**K3G310-AX54-55**

# EC centrifugal module

backward curved, single inlet

with support bracket

K3G310-AX54-55 ebmpapst Datasheet
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ErP2015 EXCEEDS THE NORM

## Nominal data

| | |
|---|---|
| **Type** | **K3G310-AX54-55** |
| **Motor** | **M3G112-EA** |

| | | |
|---|---|---|
| Phase | | 1~ |
| Nominal voltage | VAC | 230 |
| Nominal voltage range | VAC | 200 .. 277 |
| Frequency | Hz | 50/60 |
| Type of data definition | | ml |
| Speed | $min^{-1}$ | 2850 |
| Power input | W | 1270 |
| Current draw | A | 5.6 |
| Min. ambient temperature | °C | -25 |
| Max. ambient temperature | °C | +60 |

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

## Data according to ErP directive

| | |
|---|---|
| Installation category | A |
| Efficiency category | Static |
| Variable speed drive | Yes |
| Specific ratio* | 1.01 |

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

| | | Actual | Request 2013 | Request 2015 |
|---|---|---|---|---|
| Overall efficiency $\eta_{es}$ | | 59.4 | 48.6 | 52.6 |
| Efficiency grade N | | 68.8 | 58 | 62 |
| Power input $P_{ed}$ | kW | 1.27 | | |
| Air flow $q_v$ | $m^3/h$ | 2795 | | |
| Pressure increase $p_{fs}$ | Pa | 903 | | |
| Speed n | $min^{-1}$ | 2840 | | |

Data definition with optimum efficiency.
The ErP data is determined using a motor-impeller combination in a standardised measurement configuration.



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## Technical features

| | |
|---|---|
| **Mass** | 20.5 kg |
| **Size** | 310 mm |
| **Surface of rotor** | Coated in black |
| **Material of electronics housing** | Die-cast aluminium, coated in black |
| **Material of impeller** | Aluminium sheet, coated in black |
| **Material of mounting plate** | Sheet steel, galvanised and coated in black |
| **Material of support bracket** | Steel, galvanised and coated in black |
| **Material of inlet nozzle** | Sheet steel, galvanised and coated in black |
| **Number of blades** | 7 |
| **Direction of rotation** | Clockwise, seen on rotor |
| **Type of protection** | IP 54 |
| **Insulation class** | "B" |
| **Humidity class** | F4-2 |
| **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 |
| **Condensate discharge holes** | Rotor-side |
| **Operation mode** | S1 |
| **Motor bearing** | Ball bearing |
| **Technical features** | - Output 10 VDC, max. 10 mA<br>- Output 20 VDC, max. 50 mA<br>- Output for slave 0-10 V<br>- Tach output<br>- Input for sensor 0-10 V or 4-20 mA<br>- Alarm relay<br>- Integrated PID controller<br>- Motor current limit<br>- PFC, active<br>- RS485 MODBUS RTU<br>- Soft start<br>- Control input 0-10 VDC / PWM<br>- Over-temperature protected electronics / motor<br>- Line undervoltage / phase failure detection |
| **Touch current acc. IEC 60990 (measuring network Fig. 4, TN system)** | <= 3.5 mA |
| **Electrical leads** | Via terminal box |
| **Motor protection** | Thermal overload protector (TOP) wired internally |
| **Protection class** | I (if protective earth is connected by customer) |
| **Product conforming to standard** | EN 61800-5-1; CE |

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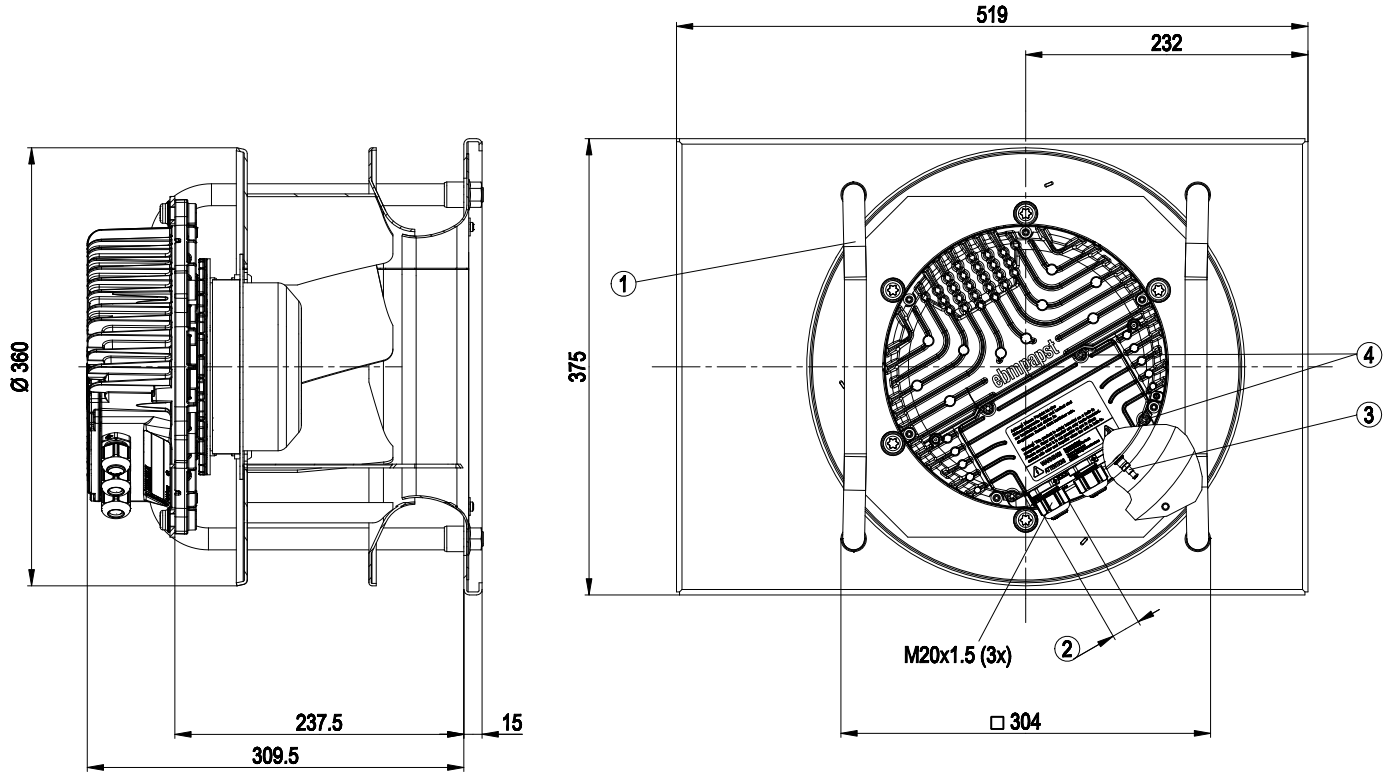
## Product drawing




| | |
|---|---|
| 1 | Mounting position: shaft horizontal (install the support struts only vertically as shown in the view!) or rotor on bottom; rotor on top on request |
| 2 | Cable diameter: min. 4 mm, max. 10 mm, tightening torque: 2.5±0.4 Nm |
| 3 | Inlet nozzle with bleeder connection for pressure relief (k-factor: 116) |
| 4 | Tightening torque 3.5±0.5 Nm |

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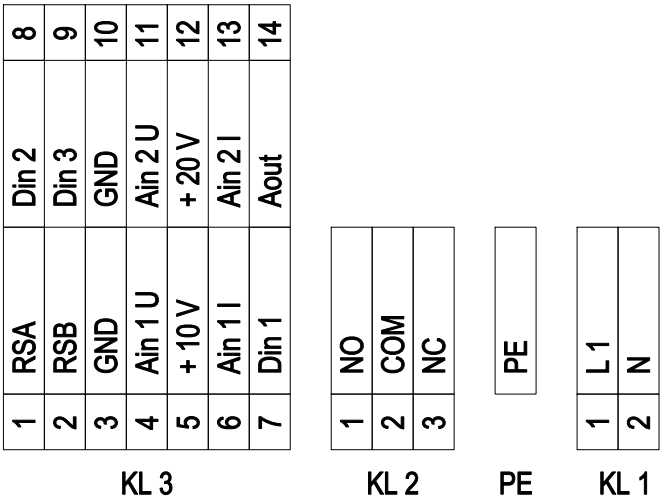
## Connection screen




| No. | Pin | Signal | Function / assignment |
|---|---|---|---|
| KL1 | 1 | L1 | Mains supply connection, supply voltage 1~200-277 V AC; 50/60 Hz |
| KL1 | 2 | N | Mains supply connection, supply voltage 1~200-277 V AC; 50/60 Hz |
| PE | | PE | Earth connection, PE connection |
| KL2 | 1 | NO | Status relay, floating status contact; option 1: close with error; option 2: close with run monitor error message |
| 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; option 1: break with error; option 2: break with error for run monitor error message |
| KL3 | 1 | RSA | Bus connection RS485; RSA; MODBUS RTU |
| KL3 | 2 | RSB | Bus connection RS485; RSB; MODBUS RTU |
| KL3 | 3 | GND | Signal ground for control interface |
| KL3 | 4 | Ain1 U | Analog input 1 (set value); 0-10 V; Ri= 100kOhm; parametrisable curve; only usable as alternative to input Ain1 I |
| KL3 | 5 | +10 V | Fixed voltage output 10 VDC; + 10 V +/-3%; max. 10 mA; short circuit proof; power supply for ext. devices (e.g. potentiometer) |
| KL3 | 6 | Ain1 I | Analog input 1 (set value); 4-20 mA; Ri= 100 Ohm; parametrisable curve; only usable as alternative to input Ain1 U |
| KL3 | 7 | Din1 | Digital input 1: enabling of electronics; enabling: open pin or applied voltage 5 to 50 VDC; disabling: bridge to GND or applied voltage < 0.8 VDC; reset function: triggers software reset after a level change to <0.8 V |
| KL3 | 8 | Din2 | Digital input 2: parameter set switch 1/2; according to EEPROM setting, the valid/used parameter set is selectable per BUS or per digital input DIN2. Parameter set 1: open pin or applied voltage 5 to 50 VDC; parameter set 2: bridge to GND or applied voltage < 0.8 VDC |
| KL3 | 9 | Din3 | Digital input 3: control characteristic of the integrated controller; according to EEPROM setting, the control characteristic of the integrated controller is normally/inversely selectable per BUS or per digital input; normal: open pin or applied voltage 5 to 50 VDC; inverse: bridge to GND or applied voltage < 0.8 VDC |
| KL3 | 10 | GND | Signal ground for control interface |
| KL3 | 11 | Ain2 U | Analog input 2; actual sensor value 0-10 V; Ri= 100kOhm; parametrisable curve; only usable as alternative to input Ain2 I |
| KL3 | 12 | +20 V | Fixed voltage output 20 VDC; + 20V +25/-10%; max. 50 mA; short circuit proof; power supply for ext. devices (e.g. sensors) |
| KL3 | 13 | Ain2 I | Analog input 2; actual sensor value 4-20 mA; Ri= 100 Ohm; parametrisable curve; only alternative to input Ain2 U |
| KL3 | 14 | Aout | Analogue output 0-10 V; max. 5 mA; output of the actual motor control factor (output voltage of electronics)/ of the actual motor speed. Parametrisable curve. |

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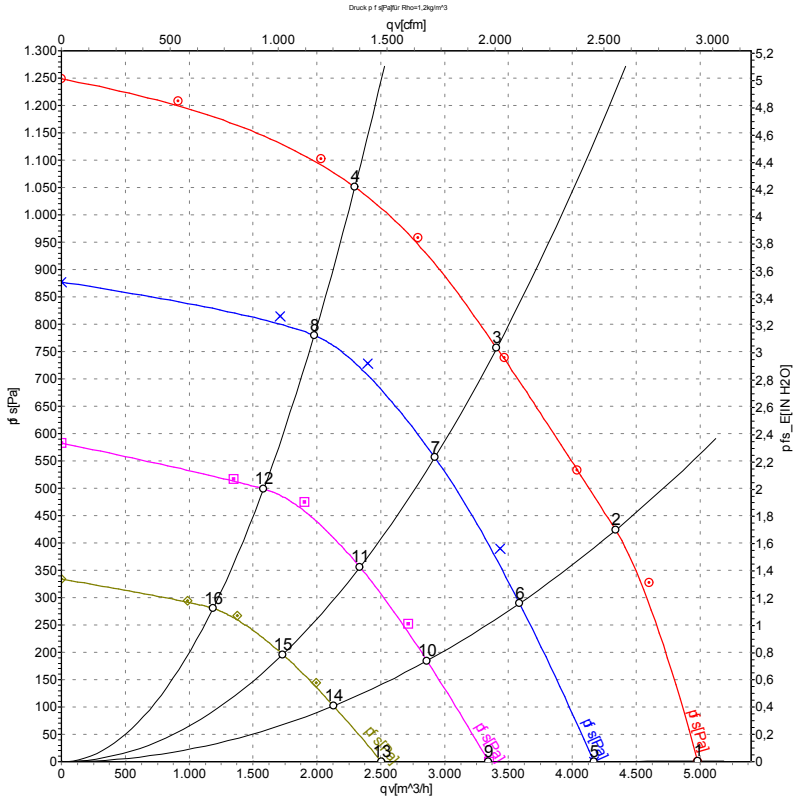
## Charts: Air flow 50 Hz




Measurement: LU-126020
Measurement: LU-131413
Measurement: LU-131415
Measurement: LU-131416

Air performance measured as per ISO 5801 Installation category A. For detailed information on the measuring set-up, please contact ebm-papst. 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 | $P_{ed}$ | I | $LpA_{in}$ | $LwA_{in}$ | $LwA_{out}$ | qv | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | V | Hz | $min^{-1}$ | W | A | dB(A) | dB(A) | dB(A) | $m^3/h$ | Pa |
| 1 | 230 | 50 | 2930 | 946 | 4.14 | 81 | 88 | 94 | 4980 | 0 |
| 2 | 230 | 50 | 2895 | 1147 | 5.01 | 76 | 83 | 90 | 4340 | 425 |
| 3 | 230 | 50 | 2850 | 1270 | 5.60 | 72 | 79 | 87 | 3410 | 760 |
| 4 | 230 | 50 | 2850 | 1237 | 5.41 | 75 | 83 | 89 | 2300 | 1050 |
| 5 | 230 | 50 | 2430 | 529 | 2.34 | 77 | 84 | 89 | 4165 | 0 |
| 6 | 230 | 50 | 2430 | 663 | 2.91 | 71 | 78 | 85 | 3585 | 309 |
| 7 | 230 | 50 | 2430 | 743 | 3.26 | 70 | 77 | 84 | 2925 | 556 |
| 8 | 230 | 50 | 2430 | 751 | 3.29 | 71 | 78 | 85 | 1980 | 781 |
| 9 | 230 | 50 | 1955 | 299 | 1.36 | 71 | 78 | 83 | 3345 | 0 |
| 10 | 230 | 50 | 1955 | 360 | 1.61 | 66 | 73 | 79 | 2860 | 193 |
| 11 | 230 | 50 | 1955 | 398 | 1.77 | 65 | 72 | 78 | 2335 | 356 |
| 12 | 230 | 50 | 1955 | 400 | 1.78 | 66 | 73 | 79 | 1585 | 499 |
| 13 | 230 | 50 | 1465 | 139 | 0.72 | 64 | 71 | 76 | 2505 | 0 |
| 14 | 230 | 50 | 1465 | 159 | 0.79 | 59 | 67 | 73 | 2130 | 106 |
| 15 | 230 | 50 | 1465 | 177 | 0.86 | 58 | 65 | 72 | 1735 | 196 |
| 16 | 230 | 50 | 1465 | 184 | 0.89 | 59 | 66 | 73 | 1185 | 280 |

U = Supply voltage · f = Frequency · n = Speed · $P_{ed}$ = Power input · I = Current draw · $LpA_{in}$ = Sound pressure level inlet side · $LwA_{in}$ = Sound power level inlet side · $LwA_{out}$ = Sound power level outlet side
qv = Air flow · $p_{fs}$ = Pressure increase