R3G190-RY85-P3

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications

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Nominal data

Type	**R3G190-RY85-P3**
Motor	**M3G074-CF**

Nominal voltage	VDC	110
Nominal voltage range	VDC	77 .. 138
Frequency	Hz	DC
Method of obtaining data		ml
Status		prelim.
Speed (rpm)	min^{-1}	5000
Power consumption	W	270
Current draw	A	2.5
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	60

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

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Technical description

Weight	2.08 kg
Size	190 mm
Motor size	74
Electronics housing material	Die-cast aluminum, painted black
Impeller material	PA plastic, sheet-metal plate painted black
Number of blades	7
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	Customer-specific; IP 6K9K
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	H3
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	Any
Condensation drainage holes	None, open rotor
Mode	S1
Motor bearing	Ball bearing; (sealed)
Technical features	- Output 10 VDC, max. 10 mA - Alarm relay - Power limiter - Motor current limitation - RS-485 MODBUS-RTU - Soft start - EEPROM write cycles: 100,000 maximum - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from the mains - Overvoltage detection - Thermal overload protection for electronics - Line undervoltage detection - Reverse polarity protection
EMC regulations	According to EN 50121-3-2
Motor protection	Electronic motor protection
With cable	Lateral
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 15085-1+A1:2013, CPC3; EN 45545-2:2020, HL3; EN 50155:2017; EN 61373:2010, Cat.1B; CE
Approval	EAC
Comment	A prerequisite for operation is a Class 1 vehicle electrical system architecture according to EN 50533; if supply potential (e.g. 230 VAC) is passed through the alarm relay, the SELV signal wires lose their property of reinforced insulation and they then have only basic insulation The SELV property (reinforced insulation) is not lost when voltages of up to 110 VDC are passed through the alarm relay.

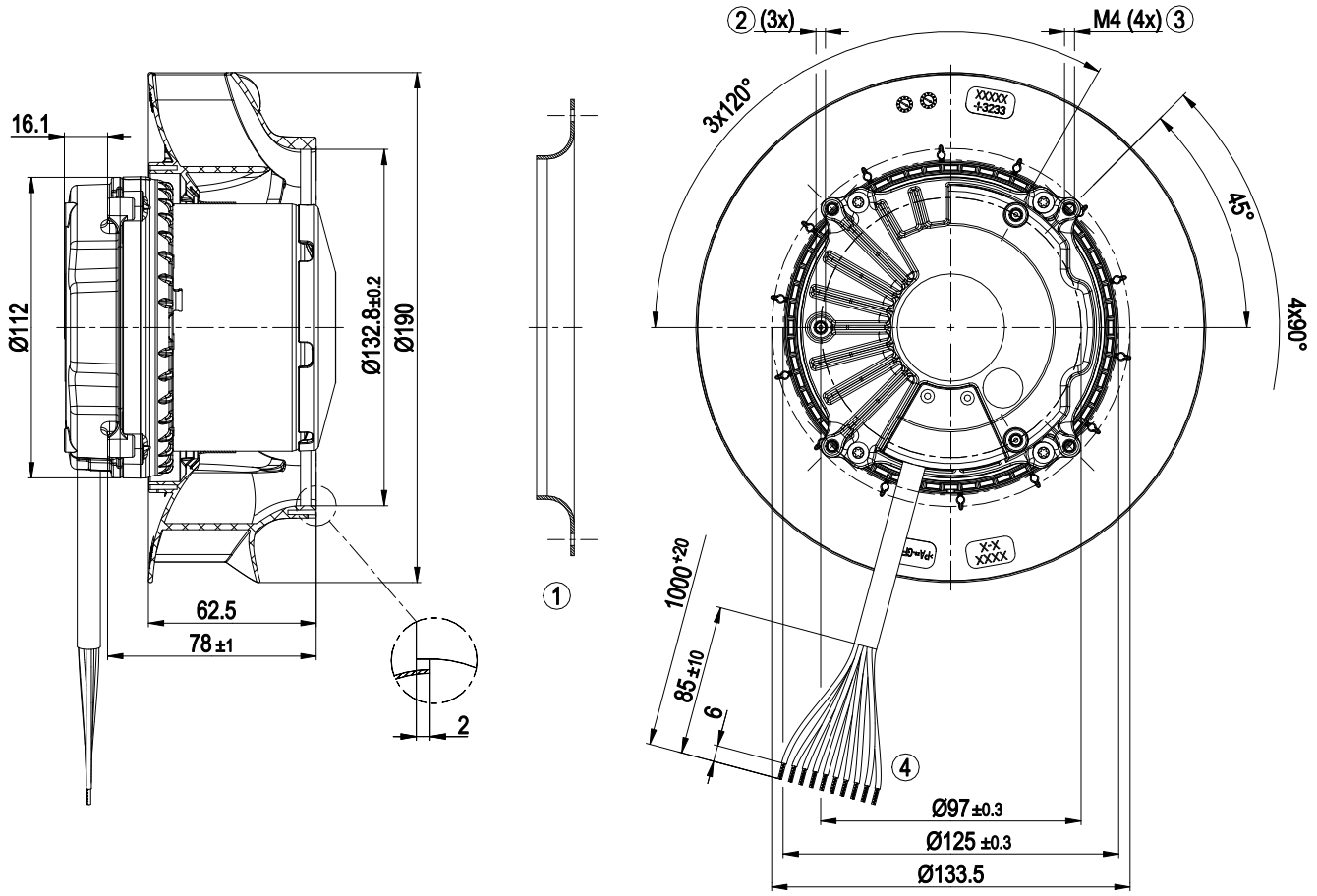
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Product drawing



1	Accessory part: inlet ring 09576-2-4013 not included in scope of delivery
2	Tapping hole prepared for self-tapping M4 screw, max. screw-in depth 8 mm
3	Max. clearance for screw 10 mm
4	Cable, halogen-free, railway application EN 45545, 10G 1.0 mm²
	10x lead tip

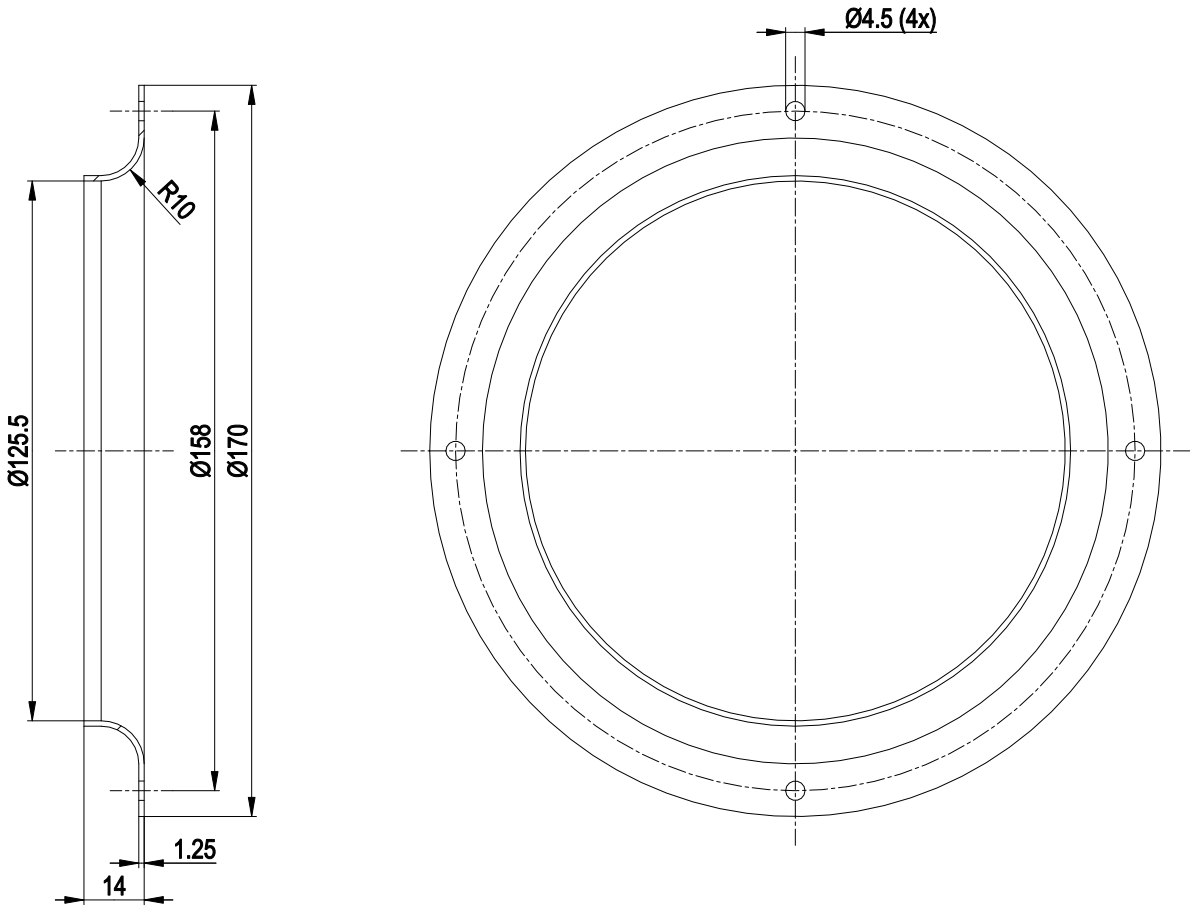
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Accessory part



Inlet ring 09576-2-4013

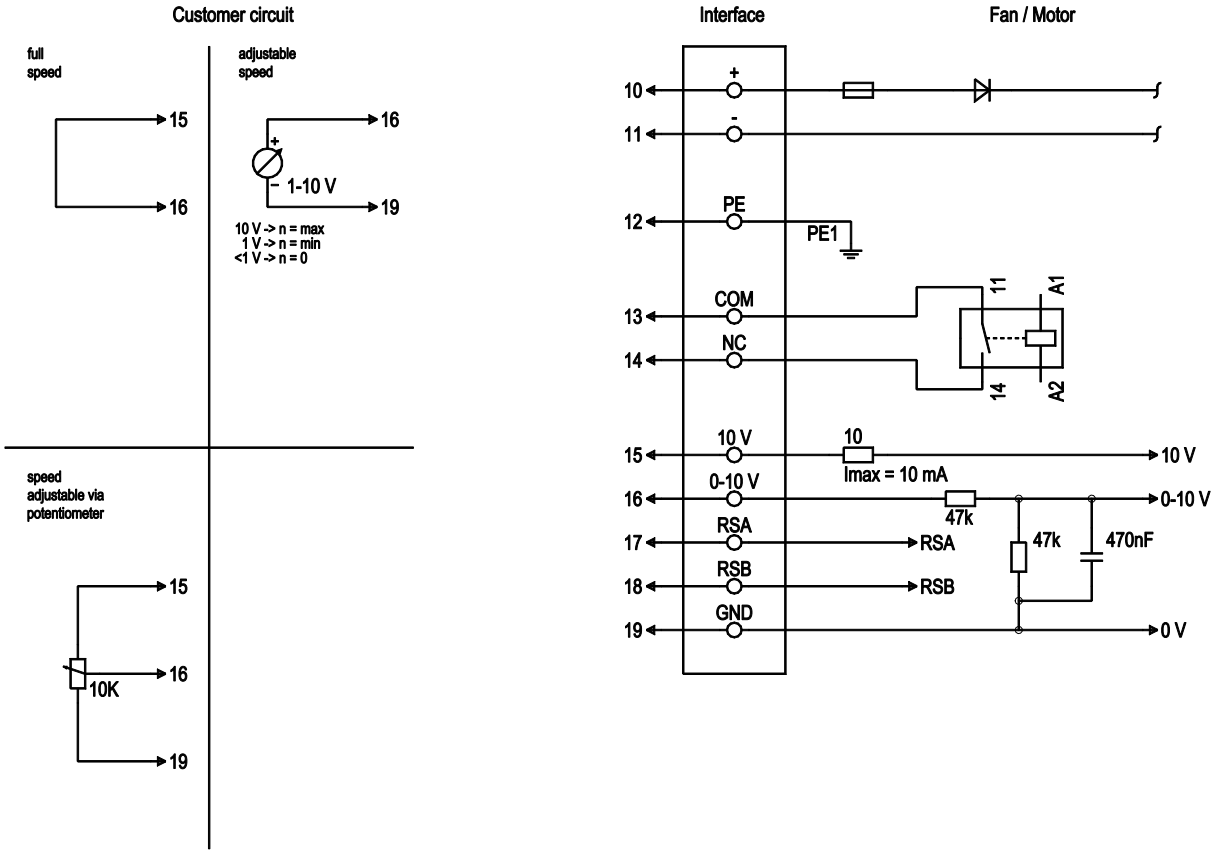
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Connection diagram



No.	Conn.	Designation	Color	Function/assignment
	10	+	brown	Power supply, see nameplate for voltage range
	11	-	black	Power supply, see nameplate for voltage range
	12	PE	green/yellow	Protective earth
	13	COM	gray	Status relay, floating status contact, common connection, contact rating 250 VAC/2 A (AC1)/min. 10 mA/5 V; Reinforced insulation in accordance with EN 50124-1 for switching voltages up to 110 VDC
	14	NC	purple	Status relay, floating status contact, break for failure, contact rating 250 VAC/2 A (AC1)/min. 10 mA/5 V; Reinforced insulation in accordance with EN 50124-1 for switching voltages up to 110 VDC
	15	+10 V	red	Fixed voltage output 10 VDC, SELV, +10 V +/-3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. potentiometers)
	16	0-10 V	yellow	Analog input (set value) SELV, 0-10 V, Ri = 100 kΩ, adjustable curve
	17	RSA	white	RS-485 interface for MODBUS, RSA; SELV
	18	RSB	orange	RS-485 interface for MODBUS, RSB; SELV
	19	GND	blue	Reference ground for control interface, SELV

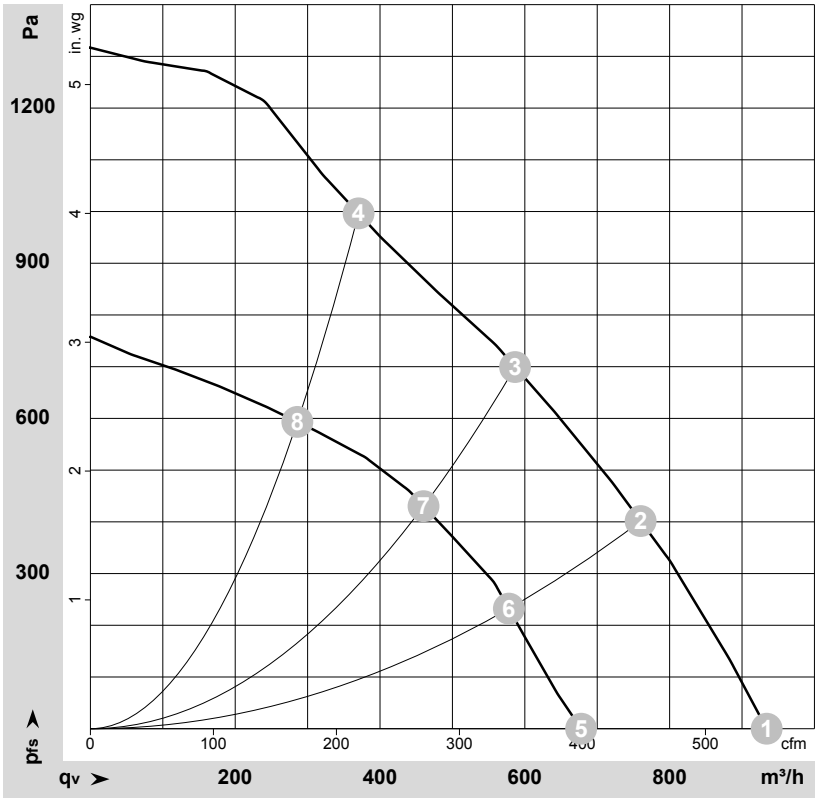
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Curves: Air performance



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-194610-1
Measurement: LU-194685-1

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	n	P_{ed}	I	LpA_{in}	LwA_{in}	q_V	p_{fs}	q_V	p_{fs}
	V	min^{-1}	W	A	dB(A)	dB(A)	m^3/h	Pa	cfm	in. wg
1	110-138	5420	270	2.50*	81	88	935	0	550	0.00
2	110-138	5165	270	2.50*	76	84	760	400	445	1.61
3	110-138	5000	270	2.50*	72	80	585	700	345	2.81
4	110-138	5160	270	2.50*	73	81	370	1000	220	4.01
5	77	4010	125	1.62			680	0	400	0.00
6	77	3995	131	1.70			580	232	340	0.93
7	77	3965	140	1.82			460	431	270	1.73
8	77	3995	132	1.71			285	593	170	2.38

U = Voltage · n = Speed (rpm) · P_{ed} = Power consumption · I = Current draw · * = Current measured at nominal voltage · LpA_{in} = Sound pressure level intake side · LwA_{in} = Sound power level intake side
q_V = Air flow · p_{fs} = Pressure increase

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