EC centrifugal fan - RadiCal

backward-curved, single-intake

R3G250-RR01-H6 ebmpapst Datasheet
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Nominal data

Type	**R3G250-RR01-H6**
Motor	**M3G084-DF**

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}	3740
Power consumption	W	500
Current draw	A	2.2
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	60

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}	%	60.1	48.3
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		73.8	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	0.5
09 Air flow q_v	m^3/h	1355
09 Pressure increase p_{fs}	Pa	733
10 Speed (rpm) n	min^{-1}	3735
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-151690

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Technical description

Weight	3.9 kg
Fan size	250 mm
Rotor surface	Painted black
Impeller material	PA plastic UL94 V0
Housing material	Die-cast aluminum
Number of blades	7
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
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 - Operation and alarm display - Tach output - 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
Motor protection	Thermal overload protector (TOP) internally connected
With cable	Variable
Protection class	I (if protective earth is connected by customer to the housing's connection point)
Conformity with standards	EN 61800-5-1; EN 60335-1; CE
Approval	C22.2 No.77 + CAN/CSA-E60730-1; UL 1004-7 + 60730; EAC

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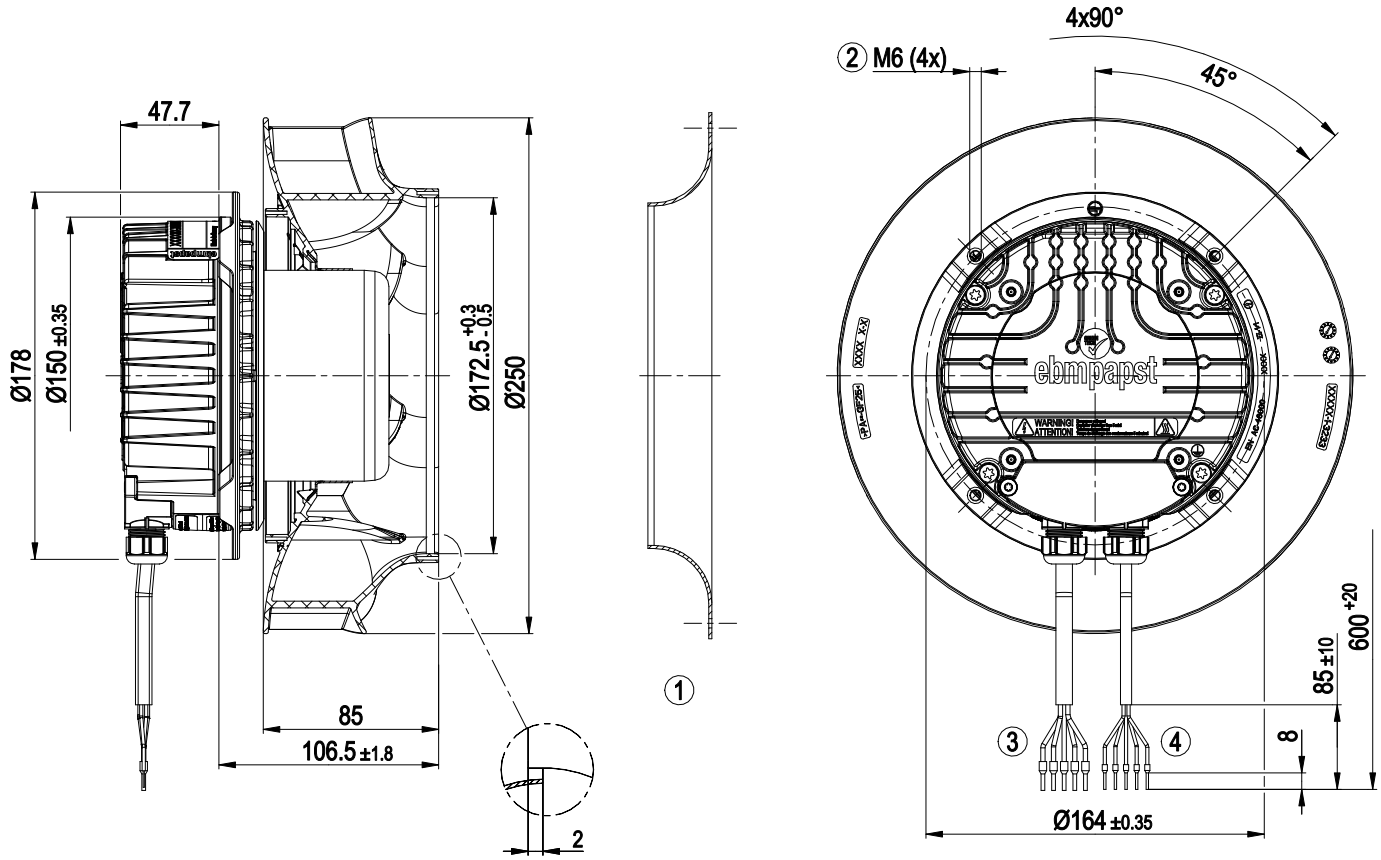
Product drawing



1	Accessory part: inlet ring 96359-2-4013 not included in scope of delivery
2	Max. clearance for screw 16 mm
3	Cable PVC AWG18, 5x crimped ferrules
4	Cable PVC AWG22, 6x crimped ferrules

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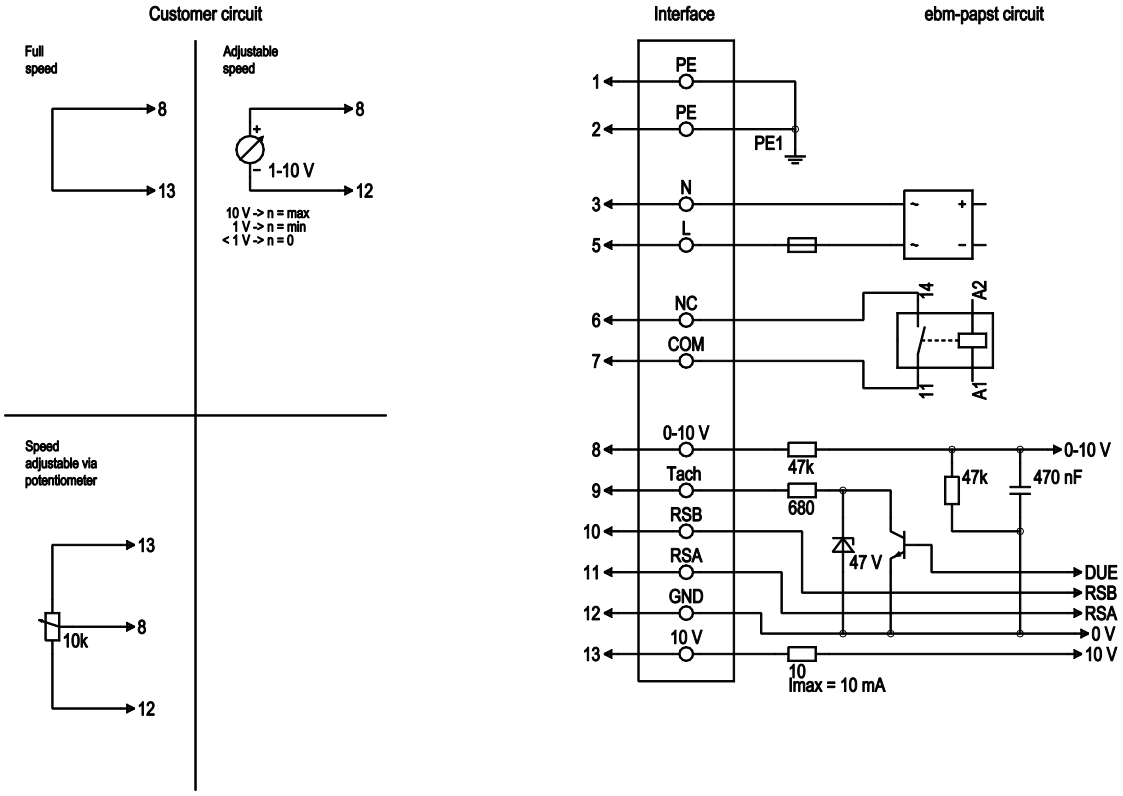
Connection diagram



No.	Conn.	Designation	Color	Function/assignment
1	1, 2	PE	green/yellow	Protective earth
1	3	N	blue	Power supply, neutral conductor, 50/60 Hz
1	5	L	black	Power supply, phase, 50/60 Hz
1	6	NC	white 1	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; basic insulation on supply side and reinforced insulation on control interface side
1	7	COM	white 2	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; basic insulation on supply side and reinforced insulation on control interface side
2	8	0-10 V	yellow	Analog input (set value) SELV, 0-10 V, Ri = 100 kΩ, adjustable curve
2	9	Tacho	gray	Tach output: open collector, 1 pulse per revolution, Isink max = 10 mA, SELV
2	10	RSB	brown	RS485 interface for MODBUS, RSB; SELV
2	11	RSA	white	RS485 interface for MODBUS, RSA; SELV
2	12	GND	blue	Reference ground for control interface, SELV
2	13	+10 V	red	Fixed voltage output 10 VDC, +10 V ±3%, max. 10 mA, short-circuit-proof power supply for external devices (e.g. pot); SELV

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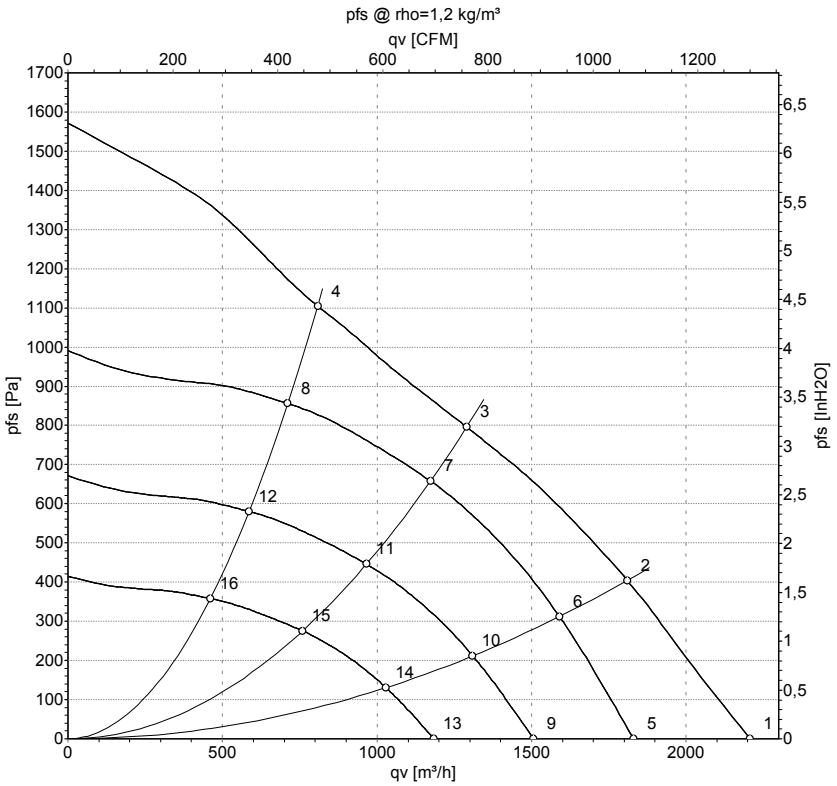
Curves: Air performance 50 Hz



Measurement: LU-151690-1

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}	q_V	p_{fs}	q_V	p_{fs}
	V	Hz	min^{-1}	W	A	dB(A)	dB(A)	m^3/h	Pa	cfm	inH2O
1	230	50	4100	500	2.20	81	89	2210	0	1300	0.00
2	230	50	3870	500	2.20	75	83	1810	400	1065	1.61
3	230	50	3740	500	2.20	70	78	1290	800	760	3.21
4	230	50	3860	500	2.20	77	84	810	1100	475	4.42
5	230	50	3400	292	1.27	76	84	1830	0	1075	0.00
6	230	50	3400	346	1.51	72	80	1590	313	935	1.26
7	230	50	3400	383	1.67	68	75	1175	658	690	2.64
8	230	50	3400	348	1.52	74	81	710	856	420	3.44
9	230	50	2800	163	0.71	71	79	1505	0	885	0.00
10	230	50	2800	193	0.84	67	75	1310	212	770	0.85
11	230	50	2800	214	0.93	63	71	965	446	570	1.79
12	230	50	2800	194	0.85	69	76	585	580	345	2.33
13	230	50	2200	79	0.35	65	73	1185	0	695	0.00
14	230	50	2200	94	0.41	61	69	1030	131	605	0.53
15	230	50	2200	104	0.45	57	65	760	276	445	1.11
16	230	50	2200	94	0.41	63	70	460	358	270	1.44

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