling (neg.)	D104 [...] switch: parameter set: #1 / #2	D147 [...] source: sensor value	D101 [...] source: set value	D130 [4] pulse output for auto-addressing	D130 [5] signal: remote control output 0-10V	D130 [2] signal: system modulation level %	D130 [1] signal: actual speed	D130 [0] signal: fan modulation level %	signal: diagnostics out (selected directly via IO mode)	signal: tach out (selected directly via IO mode)	signal: tach out	signal: diagnostics out (selected directly via IO mode)	D130 [1] signal: actual speed	D130 [2] signal: system modulation level %	D130 [5] signal: remote control output 0-10V	D00C [1] pulse input for auto-addressing	D130 [4] pulse output for auto-addressing	D130 [5] signal: remote control output 0-10V	D130 [2] signal: system modulation level %	D130 [1] signal: actual speed	D130 [0] signal: fan modulation level %	signal: diagnostics out (selected directly via IO mode)	signal: tach out (selected directly via IO mode)	D16A [...] switch: fan enable / disable	D16C [...] switch: set value source	D148 [...] switch: direction of rotation: cw / ccw	D12E [...] switch: control function: heating (pos.) / cooling (neg.)	D104 [...] switch: parameter set: #1 / #2	D147 [...] source: sensor value	D101 [...] source: set value	D158 [0] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	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] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	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] active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC	D15A [7] PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV	D15A [8] 40Hz - 10KHz, characteristics parameterizable 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	D15A [6] 0-10V/max. 5mA max output frequency 300Hz, SELV	MODBUS RTU, specification V6.3, SELV	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...] voltage	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without fine voltage	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...] voltage	D16A [...] switch: fan enable / disable	D16C [...] switch: set value source	D148 [...] switch: direction of rotation: cw / ccw	D12E [...] switch: control function: heating (pos.) / cooling (neg.)	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D104 [...] switch: parameter set: #1 / #2	D147 [...] source: sensor value	D101 [...] source: set value	D158 [0] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	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] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	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] active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC	D15A [7] PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV	D15A [8] 40Hz - 10KHz, characteristics parameterizable 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	D15A [6] 0-10V/max. 5mA max output frequency 300Hz, SELV	MODBUS RTU, specification V6.3, SELV	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...] voltage	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without fine voltage	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...] voltage	D16A [...] switch: fan enable / disable	D16C [...] switch: set value source	D148 [...] switch: direction of rotation: cw / ccw	D12E [...] switch: control function: heating (pos.) / cooling (neg.)	D104 [...] switch: parameter set: #1 / #2	D147 [...] source: sensor value	D101 [...] source: set value	D158 [0] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	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] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	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] active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC	D15A [7] PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV	D15A [8] 40Hz - 10KHz, characteristics parameterizable 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	D15A [6] 0-10V/max. 5mA max output frequency 300Hz, SELV	MODBUS RTU, specification V6.3, SELV	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...] voltage	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without fine voltage	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...] voltage	D16A [...] switch: fan enable / disable	D16C [...] switch: set value source	D148 [...] switch: direction of rotation: cw / ccw	D12E [...] switch: control function: heating (pos.) / cooling (neg.)	D104 [...] switch: parameter set: #1 / #2	D147 [...] source: sensor value	D101 [...] source: set value	D158 [0] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	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] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	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] active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC	D15A [7] PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV	D15A [8] 40Hz - 10KHz, characteristics parameterizable 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	D15A [6] 0-10V/max. 5mA max output frequency 300Hz, SELV	MODBUS RTU, specification V6.3, SELV	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...] voltage	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without fine voltage	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...] voltage	D16A [...] switch: fan enable / disable	D16C [...] switch: set value source	D148 [...] switch: direction of rotation: cw / ccw	D12E [...] switch: control function: heating (pos.) / cooling (neg.)	D104 [...] switch: parameter set: #1 / #2	D147 [...] source: sensor value	D101 [...] source: set value	D158 [0] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	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] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	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] active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC	D15A [7] PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV	D15A [8] 40Hz - 10KHz, characteristics parameterizable 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	D15A [6] 0-10V/max. 5mA max output frequency 300Hz, SELV	MODBUS RTU, specification V6.3, SELV	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...] voltage	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without fine voltage	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV 15...50VDC	D16E [...] voltage	D16A [...] switch: fan enable / disable	D16C [...] switch: set value source	D148 [...] switch: direction of rotation: cw / ccw	D12E [...] switch: control function: heating (pos.) / cooling (neg.)	D104 [...] switch: parameter set: #1 / #2	D147 [...] source: sensor value	D101 [...] source: set value	D158 [0] active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	D158 [2] RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV	D158 [5] U _{max}
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EC axial panel fan - AxiCool

sickle-shaped blades (S series)

Fan housing with guide vanes

Curves: Air performance 50 Hz



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

Measurement: LU-190330-1
Date: 2017-12-14
Housing: 60800-2-2910

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	1080	1794	2.83	73	81	82	28790	0	16945	0.00
2	3~	400	50	1080	2089	3.26	72	80	81	25955	90	15275	0.36
3	3~	400	50	1080	2349	3.64	75	83	82	22625	180	13320	0.72
4	3~	400	50	1080	2450	3.80	85	93	93	16650	270	9800	1.08
5	3~	400	50	950	1208	1.90	70	78	79	25230	0	14850	0.00
6	3~	400	50	950	1411	2.20	69	77	78	22770	70	13405	0.28
7	3~	400	50	950	1580	2.45	72	79	79	19830	139	11670	0.56
8	3~	400	50	950	1672	2.59	82	89	90	14620	209	8605	0.84
9	3~	400	50	800	721	1.14	66	74	75	21245	0	12505	0.00
10	3~	400	50	800	843	1.31	64	73	73	19175	50	11285	0.20
11	3~	400	50	800	944	1.46	67	75	75	16700	98	9830	0.39
12	3~	400	50	800	999	1.54	78	85	86	12310	148	7245	0.59
13	3~	400	50	650	387	0.61	60	68	70	17265	0	10160	0.00
14	3~	400	50	650	452	0.70	59	67	68	15580	33	9170	0.13
15	3~	400	50	650	506	0.78	62	70	69	13570	65	7985	0.26
16	3~	400	50	650	536	0.83	72	80	80	10005	98	5890	0.39

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