EC centrifugal module

backward-curved, single-intake

with support bracket

K3G355-AT56-21 ebmpapst Datasheet
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Nominal data

Type	**K3G355-AT56-21**
Motor	**M3G112-EA**

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}	2200
Power consumption	W	1050
Current draw	A	1.75
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	50

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

Data according to ErP Directive

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	57.7	51.3
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		68.4	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	0.96
09 Air flow q_v	m^3/h	3090
09 Pressure increase p_{fs}	Pa	595
10 Speed (rpm) n	min^{-1}	2205
11 Specific ratio*		1.01

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

* Specific ratio = 1 + p_{fs} / 100 000 Pa

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Technical description

Weight	13.5 kg
Fan size	355 mm
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted black
Impeller material	Sheet aluminum, painted black
Support plate material	Sheet steel, hot-dip galvanized and painted black
Support bracket material	Steel, galvanized and painted black
Inlet nozzle material	Sheet steel, hot-dip galvanized and painted black
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	F4-2
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	Shaft horizontal
Condensation drainage holes	None
Mode	S1
Motor bearing	Ball bearing
Technical features	- Output 10 VDC, max. 10 mA - Output 20 VDC, max. 50 mA - Output for slave 0-10 V - Input for sensor 0-10 V or 4-20 mA - Alarm relay - Integrated PID controller - Motor current limitation - PFC, active - RS-485 ebmBUS - Soft start - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from the mains - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC circuit feedback	According to EN 61000-3-2/3
EMC interference emission	According to EN 61000-6-3 (household environment)
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Via terminal box; With plug
Motor protection	Thermal overload protector (TOP) internally connected
Protection class	I (with customer connection of protective earth)
Conformity with standards	CE
Approval	EAC

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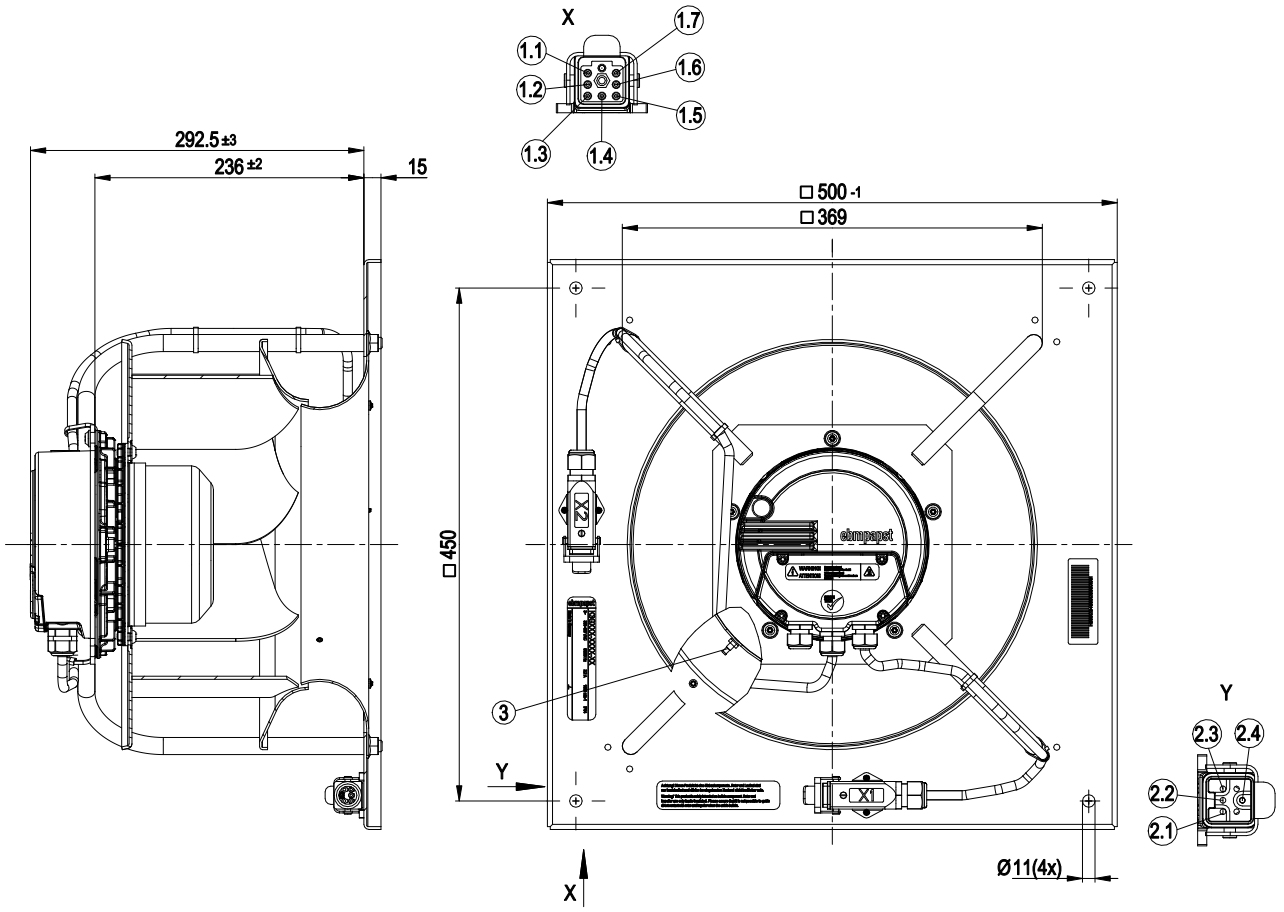
Product drawing



1	Cable halogen-free with connector housing Harting no. 19200031250 and no. 09120073001; 7x plug pin TB09150006105
1.1	GND
1.2	0-10 V/PWM
1.3	+20 V
1.4	+10 V
1.5	NO
1.6	COM
1.7	NC
2	Cable halogen-free with connector housing Harting no. 19200031250; pin insert no. 09120053001; 3x plug pin no. TB09330006104
2.1	L1
2.2	L2
2.3	L3
2.4	PE
3	Pressure tap
4	Installation position: Shaft horizontal (only install support struts vertically as illustrated)

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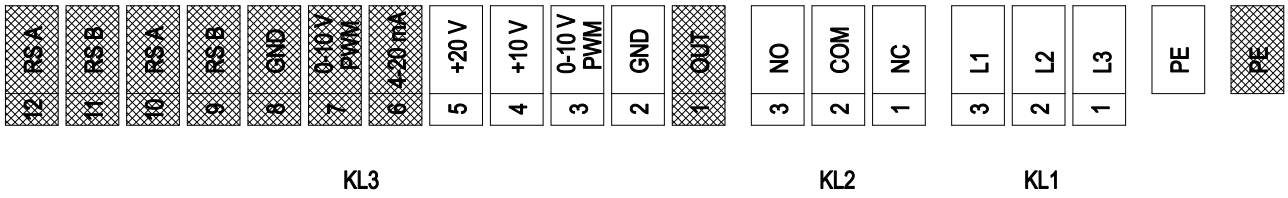
Connection diagram



shaded gray => not brought out via leads

No.	Conn.	Designation	Function/assignment
		PE	Ground connection; PE connection
1	1	L3	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
1	2	L2	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
1	3	L1	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
2	1	NC	Status relay; floating status contact; break for failure
2	2	COM	Status relay; floating status contact; changeover contact; common connection; contact rating 250 VAC/ max. 2 A (AC1)/min. 10 mA
2	3	NO	Status relay; floating status contact; make for failure
3	1	OUT	Analog output 0-10 V; max. 5 mA; output of current motor modulation level
3	2	GND	Reference ground for control interface
3	3	0 - 10 V / PWM	Analog input (set value for open-loop and closed-loop speed control/measured value for external sensor control); 0 - 10 V; Ri = 100 kΩ; only usable as alternative to 4 - 20 mA input
3	4	+10 V	Fixed voltage output 10 VDC; +10 V + 15%; max. 10 mA; short-circuit-proof; power supply for ext. devices (e.g. potentiometers)
3	5	+20 V	Fixed voltage output 20 VDC; +20 V ± 20%; max. 50 mA; short-circuit-proof; power supply for ext. devices (e.g. sensors)
3	6	4 - 20 mA	Analog input (set value for open-loop and closed-loop speed control/measured value for external sensor control); 4 - 20 mA; Ri = 100 Ω; only usable as alternative to 0 - 10 V/PWM input
3	7	0 -10 V / PWM	Analog input (set value for open-loop and closed-loop speed control/measured value for external sensor control); 0 - 10 V; Ri = 100 kΩ; electrically directly in parallel with KL3.3; only usable as alternative to 4 - 20 mA input
3	8	GND	Reference ground for control interface
3	9	RS B	Bus connection RS485; RSB; ebm BUS
3	10	RS A	Bus connection RS485; RSA; ebm BUS
3	11	RS B	Bus connection RS485; RSB; ebm BUS, electrically directly in parallel with KL. 3.9
3	12	RS A	Bus connection RS485; RSA; ebm BUS; electrically directly in parallel with Kl.3.10

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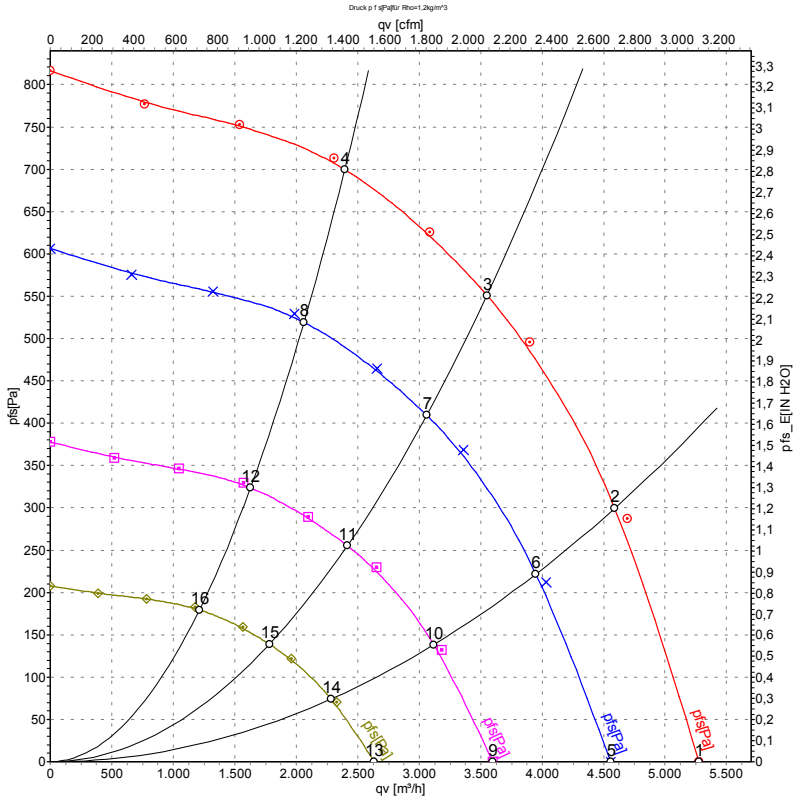
Curves: Air performance 50 Hz



Measurement: LU-101282-1
Measurement: LU-101283-1

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

	U	f	n	P_{ed}	I	LpA_{in}	LwA_{in}	LwA_{out}	qv	p_{fs}	qv	p_{fs}
	V	Hz	min^{-1}	W	A	dB(A)	dB(A)	dB(A)	m^3/h	Pa	CFM	inH2O
1	400	50	2200	696	1.22	80	88	92	5275	0	3105	0.00
2	400	50	2200	907	1.52	77	85	90	4590	300	2700	1.20
3	400	50	2200	1050	1.75	73	81	86	3550	550	2090	2.21
4	400	50	2200	889	1.49	73	81	86	2395	700	1410	2.81
5	400	50	1900	448	0.79	77	85	89	4555	0	2680	0.00
6	400	50	1900	576	0.97	74	82	87	3950	232	2325	0.93
7	400	50	1900	619	1.02	70	78	83	3060	410	1800	1.65
8	400	50	1900	568	0.96	70	78	82	2065	522	1215	2.10
9	400	50	1500	221	0.39	72	80	84	3595	0	2115	0.00
10	400	50	1500	284	0.48	69	77	81	3115	145	1835	0.58
11	400	50	1500	304	0.50	65	73	78	2415	255	1425	1.02
12	400	50	1500	280	0.47	65	73	77	1630	325	960	1.30
13	400	50	1100	116	0.29	64	72	77	2635	0	1550	0.00
14	400	50	1100	143	0.33	62	70	75	2285	77	1345	0.31
15	400	50	1100	154	0.35	58	66	71	1785	139	1050	0.56
16	400	50	1100	148	0.33	55	63	68	1215	180	715	0.72

U = Power supply · 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 · qv = Air flow · p_{fs} = Pressure increase