EC centrifugal module - RadiPac

backward-curved, single-intake

with support bracket

Slingerland ventilatoren

Nominal data

Item		8300100058
Motor		E11233-80

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	3430
Power consumption	W	3600
Current draw	A	5.5
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	57.3	09 Power consumption P_{ed}		kW	3.56	
02 Measurement category			A		09 Air flow q_v		m³/h	7155	
03 Efficiency category			Static		09 Pressure increase p_{fs}		Pa	1278	
04 Efficiency grade N			79.1	62	10 Speed (rpm) n		min⁻¹	3430	
05 Variable speed drive			Yes		11 Specific ratio*			1.01	

Data obtained at optimum efficiency level.

* Specific ratio = 1 + p_{fs} / 100 000 Pa   LU-215166

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	27.92 kg
Size	400 mm
Motor size	112
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
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 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; CE; UKCA
Approval	CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1

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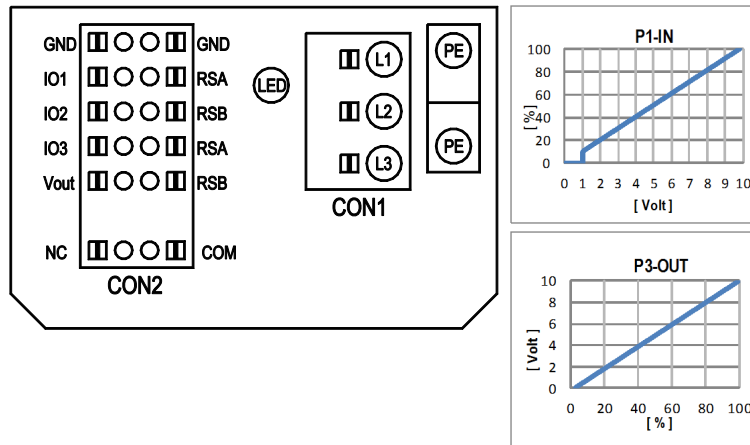
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Product drawing
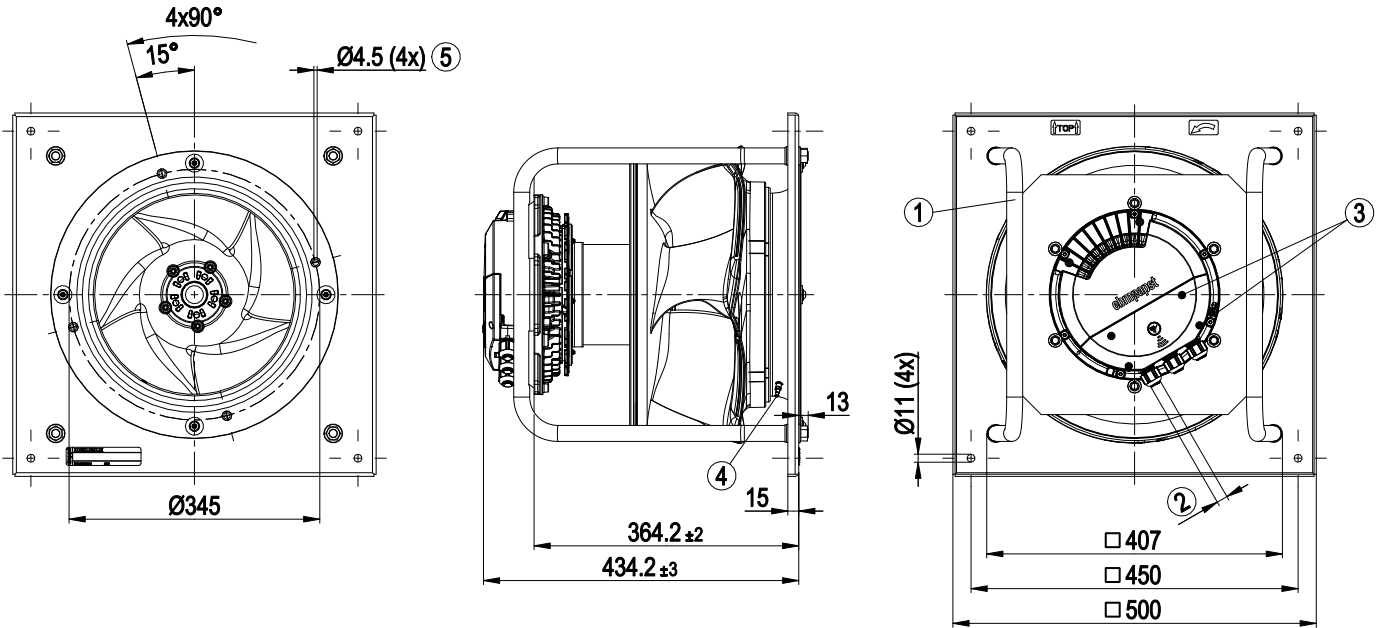
1	Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
	(The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
3	Tightening torque 1.5 ± 0.2 Nm
4	Inlet ring with pressure tap (k-factor: 190)
5	Fastening holes for FlowGrid 00400-2-2957 (not included in scope of delivery) are provided and must be subsequently opened as required

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Connection diagram

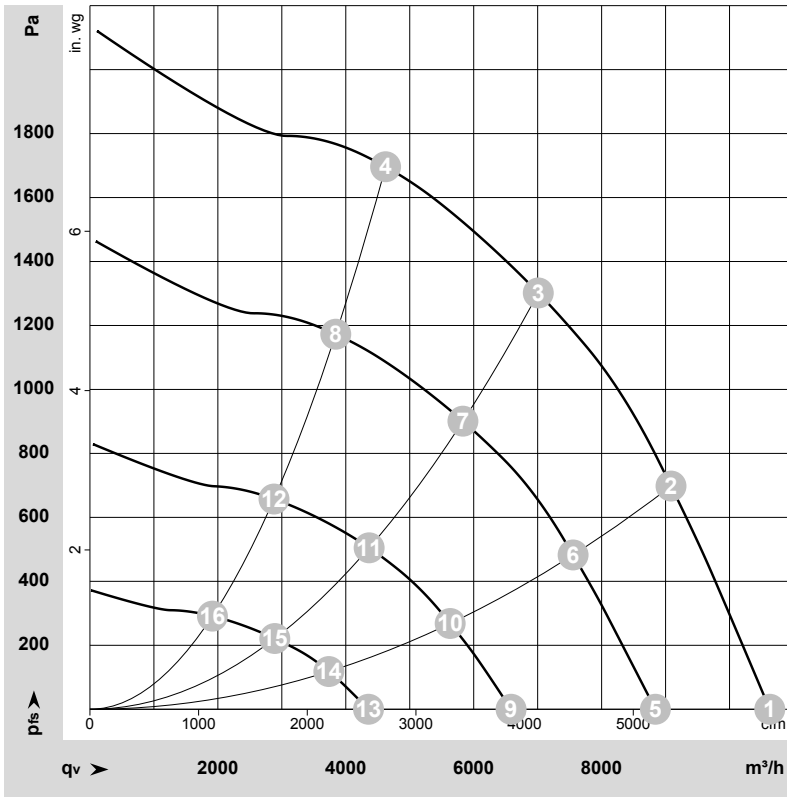| No.	Conn.	Designation	Function/assignment
	CON1	L1, L2, L3	Power supply, phase, see nameplate for voltage range
	PE	PE	Protective earth
	CON2	RSA	RS485 interface for MODBUS, RSA; SELV
	CON2	RSB	RS485 interface for MODBUS, RSB; SELV
	CON2	GND	Reference ground for control interface, SELV
	CON2	IO1	Function 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

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Terminal/plug assignment

o configurable option

For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.3

CON2	configurable IO mode	electrical specification	MODBUS Register for IO mode configuration	source: set value (D101 [...])	source: sensor value (D147 [...])	switch: parameter set: #1 / #2 (D104 [...])	switch: control function: heating (pos.) cooling (neg.) (D12E [...])	switch: direction of rotation: cw / ccw (D148 [...])	switch: set value source (D16C [...])	switch: fan enable / disable (D16A [...])	signal: tach out (selected directly via IO mode)	signal: diagnostics out (selected directly via IO mode)	signal: fan modulation level % (D130 [0])	signal: actual speed (D130 [1])	signal: system modulation level % (D130 [2])	signal: remote control output 0-10V (D130 [5])	pulse input for auto-adressing (D00C [1])	pulse output for auto-adressing (D130 [4])
				INPUT							OUTPUT							
IO1	o Din1 (active high): digital input	active: applied voltage 3,5-50VDC, SELV / not active: pin open or applied voltage < 1,5VDC	D158 [0]			o	o	o	o	o							o	
	o Ain1 0-10V/PWM: analog input	Ri = 100K, characteristic curve parameterizable, f_{PWM} = 1k..10KHz, SELV	D158 [2]	o	o													
	o Tach out (open collector output)	Umax = 50VDC, Imax = 20mA, SELV	D158 [5]								o							
	o Diagnostics out (open collector output)	Umax = 50VDC, Imax = 20mA, SELV	D158 [6]									o						
IO2	o Din2 (active high): digital input	active: applied voltage 3,5-50VDC, SELV / not active: pin open or applied voltage < 1,5VDC	D159 [0]			o	o	o	o	o								
	o Ain2 0-10V/PWM: analog input	Ri = 100K, characteristic curve parameterizable, f_{PWM} = 1k..10KHz, SELV	D159 [2]	o	o													
	o Ain2 4-20mA: analog input	Ri = 125R, characteristic curve parameterizable, SELV	D159 [3]	o														
IO3	o Din3 (active high): digital input	active: applied voltage 3,5-50VDC, SELV / not active: pin open or applied voltage < 1,5VDC	D15A[0]			o	o	o	o	o								
	o Din3 (active low): digital input	active: applied voltage < 1,5VDC, SELV / not active: pin open or applied voltage 3,5-50VDC	D15A[1]															
	o 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	D15A[7]	o														
	o PWMin3: digital input, idle level low	40Hz - 10kHz, characteristics parameterizable active: applied voltage 3,5-50VDC / not active: pin open or applied voltage < 1,5VDC, SELV	D15A[8]	o									o	o	o	o		
	o Aout3 0-10V: analog output	function parameterizable, max. 5mA max output frequency 300Hz, SELV	D15A[4]															o
	o Tacho out (pulses), analog output	0-10V max. 5mA max output frequency 300Hz, SELV	D15A[5]								o							
	o Diagnostics out (pulses)	0-10V max. 5mA max output frequency 300Hz, SELV	D15A[6]									o						
RSA RSB	RS485 bus connection,	MODBUS RTU, specification v6.3, SELV		o	o	o	o	o	o	o								
Vout	voltage output	voltage parameterizable 3,3...24VDC +/- 5%, Pmax=800mW, short-circuit-proof, supply for external devices, SELV	D16E [...]															
	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	15...50VDC																

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Curves: Air performance 50 Hz

ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-215166-1

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}	q_V	p_{fs}	q_V	p_{fs}
		V	Hz	min⁻¹	W	A	dB(A)	dB(A)	dB(A)	m³/h	Pa	cfm	in. wg
1	3~	400	50	3430	2350	3.65	90	97	99	10630	0	6255	0.00
2	3~	400	50	3430	3241	4.96	83	91	94	9085	700	5345	2.81
3	3~	400	50	3430	3600	5.50	78	85	89	7010	1300	4125	5.22
4	3~	400	50	3430	3481	5.30	78	85	91	4625	1700	2720	6.82
5	3~	400	50	2855	1375	2.22	84	92	94	8840	0	5205	0.00
6	3~	400	50	2850	1872	2.94	78	85	88	7555	483	4445	1.94
7	3~	400	50	2855	2058	3.21	73	80	84	5830	903	3430	3.63
8	3~	400	50	2850	2009	3.14	74	81	86	3845	1174	2260	4.71
9	3~	400	50	2135	636	1.22	76	84	87	6585	0	3875	0.00
10	3~	400	50	2140	839	1.48	70	78	81	5630	268	3315	1.08
11	3~	400	50	2140	917	1.58	65	72	77	4365	507	2570	2.04
12	3~	400	50	2140	886	1.54	67	73	78	2880	659	1695	2.65
13	3~	400	50	1425	228	0.62	65	73	77	4355	0	2565	0.00
14	3~	400	50	1425	284	0.71	59	67	71	3735	118	2200	0.47
15	3~	400	50	1425	307	0.75	55	63	67	2890	222	1700	0.89
16	3~	400	50	1425	300	0.74	54	62	67	1915	292	1125	1.17

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

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