R3G310-RR12-P1

EC centrifugal fan - RadiCal

backward curved, single inlet

for railway applications



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ErP2015 EXCEEDS THE NORM

Nominal data

Type	**R3G310-RR12-P1**	
Motor	**M3G084-DF**	
Nominal voltage	V	110
Type of data definition		ml
State		prelim.
Speed	min^{-1}	2260
Power input	W	465
Current draw	A	4.2
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	60

ml = Max. load · me = Max. efficiency · fa = Running at free air · cs = Customer specs · cu = Customer unit
Subject to alterations

Data according to ErP directive

		Actual	Request 2015
01 Overall efficiency η_{es}	%	65.9	48
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		79.9	62
05 Variable speed drive		Yes	

09 Power input P_e	kW	0.46
09 Air flow q_v	m^3/h	2105
09 Pressure increase p_{fs}	Pa	472
10 Speed n	min^{-1}	2260
11 Specific ratio*		1.00

Data definition with optimum efficiency.
The ErP data is determined using a motor-impeller combination in a standardised measurement configuration.

* Specific ratio = 1 + p_{fs} / 100 000 Pa

LU-160428

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Technical features

Mass	4.6 kg
Size	310 mm
Surface of rotor	Coated in black
Material of electronics housing	Die-cast aluminium
Material of impeller	PA plastic
Number of blades	6
Direction of rotation	Clockwise, seen on rotor
Type of protection	IP 54
Insulation class	"F"
Humidity (F)/environmental protection class (H)	F3-1
Max. permissible ambient motor temp. (transp./ storage)	+80 °C
Min. permissible ambient motor temp. (transp./storage)	-40 °C
Mounting position	Shaft horizontal or rotor on bottom; rotor on top on request
Condensate discharge holes	Rotor-side
Operation mode	S1
Motor bearing	Ball bearing; (sealed)
Technical features	- Output 10 VDC, max. 10 mA - Operation and alarm display - Alarm relay - Integrated PID controller - Run monitoring - Output limit - Motor current limit - RS485 MODBUS RTU - Soft start -Maximum EEPROM write cycles 100,000 - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from the mains - Overvoltage detection - Over-temperature protected electronics / motor - Line undervoltage detection
EMC directives	According to EN 50121-3-2
Motor protection	Thermal overload protector (TOP) wired internally
Cable exit	Variable
Protection class	I (if protective earth is connected by customer)
Product conforming to standard	EN 15085-1, CPC3: 2007; EN 45545-2, HL3: 2013; EN 50155: 2008; EN 61373, Cat. 1B: 2010
Approval	EAC
Remark	If voltage (e.g. 230 VAC) is passed through the alarm relay, the SELV signal wires lose their increased insulation, meaning they only have basic insulation The SELV property (increased insulation) is not lost when voltages of up to 110 VDC are passed through the alarm relay.

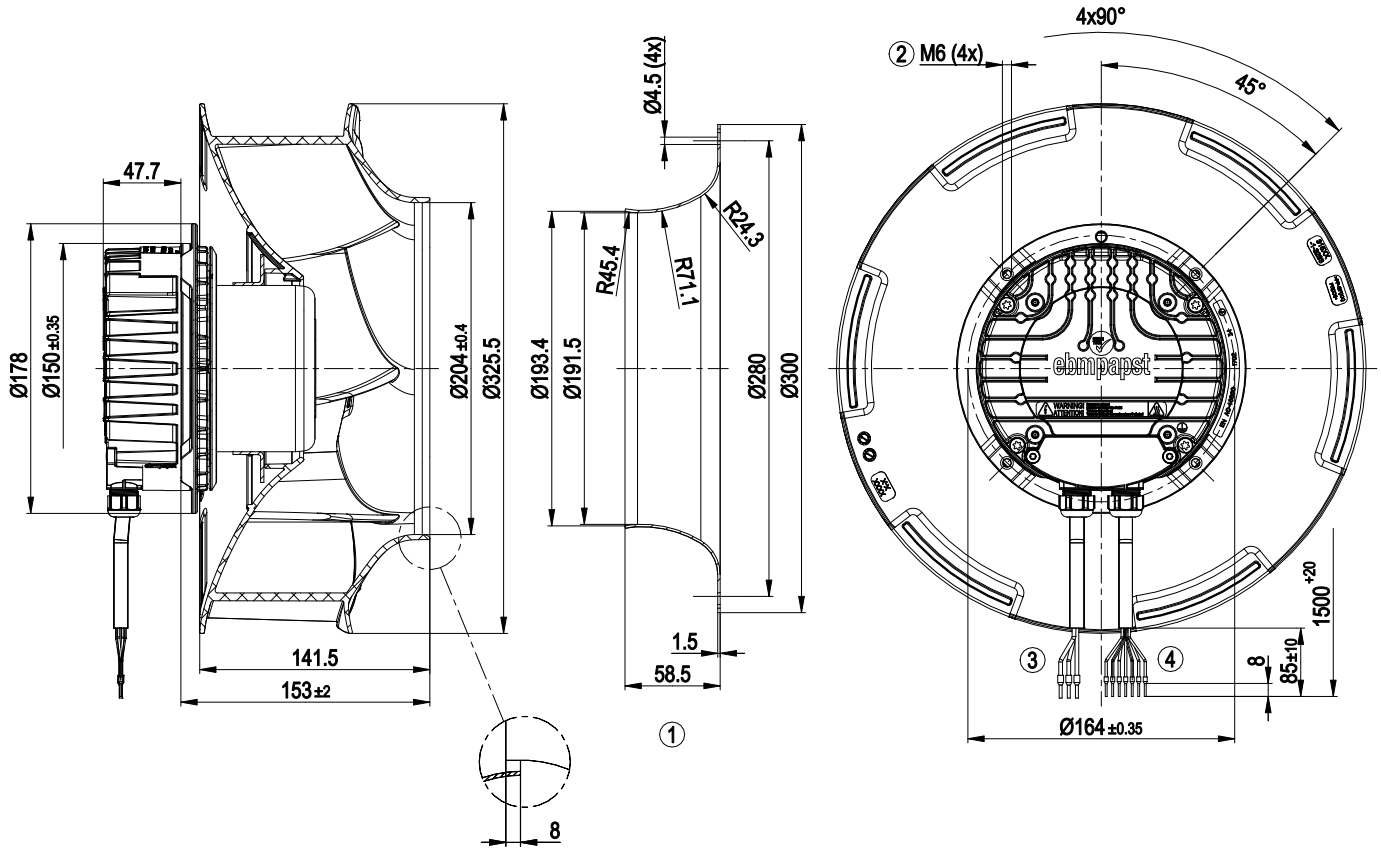
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Product drawing



1	Accessory part: Inlet nozzle 31000-2-4013 not included in scope of delivery
2	Thread reach max. 16 mm
3	Connection line halogen-free, BETAtrans® 3 GKW flex, 4G 1.5 mm², 3x crimped core-end sleeves, 1 wire not brought out
4	Connection line halogen-free, BETAtrans® 3 GKW flex, 7x0.5 mm², 7x crimped core-end sleeves

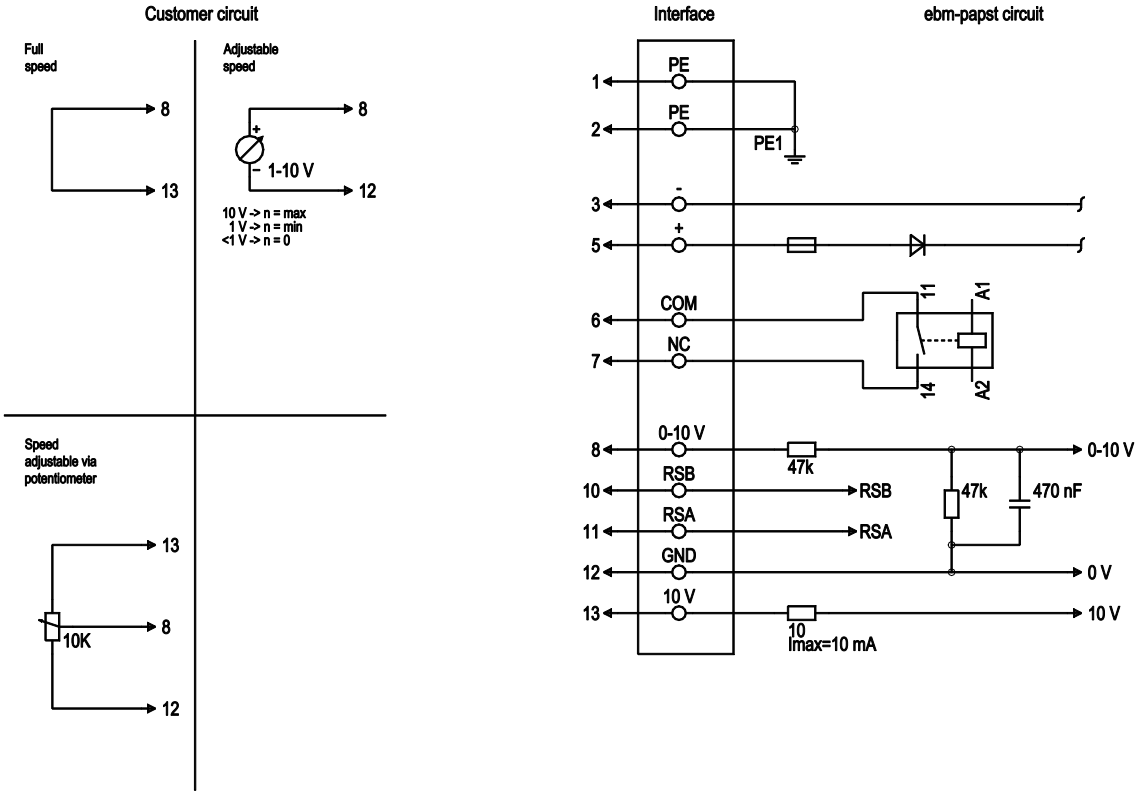
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Connection screen



No.	Conn.	Designation	Colour	Function / assignment
1	1, 2	PE	green/yellow	Protective earth
1	3	-	black	Power supply, GND, see type plate for voltage range
1	5	+	brown	Power supply, see type plate for voltage range
2	6	COM	grey	Status relay, floating status contact, break for failure, Contact rating 250 VAC / max. 2 A (AC1) / min. 1 mA / 5 V, basic insulation on mains side and on control interface
2	7	NC	orange	Status relay, floating status contact, common connection, Contact rating 250 VAC / max. 2 A (AC1) / min. 1 mA / 5 V, basic insulation on mains side and on control interface
2	8	0-10 V		Analogue input 1, set value: 0-10 V, Ri= 100 kΩ, parametrisable curve; SELV
2	10	RSB		RS-485 interface for MODBUS, RSB; SELV
2	11	RSA		RS-485 interface for MODBUS, RSA; SELV
2	12	GND		Reference earth for control interface; SELV
2	13	+10 V		Fixed voltage output 10 VDC, +10 V ±3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. potentiometers); SELV

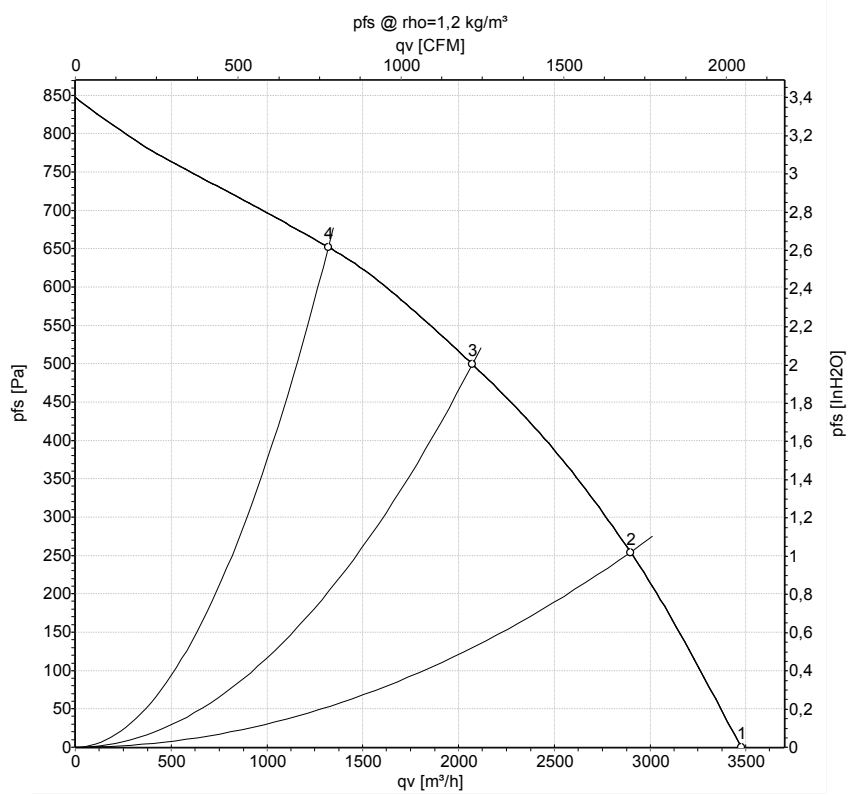
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Charts: Air flow



Measurement: LU-160428

Air performance measured as per ISO 5801 Installation category A. For detailed information on the measuring set-up, please contact ebm-papst. Suction-side noise levels: LwA measured as per ISO 13347 / LpA measured with 1m distance to fan axis. The values given are valid under the measuring conditions mentioned above and may vary according to the actual installation situation. With any deviation from the standard set-up, the specific values have to be checked and reviewed with the unit installed.

Measured values

	Conn.	U	n	P_{ed}	I	LpA_{in}	LwA_{in}	qv	p_{fs}
		V	min^{-1}	W	A	dB(A)	dB(A)	m^3/h	Pa
1	Y	110	2355	356	3.24	73	80	3475	0
2	Y	110	2290	436	3.96	68	75	2895	250
3	Y	110	2260	465	4.20	62	68	2070	500
4	Y	110	2300	441	4.00	65	72	1320	650

Conn. = Connection · U = Supply voltage · n = Speed · P_{ed} = Power input · I = Current draw · LpA_{in} = Sound pressure level inlet side · LwA_{in} = Sound power level inlet side · qv = Air flow
p_{fs} = Pressure increase

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