

R3G400-PA31-09 ebmpapst Datasheet

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## Nominal data

Type	R3G400-PA31-09	
Motor	M3G150-FF	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Type of data definition		ml
Speed (rpm)	min <sup>-1</sup>	2750
Power input	W	3350
Current draw	A	5.2
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	40

ml = Max. load · me = Max. efficiency · fa = Running at free air · cs = Customer specs · cu = Customer unit  
Subject to alterations

## Data in accordance with ecodesign regulation EU 327/2011

		Actual	Request 2015			
01 Overall efficiency $\eta_{es}$	%	69	57.1	09 Power input $P_{ed}$	kW	3.38
02 Measurement category		A		09 Air flow $q_v$	m <sup>3</sup> /h	6750
03 Efficiency category		Static		09 Pressure increase $p_{fs}$	Pa	1193
04 Efficiency grade N		73.9	62	10 Speed (rpm) n	min <sup>-1</sup>	2765
05 Variable speed drive		Yes		11 Specific ratio*		1.01

Data definition with optimum efficiency.

The ErP data is determined using a motor-impeller combination in a standardised measurement configuration.

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

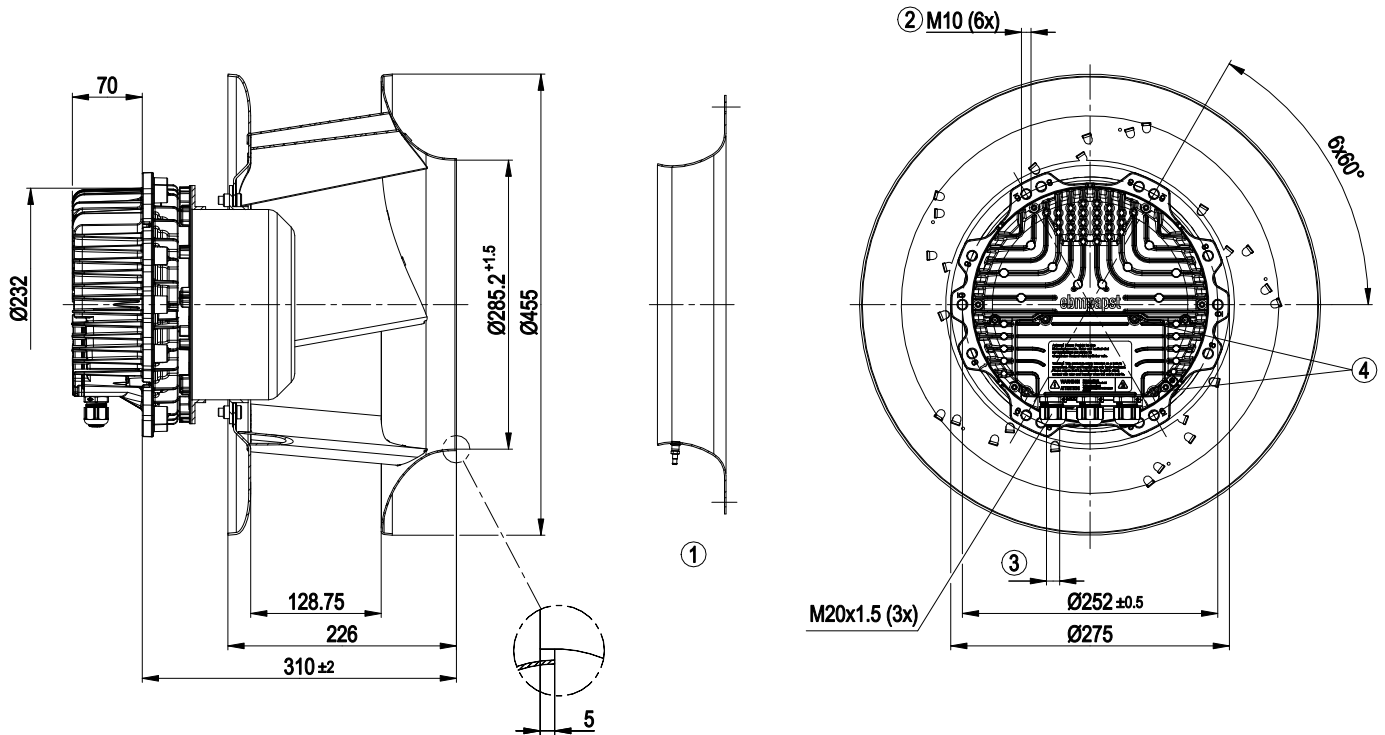
LU-177156



## Technical features

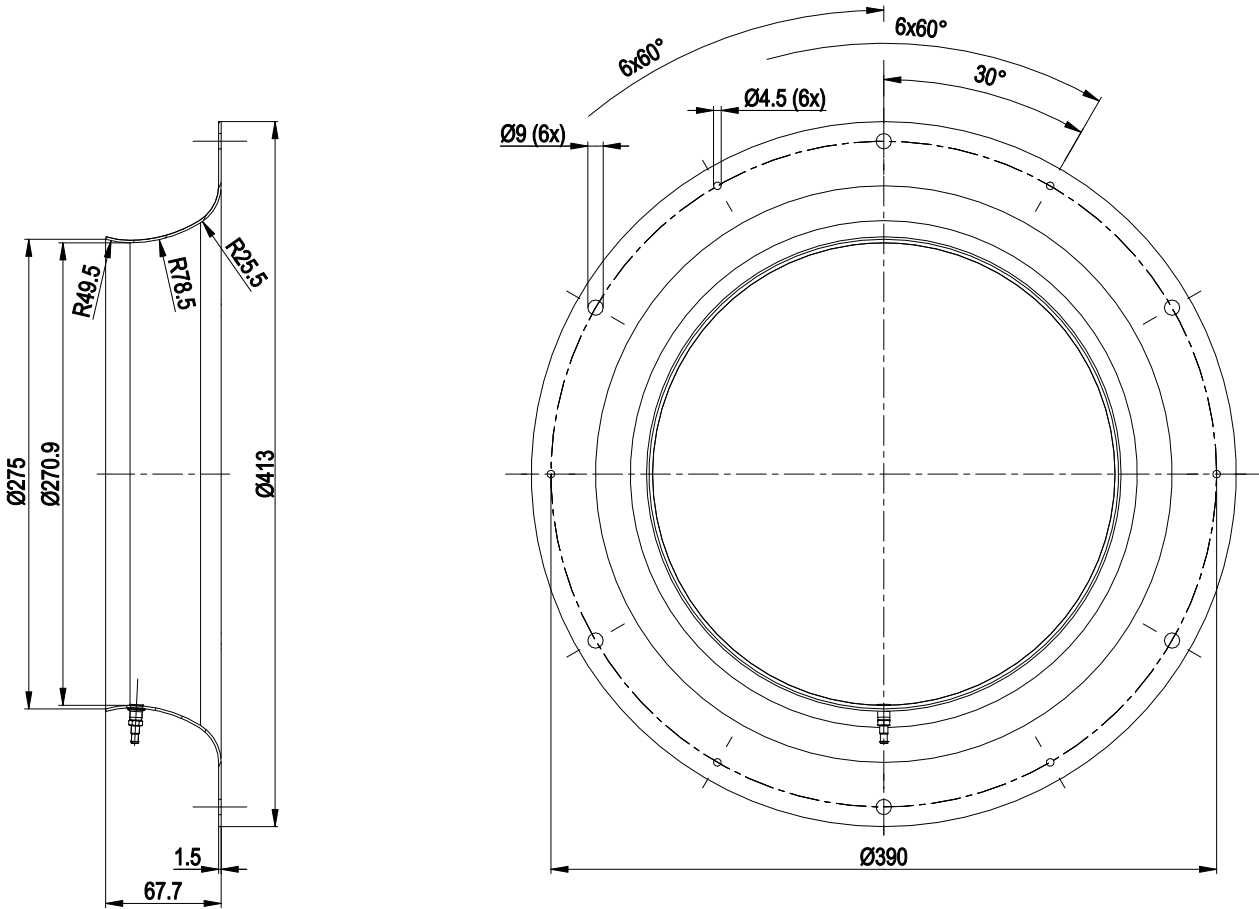
Mass	20.3 kg
Size	400 mm
Motor size	150
Surface of rotor	Coated in black
Material of electronics housing	Die-cast aluminium
Material of impeller	Aluminium sheet
Number of blades	5
Direction of rotation	Clockwise, seen on rotor
Type of protection	IP55
Insulation class	"F"
Humidity (F) / environmental protection class (H)	H1
Max. permissible ambient motor temp. (transp./ storage)	+80 °C
Min. permissible ambient motor temp. (transp./storage)	-40 °C
Mounting position	Shaft horizontal or rotor on bottom; rotor on top on request
Condensation drainage holes	Rotor-side
Operation mode	S1
Motor bearing	Ball bearing
Technical features	<ul style="list-style-type: none"> <li>- Output 10 VDC, max. 10 mA</li> <li>- Output 20 VDC, max. 50 mA</li> <li>- Output for slave 0-10 V</li> <li>- Operation and alarm display</li> <li>- Input for sensor 0-10 V or 4-20 mA</li> <li>- External 24 V input (programming)</li> <li>- External release input</li> <li>- Alarm relay</li> <li>- Integrated PID controller</li> <li>- Motor current limit</li> <li>- PFC, passive</li> <li>- RS485 MODBUS RTU</li> <li>- Soft start</li> <li>-Maximum EEPROM write cycles 100,000</li> <li>- Control input 0-10 VDC / PWM</li> <li>- Control interface with SELV potential safely disconnected from the mains</li> <li>- Over-temperature protected electronics / motor</li> <li>- Line undervoltage / phase failure detection</li> </ul>
EMC interference immunity	Acc. to EN 61000-6-2 (industrial environment)
EMC interference emission	Acc. to EN 61000-6-4 (industrial environment)
Touch current acc. IEC 60990 (measuring network Fig. 4, TN system)	<= 3.5 mA
Electrical connection	Terminal box
Motor protection	Reverse polarity and locked-rotor protection
Protection class	I (if protective earth is connected by customer)
Product conforming to standard	EN 61800-5-1; CE
Approval	UL 1004-7 + 60730-1; EAC; CSA C22.2 no. 77 + CAN/CSA-E60730-1

Product drawing



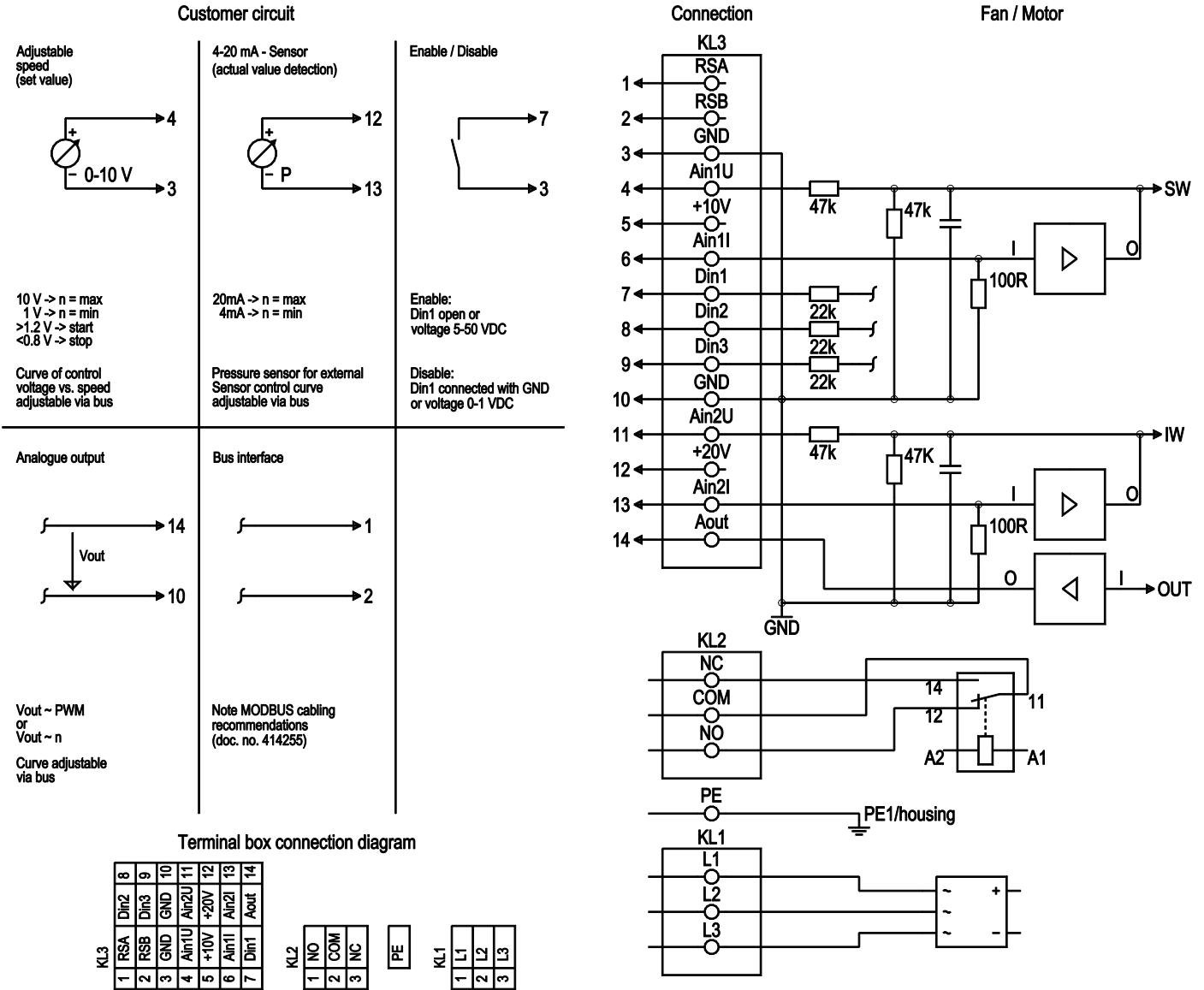
1	Accessory part: inlet nozzle 40075-2-4013 with pressure tap (k-factor: 188) not included in scope of delivery
2	Thread reach max. 25 mm
3	Cable diameter min. 4 mm, max. 10 mm, tightening torque $4 \pm 0.6$ Nm
4	Tightening torque $3.5 \pm 0.5$ Nm

Accessory part



1 inlet nozzle with pressure tap 40075-2-4013 (k-factor: 188) not included in scope of delivery

## Connection screen

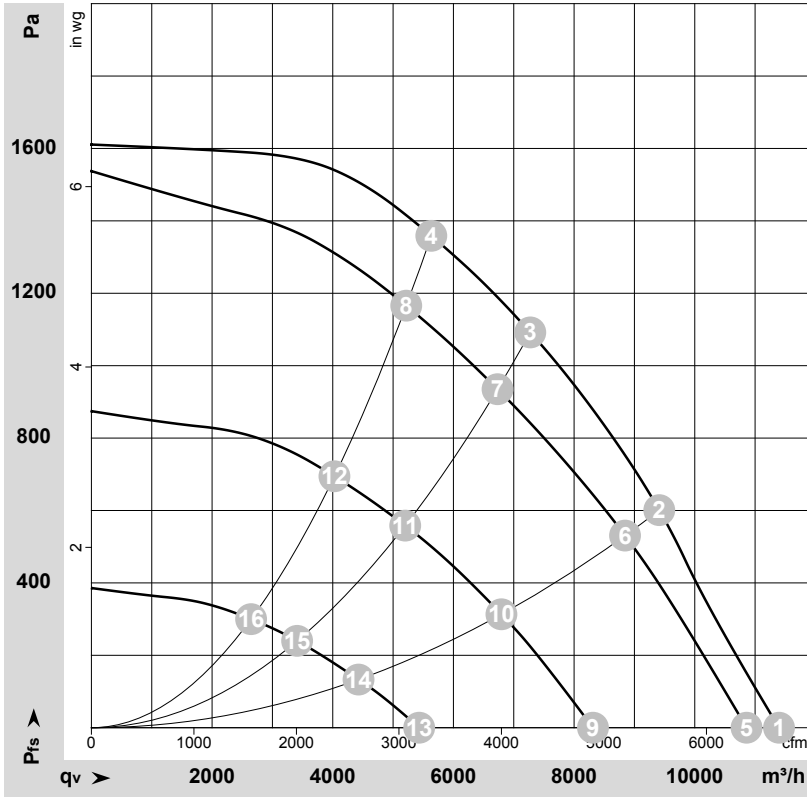


No.	Conn.	Designation	Function / assignment
KL 1	1	L1	Mains connection, power supply; see technical data for nominal voltage range
KL 1	2	L2	Mains connection, power supply; see technical data for nominal voltage range
KL 1	3	L3	Mains connection, power supply; see technical data for nominal voltage range
PE		PE	Earth connection, PE connection
KL 2	1	NO	Status relay, floating status contact, make for failure
KL2	2	COM	Status relay, floating status contact, changeover contact, common connection, contact rating 250 VAC / max. 2 A (AC1) / min. 10 mA
KL2	3	NC	Status relay, floating status contact, break for failure
KL 3	1	RSA	Bus connection RS-485, RSA, MODBUS RTU; SELV
KL 3	2	RSB	Bus connection RS-485, RSB, MODBUS RTU; SELV
KL 3	3 / 10	GND	Signal ground for control interface; SELV
KL 3	4	Ain1 U	Analogue input 1, set value: 0-10 V, Ri = 100 kΩ, parametrisable curve, only usable as alternative to input Ain1; SELV



No.	Conn.	Designation	Function / assignment
KL 3	5	+ 10 V	Fixed voltage output 10 VDC, +10 V $\pm$ 3%, max. 10 mA, short-circuit-proof, power supply for external devices (e.g. potentiometer); SELV
KL 3	6	Ain1 I	Analogue input 1, set value: 4-20 mA; Ri = 100 $\Omega$ , parametrisable curve, only usable as alternative to input Ain1 U; SELV
KL 3	7	Din1	Digital input 1: enabling of electronics, enabling: open pin or applied voltage 5-50 VDC disabling: bridge to GND or applied voltage <1 VDC reset function: triggers software reset after a level change to <1 VDC; SELV
KL 3	8	Din2	Digital input 2: parameter set switch 1/2, according to EEPROM setting, the valid/used parameter set can be selected via bus or via digital input DIN2. Parameter set 1: open pin or applied voltage 5-50 VDC Parameter set 2: bridge to GND or applied voltage <1 VDC; SELV
KL 3	9	Din3	Digital input 3: controller function of integrated controller, according to EEPROM setting, the controller function of the integrated controller is normally/inversely selectable per bus or per digital input Din 3 normal: open pin or applied voltage 5-50 VDC inverse: bridge to GND or applied voltage <1 VDC; SELV
KL 3	11	Ain2 U	Analogue input 2, actual value: 0-10 V, Ri = 100 k $\Omega$ , parametrisable curve, only usable as alternative to input Ain2; SELV
KL 3	12	+ 20 V	Fixed voltage output 20 VDC; +20 V +25/-10%, max. 50 mA; short-circuit-proof; supply voltage for external devices (e.g. sensors); SELV Alternatively: +24 VDC input for parametrization without mains power
KL 3	13	Ain2 I	Analogue input 2, actual value: 4-20 mA, Ri = 100 $\Omega$ , parametrisable curve, only usable as alternative to input Ain2 U; SELV
KL 3	14	Aout	Analogue output 0-10 VDC, max. 5 mA, output of the current motor level control coefficient / motor speed parametrisable curve; SELV

## Charts: Air flow 50 Hz



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

Measurement: LU-177156-1

Air performance measured as per ISO 5801 Installation category A. For detailed information on the measuring set-up, please contact ebmpapst. Suction-side noise levels: LwA measured as per ISO 13347 / LpA measured with 1m distance to fan axis. The values given are valid under the measuring conditions mentioned above and may vary according to the actual installation situation. With any deviation from the standard set-up, the specific values have to be checked and reviewed with the unit installed.

## Measured values

	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	400	50	2750	1894	2.95	95	102	102	11395	0	6710	0.00
2	400	50	2750	2964	4.57	84	91	95	9410	600	5540	2.41
3	400	50	2750	3350	5.20	79	86	93	7275	1100	4280	4.42
4	400	50	2750	3350	5.20	79	86	93	5635	1350	3315	5.42
5	400	50	2650	1693	2.64	94	101	101	10860	0	6390	0.00
6	400	50	2595	2439	3.75	83	89	93	8845	538	5205	2.16
7	400	50	2555	2683	4.12	77	84	91	6730	935	3960	3.75
8	400	50	2555	2684	4.11	77	84	91	5220	1168	3070	4.69
9	400	50	2025	806	1.34	83	90	91	8315	0	4895	0.00
10	400	50	1990	1136	1.81	74	82	86	6795	315	4000	1.26
11	400	50	1975	1262	1.99	70	77	84	5200	558	3060	2.24
12	400	50	1970	1266	2.00	71	78	84	4030	696	2370	2.79
13	400	50	1335	277	0.55	72	79	81	5430	0	3195	0.00
14	400	50	1305	367	0.70	63	71	75	4425	133	2605	0.53
15	400	50	1295	405	0.77	60	68	73	3410	240	2005	0.96
16	400	50	1295	408	0.77	61	68	74	2645	301	1560	1.21

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

