R3G355-RS07-N1

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	**R3G355-RS07-N1**
Motor	**M3G084-FA**

Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min^{-1}	1925
Power consumption	W	580
Current draw	A	0.95
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	70

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 (EN 17166)

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	65.3	48.9
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		78.4	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	0.56
09 Air flow q_v	m^3/h	2800
09 Pressure increase p_{fs}	Pa	429
10 Speed (rpm) n	min^{-1}	1905
11 Specific ratio*		1.00

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-178766

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications

Technical description

Weight	7.2 kg
Size	355 mm
Motor size	84
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PA plastic
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
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	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 - Alarm relay - Integrated PID controller - Run monitoring - Power limiter - Motor current limitation - Emergency operation - PFC, passive - 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/motor - Line undervoltage / phase failure detection
EMC regulations	According to EN 50121-3-2
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	Lateral
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 15085-1, CPC3: 2013; EN 45545-2, HL3: 2013; EN 50155: 2008; EN 61373, Cat. 1B: 2010; CE
Approval	EAC

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

Comment	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, meaning 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. EN 50121-3-2: 2015 in preparation

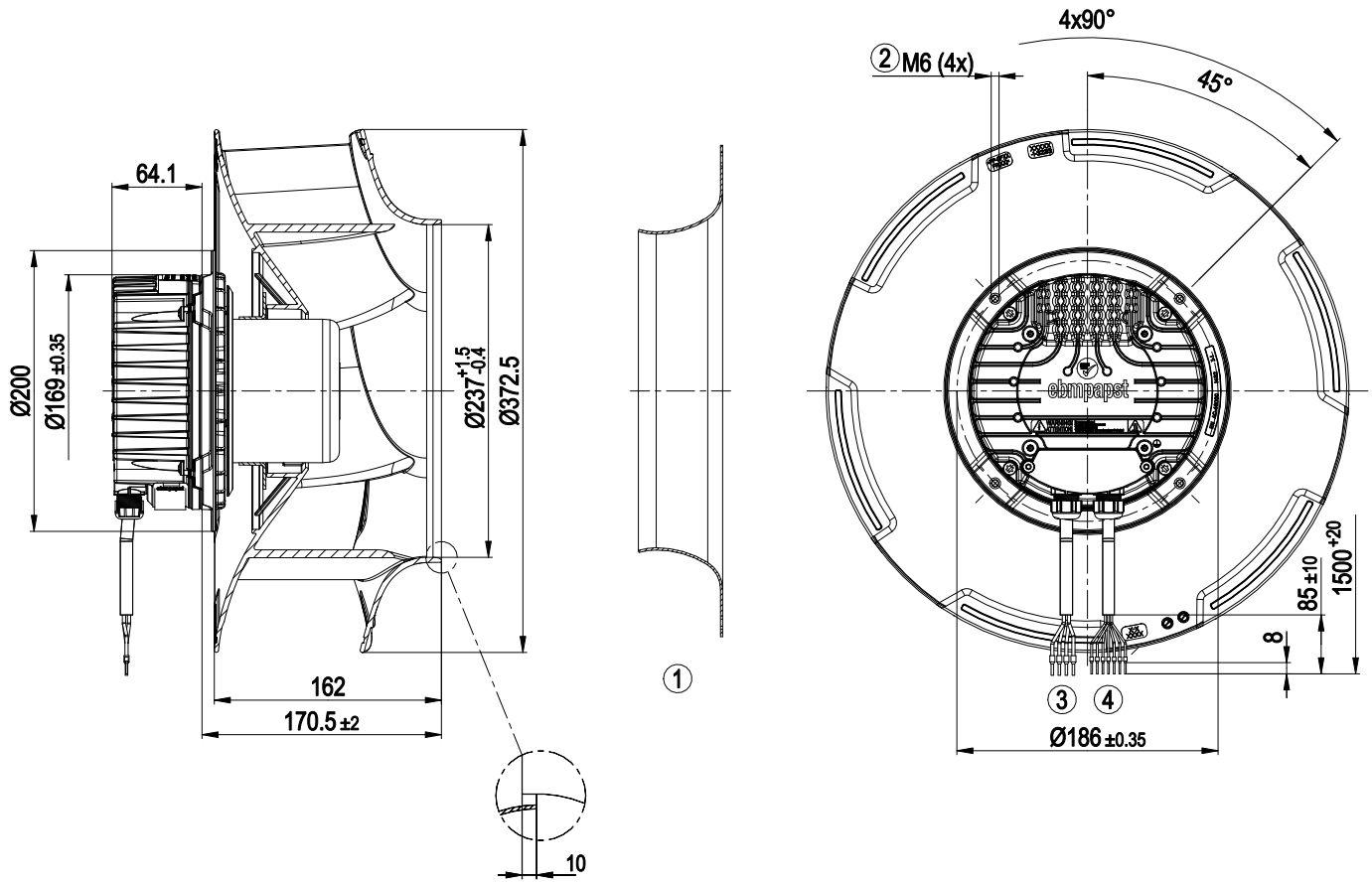
ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications

Product drawing



1	Accessory part: inlet ring 35500-2-4013 not included in scope of delivery
2	Max. clearance for screw 16 mm
3	Cable, halogen-free, railway application EN 45545, 4G 1.5 mm²
	4x wire-end ferrule
4	Cable, halogen-free, railway application EN 45545, 7x 0.5 mm²
	7x wire-end ferrule

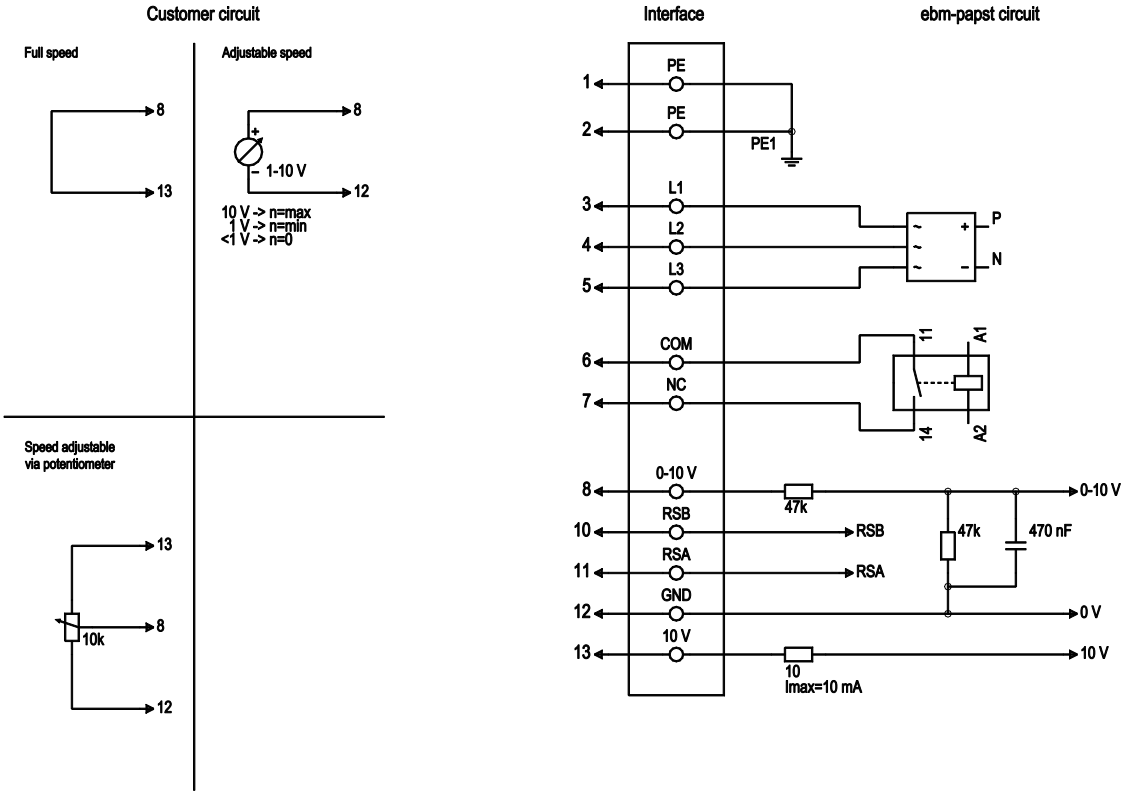
ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications

Connection diagram



No.	Conn.	Designation	Color	Function/assignment
1	1	PE	green/yellow	Protective earth
1	2	PE	-	not brought out via wire
1	3	L1	black	Power supply, phase 50/60 Hz
1	4	L2	blue	Power supply, phase 50/60 Hz
1	5	L3	brown	Power supply, phase 50/60 Hz
2	6	COM	gray	Status relay, floating status contact, common connection, contact rating 250 VAC / max. 2 A (AC1), min. 1 mA / 5 VDC, reinforced insulation on control interface side, basic insulation on supply side according to EN 50124-1
2	7	NC	orange	Status relay, floating status contact, break for failure, contact rating 250 VAC / max. 2 A (AC1), min. 1 mA / 5 VDC, reinforced insulation on control interface side, basic insulation on supply side according to EN 50124-1
2	8	0-10V	yellow	Analog input (set value) SELV, 0-10 V, Ri = 100 kΩ, adjustable curve
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	+10V	red	Fixed voltage output 10 VDC, +10 V ± 3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. pot); SELV

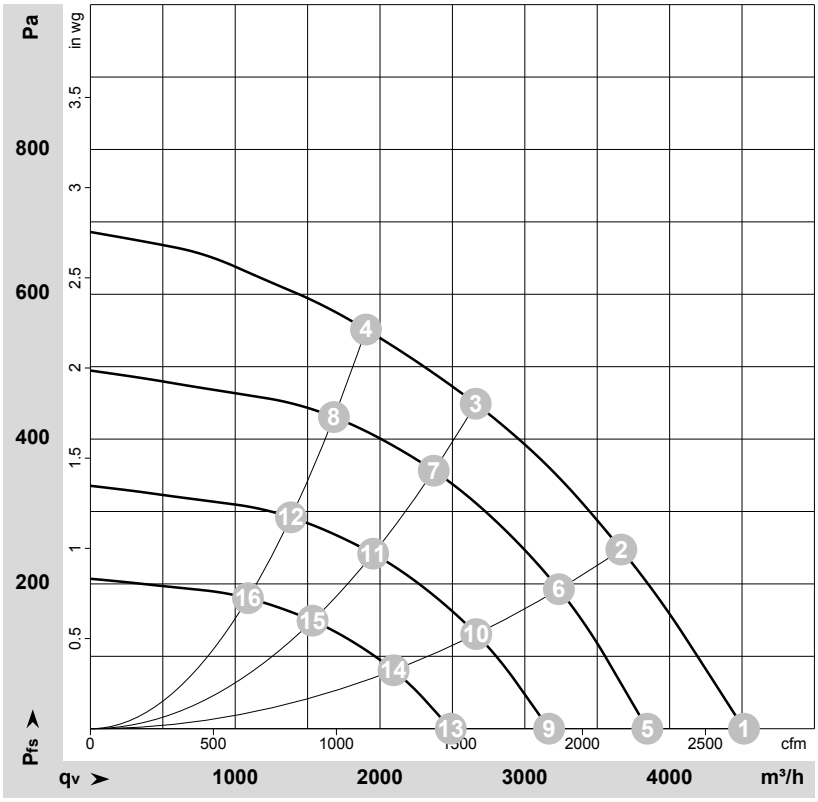
ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

EC centrifugal fan - RadiCal

backward-curved, single-intake

for rail applications

Curves: Air performance 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-178766-1

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	q_V	p_{fs}	q_V	p_{fs}
	V	Hz	min^{-1}	W	A	m^3/h	Pa	cfm	in. wg
1	400	50	1995	437	0.75	4515	0	2655	0.00
2	400	50	1925	539	0.90	3665	250	2160	1.00
3	400	50	1925	580	0.95	2660	450	1565	1.81
4	400	50	1925	541	0.90	1905	550	1120	2.21
5	400	50	1700	270	0.47	3845	0	2265	0.00
6	400	50	1700	371	0.62	3235	194	1905	0.78
7	400	50	1700	398	0.66	2370	357	1395	1.43
8	400	50	1700	374	0.62	1680	431	990	1.73
9	400	50	1400	151	0.26	3165	0	1865	0.00
10	400	50	1400	207	0.35	2665	131	1570	0.53
11	400	50	1400	222	0.37	1955	242	1150	0.97
12	400	50	1400	209	0.35	1385	292	815	1.17
13	400	50	1100	73	0.13	2490	0	1465	0.00
14	400	50	1100	101	0.17	2095	81	1230	0.33
15	400	50	1100	108	0.18	1535	149	905	0.60
16	400	50	1100	101	0.17	1090	180	640	0.72

U = Voltage · f = Frequency · 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