

8300100095
VBH0560CTTPS

EC centrifugal module - RadiPac

backward-curved, single-intake
with support bracket

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Nominal data

Item	8300100095	
Motor	E15031-85	
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	2080
Power consumption	W	4400
Current draw	A	6.7
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}	%	74.6	58.2	09 Power consumption P_{ed}	kW	4.36
02 Measurement category		A		09 Air flow q_v	m³/h	12210
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	926
04 Efficiency grade N		78.4	62	10 Speed (rpm) n	min ⁻¹	2080
05 Variable speed drive		Yes		11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

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).

* Specific ratio = $1 + p_b / 100\,000\text{ Pa}$ LU-215087

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Technical description

Weight	44.9 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 V6.3 - 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; UKCA; CE
Approval	UL 1004-7 + 60730-1; EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1

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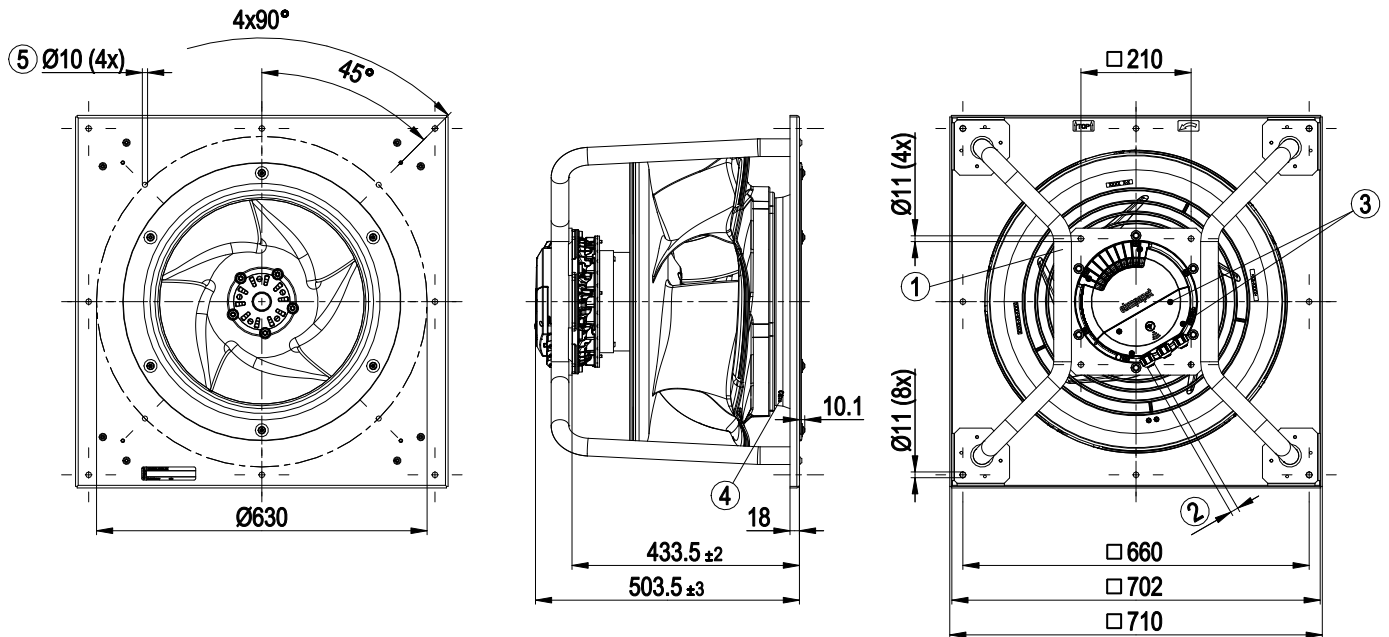
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Product drawing

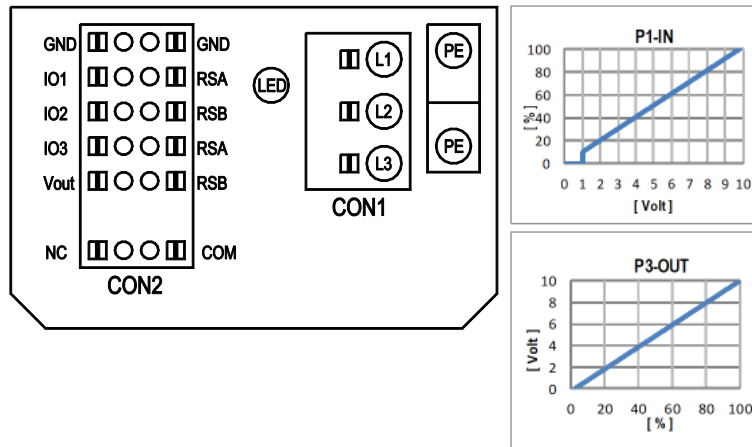


- | | |
|---|---|
| 1 | Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request |
| 2 | Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
(The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted) |
| 3 | Tightening torque 1.5 ± 0.2 Nm |
| 4 | Inlet ring with pressure tap (k-factor: 381) |
| 5 | Attachment holes for FlowGrid 50710-2-2957 (not included in scope of delivery) |

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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	digital input			active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC															
					Din1 (active high)															
IO1	Ain1 0-10V/PWM: analog input Tach out (open collector output) Diagnostics out (open collector output)	analog input open collector output open collector output		D158 [0]																
				D158 [2]	RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV															
				D158 [5]	Umax = 50VDC, Imax = 20mA, SELV															
				D158 [6]	Umax = 50VDC, Imax = 20mA, SELV															
IO2	Din2 (active high) Ain2 0-10V/PWM: analog input Ain2 4-20mA: analog input	digital input analog input analog input		D159 [0]	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC															
				D159 [2]	RI = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV															
				D159 [3]	RI = 125R, characteristic curve parameterizable, SELV															
				D15A [0]	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC															
IO3	Din3 (active low) PWMIn3: digital input, idle level high PWMMin3: digital input, idle level low	digital input idle level high idle level low		D15A [1]	active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC															
				D15A [7]	PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV															
				D15A [8]	40Hz - 10KHz, characteristics parameterizable active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1.5VDC, SELV															
				D15A [4]	function parameterizable, max. 5mA max output frequency 300Hz, SELV															
RSA RSB	Aout3 0-10V: analog output Tacho out (pulses), analog output Diagnostics out (pulses) RS485 bus connection,	analog output analog output pulses bus connection,		D15A [5]	0-10V max. 5mA max output frequency 300Hz, SELV															
				D15A [6]	0-10V max. 5mA max output frequency 300Hz, SELV															
					MODBUS RTU, specification V6.3, SELV															
Vout	voltage output alternatively: input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage			D16E [..]	voltage parameterizable 3.3...24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV															
					15...50VDC															

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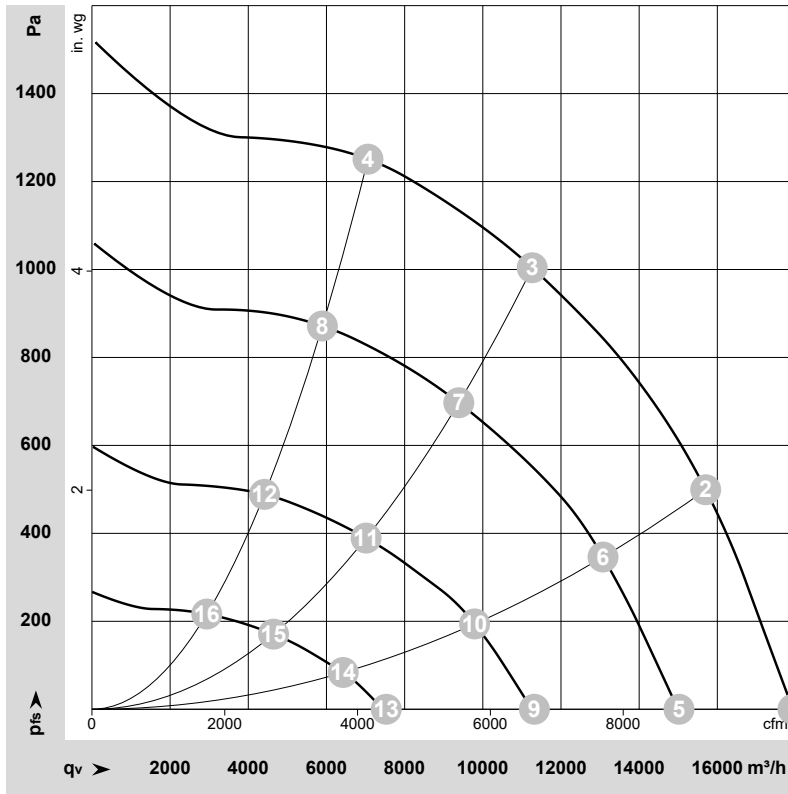
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Curves: Air performance 50 Hz



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

Measurement: LU-215087-1

Date: 2021-07-26

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}	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	2080	2670	4.12	84	92	96	98	17935	0	10555	0.00
2	3~	400	50	2080	3864	5.89	78	86	90	92	15700	500	9240	2.01
3	3~	400	50	2080	4400	6.70	72	80	85	87	11265	1000	6630	4.01
4	3~	400	50	2080	4112	6.27	77	84	89	90	7060	1250	4155	5.02
5	3~	400	50	1735	1584	2.53	79	87	91	92	15020	0	8840	0.00
6	3~	400	50	1735	2248	3.50	74	81	85	87	13075	346	7695	1.39
7	3~	400	50	1735	2555	3.95	68	75	81	82	9385	697	5525	2.80
8	3~	400	50	1735	2400	3.72	71	78	83	84	5895	875	3470	3.51
9	3~	400	50	1300	734	1.34	72	80	84	85	11320	0	6660	0.00
10	3~	400	50	1300	1004	1.71	66	74	78	80	9790	194	5760	0.78
11	3~	400	50	1300	1124	1.87	60	68	74	75	7015	389	4130	1.56
12	3~	400	50	1300	1062	1.79	62	70	75	76	4415	492	2600	1.98
13	3~	400	50	865	263	0.67	62	70	74	75	7530	0	4430	0.00
14	3~	400	50	865	331	0.79	57	65	69	70	6425	84	3785	0.34
15	3~	400	50	865	366	0.84	51	59	63	65	4645	171	2735	0.69
16	3~	400	50	865	352	0.82	50	57	62	64	2940	218	1730	0.88

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