EC centrifugal module - RadiCal

backward-curved, single-intake

with support bracket

ErP2015 EXCEEDS THE NORM

Nominal data

Type	**K3G400-RG56-22**
Motor	**M3G112-EA**

Phase		1~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200 .. 277
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min^{-1}	1690
Power consumption	W	740
Current draw	A	3.2
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	45

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}	%	66	50.1
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		77.9	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	0.74
09 Air flow q_v	m^3/h	3605
09 Pressure increase p_{fs}	Pa	445
10 Speed (rpm) n	min^{-1}	1695
11 Specific ratio*		1.00

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

LU-164870

ebmpapst

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Technical description

Weight	16.5 kg
Fan size	400 mm
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Support plate material	Sheet steel, galvanized
Support bracket material	Steel, painted black
Inlet nozzle material	Sheet steel, galvanized
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	F4-1
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	See product drawing
Condensation drainage holes	On rotor side
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 - Operation and alarm display - Selection of direction of rotation left/right - Input for sensor 0-10 V or 4-20 mA - External 24 V input (parameter setting) - Alarm relay - Integrated PID controller - Motor current limitation - PFC, active - RS-485 MODBUS-RTU - Soft start - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from supply - 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 55022 (Class A, industrial environment)
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Via terminal box
Motor protection	Thermal overload protector (TOP) internally connected
With cable	Variable
Protection class	I (with customer connection of protective earth)

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Conformity with standards	EN 61800-5-1; CE
Approval	CCC; EAC

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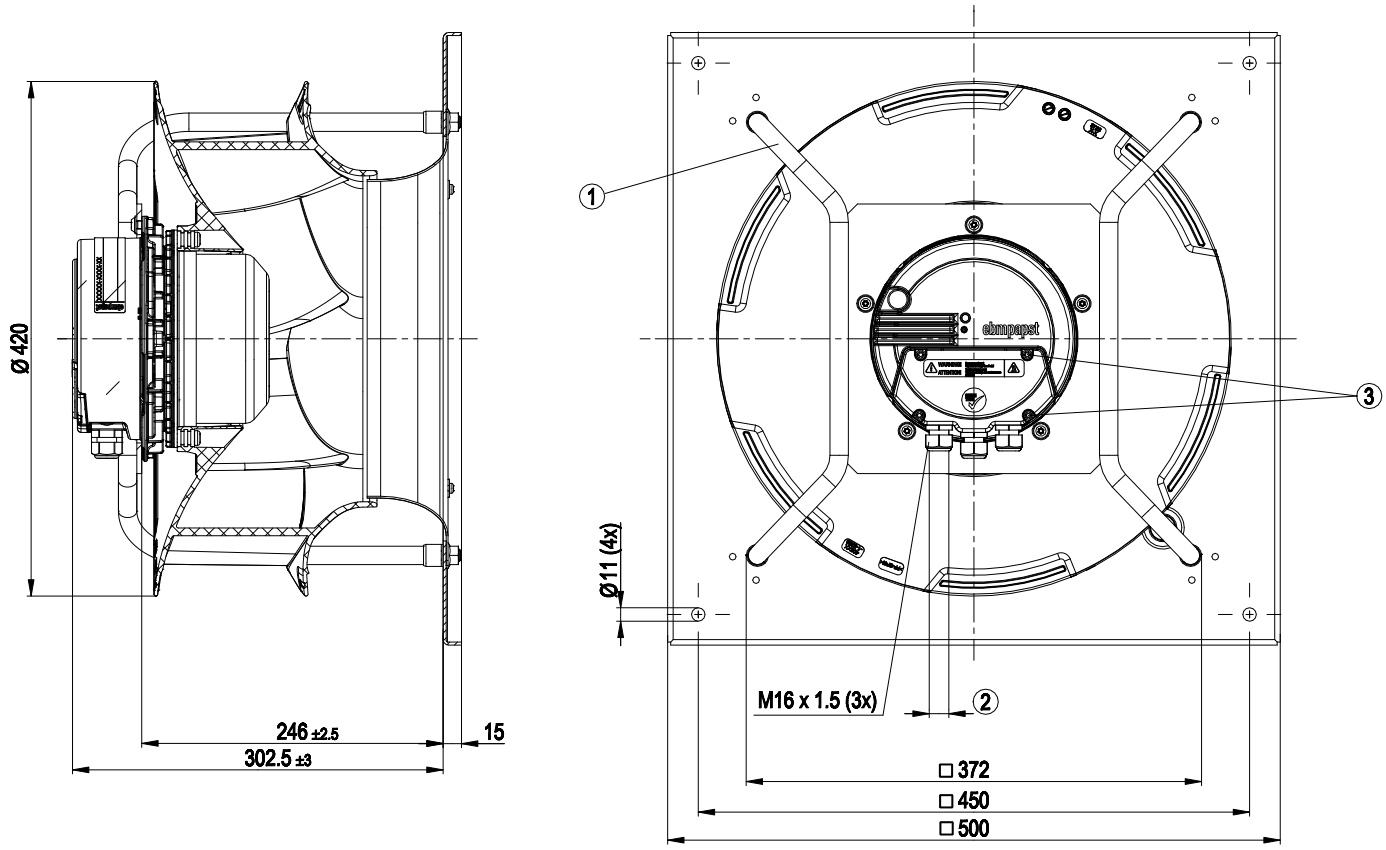
Product drawing



1	Installation position: Shaft horizontal (only install support struts vertically as illustrated) or rotor on bottom; rotor on top on request
2	Cable diameter min. 4 mm, max. 10 mm; tightening torque 4±0.6 Nm
3	Tightening torque 3.5 ± 0.5 Nm

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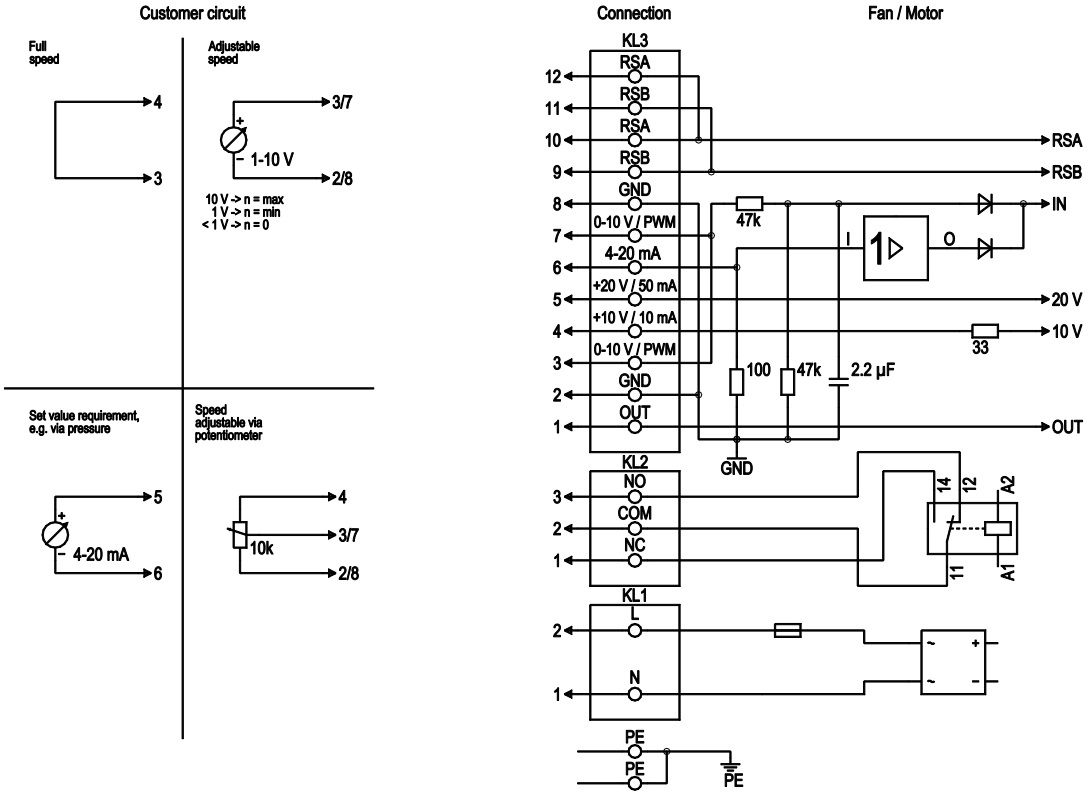
Connection diagram



No.	Conn.	Designation	Function/assignment
PE	-	PE	Protective earth terminal
KL1	1, 2	N, L	Power supply 50/60 Hz
KL2	1	NC	Floating status contact, break for failure
KL2	2	COM	Floating status contact, changeover contact, common connection (2 A, max. 250 VAC, min. 10 mA, AC1)
KL2	3	NO	Floating status contact, make for failure
KL3	1	OUT	Analog output, 0-10 VDC, max. 3 mA, SELV output of current motor modulation level: 1 V corresponds to 10% modulation level. 10 V corresponds to 100% modulation level.
KL3	2, 8	GND	Reference ground for control interface, SELV
KL3	3, 7	0-10 V	Control/current sensor value input 0-10 VDC, impedance 100 kΩ, use only as alternative to 4-20 mA input, SELV
KL3	4	+10 V	Voltage output 10 VDC (+/- 3%), max. 10 mA, power supply for ext. devices (e.g. potentiometer), SELV
KL3	5	+20 V	Voltage output 20 VDC (+25%/-10%), max. 50 mA power supply for ext. devices (e.g. sensors), SELV
KL3	6	4-20 mA	Control/current sensor value input 4-20 mA, impedance 100 Ω, use only as alternative to 0-10 V input, SELV
KL3	9, 11	RSB	RS485 interface for MODBUS, RSB
KL3	10, 12	RSA	RS485 interface for MODBUS, RSA

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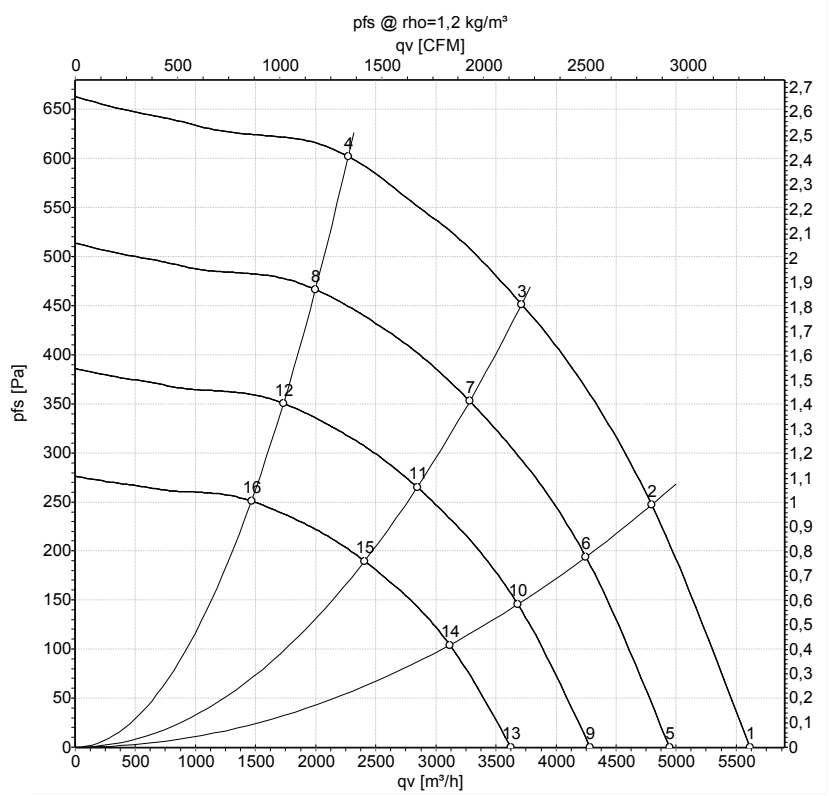
Curves: Air performance 50 Hz



Measurement: LU-164870-1

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	qv	p_{fs}	qv	p_{fs}
	V	Hz	min^{-1}	W	A	m^3/h	Pa	CFM	inH2O
1	230	50	1690	519	2.27	5615	0	3305	0.00
2	230	50	1690	687	3.00	4795	250	2825	1.00
3	230	50	1690	740	3.20	3715	450	2185	1.81
4	230	50	1690	684	2.98	2270	600	1335	2.41
5	230	50	1500	354	1.55	4945	0	2910	0.00
6	230	50	1500	478	2.08	4250	196	2500	0.79
7	230	50	1500	510	2.22	3285	353	1930	1.42
8	230	50	1500	466	2.03	2000	466	1175	1.87
9	230	50	1300	230	1.01	4285	0	2520	0.00
10	230	50	1300	311	1.36	3680	148	2165	0.59
11	230	50	1300	332	1.45	2845	265	1675	1.06
12	230	50	1300	304	1.32	1730	350	1020	1.41
13	230	50	1100	140	0.61	3625	0	2135	0.00
14	230	50	1100	188	0.82	3115	106	1835	0.43
15	230	50	1100	201	0.88	2405	190	1415	0.76
16	230	50	1100	184	0.80	1465	251	860	1.01

U = Power supply · f = Frequency · n = Speed (rpm) · P_{ed} = Power consumption · I = Current draw · qv = Air flow · p_{fs} = Pressure increase