EC centrifugal fan - RadiCal

backward-curved, single-intake

R3G355-RG60-27 ebmpapst Datasheet
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Amtsgericht (court of registration) Stuttgart · HRA 590344

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Nominal data

Type	**R3G355-RG60-27**
Motor	**M3G112-EA**

Phase		1~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200 .. 277
Frequency	Hz	50/60
Method of obtaining data		ml
Status		prelim.
Speed (rpm)	min^{-1}	2590
Power consumption	W	1500
Current draw	A	6.5
Min. ambient temperature	°C	-40
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 Commission Regulation (EU) 327/2011

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	61.2	53.3
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		69.9	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	1.49
09 Air flow q_v	m^3/h	3950
09 Pressure increase p_{fs}	Pa	780
10 Speed (rpm) n	min^{-1}	2595
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

LU-190538

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Technical description

Size	355 mm
Motor size	112
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	H1
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	- Output 10 VDC, max. 10 mA - Output 20 VDC, max. 50 mA - Output for slave 0-10 V - Tach output - Input for sensor 0-10 V or 4-20 mA - External 24 V input (parameter setting) - External release input - Alarm relay - Integrated PID controller - Power limiter - 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 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	Thermal overload protector (TOP) internally connected
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	UL 1004-7 + 60730-1; EAC

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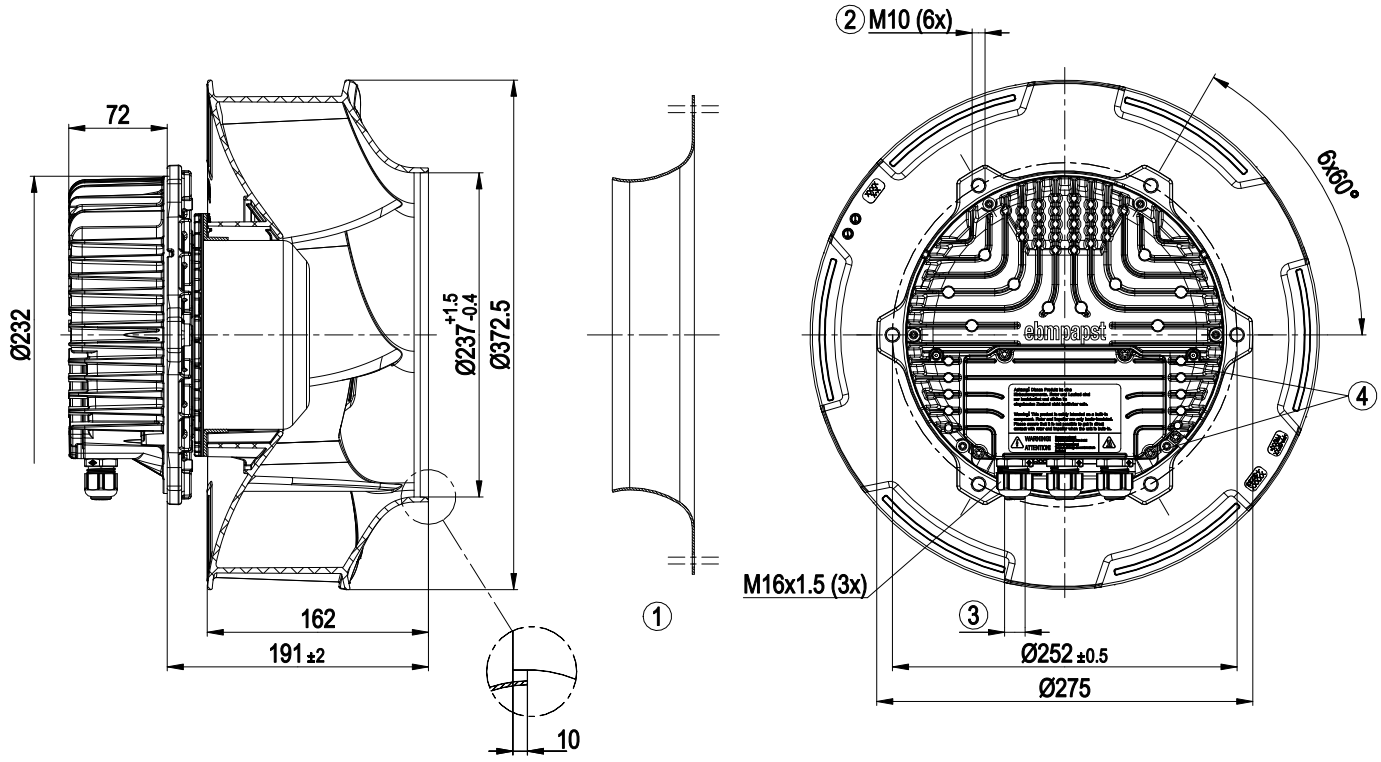
Product drawing



1	Accessory part: inlet ring 35500-2-4013 not included in scope of delivery
2	Max. clearance for screw 16 mm
3	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
4	Tightening torque 3.5 ± 0.5 Nm

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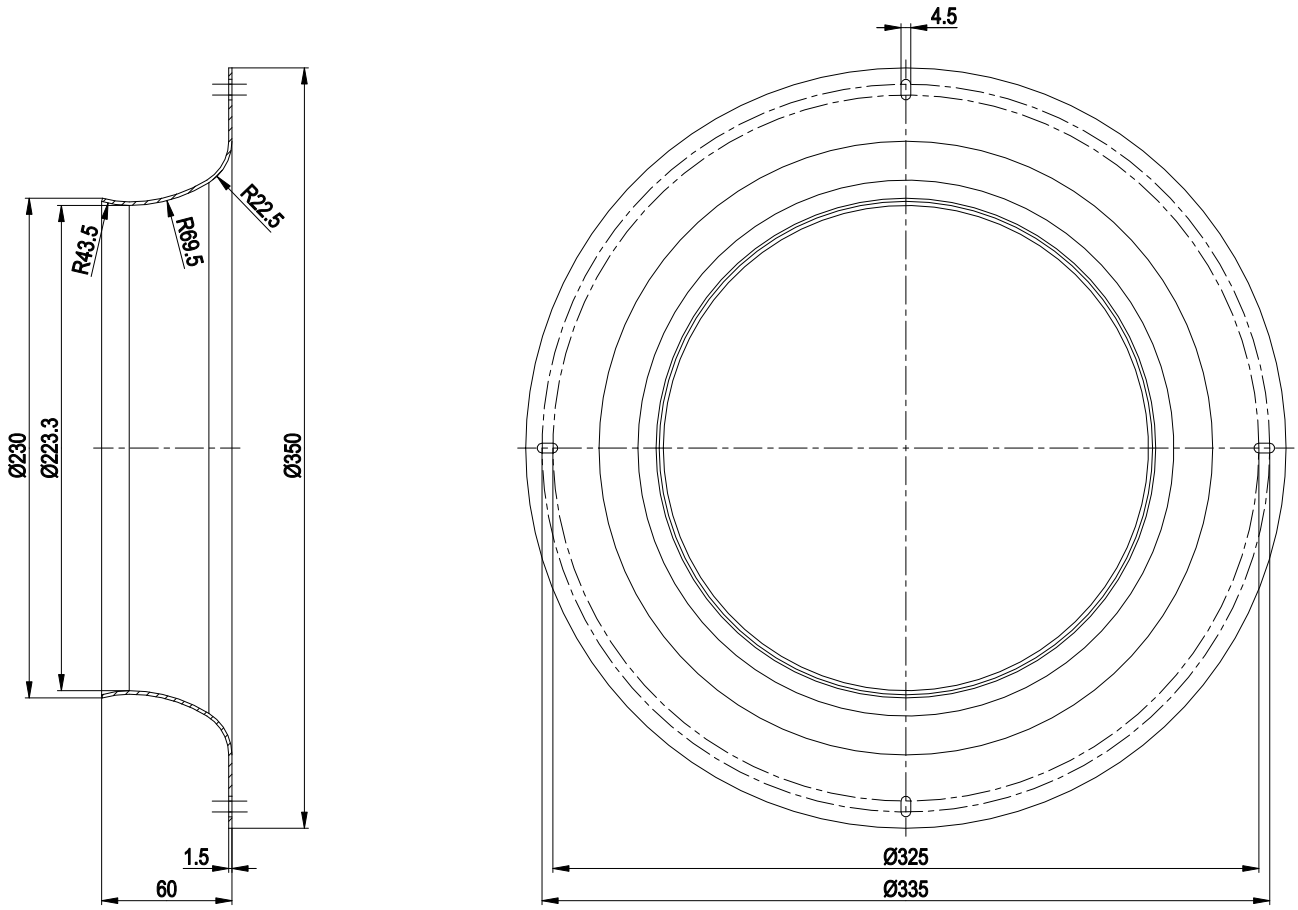
Accessory part



Inlet ring 35500-2-4013 not included in scope of delivery

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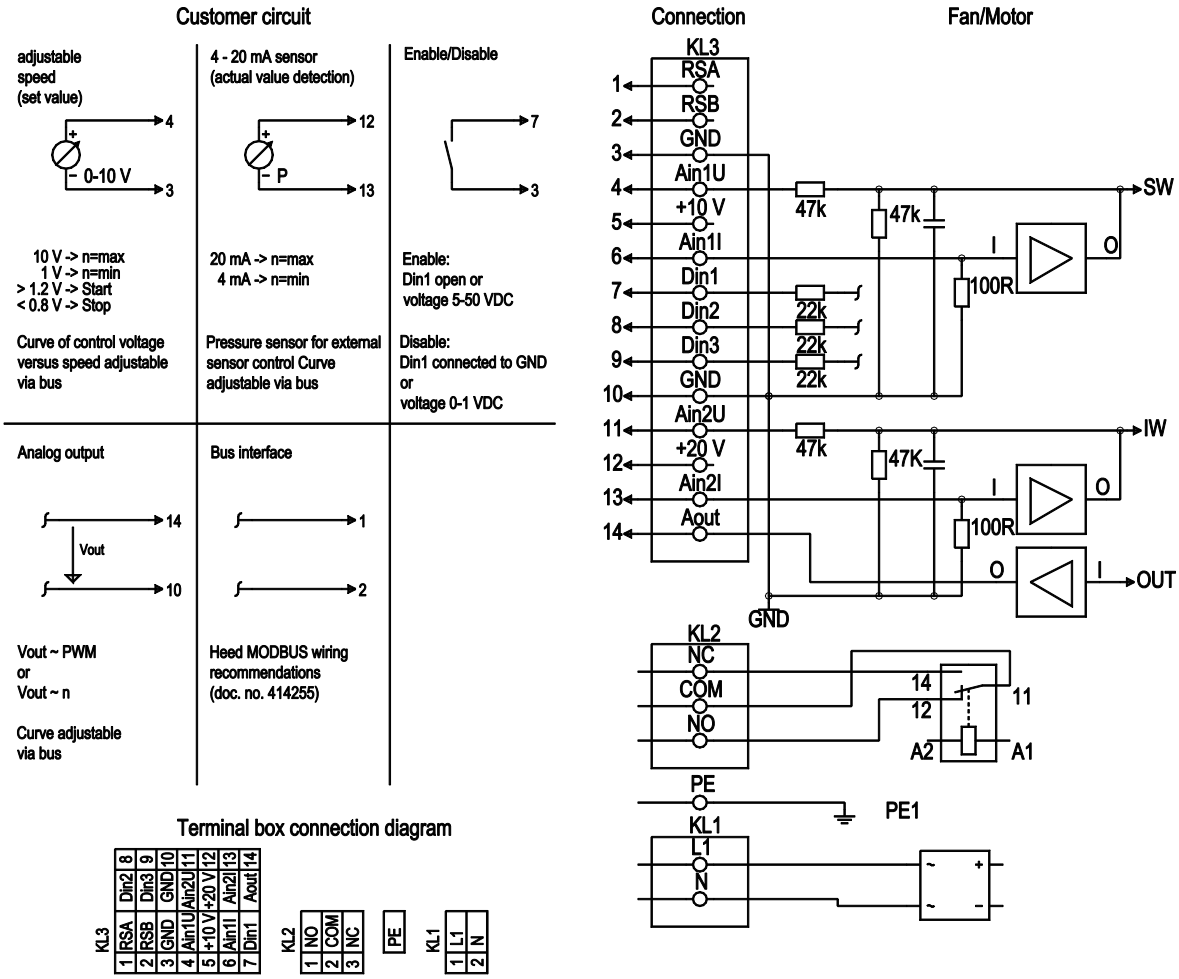
Connection diagram



No.	Conn.	Designation	Function/assignment
KL1	1, 2	L1/N	Supply connection, power supply; for nominal voltage range see technical data
PE	PE	PE	Ground connection, PE connection
KL2	1	NO	Status relay, floating status contact, make for failure
KL2	2	COM	Status relay, floating status contact, changeover contact, common connection, contact rating, max. 250 VAC/2 A (AC1)/min. 10 mA
KL2	3	NC	Status relay, floating status contact, break for failure
KL3	1	RSA	Bus connection RS485, RSA, MODBUS-RTU; SELV
KL3	2	RSB	Bus connection RS485, RSB, MODBUS-RTU; SELV
KL3	3	GND	Reference ground for control interface, SELV
KL3	4	Ain1 U	Analog input 1, set value: 0-10 V, Ri = 100 kΩ, adjustable curve, only usable as alternative to input Ain1 I; SELV
KL3	5	+10 V	Fixed voltage output 10 VDC, +10 V ± 3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. pot); SELV
KL3	6	Ain1 I	Analog input 1, set value: 4-20 mA, Ri = 100 Ω, adjustable curve, only usable as alternative to input Ain1 U; SELV
KL3	7	Din1	Digital input 1: enable electronics, enable: pin open or applied voltage 5-50 VDC disable: bridge to GND or applied voltage < 1 VDC reset function: triggers software reset after a level change to < 1 VDC; SELV

No.	Conn.	Designation	Function/assignment
KL3	8	Din2	Digital input 2: Switching parameter sets 1/2, according to EEPROM setting, the valid or used parameter set can be selected via bus or via digital input DIN2. Parameter set 1: pin open or applied voltage 5-50 VDC Parameter set 2: bridge to GND or applied voltage < 1 VDC; SELV
KL3	9	Din3	Digital input 3: according to EEPROM setting, the integrated controller's direction of action can be selected via bus or digital input Din3; normal: pin open or applied voltage 5-50 VDC inverse: bridge to GND or applied voltage < 1 VDC; SELV
KL3	10	GND	Reference ground for control interface, SELV
KL3	11	Ain2 U	Analog input 2, measured value: 0-10 V, Ri = 100 kΩ, adjustable curve, only usable as alternative to input Ain2 I; SELV
KL3	12	+20 V	Fixed voltage output 20 VDC, +20 V +25/-10%, max. 50 mA, short-circuit-proof, power supply for external devices (e.g. sensors); SELV Alternatively: +24 VDC input for parameterization without line voltage
KL3	13	Ain2 I	Analog input 2, measured value: 4-20 mA, Ri = 100 Ω, adjustable curve, only usable as alternative to input Ain2 U; SELV
KL3	14	Aout	Analog output 0-10 VDC, max. 5 mA, output of current motor modulation level / motor speed adjustable curve; SELV

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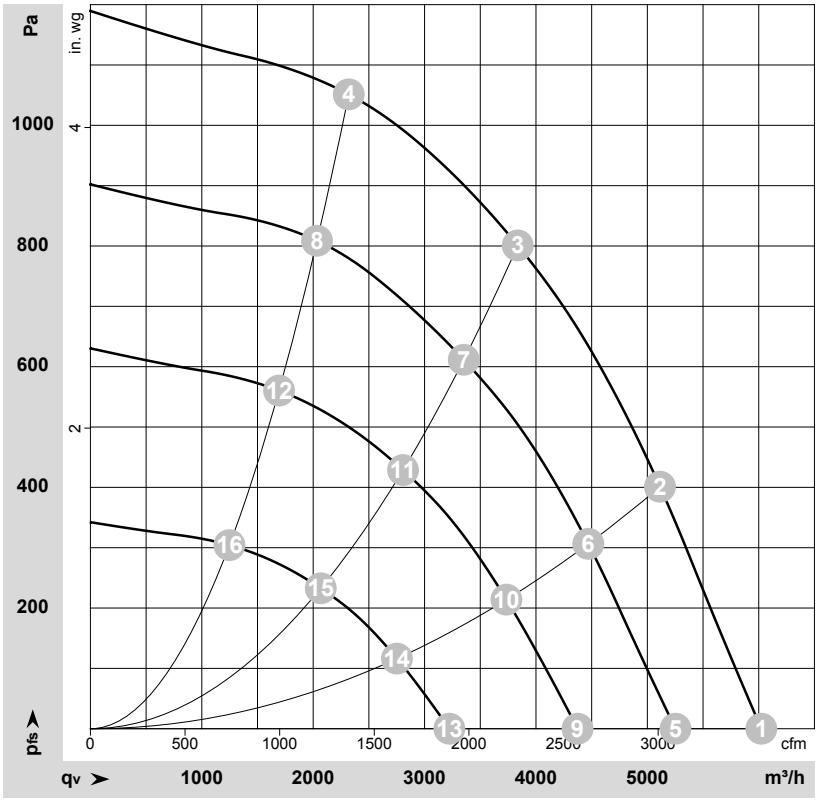
Curves: Air performance 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-190538-1
Measurement: LU-190586-1

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	1~	230	50	2590	1036	4.53	88	94	96	6025	0	3545	0.00
2	1~	230	50	2590	1359	5.93	82	89	93	5115	400	3010	1.61
3	1~	230	50	2590	1500	6.50	72	79	86	3835	800	2260	3.21
4	1~	230	50	2590	1381	6.02	74	81	87	2320	1052	1365	4.22
5	1~	230	50	2280	703	3.08	81	88	91	5255	0	3090	0.00
6	1~	230	50	2280	921	4.02	79	85	89	4470	312	2630	1.25
7	1~	230	50	2280	1000	4.37	68	76	82	3350	613	1975	2.46
8	1~	230	50	2280	932	4.07	72	79	83	2035	809	1195	3.25
9	1~	230	50	1900	406	1.78	76	83	86	4375	0	2575	0.00
10	1~	230	50	1900	536	2.34	74	81	84	3735	217	2200	0.87
11	1~	230	50	1900	587	2.56	63	71	77	2805	430	1650	1.73
12	1~	230	50	1900	538	2.35	67	74	78	1695	561	995	2.25
13	1~	230	50	1400	162	0.71	68	75	79	3225	0	1895	0.00
14	1~	230	50	1400	215	0.94	67	73	77	2750	118	1620	0.47
15	1~	230	50	1400	235	1.03	55	64	70	2070	233	1215	0.94
16	1~	230	50	1400	215	0.94	59	67	71	1250	304	735	1.22

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