EC centrifugal module - RadiPac

backward-curved, single-intake

with support bracket

Nominal data

Type	**K3G310-PH38-09**
Motor	**M3G112-GA**

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}	3410
Power consumption	W	1800
Current draw	A	2.8
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	50

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 (EN 17166)

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	67.4	54
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		75.4	62
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	1.74
09 Air flow q_v	m^3/h	3810
09 Pressure increase p_{fs}	Pa	1034
10 Speed (rpm) n	min^{-1}	3445
11 Specific ratio*		1.01

Data obtained at optimum efficiency level.
The ErP data is determined using a motor-impeller combination in a standardized measurement setup.

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

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Technical description

Weight	23.4 kg
Size	310 mm
Motor size	112
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	Sheet aluminum
Support plate material	Sheet steel, galvanized
Support bracket material	Steel, painted black
Inlet nozzle material	Sheet steel, galvanized
Number of blades	5
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	See product drawing
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- Output 10 VDC, max. 10 mA - Output 20 VDC, max. 50 mA - Output for slave 0-10 V - Operation and alarm display - Input for sensor 0-10 V or 4-20 mA - External 24 V input (parameter setting) - External release input - Alarm relay - Integrated PID controller - Power limiter - Motor current limitation - PFC, passive - RS-485 MODBUS-RTU - Soft start - Control input 0-10 VDC / PWM - Control interface with SELV potential safely disconnected from the mains - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
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	Connector with cable
Motor protection	Thermal overload protector (TOP) internally connected

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Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1

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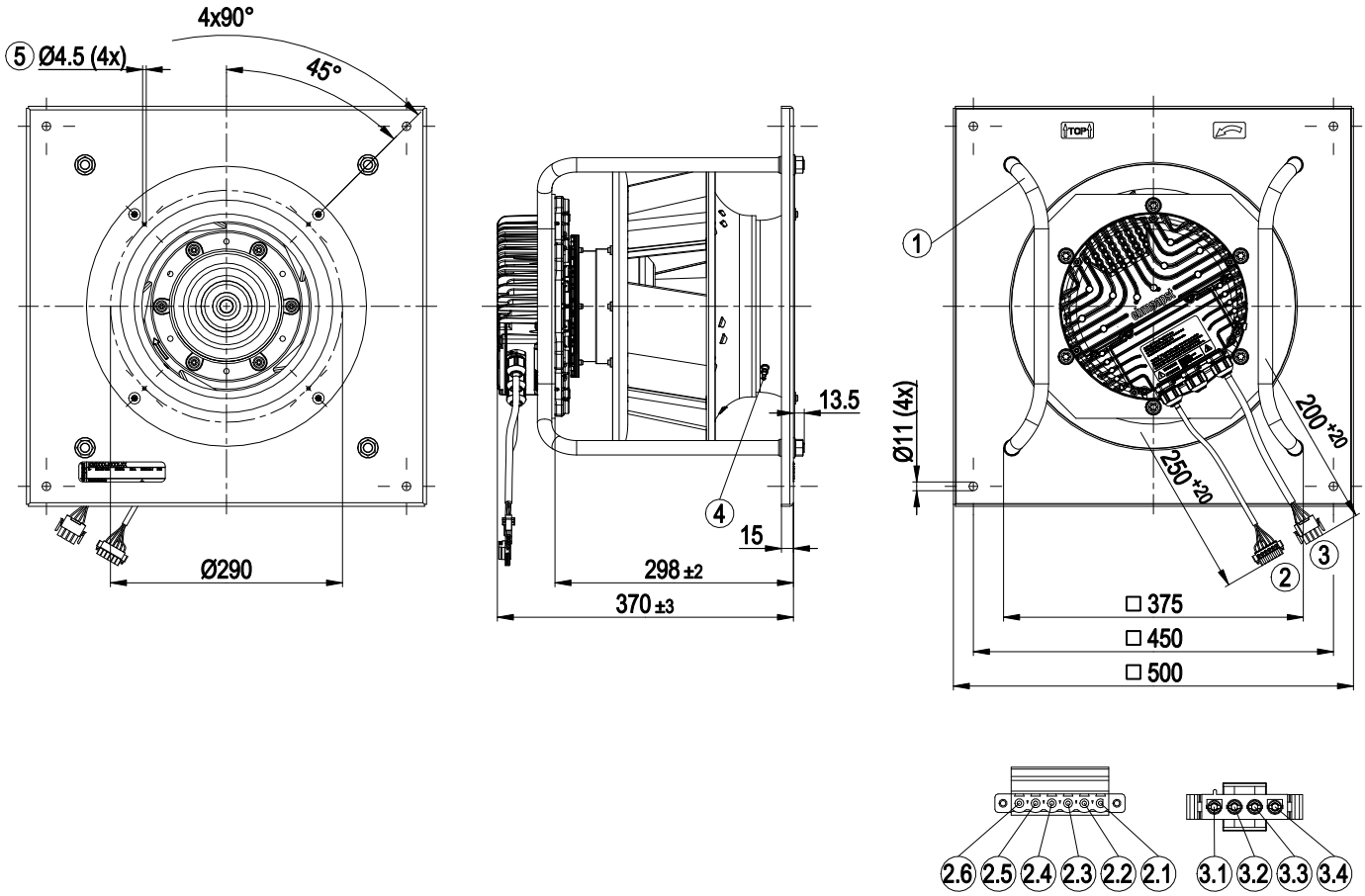
Product drawing



1	Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request
2	Cable PVC AWG22, 6-pole connector housing Phoenix 1778027 (MSTB 2.5/6-STF-5.08), 6x crimped ferrules
2.1	RSA
2.2	RSB
2.3	GND
2.4	0-10 V
2.5	+10 V
2.6	Bridge (GND)
3	Cable PVC AWG18, 4-pole connector housing TE 1-480702-0, 3x plug pin TE 926883-1 crimped, 1x plug pin TE 350654-1 crimped
3.1	PE
3.2	L3
3.3	L2
3.4	L1
4	Inlet ring with pressure tap (k-factor: 116)
5	Attachment for inlet ring and FlowGrid

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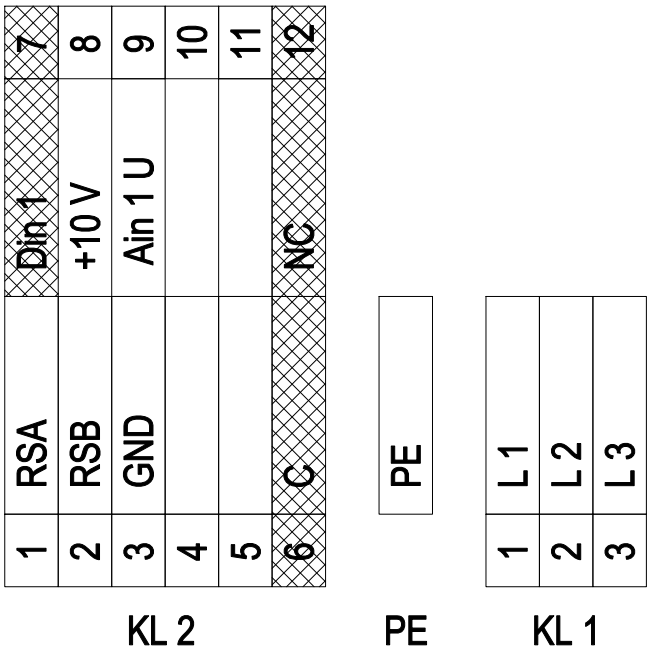
Connection diagram



shaded gray => not brought out via leads

No.	Conn.	Designation	Function/assignment
KL 1	1	L1	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
KL 1	2	L2	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
KL 1	3	L3	Supply connection, power supply 3-phase 380-480 VAC, 50/60 Hz
PE		PE	Ground connection, PE connection
KL 2	1	RSA	Bus connection RS485, RSA, MODBUS-RTU; SELV
KL 2	2	RSB	Bus connection RS485, RSB, MODBUS-RTU; SELV
KL 2	3	GND	Reference ground for control interface; SELV
KL2	4		not used
KL2	5		not used
KL2	6	C	Status relay, floating status contact, break for failure; contact rating 250 VAC / max. 2 A (AC1) / min. 10 mA
KL 2	7	Din1	Digital input 1 enable electronics, Enable: Pin open or applied voltage 5-50 VDC Disable: Bridge to GND or applied voltage < 1 VDC Reset function: Triggers software reset after a level change to < 1 V; SELV
KL 2	8	+ 10 V	Fixed voltage output 10 VDC, +10 V ±3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. pot); SELV Or: +24 VDC input for parameter setting via MODBUS without line voltage
KL 2	9	Ain1 U	Analog input 1 (set value) 0-10 V, Ri = 100 kΩ, adjustable curve; SELV
KL2	10		not used
KL2	11		not used
KL2	12	NC	Status relay, floating status contact; break for failure

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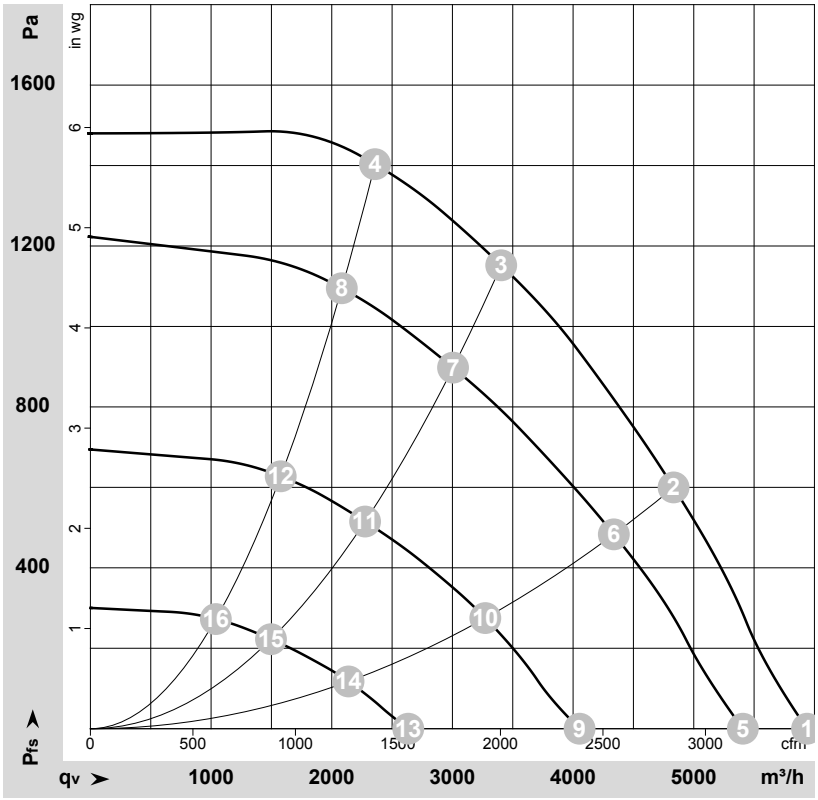
Curves: Air performance 50 Hz



ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-174742-1

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

	U	f	n	P_{ed}	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	400	50	3410	1045	1.68	87	93	95	5940	0	3495	0.00
2	400	50	3410	1543	2.40	79	86	90	4835	600	2845	2.41
3	400	50	3410	1800	2.80	75	83	88	3405	1150	2005	4.62
4	400	50	3410	1745	2.69	78	87	90	2360	1400	1390	5.62
5	400	50	3145	824	1.37	84	91	93	5405	0	3180	0.00
6	400	50	3070	1130	1.79	76	84	88	4340	485	2555	1.95
7	400	50	3035	1243	1.96	72	80	85	3005	898	1770	3.61
8	400	50	3035	1224	1.93	75	83	88	2085	1096	1225	4.40
9	400	50	2360	394	0.76	76	84	86	4055	0	2385	0.00
10	400	50	2315	528	0.97	69	77	81	3275	276	1925	1.11
11	400	50	2300	585	1.05	66	73	79	2275	515	1340	2.07
12	400	50	2300	572	1.03	69	76	81	1575	628	930	2.52
13	400	50	1550	148	0.36	66	75	76	2635	0	1550	0.00
14	400	50	1525	187	0.42	59	67	72	2140	118	1260	0.47
15	400	50	1510	204	0.45	57	64	70	1495	223	880	0.90
16	400	50	1510	203	0.44	58	66	71	1040	273	610	1.10

U = Voltage · f = Frequency · n = Speed (rpm) · P_{ed} = 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