

**ebm-papst Mulfingen GmbH & Co. KG**

Bachmühle 2 · D-74673 Mulfingen

Phone +49 7938 81-0

Fax +49 7938 81-110

info1@de.ebmpapst.com

www.ebmpapst.com

Limited partnership · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRA 590344

General partner Elektrobau Mulfingen GmbH · Headquarters Mulfingen

Amtsgericht (court of registration) Stuttgart · HRB 590142

**Nominal data**

<b>Type</b>	<b>K3G400-PA27-62</b>	
<b>Motor</b>	<b>M3G150-FF</b>	
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 <sup>-1</sup>	2800
Power consumption	W	3800
Current draw	A	5.8
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**

		Actual	Req. 2015			
01 Overall efficiency $\eta_{es}$	%	66.3	57.5	09 Power consumption $P_{ed}$	kW	3.7
02 Measurement category		A		09 Air flow $q_v$	m <sup>3</sup> /h	6230
03 Efficiency category		Static		09 Pressure increase $p_{fs}$	Pa	1362
04 Efficiency grade N		70.8	62	10 Speed (rpm) n	min <sup>-1</sup>	2810
05 Variable speed drive		Yes		11 Specific ratio <sup>*</sup>		1.01

Data obtained at optimum efficiency level.

The ErP data is determined using a motor-impeller combination in a standardized measurement setup.

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

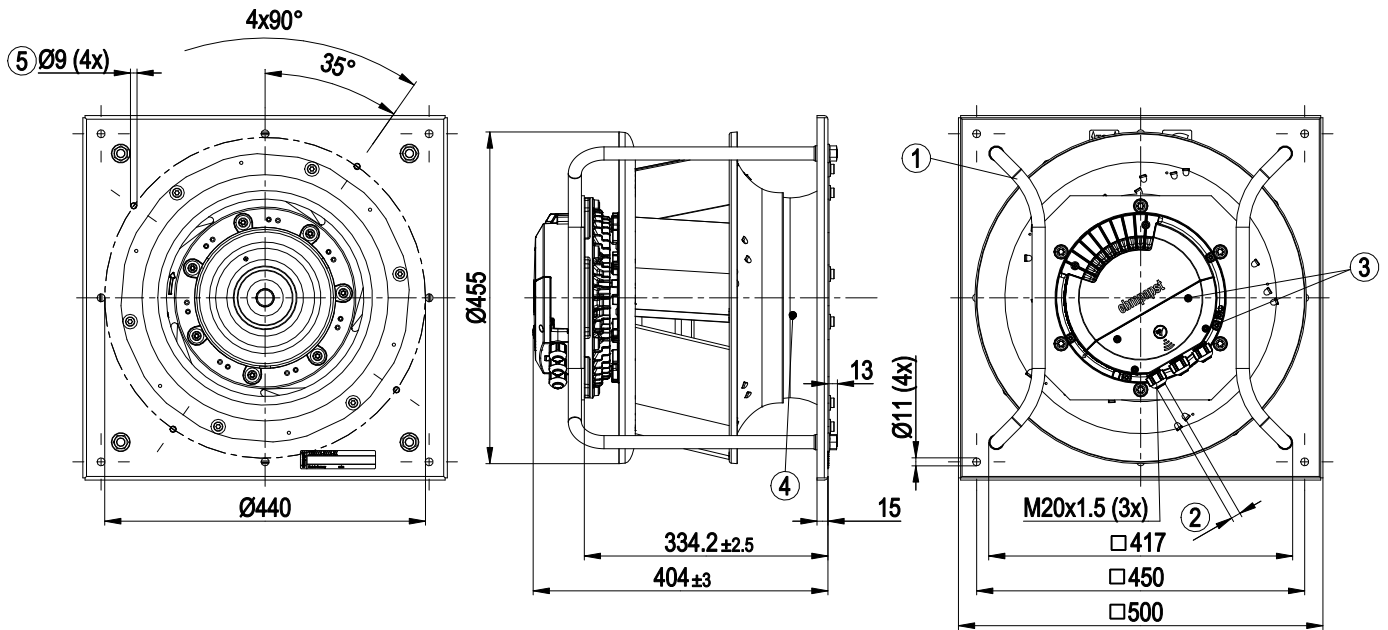
LU-196114



## Technical description

<b>Weight</b>	31.5 kg
<b>Size</b>	400 mm
<b>Motor size</b>	150
<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 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 V6.0</li> <li>- Motor current limitation</li> <li>- RFID - ISO 15693 compatible</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>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>	Reverse polarity and locked-rotor 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

## Product drawing

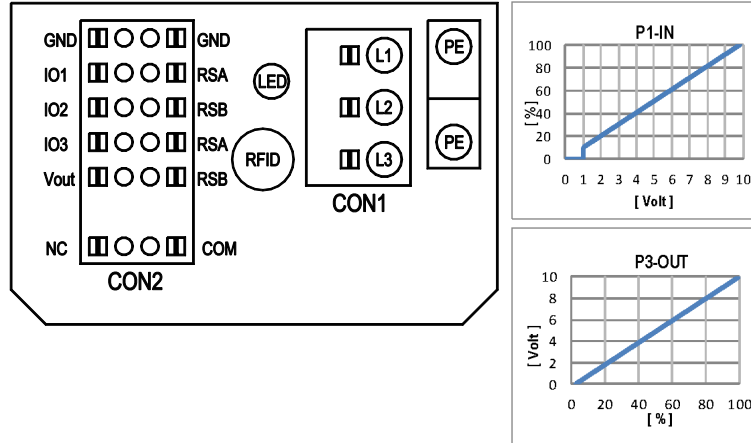


1	Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request
2	Cable diameter min. 4 mm, max. 10 mm, tightening torque $2 \pm 0.3$ Nm
3	Tightening torque $1.5 \pm 0.2$ Nm
4	Inlet ring with pressure tap (k-factor: 188)
5	Mounting holes for FlowGrid

# 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

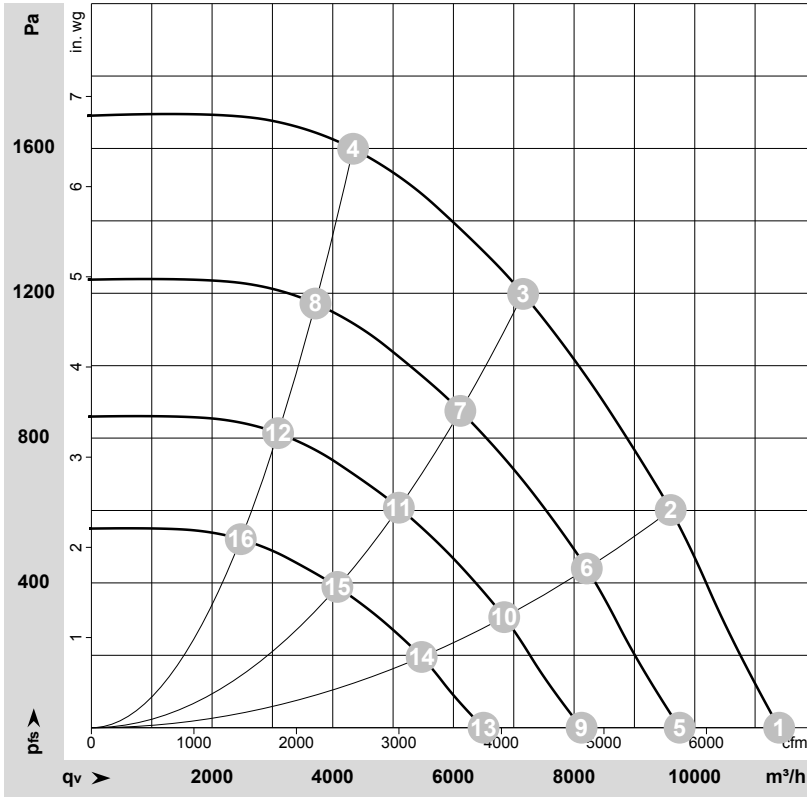
CON2	configurable IO mode	electrical specification	configurable IO functions: normal / inverse	INPUT		OUTPUT												
				source: set value	source: sensor value	switch: parameter set: #1 / #2	switch: control function: heating (pos.), cooling (neg.)	switch: direction of rotation: cw / ccw	switch: set value source	switch: fan enable / disable	signal: tach out	signal: diagnostics out (selected directly via IO mode)	signal: fan modulation level %	signal: actual speed	signal: system modulation level %	signal: remote control output 0-10V	pulse input for auto-addressing	pulse output for auto-addressing
101	○ Din1 (active high): digital input	not active: pin open or applied voltage < 1.5VDC active: applied voltage 3.5-50VDC, SELV	D158 [0]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○ Ain1 0-10V/PWM: analog input	Ri=100K, characteristic curve parameterizable, f <sub>PWM</sub> =1k..10KHz, SELV	D158 [2]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○ Tach out (open collector output)	U <sub>max</sub> =50VDC, I <sub>max</sub> =20mA, SELV	D158 [5]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○ Diagnostics out (open collector output)	U <sub>max</sub> =50VDC, I <sub>max</sub> =20mA, SELV	D158 [6]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
102	○ Din2 (active high): digital input	not active: pin open or applied voltage < 1.5VDC active: applied voltage 3.5-50VDC, SELV	D159 [0]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○ Ain2 0-10V/PWM: analog input	Ri=100K, characteristic curve parameterizable, f <sub>PWM</sub> =1k..10KHz, SELV	D159 [2]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○ Ain2 4-20mA: analog input	Ri=125R, characteristic curve parameterizable, SELV	D159 [3]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
103	○ Din3 (active high): digital input	not active: pin open or applied voltage < 1.5VDC active: applied voltage 3.5-50VDC, SELV	D15A [0]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○ Din3 (active low): digital input	not active: pin open or applied voltage < 1.5VDC active: applied voltage 3.5-50VDC, SELV	D15A [1]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○ PWMIn3: digital input	not active: pin open or applied voltage < 1.5VDC active: applied voltage < 1.5VDC, SELV 40Hz - 10KHz, characteristics parameterizable	D15A [7]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○ Aout3 0-10V: analog output	not active: pin open or applied voltage < 1.5VDC, SELV active: applied voltage < 1.5VDC, SELV function parameterizable, max. 5mA, max output frequency 300Hz, SELV	D15A [4]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
RSA	○ Tacho out (pulses), analog output	0-10V max. 5mA, max output frequency 300Hz, SELV	D15A [5]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	○ Diagnostics out (pulses)	0-10V max. 5mA, max output frequency 300Hz, SELV	D15A [6]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
RSB	RS485 bus connection,	MODBUS RTU, specification V6.0, SELV		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Vout	voltage output	voltage parameterizable 3.3...24VDC +/- 5.5%, P <sub>max</sub> =800mW, short-circuit-proof, supply for external devices, SELV	D16E [..]	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	alternatively: input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	15...50VDC		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

○ configurable option

For further information and additional functions see EC Control Software, Fan-Set-App, or MODBUS Parameter Specification V6.0



## Curves: Air performance 50 Hz



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

Measurement: LU-196114-1

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 <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~	400	50	2800	2326	3.60	92	99	101	11400	0	6710	0.00
2	3~	400	50	2800	3256	4.98	85	92	95	9600	600	5650	2.41
3	3~	400	50	2800	3800	5.80	77	85	92	7155	1200	4210	4.82
4	3~	400	50	2800	3455	5.27	82	89	94	4340	1600	2555	6.42
5	3~	400	50	2400	1456	2.25	89	96	97	9750	0	5740	0.00
6	3~	400	50	2400	2036	3.11	81	88	91	8210	442	4835	1.77
7	3~	400	50	2400	2384	3.63	74	81	88	6115	878	3600	3.52
8	3~	400	50	2400	2167	3.31	78	85	90	3715	1172	2185	4.71
9	3~	400	50	2000	842	1.30	84	91	92	8125	0	4780	0.00
10	3~	400	50	2000	1178	1.80	76	83	87	6840	307	4025	1.23
11	3~	400	50	2000	1380	2.10	69	76	83	5095	610	3000	2.45
12	3~	400	50	2000	1254	1.91	73	80	85	3095	814	1820	3.27
13	3~	400	50	1600	431	0.67	78	85	86	6500	0	3825	0.00
14	3~	400	50	1600	603	0.92	70	78	81	5475	196	3220	0.79
15	3~	400	50	1600	706	1.08	63	71	78	4075	390	2400	1.57
16	3~	400	50	1600	642	0.98	68	74	80	2475	521	1455	2.09

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

