

8300101397
VBH0190SSLES

EC centrifugal module - RadiCal

backward-curved, single-intake
with housing

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Nominal data

Item	8300101397	
Motor	E06003-23	
Phase		1~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200 .. 240
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min ⁻¹	4350
Power consumption	W	170
Current draw	A	1.4
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	60

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}	%	65.7	43.5	09 Power consumption P_{ed}	kW	0.17
02 Measurement category	A			09 Air flow q_v	m³/h	715
03 Efficiency category	Static			09 Pressure increase p_{fs}	Pa	503
04 Efficiency grade N		84.2	62	10 Speed (rpm) n	min ⁻¹	4410
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-229329

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

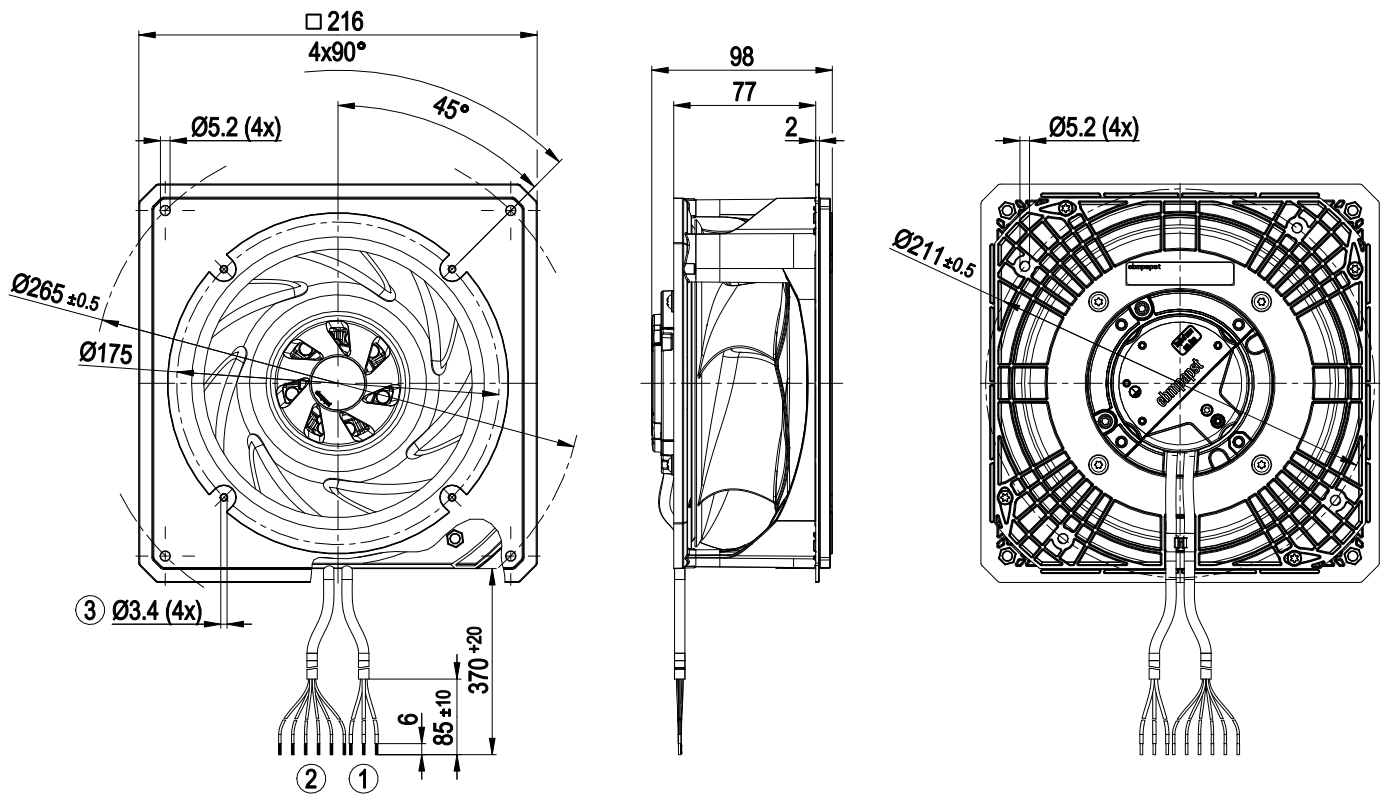
Weight	1.747 kg
Size	190 mm
Motor size	60
Rotor surface	Thick-film passivated
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Housing material	PP plastic
Number of blades	7
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP54
Insulation class	"B"
Moisture (F) / Environmental (H) protection class	H1
Max. permitted ambient temp. for motor (transport/storage)	+ 80 °C
Min. permitted ambient temp. for motor (transport/storage)	- 40 °C
Installation position	Any
Condensation drainage holes	None, open rotor
Mode	S1
Motor bearing	Ball bearing
Technical features	- Output 10 VDC, max. 10 mA - Locked-rotor detection - Tach output - Speed control - Power limiter - MODBUS - Motor current limitation - RS-485 MODBUS-RTU - Soft start - 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 detection
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Motor protection	Electronic motor protection
With cable	Variable
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 60335-1; EN 60034-1; EN 60204-1; CE; UKCA
Approval	UL 1004-7 + 60730-1; CSA C22.2 No. 77 + CAN/CSA-E60730-1

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Product drawing



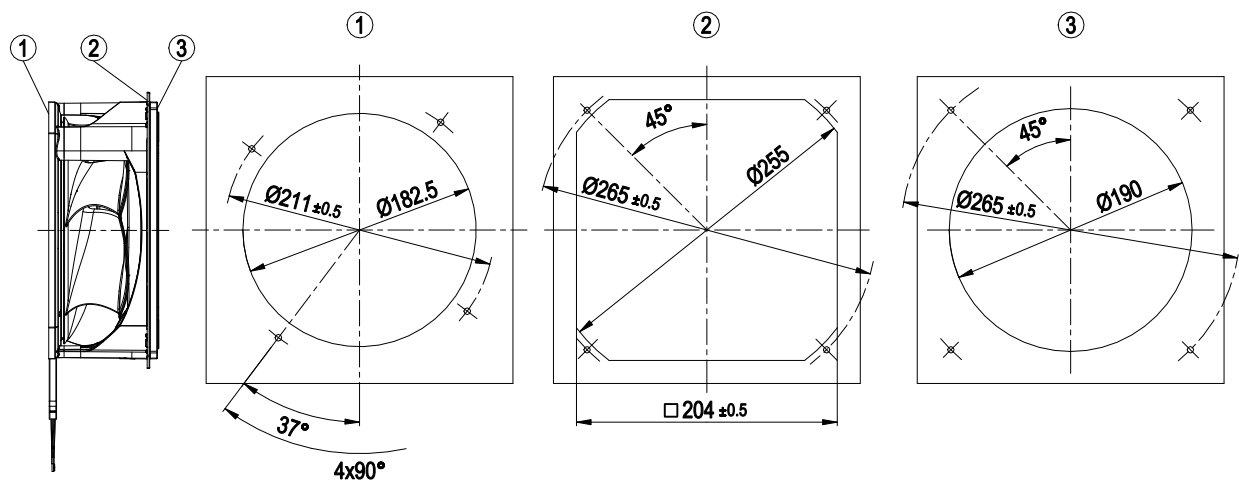
1	Supply line (PWR) PVC AWG20 3x splice
2	Control wire (CTRL) PVC AWG22 6x splice
3	Fastening holes for FlowGrid 8217117433 (not included in scope of delivery) are provided and must only be used for FlowGrid

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Mounting dimensions

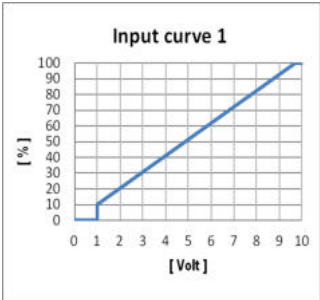


1	Installation of motor plate
2	Installation of nozzle plate on outlet side
3	Installation of nozzle plate on intake side

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Connection diagram



No.	Conn.	Designation	Color	Function/assignment
	PWR	L	black	Power supply, phase, see nameplate for voltage range
	PWR	N	blue	Power supply, neutral conductor, see nameplate for voltage range
	PWR	PE	green/yellow	Protective earth
	CTRL	GND	blue	Reference ground for control interface, SELV
	CTRL	IO1	yellow	Factory setting: Analog input 0-10 V/PWM, Ri=100 KΩ, fPWM=1 kHz..10 kHz, Function: Speed set value Characteristic curve parameterizable (see input characteristic curve "Input curve 1"), SELV Function parameterizable (see table Optional interface functions)
	CTRL	IO2	white	Factory setting: Open collector output, Umax=50 VDC, Imax= 10 mA, function: Tach output 1 pulse/revolution, SELV Function parameterizable at factory (see table Optional interface functions)
	CTRL	Vout	red	Voltage output 10 VDC +/-3%, Imax=10 mA Short-circuit-proof, power supply for external devices, SELV
	CTRL	RSA	gray	RS-485 interface for MODBUS RSA, SELV dielectric strength to MODBUS RSB +/-14 V, dielectric strength to GND +/-7 V
	CTRL	RSB	brown	RS-485 interface for MODBUS RSB, SELV dielectric strength to MODBUS RSA +/-14 V, dielectric strength to GND +/-7 V

Terminal/plug assignment

Medium (M1)		Functions and parameter description	
MODBUS V7.1			
o configurable function (c) function to be activated via IO Mode			
configurable IO mode		electrical specification	
IO1	Dim1 (active high): digital input	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	
	Dim1 (active low): digital input	active: applied voltage < 1.5 VDC not active: pin open or applied voltage 3.5 - 50 VDC, SELV	
	Ain1 0-10 V/PWM: analog input	Ri = 100 kΩ, characteristic curve parameterizable, f _{max} = 1 k - 10 kHz, SELV	
	Ain1 0-10 V/PWM (with pull up): analog input	Ri = 100 kΩ, characteristic curve parameterizable, f _{max} = 1 k - 10 kHz, SELV	
	Tach out (open collector)	U _{max} = 50 VDC, I _{max} = 10 mA, SELV	
IO2	Diagnostics out (open collector)	U _{max} = 50 VDC, I _{max} = 10 mA, SELV	
	Alarm out (open collector)	U _{max} = 50 VDC, I _{max} = 10 mA, SELV	
	Test pulse output addressing (open collector)	U _{max} = 50 VDC, I _{max} = 10 mA, SELV	
	DCI-output (open collector)	U _{max} = 50 VDC, I _{max} = 10 mA, SELV	
	RS485 bus connection	MODBUS RTU, parameter specification V7.1, SELV	
RSA RSB			
Vout	Voltage output	Voltage 10 VDC, SELV	

Medium (M1)

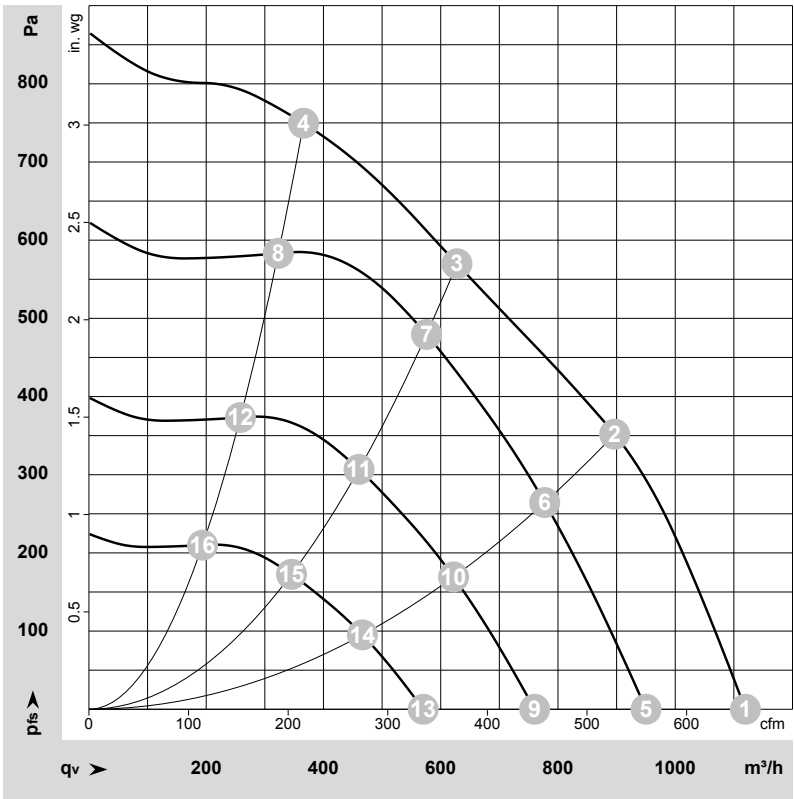
Functions and parameter description
MODBUS V7.1

- configurable function
- (○) function to be activated via IO Mode

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Curves: Air performance 50 Hz



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

Measurement: LU-229329-1
Date: 2023-10-26
Nozzle: 8217116915

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}	q _v	p _{fs}	q _v	p _{fs}
		V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	m ³ /h	Pa	cfm	in. wg
1	1~	230	50	4715	121	1.02	72	79	1120	0	660	0.00
2	1~	230	50	4615	170	1.40	67	75	895	350	530	1.41
3	1~	230	50	4350	170	1.40	66	73	630	570	370	2.29
4	1~	230	50	4535	170	1.40	73	81	365	750	215	3.01
5	1~	230	50	4000	74	0.62	67	75	950	0	560	0.00
6	1~	230	50	4000	112	0.92	64	71	775	265	455	1.06
7	1~	230	50	4000	133	1.09	63	71	575	481	340	1.93
8	1~	230	50	4000	118	0.96	70	78	325	583	190	2.34
9	1~	230	50	3200	38	0.32	62	70	760	0	445	0.00
10	1~	230	50	3200	58	0.47	58	66	620	169	365	0.68
11	1~	230	50	3200	68	0.56	58	65	460	308	270	1.24
12	1~	230	50	3200	61	0.49	65	72	260	373	150	1.50
13	1~	230	50	2400	16	0.13	55	63	570	0	335	0.00
14	1~	230	50	2400	24	0.20	51	59	465	95	275	0.38
15	1~	230	50	2400	29	0.24	51	58	345	173	205	0.69
16	1~	230	50	2400	26	0.21	57	65	195	210	115	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
q_v = Air flow · p_{fs} = Pressure increase