

8300100882
VBS0400CSPHS

EC centrifugal fan - RadiPac

backward-curved, single-intake

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Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Item	8300100882	
Motor	E09002-40	
Phase		1~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200 .. 277
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min ⁻¹	1780
Power consumption	W	500
Current draw	A	2.2
Min. ambient temperature	°C	-40
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}	%	70.9	48.3	09 Power consumption P_{ed}	kW	0.49
02 Measurement category	A			09 Air flow q_v	m³/h	3595
03 Efficiency category	Static			09 Pressure increase p_{fs}	Pa	319
04 Efficiency grade N		84.6	62	10 Speed (rpm) n	min ⁻¹	1780
05 Variable speed drive		Yes		11 Specific ratio*		1.00

Data obtained at optimum efficiency level.

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

LU-224465

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).

Technical description

Weight	6.26 kg
Size	400 mm
Motor size	90
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PP 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	Shaft horizontal or rotor on bottom; rotor on top on request
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- Output 10 VDC, max. 10 mA - Operation and alarm display with LED - Locked-rotor detection - Speed control - External 15-30 VDC input (parameterization) - Alarm relay - Configurable inputs/outputs (I/O) - Power limiter - MODBUS - Motor current limitation - PFC, active - RS-485 MODBUS-RTU - Soft start - Control interface with SELV potential safely disconnected from the mains - Temperature derating - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Motor protection	Electronic motor protection
With cable	Lateral
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 61800-5-1; UKCA; CE
Approval	UL 1004-7 + 60730-1; CSA C22.2 No. 77 + CAN/CSA-E60730-1

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Technical drawing of the 4x90° ceiling-mounted air conditioning unit. The drawing includes a side view, a detail of the mounting bracket (1), and a top view.

Side View Dimensions:

- Unit diameter: $\varnothing 150$
- Mounting bracket height: 47.7
- Unit depth: 193.5
- Mounting bracket depth: 204.5 ± 2
- Unit diameter at mounting bracket: $\varnothing 286.3$
- Mounting bracket diameter: $\varnothing 408.5$

Top View Dimensions:

- Unit diameter: $\varnothing 164 \pm 0.5$
- Mounting bracket diameter: $\varnothing 177$
- Mounting bracket height: 47.7
- Unit depth: 193.5
- Mounting bracket depth: 204.5 ± 2
- Unit diameter at mounting bracket: $\varnothing 286.3$
- Mounting bracket diameter: $\varnothing 408.5$

Mounting Bracket (1) Dimensions:

- Bracket height: 47.7
- Bracket diameter: $\varnothing 150$

Unit Details:

- Unit label: 4x90°
- Unit diameter: $\varnothing 150$
- Unit depth: 193.5
- Mounting bracket depth: 204.5 ± 2
- Unit diameter at mounting bracket: $\varnothing 286.3$
- Mounting bracket diameter: $\varnothing 408.5$

1	Accessory part: Inlet ring 8217102241 with pressure tap (k-factor: 190) (not included in scope of delivery)
2	Max. clearance for screw 10 mm
3	Max. clearance for screw 10 mm
	The M5 tapped holes (2x) can be used to attach hoisting equipment.
4	Supply line (PWR) PVC AWG18
	5x wire-end ferrule
5	Control wire (CTRL) PVC AWG22
	6x wire-end ferrule

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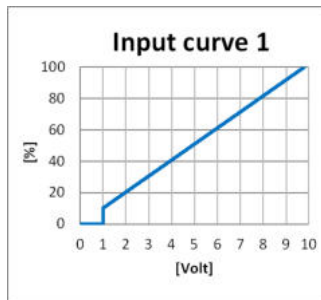
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Connection diagram



No.	Conn.	Designation	Color	Function/assignment
	PWR	PE	green/yellow	Protective earth
	PWR	L	black	Power supply, phase, see nameplate for voltage range
	PWR	N	blue	Power supply, neutral conductor, see nameplate for voltage range
	PWR	COM	orange	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
	PWR	NC	orange	Status relay, floating status contact, break for failure
	CTRL	GND	blue	Reference ground for control interface, SELV
	CTRL	Vout	red	Voltage output 10 VDC $\pm$ 3%, I _{max} =10 mA Short-circuit-proof, power supply for external devices, SELV alternative: 15-30 VDC input for parameterization via MODBUS without line voltage
	CTRL	IO1	yellow	Factory setting: Analog input 0-10 V / PWM, R _i =100 k Ω , function: 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, U _{max} =50 VDC, I _{max} =20 mA, function:Tacho output 1 pulse/revolution, SELV Function parameterizable (see table Optional interface functions)
	CTRL	RSA	gray	RS-485 interface for MODBUS RSA, SELV dielectric strength to MODBUS RSB $\pm$ 14 V, dielectric strength to GND $\pm$ 7 V
	CTRL	RSB	brown	RS-485 interface for MODBUS RSB, SELV dielectric strength to MODBUS RSA $\pm$ 14 V, dielectric strength to GND $\pm$ 7 V
		LED		green: status = good, ready for operation orange: status = warning red: status = failure

Terminal/plug assignment

IO1	IO2	IO mode configuration	electrical specification	configurable IO mode	MODBUS Register for IO mode configuration	configurable IO functions: normal / inverse											
						configurable IO functions: normal / inverse											
IO1	IO2	Din1 (high active); digital input	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	Din1 (high active); digital input	D158 [0]	source: set value											
						source: sensor value											
						switch: parameter set: #1 / #2											
						switch: control function: heating (pos.) / cooling (neg.)											
IO2	IO2	Din1 (low active); digital input	active: applied voltage < 1.5 VDC not active: pin open or applied voltage 3.5 - 50 VDC, SELV	Din1 (low active); digital input	D158 [1]	switch: direction of rotation: cw / ccw											
						switch: set value source											
						switch: fan enable / disable											
						source: input pulses autoaddressing											
IO2	IO2	Ain1 0-10 V/PWM; analog input	RI = 100 kΩ, characteristic curve parameterizable, $f_{PWM} = 1\text{ k} - 10\text{ kHz}$, SELV	Ain1 0-10 V/PWM (with pull up); analog input	D158 [2]	signal: tach out											
						signal: diagnostics out											
						signal: alarm out											
						signal: output pulses autoaddressing											
IO2	IO2	Din1 (active high); digital input	active: applied voltage 3.5 - 50 VDC not active: pin open or applied voltage < 1.5 VDC, SELV	Din1 (active high); digital input	D158 [3]	signal: DCI in											
						signal: DCI out											
						signal: fan modulation level %											
						signal: actual speed 1/min											
IO2	IO2	Ain1 0-10 V/PWM; analog input	RI = 100 kΩ, characteristic curve parameterizable, $f_{PWM} = 1\text{ k} - 10\text{ kHz}$, SELV	Ain1 0-10 V/PWM (with pull up); analog input	D158 [4]	signal: system modulation level %											
						signal: remote control output 0-10 V											
						signal: run monitoring											
						signal: status											

Medium (M2)

Functions and parameter description
MODBUS V7.1

- configurable function
- function to be activated via IO Mode

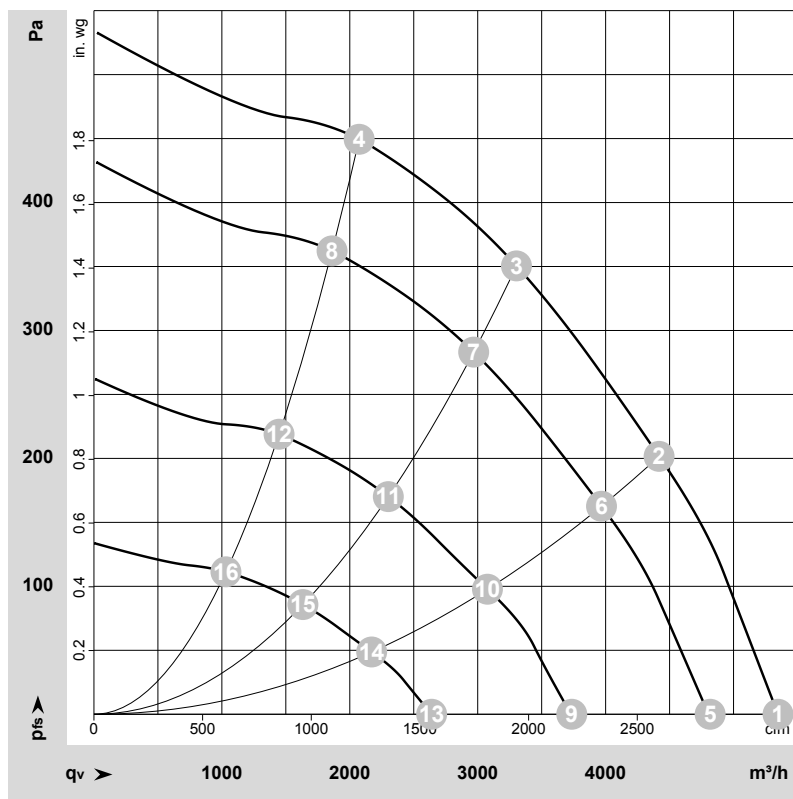
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Curves: Air performance 50 Hz



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

Measurement: LU-224465-1
Date: 2022-12-08
Nozzle: 8217101929

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	m³/h	Pa	cfm	in. wg
1	1~	230	50	1780	346	1.54	70	78	82	84	5350	0	3150	0.00
2	1~	230	50	1780	449	1.98	63	71	76	77	4420	200	2600	0.80
3	1~	230	50	1780	500	2.20	60	67	73	74	3305	350	1945	1.41
4	1~	230	50	1780	474	2.09	63	70	75	76	2075	450	1220	1.81
5	1~	230	50	1600	254	1.14	68	76	79	81	4815	0	2835	0.00
6	1~	230	50	1600	329	1.46	60	68	73	74	3970	163	2335	0.65
7	1~	230	50	1600	364	1.62	58	65	70	71	2970	283	1745	1.14
8	1~	230	50	1600	346	1.53	60	67	72	73	1860	362	1095	1.45
9	1~	230	50	1245	127	0.60	61	70	74	76	3735	0	2200	0.00
10	1~	230	50	1245	160	0.74	54	63	67	69	3075	98	1810	0.39
11	1~	230	50	1245	176	0.80	52	59	64	65	2300	170	1355	0.68
12	1~	230	50	1245	169	0.77	53	60	65	66	1445	219	850	0.88
13	1~	230	50	890	55	0.33	55	62	67	68	2640	0	1555	0.00
14	1~	230	50	890	66	0.37	48	55	60	61	2170	49	1280	0.20
15	1~	230	50	890	72	0.39	45	52	57	58	1635	86	960	0.35
16	1~	230	50	890	70	0.38	44	51	56	57	1030	111	605	0.45

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