EC centrifugal fan - RadiCal

R3G310-PQ09-C2 ebmpapst Datasheet
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Nominal data

Type	**R3G310-PQ09-C2**
Motor	**M3G084-GF**

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}	2780
Power consumption	W	1000
Current draw	A	1.7
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	55

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}	%	70.6	51.1
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		81.5	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	0.92
09 Air flow q_v	m^3/h	3405
09 Pressure increase p_{fs}	Pa	638
10 Speed (rpm) n	min^{-1}	2800
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-182849

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Technical description

Weight	7.23 kg
Fan size	310 mm
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	Sheet aluminum
Number of blades	5
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	H1
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 - Input for sensor 0-10 V or 4-20 mA - External 24 V input (parameter setting) - Alarm relay - Power limiter - Motor current limitation - 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
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
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	C22.2 No.77 + CAN/CSA-E60730-1; UL 1004-7 + 60730; EAC

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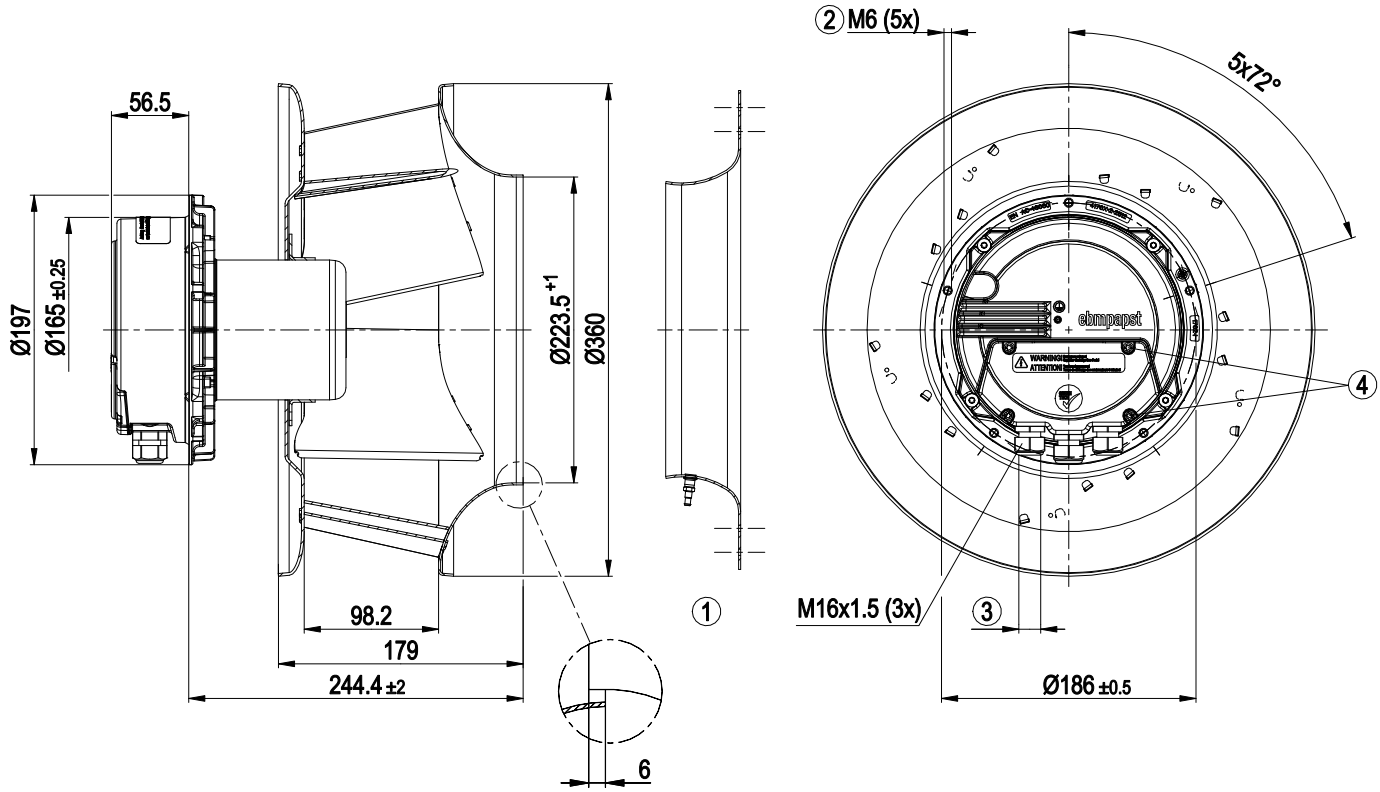
Product drawing



1	Accessory part: Inlet ring 31475-2-4013 with pressure tap (k-factor: 116) not included in scope of delivery
2	Max. clearance for screw 16 mm
3	Cable diameter: min. 4 mm, max. 10 mm, tightening torque 2.5±0.4 Nm
4	Tightening torque 3.5 ± 0.5 Nm

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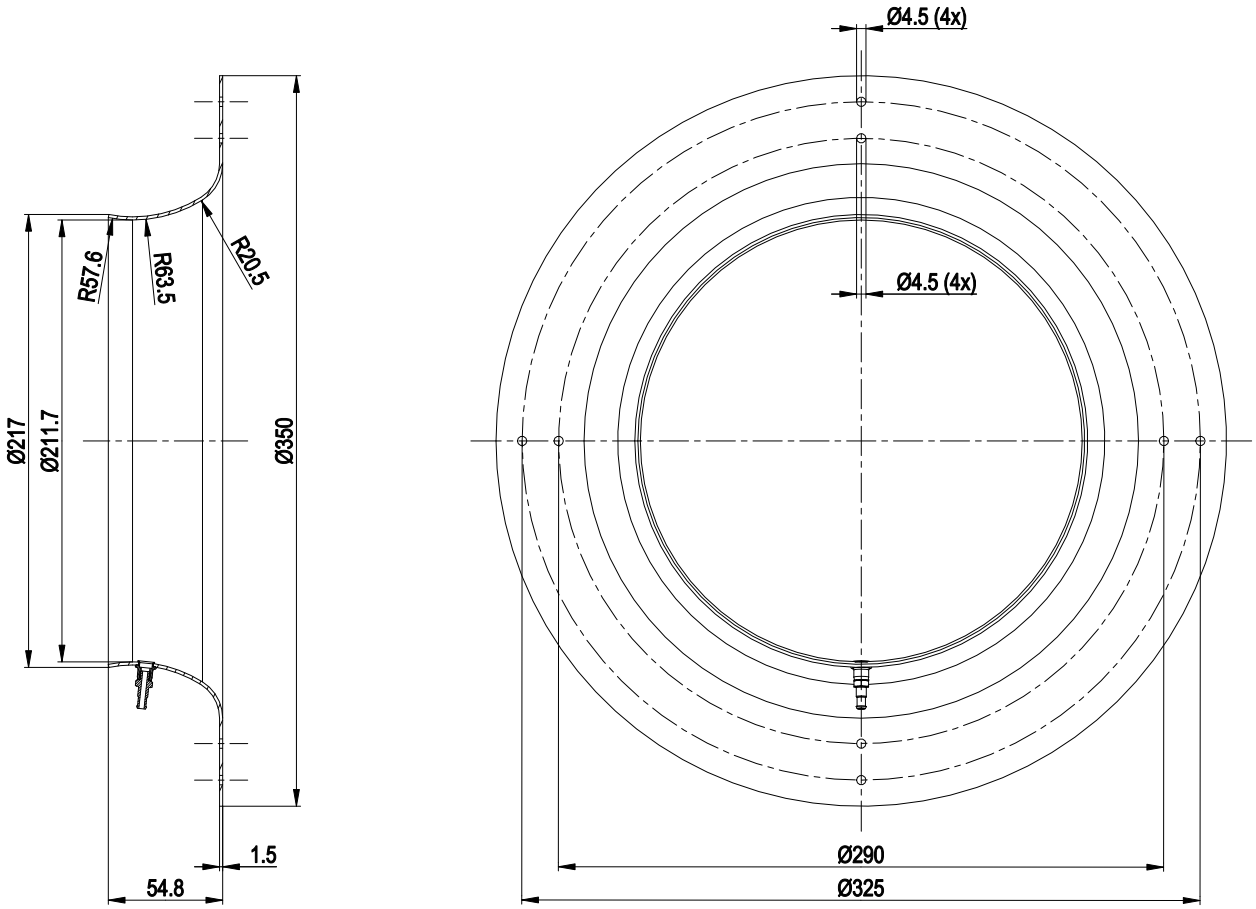
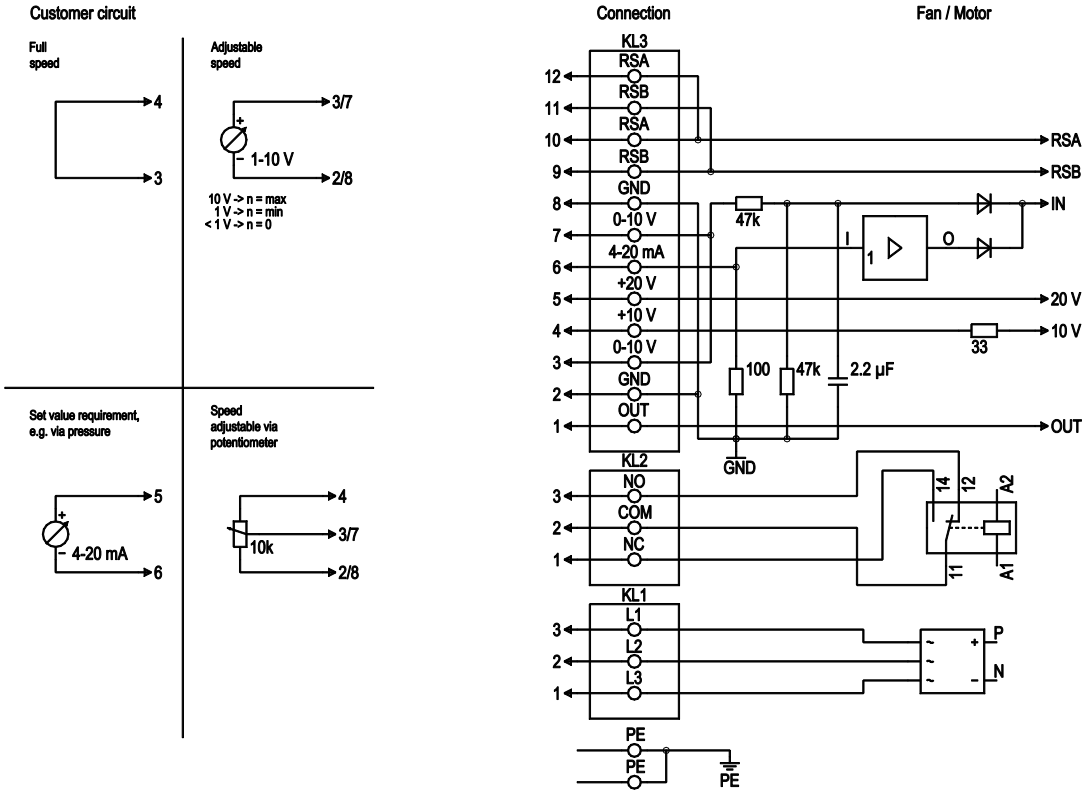
Accessory part



Inlet ring 31475-2-4013 with pressure tap (k-factor: 116) not included in scope of delivery

Connection diagram



No.	Conn.	Designation	Function/assignment
PE		PE	Protective earth terminal
KL1	1, 2, 3	L1, L2, L3	Power supply, voltage range (see nameplate), 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	Use control / current sensor value input 0-10 VDC, impedance 100 kΩ only as alternative to 4-20 mA input, SELV
KL3	4	+10 V	Voltage output 10 VDC (±3%), max. 10 mA, power supply for external devices (e.g. potentiometer), SELV
KL3	5	+20 V	Voltage output 20 VDC (+25%/-10%), max. 50 mA, power supply for external devices (e.g. sensors), SELV
KL3	6	4-20 mA	Use control / current sensor value input 4-20 mA, impedance 100 Ω 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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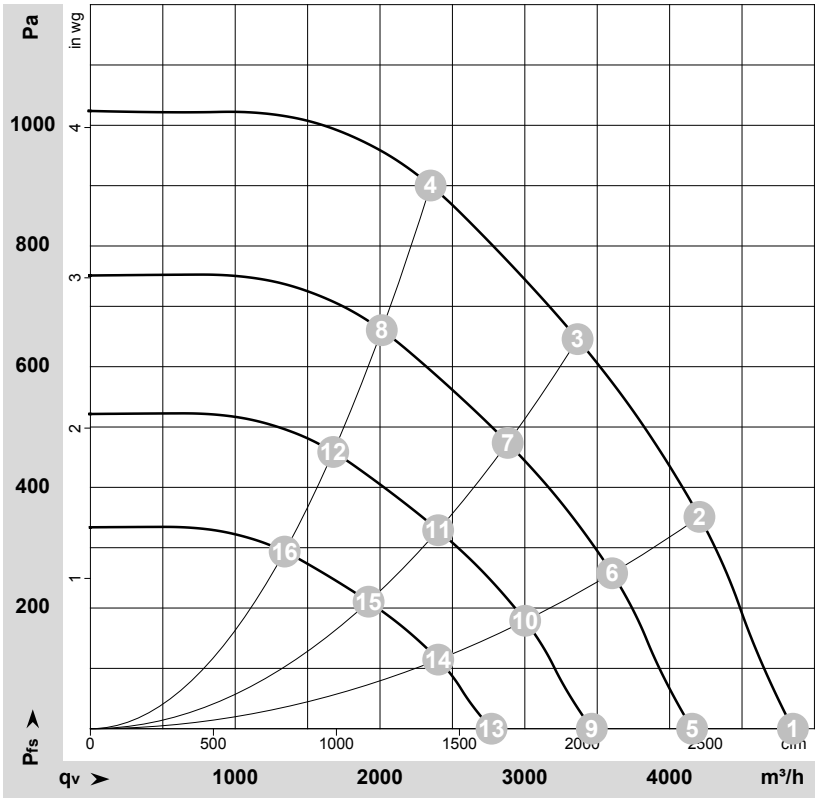
Curves: Air performance 50 Hz



ρ = 1.174 kg/m³ ± 2 %

Measurement: LU-182849-1

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}	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	400	50	2780	531	1.00	83	91	93	4850	0	2855	0.00
2	400	50	2780	797	1.40	77	85	87	4205	350	2475	1.41
3	400	50	2780	933	1.58	72	80	82	3365	650	1980	2.61
4	400	50	2780	1000	1.70	75	81	83	2350	900	1385	3.61
5	400	50	2400	334	0.63	80	87	89	4155	0	2445	0.00
6	400	50	2400	501	0.88	73	81	83	3605	259	2120	1.04
7	400	50	2400	586	0.99	68	76	78	2880	476	1695	1.91
8	400	50	2400	629	1.05	71	78	79	2010	663	1185	2.66
9	400	50	2000	193	0.37	75	83	85	3465	0	2040	0.00
10	400	50	2000	290	0.51	69	76	79	3000	180	1765	0.72
11	400	50	2000	339	0.58	64	72	74	2400	330	1415	1.32
12	400	50	2000	364	0.61	66	73	75	1675	461	985	1.85
13	400	50	1600	99	0.19	69	77	79	2770	0	1630	0.00
14	400	50	1600	148	0.26	63	71	73	2400	115	1415	0.46
15	400	50	1600	174	0.29	58	66	68	1920	211	1130	0.85
16	400	50	1600	186	0.31	60	67	69	1340	295	790	1.18

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 · q_V = Air flow · p_{fs} = Pressure increase