R3G310-RU29-81

EC centrifugal fan - RadiCal

backward curved, single inlet

for railway applications

R3G310-RU29-81 ebmpapst Datasheet
sales@fansco.com
www.fansco.com

Limited partnership · Headquarters Mulfingen
County court Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen
County court Stuttgart · HRB 590142

Nominal data

Type	**R3G310-RU29-81**
Motor	**M3G084-CF**

Nominal voltage	V	24
Nominal voltage range	V	16 .. 32
Type of data definition		fa
State		prelim.
Speed (rpm)	min^{-1}	2550
Power input	W	470
Current draw	A	19.5
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 in accordance with ecodesign regulation EU 327/2011 (EN 17166)

		Actual	Request 2015
01 Overall efficiency η_{es}	%	59.5	49
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		72.5	62
05 Variable speed drive		Yes	

09 Power input P_e	kW	0.57
09 Air flow q_v	m^3/h	2415
09 Pressure increase p_{fs}	Pa	468
10 Speed (rpm) n	min^{-1}	2380
11 Specific ratio*		1.02

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-181040

EC centrifugal fan - RadiCal

backward curved, single inlet

for railway applications

Technical features

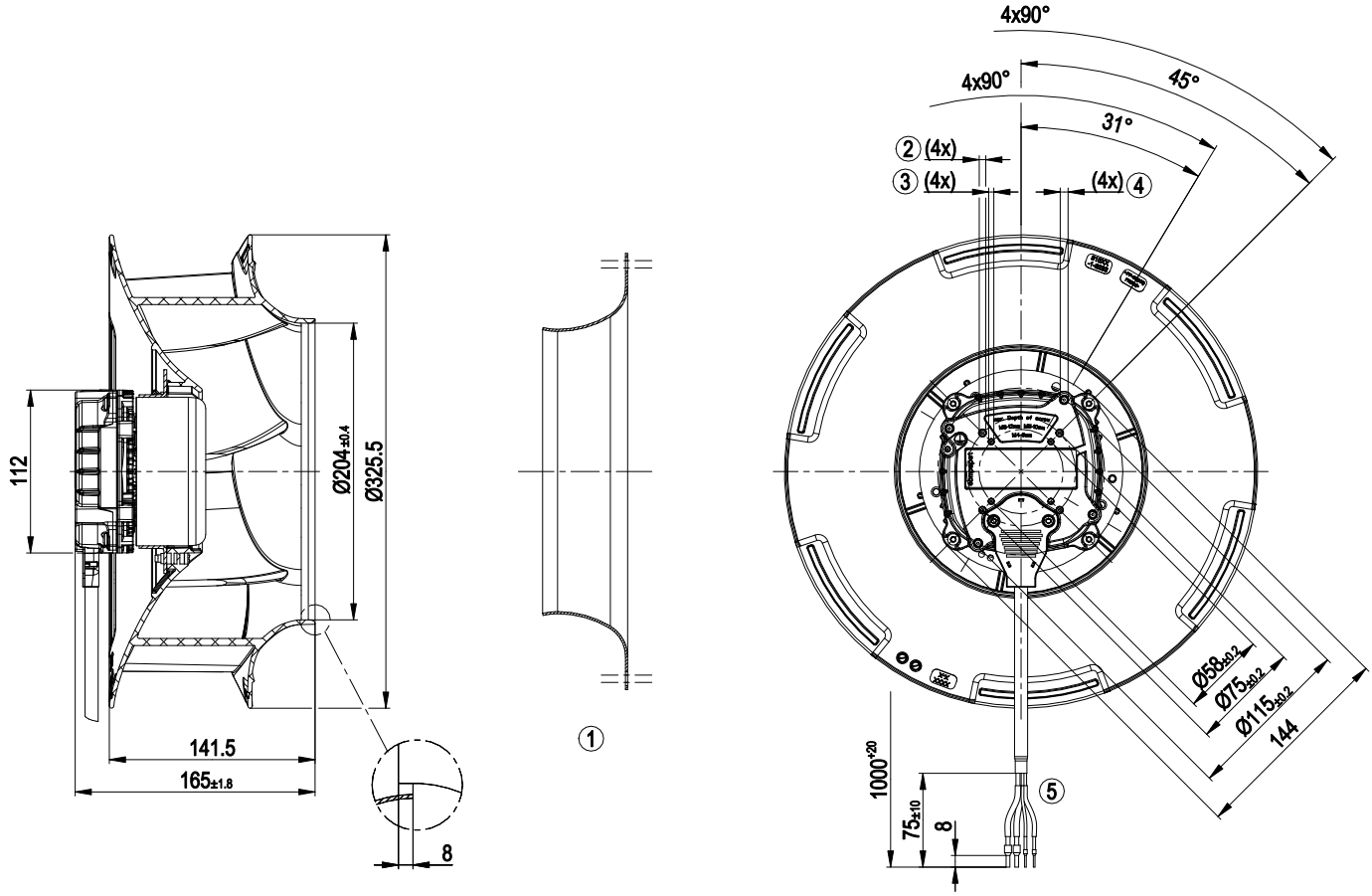
Mass	3.62 kg
Size	310 mm
Motor size	84
Surface of rotor	Coated in black
Material of electronics housing	Die-cast aluminium, coated in black
Material of impeller	PA UL94 V0 plastic
Number of blades	6
Direction of rotation	Clockwise, seen on rotor
Type of protection	Motor IP24 KM, electronics IP6K9K (mating connector fitted)
Insulation class	"B"
Humidity (F) / environmental protection class (H)	H3
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
Cooling bore / aperture	Rotor-side
Operation mode	S1
Motor bearing	Ball bearing
Technical features	- Start at 85 °C (2 min.) permitted - Error output (high-side switch) -Load dump (58 V) - Motor current limit - Soft start - Control input 0-10 VDC / PWM - Standstill upon cable break - Temperature derating - Overvoltage detection - Over-temperature protected electronics - Line undervoltage detection - Reverse polarity protection
EMC directives	According to EN 50121-3-2
Electrical connection	Standby current less than 500 µA
Cable exit	Lateral
Protection class	III
Product conforming to standard	EN 15085-1, CPC3: 2013; EN 45545-2, HL3: 2013; EN 50155: 2008; IEC 61373: 2010; CE
Approval	EAC

EC centrifugal fan - RadiCal

backward curved, single inlet

for railway applications

Product drawing



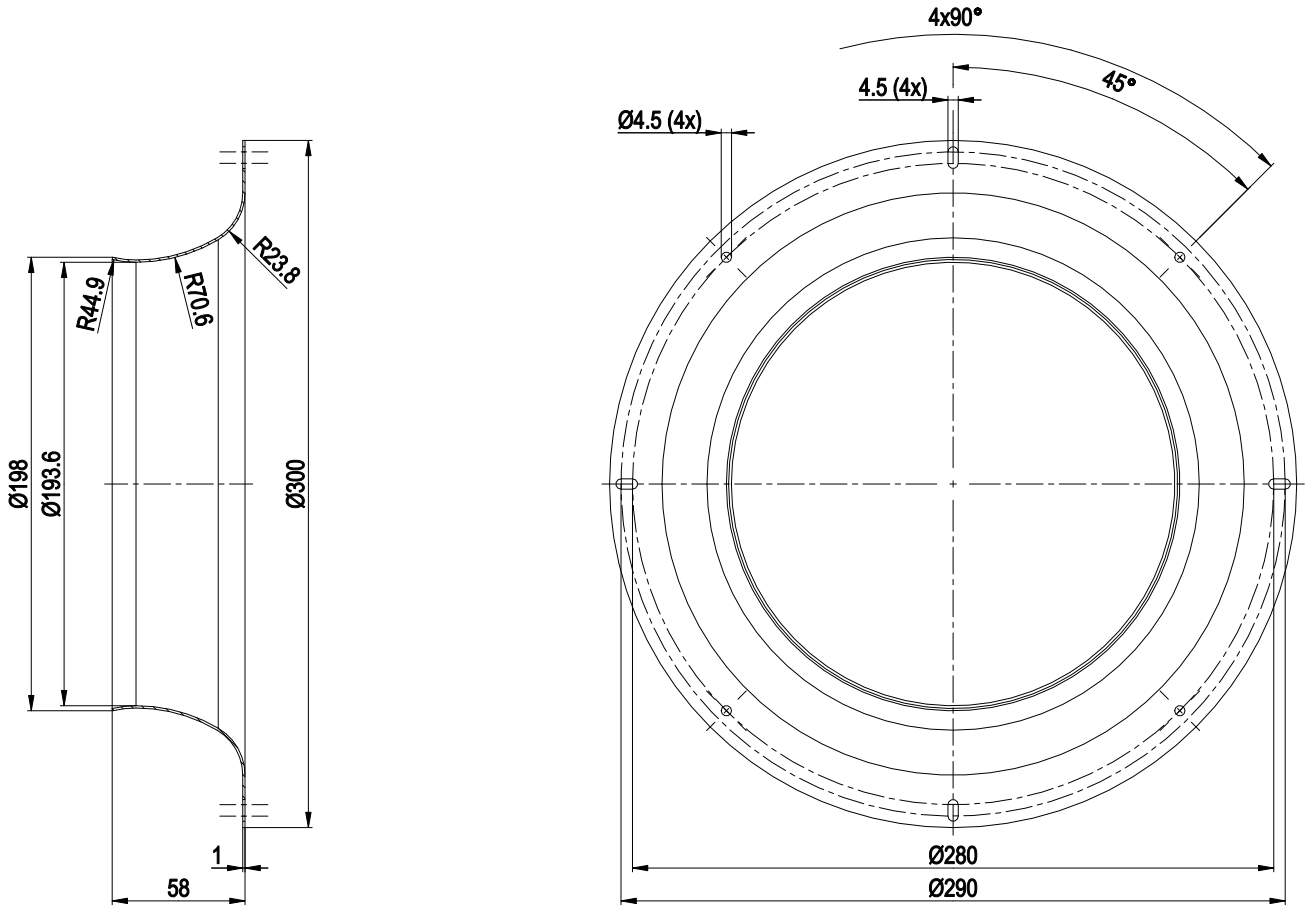
1	Accessory part: Inlet nozzle 31000-2-4013 not included in scope of delivery
2	Thread reach max. 10 mm, pilot hole prepared for self-tapping M5 screw
3	Thread reach max. 8 mm, pilot hole prepared for self-tapping M4 screw
4	Thread reach max. 12 mm, pilot hole prepared for self-tapping M6 screw
5	Connection line, halogen-free, railway application EN 45545, 2x 6.0 mm², 2x 1.0 mm²
	4x core-end sleeve

EC centrifugal fan - RadiCal

backward curved, single inlet

for railway applications

Accessory part



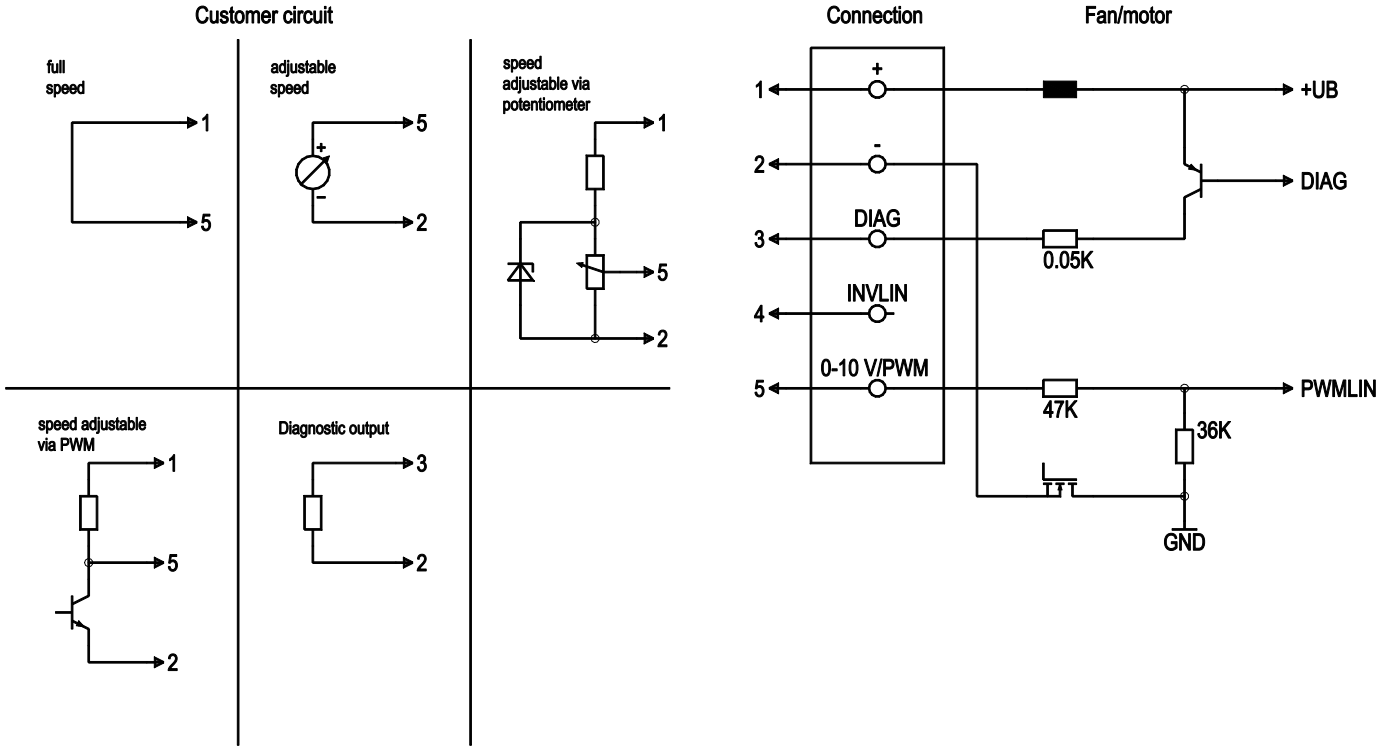
Inlet nozzle 31000-2-4013

EC centrifugal fan - RadiCal

backward curved, single inlet

for railway applications

Connection screen



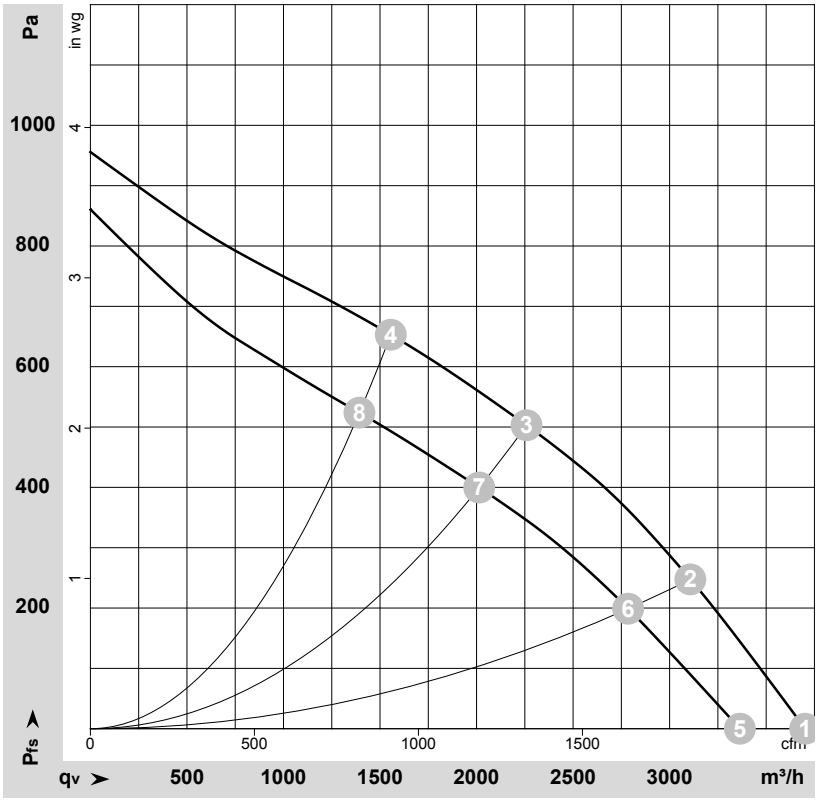
No.	Conn.	Designation	Colour	Function / assignment
1	1	+	black	Power supply, see type plate for voltage range
1	2	-	brown	Power supply, see type plate for voltage range
1	3	DIAG	white	Diagnostic output: open collector, Isource max = 20 mA, Fan OK -> low; fan error -> high
1	4	INVLIN		not used
1	5	0-10 V / PWM	yellow	Control input: Ri > 47 kΩ 0-10 V (typ. < 1 V -> n=0; 1.5 V -> n=min; >10 V -> n=max) PWM (amplitude 10 V; 1-50 kHz; typ. < 5 % -> n=0; 15% -> n=min; > 100% -> n=max)

EC centrifugal fan - RadiCal

backward curved, single inlet

for railway applications

Charts: Air flow



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-181040-1
Measurement: LU-181070-1

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

	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	24-32	2550	470	19.50*	74	81	3700	0	2180	0.00
2	24-32	2430	538	22.40*	71	78	3105	250	1830	1.00
3	24-32	2380	581	24.20*	67	74	2260	500	1330	2.01
4	24-32	2400	556	23.10*	69	76	1555	650	915	2.61
5	16	2305	372	23.27			3365	0	1980	0.00
6	16	2190	410	25.52			2785	199	1640	0.80
7	16	2125	432	26.89			2015	400	1185	1.61
8	16	2155	422	26.37			1395	524	820	2.10

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