

8300100502
VBH0450CTRLS

EC centrifugal module - RadiPac

backward-curved, single-intake
with support bracket

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Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Item	8300100502	
Motor	E11229-60	
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	2040
Power consumption	W	1300
Current draw	A	2.0
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	40

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 (prEN 17166)

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	74.4	52.7	09 Power consumption P_{ed}	kW	1.29
02 Measurement category		A		09 Air flow q_v	m ³ /h	5850
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	552
04 Efficiency grade N		83.7	62	10 Speed (rpm) n	min ⁻¹	2040
05 Variable speed drive		Yes		11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

* Specific ratio = $1 + p_b / 100\,000\text{ Pa}$

LU-220595

The efficiency values displayed for achieving conformity with the Ecodesign Regulation EU 327/2011 has been reached with defined air duct components (e.g. inlet rings).
The dimensions must be requested from ebm-papst. If other air conduction geometries are used on the installation side, the ebm-papst evaluation loses its validity/the conformity must be confirmed again.
The product does not fall within the scope of Regulation (EU) 2019/1781 due to the exception specified in Article 2 (2a) (motors completely integrated into a product).



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Technical description

Weight	22.38 kg
Size	450 mm
Motor size	112
Rotor surface	Painted black
Terminal box material	PP plastic
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Support plate material	Sheet steel, galvanized
Support bracket material	Steel, painted black
Inlet nozzle material	ABS plastic
Number of blades	5
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H1
Ambient temperature note	Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), use must be made of a fan design with special low-temperature bearings.
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	See legend on product drawing
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- Output 10 VDC, max. 10 mA - Operation and alarm display - External 24 V input (parameter setting) - Alarm relay - Integrated PID controller - MODBUS V5.1 - Motor current limitation - 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 - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC interference emission	According to EN 61000-6-3 (household environment), except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box



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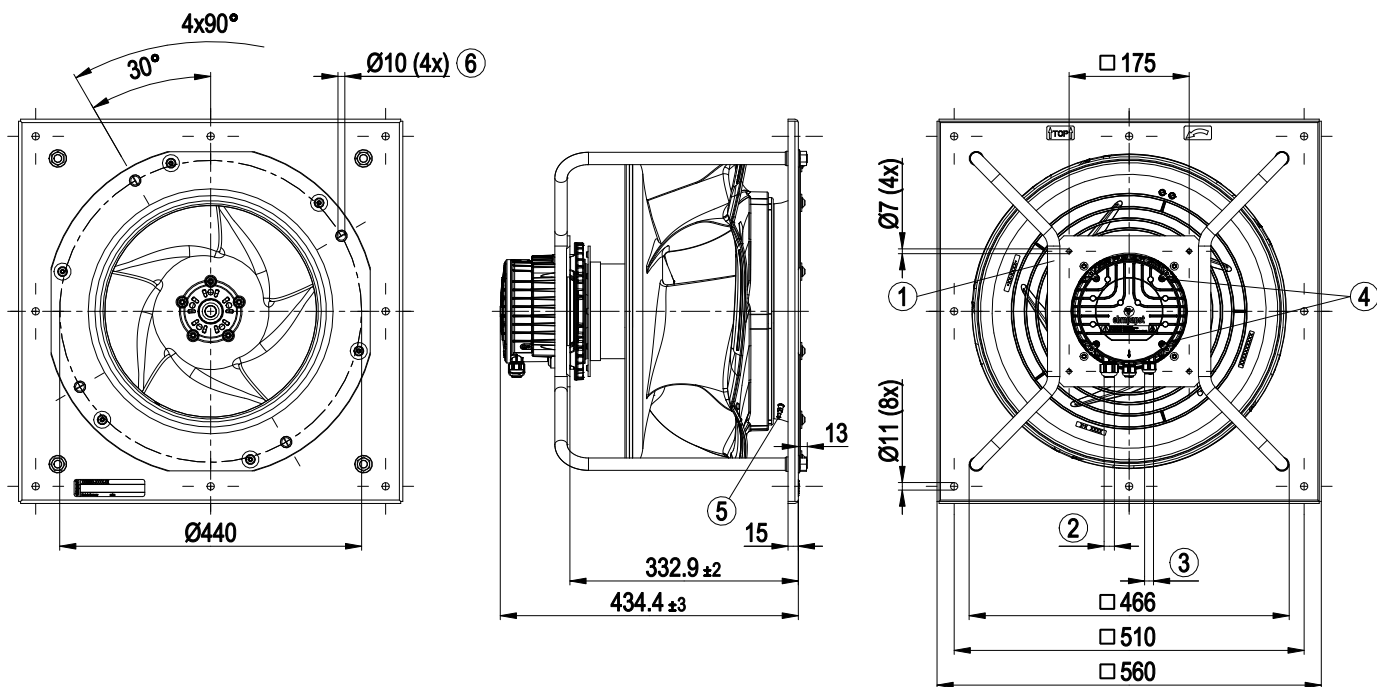
Motor protection	Thermal switch auto reset, internally connected
Protection class assignment	I; If a protective earth is connected by the customer This component for installation may have several local protection classes. This information relates to this component's basic design. The final protection class is based on the component's intended installation and connection.
Conformity with standards	EN 61800-5-1; UKCA; CE
Approval	EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1; UL 1004-7 + 60730-1



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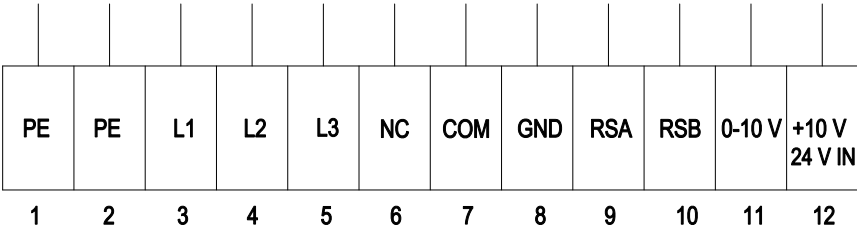
Product drawing



1	Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request
2	Cable diameter min. 8 mm, max. 12 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided) Cable diameter min. 4 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm
3	Cable diameter min. 6 mm, max. 10 mm, tightening torque 1.8 ± 0.3 Nm (use must be made of seal provided) Cable diameter min. 4 mm, max. 7 mm, tightening torque 1.8 ± 0.3 Nm
4	Tightening torque 1.5 ± 0.2 Nm
5	Inlet ring with pressure tap (k-factor: 232)
6	Fastening holes for FlowGrid 35505-2-2957 (not included in scope of delivery) are provided and must be subsequently opened as required



Connection diagram



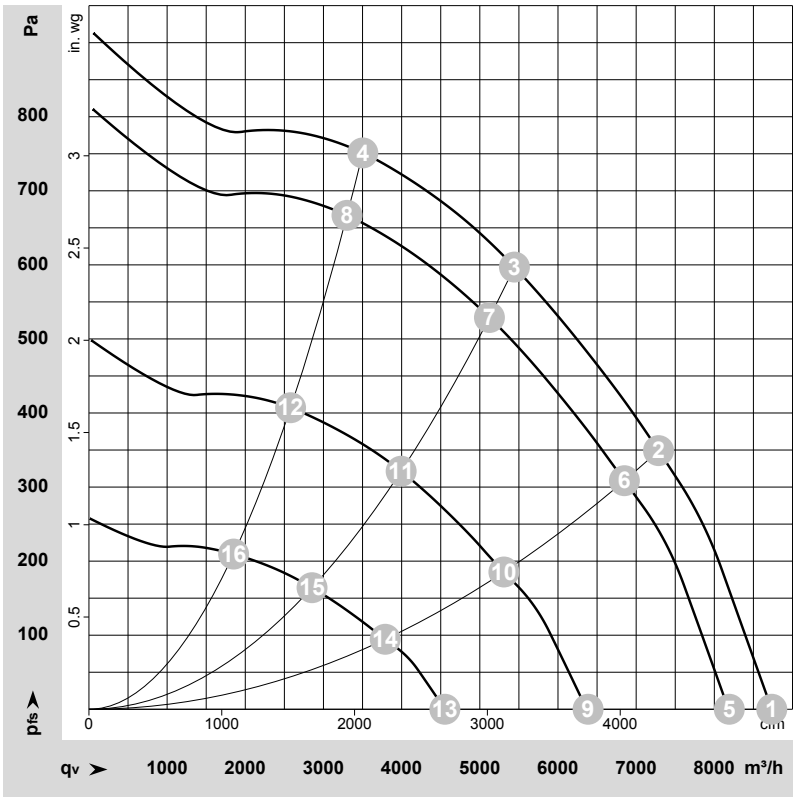
No.	Conn.	Designation	Function/assignment
	1	PE	Protective earth
	2	PE	Protective earth
	3	L1	Power supply
	4	L2	Power supply
	5	L3	Power supply
	6	NC	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on supply side and basic insulation on control interface side
	7	COM	Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on supply side and basic insulation on control interface side
	8	GND	Reference ground for control interface, SELV
	9	RSA	RS485 interface for MODBUS, RSA; SELV
	10	RSB	RS485 interface for MODBUS, RSB; SELV
	11	0-10 V	Analog input (set value) SELV, 0-10 V, Ri = 100 kΩ, adjustable curve
	12	+10 V	Fixed voltage output 10 VDC, SELV, +10 V ±3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. pot); fixed voltage input 24 VDC for setting parameters via MODBUS without line voltage supply



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Curves: Air performance 50 Hz



$\rho = 1.15 \text{ kg/m}^3 \pm 2 \%$

Measurement: LU-220595-1

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

	Wired	U	f	n	P _e	I	LpA _{in}	LwA _{in}	LwA _{out}	LwA	q _V	P _{fs}	q _V	P _{fs}
		V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	dB(A)	dB	m ³ /h	Pa	cfm	in. wg
1	3~	400	50	2040	878	1.36	78	86	90	91	8735	0	5140	0.00
2	3~	400	50	2040	1159	1.78	72	80	84	86	7285	350	4290	1.41
3	3~	400	50	2040	1300	2.00	67	74	79	81	5445	600	3205	2.41
4	3~	400	50	2040	1240	1.90	70	76	81	83	3505	750	2060	3.01
5	3~	400	50	1920	742	1.16	76	85	89	90	8190	0	4820	0.00
6	3~	400	50	1920	974	1.51	70	79	83	84	6850	309	4030	1.24
7	3~	400	50	1920	1097	1.69	65	73	78	79	5125	529	3015	2.12
8	3~	400	50	1920	1041	1.61	68	74	80	81	3300	668	1945	2.68
9	3~	400	50	1500	370	0.63	70	79	82	84	6385	0	3760	0.00
10	3~	400	50	1500	480	0.79	64	73	77	78	5310	185	3125	0.74
11	3~	400	50	1500	535	0.86	59	67	72	73	3995	321	2350	1.29
12	3~	400	50	1500	510	0.83	60	67	73	74	2580	407	1520	1.63
13	3~	400	50	1075	159	0.36	62	72	75	77	4555	0	2680	0.00
14	3~	400	50	1075	199	0.41	57	66	70	71	3790	94	2230	0.38
15	3~	400	50	1075	219	0.44	52	59	64	65	2855	164	1680	0.66
16	3~	400	50	1075	211	0.43	51	58	63	64	1850	210	1090	0.84

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_e = Power consumption · I = Current draw · LpA_{in} = Sound pressure level intake side · LwA_{in} = Sound power level intake side
LwA_{out} = Sound power level outlet side · q_V = Air flow · P_{fs} = Pressure increase

