R3G310-RU28-86

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications



ebm-papst Mulfingen GmbH & Co. KG
Bachmühle 2 · D-74673 Mulfingen
Phone +49 7938 81-0
Fax +49 7938 81-110
info1@de.ebmpapst.com
www.ebmpapst.com

Limited partnership · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen
Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	**R3G310-RU28-86**
Motor	**M3G084-CF**

Nominal voltage	VDC	24
Nominal voltage range	VDC	16 .. 32
Method of obtaining data		fa
Status		prelim.
Speed (rpm)	min^{-1}	2150
Power consumption	W	300
Current draw	A	12.5
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

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications

Technical description

Weight	3.5 kg
Size	310 mm
Motor size	84
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted black
Impeller material	PA plastic
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	Motor IP24 KM, electronics IP6K9K (mating connector installed)
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
Cooling hole/opening	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- Lowering input - Error output (high-side switch) - INVLIN (inverse linear control input) - Power limiter - Load dump (58 V) - Motor current limitation - Soft start - Control input 0-10 VDC / PWM - Temperature derating - Overvoltage detection - Thermal overload protection for electronics - Line undervoltage detection - Reverse polarity protection
EMC regulations	According to EN 50121-3-2
Electrical hookup	Connector with cable
With cable	Lateral
Protection class	III
Conformity with standards	EN 15085-1, CPC3: 2013; EN 45545-2, HL3: 2013 + A1:2015; EN 50155: 2008

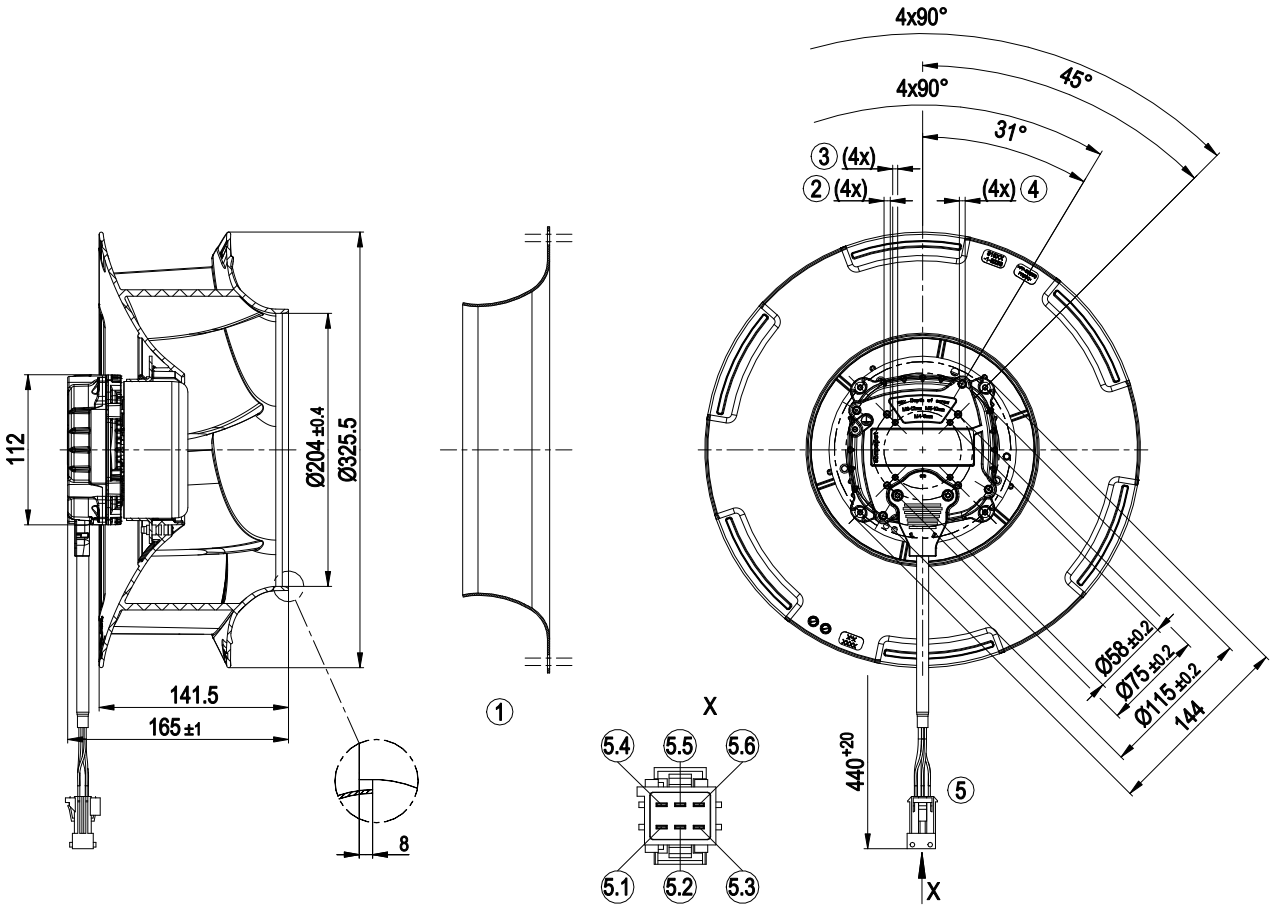
ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications

Product drawing



1	Accessory part: inlet ring 31000-2-4013 not included in scope of delivery
2	Tapping hole prepared for self-tapping M5 screw, max. clearance for screw 10 mm
3	Tapping hole prepared for self-tapping M4 screw, max. clearance for screw 8 mm
4	Tapping hole prepared for self-tapping M6 screw, max. clearance for screw 12 mm
5	Cable BETAtrans® 2x GKW R 2.5 mm², 4x GKW R 1.0 mm²
	6-pole connector housing TE 1-962349-1, 2x flat plug TE 2-962916-1, 4x flat plug TE 1-962915-1 1x seal TE 963205-1, 2x seal TE 828905-1, 4x seal TE 828904-1
5.1	+ UB
5.2	GND
5.3	PWM/LIN
5.4	INVLIN
5.5	ABSENK
5.6	Diagnostic output
	Accessory part: Cable (460 mm) with mating connector, part no. 02002-4-1021 not included in scope of delivery 6-pole mating connector TE 1-963212-1, 4x receptacle TE 929939-1, 2x receptacle TE 929937-1

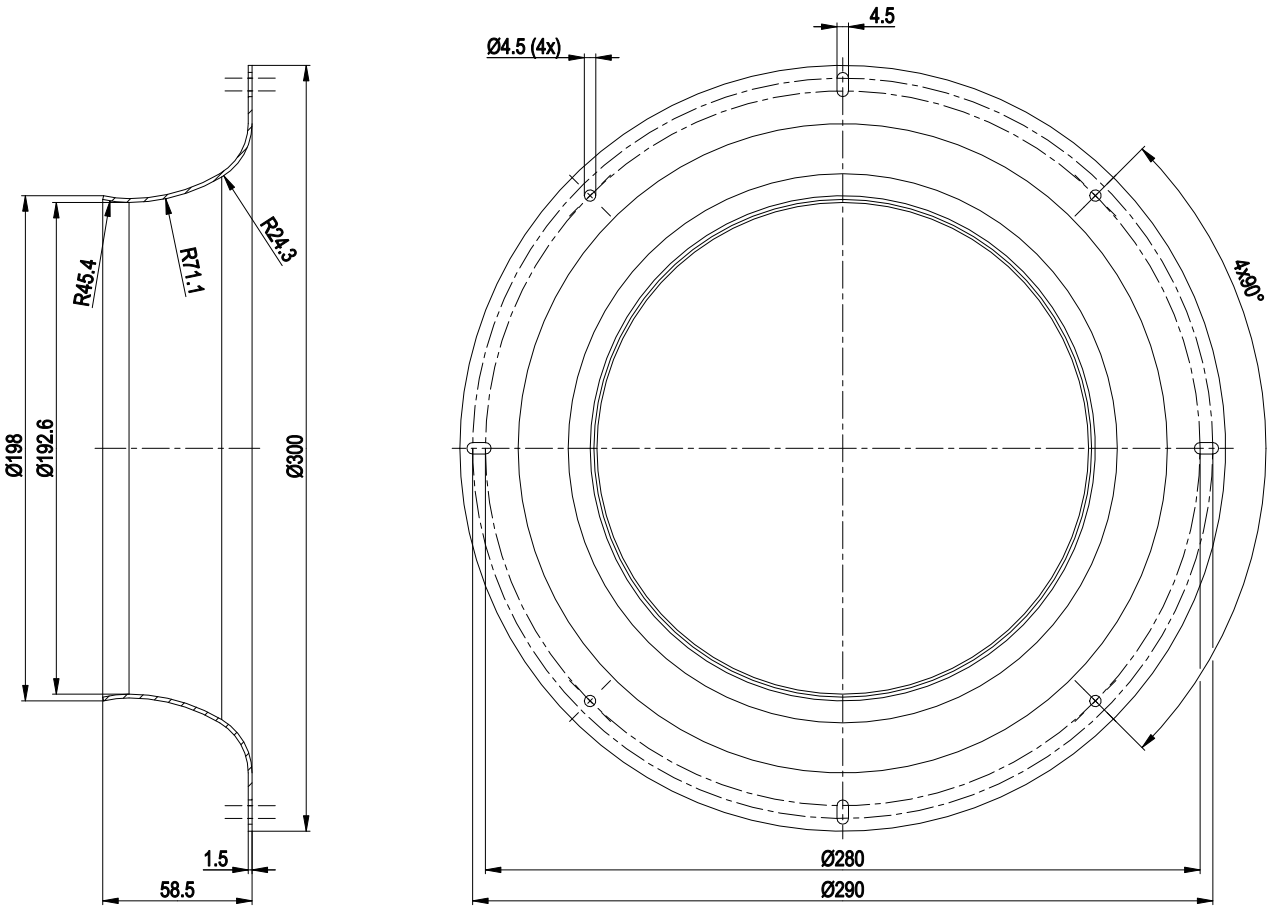
ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications

Accessory part



Accessory part: inlet ring 31000-2-4013 not included in scope of delivery

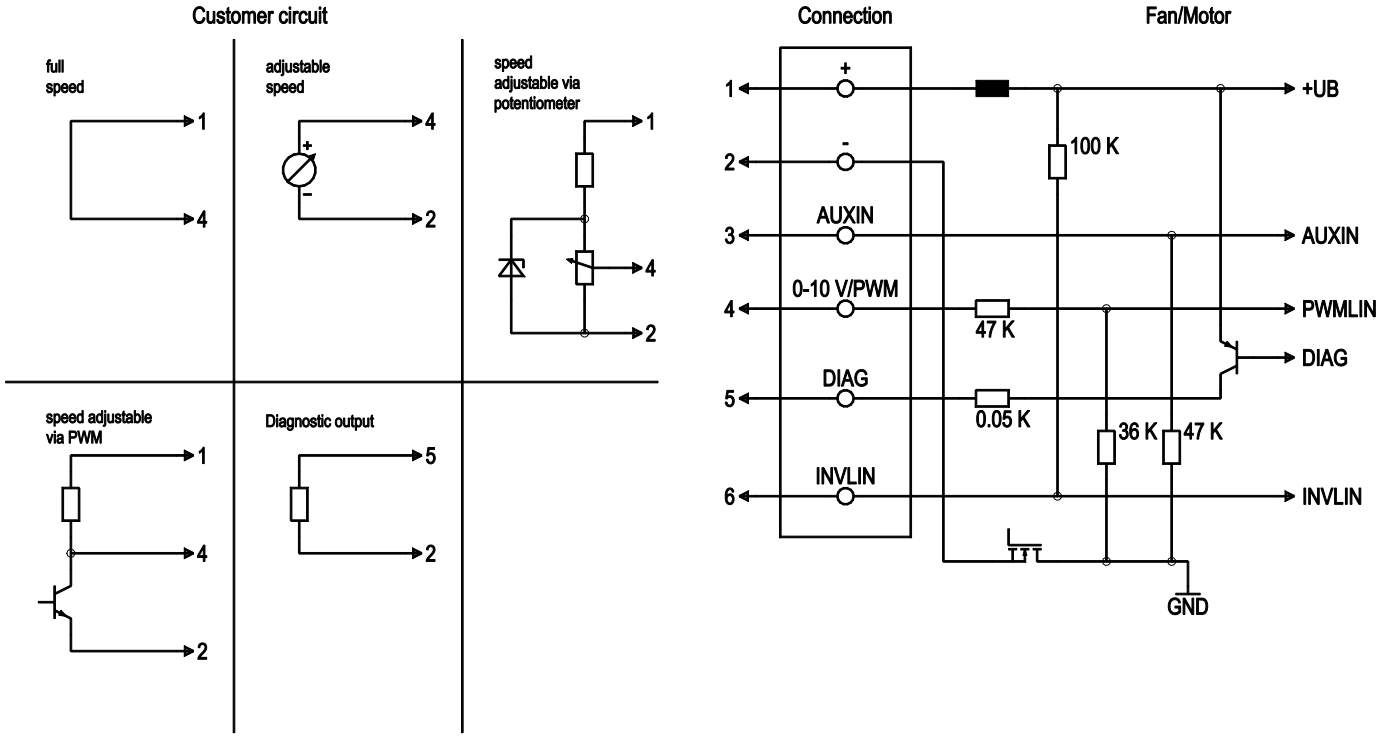
ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications

Connection diagram



No.	Conn.	Designation	Function/assignment
	1	+	Power supply, see nameplate for voltage range
	2	-	Power supply, see nameplate for voltage range
	3	AUXIN	Digital input: when active (> 4 V), value of PWM signal is halved
	4	0-10 V / PWM	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)
	5	DIAG	Diagnostic output: open collector, Isink max = 10 mA, Ri > 50 Ω Fan OK -> low; fan error -> high
	6	INVLIN	Control input, inverse linear

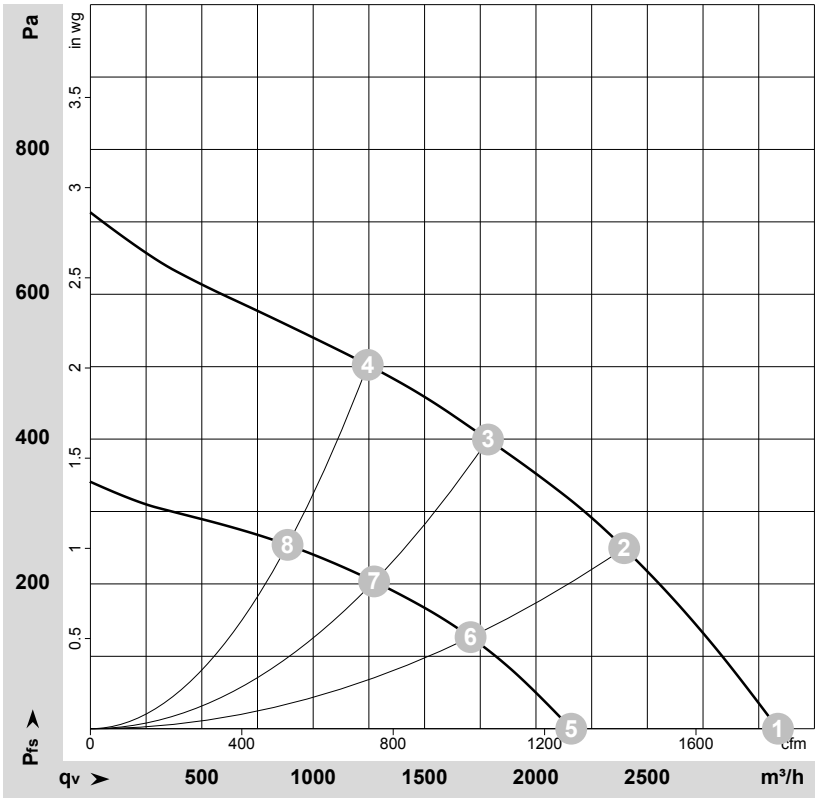
ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications

Curves: Air performance



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-178381-1
Measurement: LU-178399-1

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	q_V	p_{fs}	q_V	p_{fs}
	V	min^{-1}	W	A	m^3/h	Pa	cfm	in. wg
1	24	2150	300	12.50	3085	0	1815	0.00
2	24	2065	352	14.65	2395	250	1410	1.00
3	24	2035	364	15.10	1785	400	1050	1.61
4	24	2070	359	14.92	1245	500	735	2.01
5	16	1520	106	6.63	2160	0	1270	0.00
6	16	1485	128	8.00	1705	126	1005	0.51
7	16	1465	134	8.38	1275	203	750	0.81
8	16	1480	129	8.07	885	254	520	1.02

U = Voltage · n = Speed (rpm) · P_{ed} = Power consumption · I = Current draw · q_V = Air flow · p_{fs} = Pressure increase

ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com