

K3G310-PV68-13 ebmpapst Datasheet

sales@fansco.com

www.fansco.com

## Nominal data

Type	K3G310-PV68-13	
Motor	M3G112-GA	
Phase		3~
Nominal voltage	VAC	200
Nominal voltage range	VAC	200 .. 240
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min <sup>-1</sup>	4000
Power consumption	W	3050
Current draw	A	9.3
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 (EN 17166)

		Actual	Req. 2015			
01 Overall efficiency $\eta_{es}$	%	60.3	56.5	09 Power consumption $P_{ed}$	kW	3
02 Measurement category		A		09 Air flow $q_v$	m <sup>3</sup> /h	4465
03 Efficiency category		Static		09 Pressure increase $p_{fs}$	Pa	1397
04 Efficiency grade N		65.8	62	10 Speed (rpm) n	min <sup>-1</sup>	3995
05 Variable speed drive		Yes		11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

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

LU-197218

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).



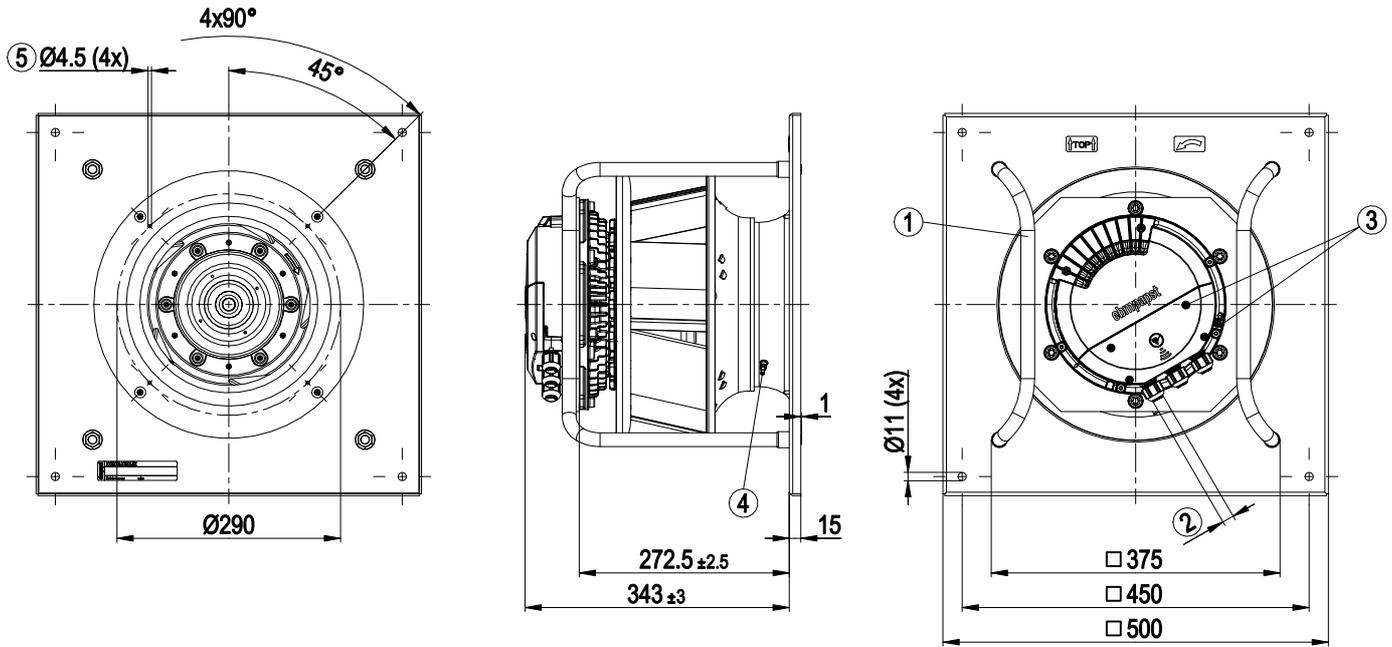
## Technical description

<b>Weight</b>	21.36 kg
<b>Size</b>	310 mm
<b>Motor size</b>	112
<b>Rotor surface</b>	Painted black
<b>Electronics housing material</b>	Die-cast aluminum
<b>Impeller material</b>	Sheet aluminum
<b>Support plate material</b>	Sheet steel, galvanized
<b>Support bracket material</b>	Steel, painted black
<b>Inlet nozzle material</b>	Sheet steel, galvanized
<b>Number of blades</b>	5
<b>Direction of rotation</b>	Clockwise, viewed toward rotor
<b>Degree of protection</b>	IP55
<b>Insulation class</b>	"F"
<b>Moisture (F) / Environmental (H) protection class</b>	H1
<b>Ambient temperature note</b>	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.
<b>Max. permitted ambient temp. for motor (transport/storage)</b>	+80 °C
<b>Min. permitted ambient temp. for motor (transport/storage)</b>	-40 °C
<b>Installation position</b>	See legend on product drawing
<b>Condensation drainage holes</b>	On rotor side
<b>Mode</b>	S1
<b>Motor bearing</b>	Ball bearing
<b>Technical features</b>	<ul style="list-style-type: none"> <li>- Operation and alarm display with LED</li> <li>- External 15-50 VDC input (parameterization)</li> <li>- Alarm relay</li> <li>- Integrated PI controller</li> <li>- Configurable inputs/outputs (I/O)</li> <li>- MODBUS V6.3</li> <li>- Motor current limitation</li> <li>- RS-485 MODBUS-RTU</li> <li>- Soft start</li> <li>- Voltage output 3.3-24 VDC, Pmax = 800 mW</li> <li>- Control interface with SELV potential safely disconnected from the mains</li> <li>- Thermal overload protection for electronics/motor</li> <li>- Line undervoltage / phase failure detection</li> </ul>
<b>EMC immunity to interference</b>	According to EN 61000-6-2 (industrial environment)
<b>EMC interference emission</b>	According to EN 61000-6-3 (household environment)
<b>Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)</b>	<= 3.5 mA
<b>Electrical hookup</b>	Terminal box
<b>Motor protection</b>	Electronic motor protection
<b>Protection class</b>	I (with customer connection of protective earth)
<b>Conformity with standards</b>	EN 61800-5-1; CE
<b>Approval</b>	CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1

# EC centrifugal module - RadiPac

backward-curved, single-intake  
with support bracket

## Product drawing



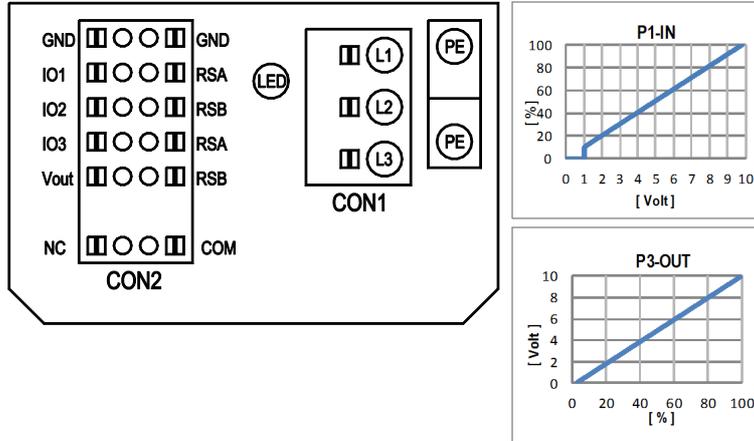
1	Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque $4 \pm 0.6$ Nm (The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
3	Tightening torque $1.5 \pm 0.2$ Nm
4	Inlet ring with pressure tap (k-factor: 116)
5	Attachment holes for FlowGrid 25310-2-2957 (not included in scope of delivery)



# EC centrifugal module - RadiPac

backward-curved, single-intake  
with support bracket

## 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: Fan modulation level Characteristic curve parameterizable (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

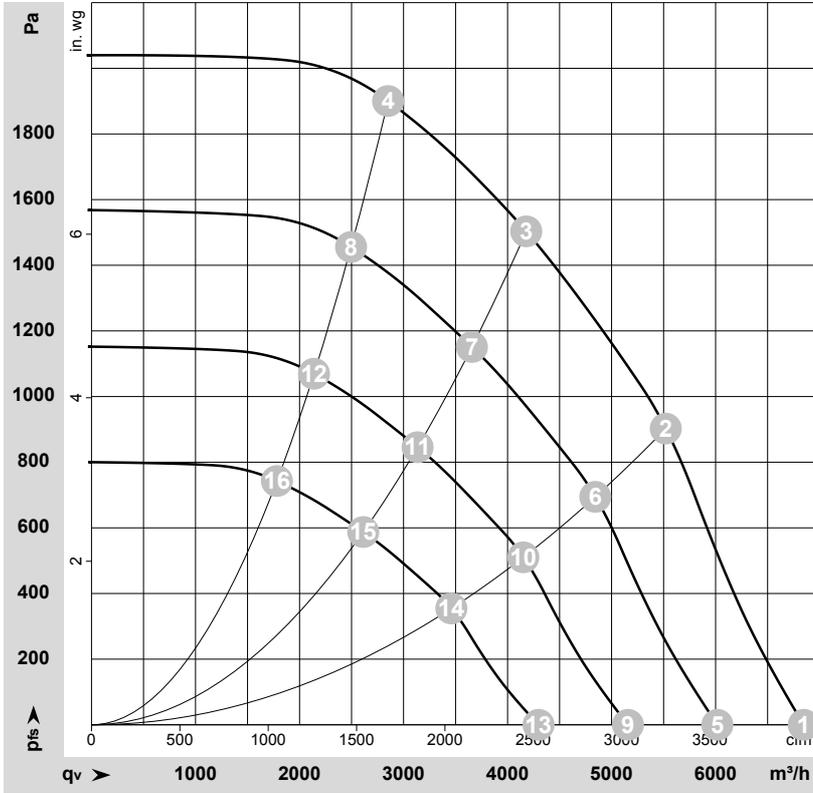
CON2	configurable IO mode	electrical specification	configurable IO functions: normal / inverse	MODBUS Register for IO mode configuration	
				D158 [0]	D158 [1]
IO1	o Din1 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC			
	o Ain1 0-10V/PWM: analog input	RI = 100k, characteristic curve parameterizable, f <sub>PWM</sub> = 1k..10kHz, SELV			
	o Tach out (open collector output)	U <sub>max</sub> = 50VDC, I <sub>max</sub> = 20mA, SELV			
	o Diagnostics out (open collector output)	U <sub>max</sub> = 50VDC, I <sub>max</sub> = 20mA, SELV			
IO2	o Din2 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC			
	o Ain2 0-10V/PWM: analog input	RI = 100k, characteristic curve parameterizable, f <sub>PWM</sub> = 1k..10kHz, SELV			
	o Ain2 4-20mA: analog input	RI = 125R, characteristic curve parameterizable, SELV			
	o Din3 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC			
IO3	o Din3 (active low): digital input	active: applied voltage < 1.5VDC, SELV not active: pin open or applied voltage 3.5-50VDC			
	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			
	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			
	o Aout3 0-10V: analog output	function parameterizable, max. 5mA max output frequency 300Hz SELV			
Vout	o Tacho out (pulses), analog output	0-10V max. 5mA max output frequency 300Hz SELV			
	o Diagnostics out (pulses)	0-10V max. 5mA max output frequency 300Hz, SELV			
	o Diagnostics out (pulses)	MODBUS RTU, specification V6.3, SELV			
RSA	RS485 bus connection,				
RSB	voltage output	voltage parameterizable 3.3...24VDC +/- 5%, P <sub>max</sub> =800mW, short-circuit-proof, supply for external devices, SELV			
	alternatively: Input auxiliary power supply/for parameterization via RS485/MODBUS RTU without line voltage	15...50VDC			

o configurable option

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



## Curves: Air performance 50 Hz



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

Measurement: LU-197218-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebmpapst. 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 <sub>ed</sub>	I	LpA <sub>in</sub>	LwA <sub>in</sub>	LwA <sub>out</sub>	q <sub>v</sub>	P <sub>fs</sub>	q <sub>v</sub>	P <sub>fs</sub>
		V	Hz	min <sup>-1</sup>	W	A	dB(A)	dB(A)	dB(A)	m <sup>3</sup> /h	Pa	cfm	in. wg
1	3~	200	50	4000	2079	6.39	95	101	102	6845	0	4030	0.00
2	3~	200	50	4000	2780	8.46	85	92	98	5520	900	3250	3.61
3	3~	200	50	4000	3050	9.30	80	88	96	4180	1500	2460	6.02
4	3~	200	50	4000	2882	8.75	82	90	97	2850	1900	1680	7.63
5	3~	200	50	3500	1410	4.34	92	98	99	6015	0	3540	0.00
6	3~	200	50	3500	1878	5.71	82	89	94	4845	708	2850	2.84
7	3~	200	50	3500	2041	6.20	77	85	92	3655	1151	2150	4.62
8	3~	200	50	3500	1932	5.87	78	87	93	2495	1456	1470	5.85
9	3~	200	50	3000	888	2.73	88	94	95	5155	0	3035	0.00
10	3~	200	50	3000	1182	3.60	78	85	90	4150	521	2445	2.09
11	3~	200	50	3000	1286	3.90	73	81	88	3135	846	1845	3.40
12	3~	200	50	3000	1217	3.70	75	83	89	2140	1070	1260	4.30
13	3~	200	50	2500	514	1.58	83	89	91	4300	0	2530	0.00
14	3~	200	50	2500	684	2.08	73	80	86	3460	361	2035	1.45
15	3~	200	50	2500	744	2.26	69	76	84	2610	587	1535	2.36
16	3~	200	50	2500	704	2.14	70	78	85	1780	743	1050	2.98

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P<sub>ed</sub> = Power consumption · I = Current draw · LpA<sub>in</sub> = Sound pressure level intake side · LwA<sub>in</sub> = Sound power level intake side  
LwA<sub>out</sub> = Sound power level outlet side · q<sub>v</sub> = Air flow · P<sub>fs</sub> = Pressure increase

