

8300100221
VBH0560CTTRS

EC centrifugal module - RadiPac

backward-curved, single-intake
with support bracket

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Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Item	8300100221	
Motor	E15034-120	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Status		prelim.
Speed (rpm)	min ⁻¹	2400
Power consumption	W	6500
Current draw	A	10.0
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}	%	68.3	60	09 Power consumption P_{ed}	kW	6.44
02 Measurement category		A		09 Air flow q_v	m³/h	12685
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	1210
04 Efficiency grade N		70.3	62	10 Speed (rpm) n	min ⁻¹	2400
05 Variable speed drive		Yes		11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

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

LU-217104

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	52.5 kg
Size	560 mm
Motor size	150
Rotor surface	Painted black
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	- Operation and alarm display with LED - External 15-50 VDC input (parameterization) - Alarm relay - Integrated PI controller - Configurable inputs/outputs (I/O) - MODBUS V6.4 - Motor current limitation - RS-485 MODBUS-RTU - Soft start - Voltage output 3.3-24 VDC, Pmax = 800 mW - Control interface with SELV potential safely disconnected from the mains - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection - Vibration sensor
Power Factor Correction (PFC)	Passive (through low-capacitance DC link)
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
Motor protection	Electronic motor protection

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Protection class assignment	I; If a protective earth is connected. The built-in component has several local protection class assignments. The final protection class is determined by the intended installation.
Conformity with standards	EN 61800-5-1; CE; UKCA
Approval	CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1

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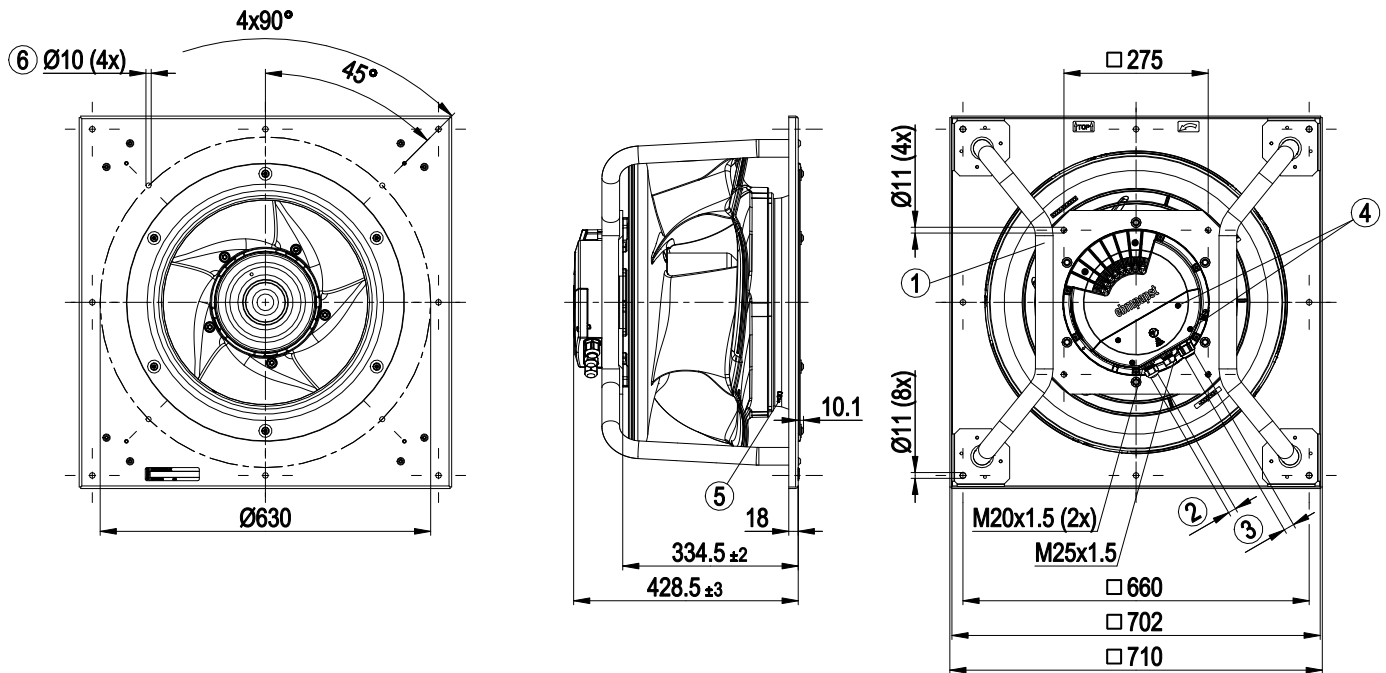
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Product drawing



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. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
3	Cable diameter min. 5 mm, max. 14 mm, tightening torque 6 ± 0.9 Nm
	(The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
4	Tightening torque 3 ± 0.3 Nm
5	Inlet ring with pressure tap (k-factor: 381)
6	Attachment holes for FlowGrid 50710-2-2957 (not included in scope of delivery)

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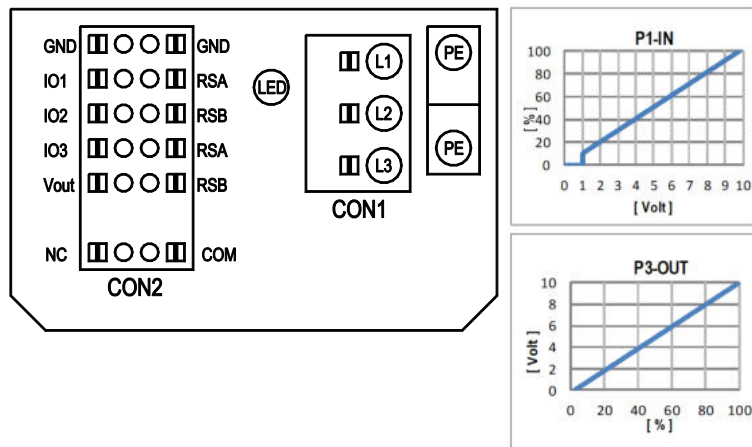
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Connection diagram



No.	Conn.	Designation	Function/assignment
	CON1	L1, L2, L3	Power supply, phase, see nameplate for voltage range
	PE	PE	Protective earth
	CON2	RSA	RS485 interface for MODBUS, RSA; SELV
	CON2	RSB	RS485 interface for MODBUS, RSB; SELV
	CON2	GND	Reference ground for control interface, SELV
	CON2	IO1	Function parameterizable (see "Optional interface functions" table) Factory setting: Digital input - high active, function: Disable input, SELV - inactive: Pin open or applied voltage < 1.5 VDC - active: applied voltage 3.5-50 VDC Reset function: Triggering of error reset on change of state from "enabled" to "disabled"
	CON2	IO2	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog input 0-10 V/PWM, Ri=100 kΩ, function: Set value Characteristic curve parameterizable (see input characteristic curve P1-IN), SELV
	CON2	IO3	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog output 0-10 V, max. 5 mA, function: Actual speed Characteristic curve parametrizable (see output characteristic curve P3-OUT), SELV
	CON2	Vout	Voltage output 3.3-24 VDC ±5%, Pmax=800 mW, voltage parameterizable Factory setting: 10 VDC short-circuit-proof, supply for external devices, SELV alternatively: 15-50 VDC input for parameterization via MODBUS without line voltage
	CON2	COM	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) / min. 10 mA, reinforced insulation on supply side and on control interface side
	CON2	NC	Status relay, floating status contact, break for failure
		LED	green: status = good, ready for operation orange: status = warning red: status = failure
		P1-IN	Input characteristic curve
		P3-OUT	Output characteristic curve

Terminal/plug assignment

○ configurable option			configurable IO functions: normal / inverse	MODBUS Register for IO mode configuration	electrical specification																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
CON2	configurable IO mode	○ Din1 (active high): digital input			active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		○ Ain1 0-10V/PWM: analog input			RI = 100K, characteristic curve parameterizable, $f_{PWM} = 1k..10kHz$, SELV																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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		○ Din3 (active high): digital input			active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
IO2	configurable IO mode	○ Din3 (active low): digital input			active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		○ PWMIn3: digital input idle level high	PWM = 40Hz - 10kHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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		○ Aout3 0-10V: analog output	function parameterizable, max. 5mA max output frequency 300Hz, SELV																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
IO3	configurable IO mode	○ Tacho out (pulses), analog output	0-10Vmax. 5mA max output frequency 300Hz, SELV																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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		○ RS485 bus connection,	MODBUS RTU, specification V6.4, SELV																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		○ voltage output	voltage parameterizable 3.3..24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Vout	alternatively: input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	15..50VDC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	</

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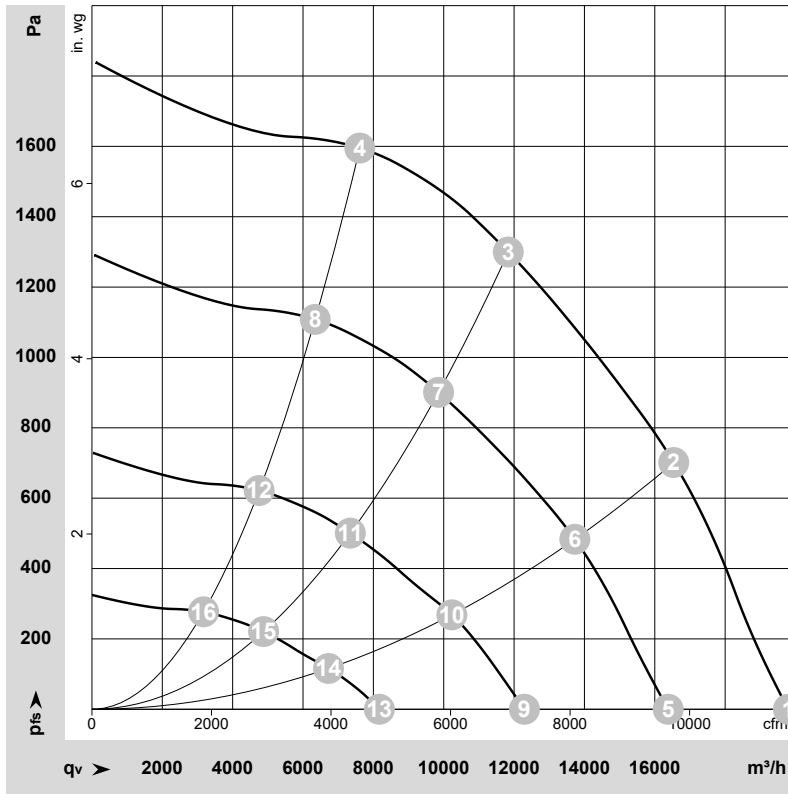
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Curves: Air performance 50 Hz



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

Measurement: LU-217104-1

Date: 2021-12-01

Nozzle: 8217101924

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}	q _v	p _{fs}	q _v	p _{fs}
		V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	dB(A)	m ³ /h	Pa	cfm	in. wg
1	3~	400	50	2400	4611	7.14	90	98	103	19795	0	11650	0.00
2	3~	400	50	2400	6012	9.16	85	93	98	16540	700	9735	2.81
3	3~	400	50	2400	6500	10.00	81	88	93	11835	1300	6965	5.22
4	3~	400	50	2400	6068	9.24	84	91	97	7615	1600	4480	6.42
5	3~	400	50	2000	2764	4.51	86	94	98	16380	0	9640	0.00
6	3~	400	50	2000	3541	5.63	80	88	92	13725	488	8080	1.96
7	3~	400	50	2000	3796	5.99	77	83	88	9855	901	5800	3.62
8	3~	400	50	2000	3540	5.62	79	86	92	6345	1117	3735	4.48
9	3~	400	50	1500	1285	2.49	78	86	90	12295	0	7235	0.00
10	3~	400	50	1500	1598	2.89	72	80	84	10230	272	6020	1.09
11	3~	400	50	1500	1691	3.02	69	76	81	7345	501	4325	2.01
12	3~	400	50	1500	1591	2.88	71	78	83	4755	626	2800	2.51
13	3~	400	50	1000	472	1.24	67	75	79	8170	0	4810	0.00
14	3~	400	50	1000	540	1.36	60	68	73	6725	117	3960	0.47
15	3~	400	50	1000	571	1.42	59	65	70	4880	221	2870	0.89
16	3~	400	50	1000	543	1.37	60	66	71	3175	279	1870	1.12

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