

Nominal data

Type	K3G450-PA31-63	
Motor	M3G150-FF	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Status		prelim.
Speed (rpm)	min ⁻¹	2100
Power consumption	W	2750
Current draw	A	4.3
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 (EN 17166)

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	71.1	56.1	09 Power consumption P_{ed}	kW	2.74
02 Measurement category		A		09 Air flow q_v	m ³ /h	7170
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	930
04 Efficiency grade N		77	62	10 Speed (rpm) n	min ⁻¹	2100
05 Variable speed drive		Yes		11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

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

LU-209877

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	36.9 kg
Size	450 mm
Motor size	150
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	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
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	Terminal box
Motor protection	Reverse polarity and locked-rotor protection
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE

K3G450-PA31-63

EC centrifugal module - RadiPac

backward-curved, single-intake

with support bracket

Approval

CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1

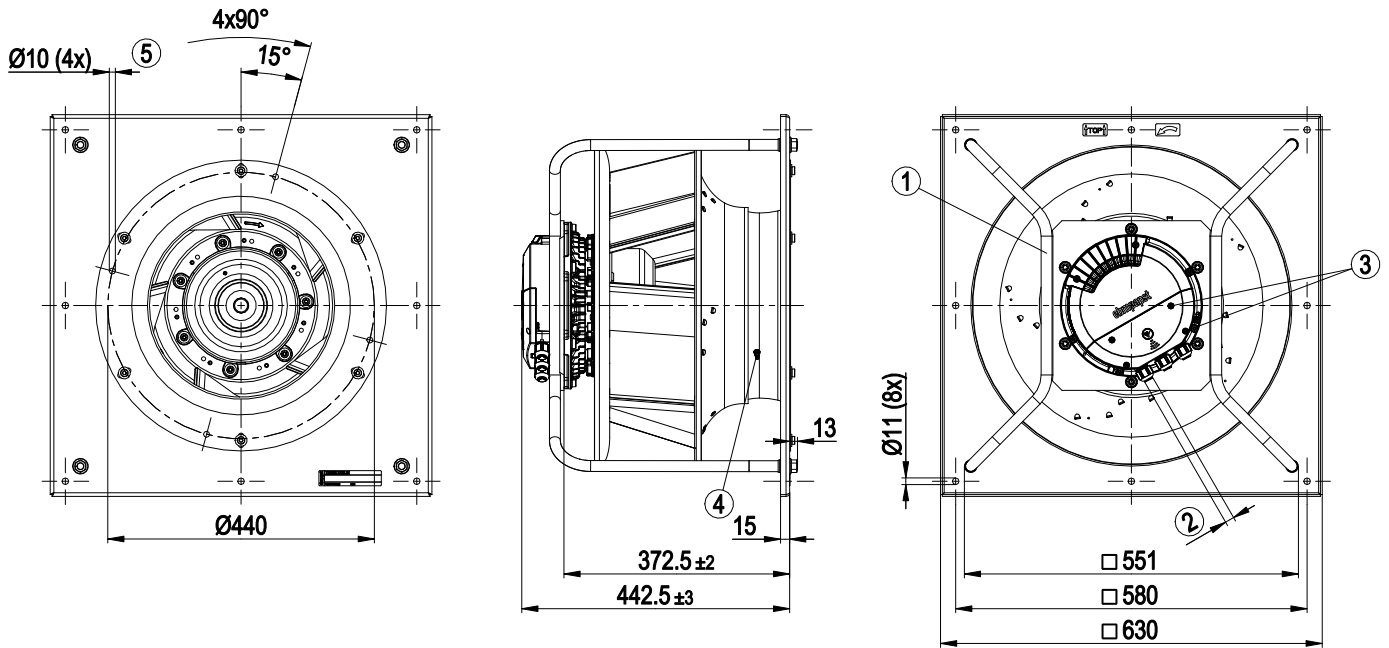


EC centrifugal module - RadiPac

backward-curved, single-intake

with support bracket

Product drawing

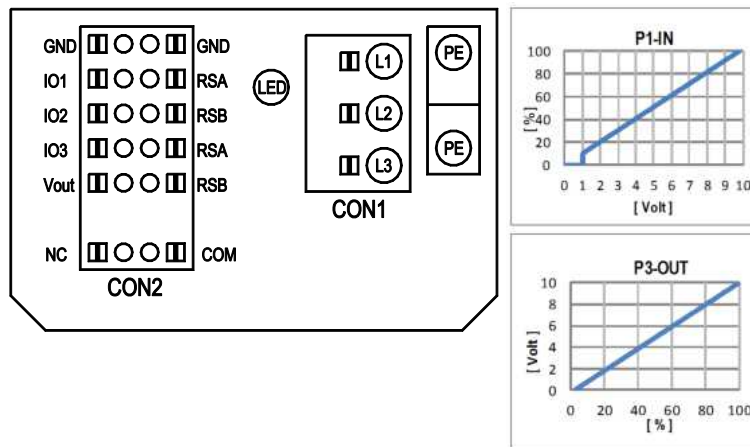


1	Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm (The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
3	Tightening torque 1.5 ± 0.2 Nm
4	Inlet ring with pressure tap (k-factor: 240)
5	Attachment holes for FlowGrid 35505-2-2957 (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

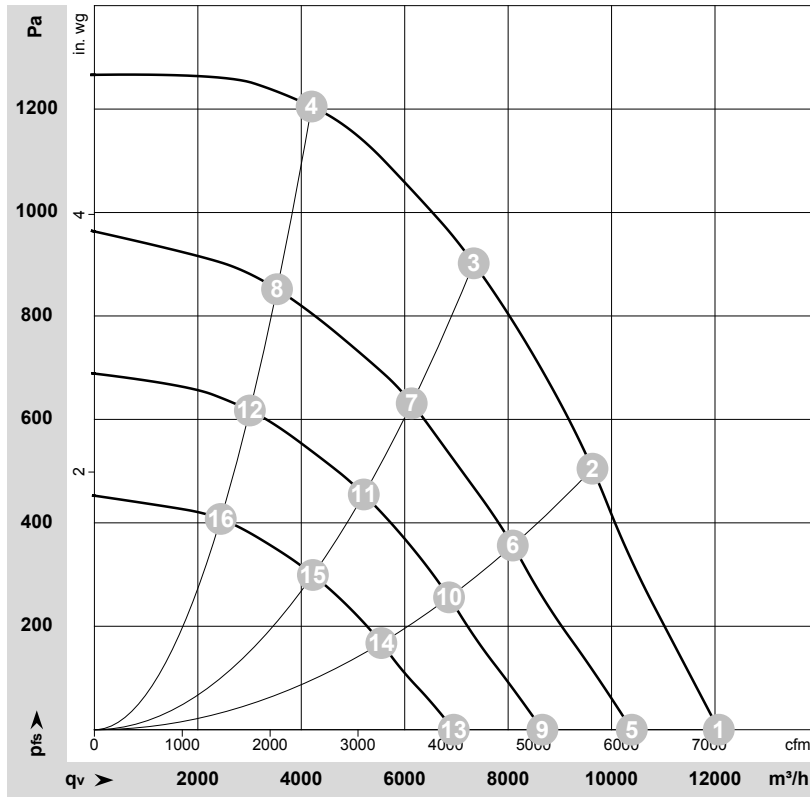
configurable IO functions: normal / inverse		MODBUS Register for IO mode configuration	electrical specification	OUTPUT																	
				D101 [...] source: set value	D147 [...] source: sensor value	D104 [...] switch: parameter set: #1 / #2	D12E [...] switch: control function: heating (pos.) / cooling (neg.)	D148 [...] switch: direction of rotation: cw / ccw	D16C [...] switch: set value source	D16A [...] switch: fan enable / disable	(selected directly via IO mode)	(selected directly via IO mode)	signal: tach out	signal: diagnostics out	signal: fan modulation level %	D130 [10] signal: actual speed	D130 [2] signal: system modulation level %	D130 [5] signal: remote control output 0-10V	D00C [1] pulse input for auto-addressing	D130 [4] pulse output for auto-addressing	
CON2	configurable IO mode	Din1 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC Ri = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV U _{max} = 50VDC, I _{max} = 20mA, SELV U _{max} = 50VDC, I _{max} = 20mA, SELV	D158 [0]																	
				D158 [2]																	
				D158 [5]																	
				D158 [6]																	
IO2	Din2 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1,5VDC Ri = 100K, characteristic curve parameterizable, f _{PWM} = 1k..10KHz, SELV Ri = 125R, characteristic curve parameterizable, SELV	D159 [0]																		
			D159 [2]																		
			D159 [3]																		
			D15A [0]																		
IO3	Din3 (active low): digital input	active: applied voltage < 1,5VDC, SELV not active: pin open or applied voltage 3.5-50VDC PWM = 40Hz - 10KHz, characteristics parameterizable active: pin open or applied voltage 3.5-50VDC not active: applied voltage < 1.5VDC, SELV 40Hz - 10KHz, characteristics parameterizable active: applied voltage 3.5-50VDC not active: pin open or applied voltage < 1.5VDC, SELV	D15A [1]																		
			D15A [7]																		
			D15A [8]																		
			D15A [4]																		
RSA RSB	Aou3 0-10V: analog output	function parameterizable, max. 5mA, max output frequency 300Hz, SELV Tacho out (pulses): analog output 0-10V/max. 5mA, max output frequency 300Hz, SELV Diagnostics out (pulses) 0-10V/max. 5mA, max output frequency 300Hz, SELV	D15A [5]																		
			D15A [6]																		
Vout	voltage output	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	D16E [...] voltage parameterizable 3.3..24VDC +/- 5%, P _{max} =800mW, short-circuit-proof, supply for external devices, SELV 15..50VDC																		

◦ 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-209877-1
Measurement: LU-210224-1

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 _{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	3~	400	50	2100	1720	2.71	87	94	95	12075	0	7105	0.00
2	3~	400	50	2100	2499	3.88	79	86	90	9630	500	5670	2.01
3	3~	400	50	2100	2750	4.30	74	81	87	7335	900	4315	3.61
4	3~	400	50	2100	2553	3.96	79	86	90	4200	1200	2470	4.82
5	3~	400	50	1815	1132	1.87	84	91	92	10390	0	6115	0.00
6	3~	400	50	1765	1498	2.40	75	82	86	8090	358	4760	1.44
7	3~	400	50	1760	1627	2.58	69	76	82	6135	634	3610	2.55
8	3~	400	50	1765	1518	2.43	73	81	86	3530	852	2080	3.42
9	3~	400	50	1535	742	1.34	80	86	88	8665	0	5100	0.00
10	3~	400	50	1505	958	1.64	70	78	82	6860	257	4035	1.03
11	3~	400	50	1495	1034	1.74	65	73	79	5210	456	3065	1.83
12	3~	400	50	1500	979	1.66	69	77	82	3005	617	1770	2.48
13	3~	400	50	1240	422	0.92	73	81	84	6950	0	4090	0.00
14	3~	400	50	1220	535	1.08	65	72	77	5550	168	3265	0.67
15	3~	400	50	1215	577	1.13	60	68	73	4225	300	2485	1.20
16	3~	400	50	1215	547	1.09	63	71	76	2445	408	1440	1.64

Wired = Wiring · 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

