**K3G250-PR04-V4**

# EC centrifugal module - RadiCal

backward-curved, single-intake

with support bracket

**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

| | |
|---|---|
| **Type** | **K3G250-PR04-V4** |
| **Motor** | **M3G084-DF** |

| | | |
|---|---|---|
| Phase | | 1~ |
| Nominal voltage | VAC | 230 |
| Nominal voltage range | VAC | 200 .. 277 |
| Frequency | Hz | 50/60 |
| Method of obtaining data | | ml |
| Speed (rpm) | $min^{-1}$ | 3080 |
| Power consumption | W | 500 |
| Current draw | A | 2.3 |
| Min. ambient temperature | °C | -25 |
| Max. ambient temperature | °C | 45 |

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 $\eta_{es}$ | % | 67.8 | 48.5 |
| 02 Measurement category | | A | |
| 03 Efficiency category | | Static | |
| 04 Efficiency grade N | | 81.3 | 62 |
| 05 Variable speed drive | | Yes | |

| | | |
|---|---|---|
| 09 Power consumption $P_{ed}$ | kW | 0.51 |
| 09 Air flow $q_v$ | $m^3/h$ | 1800 |
| 09 Pressure increase $p_{fs}$ | Pa | 635 |
| 10 Speed (rpm) n | $min^{-1}$ | 3065 |
| 11 Specific ratio* | | 1.01 |

Data obtained at optimum efficiency level.

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

LU-174531

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).

# EC centrifugal module - RadiCal

backward-curved, single-intake

with support bracket

## Technical description

| | |
|---|---|
| **Weight** | 8.6 kg |
| **Size** | 250 mm |
| **Motor size** | 84 |
| **Rotor surface** | Painted black |
| **Electronics housing material** | Die-cast aluminum |
| **Impeller material** | PP plastic |
| **Support plate material** | Sheet steel, galvanized |
| **Inlet nozzle material** | Sheet steel, galvanized |
| **Number of blades** | 6 |
| **Direction of rotation** | Clockwise, viewed toward rotor |
| **Degree of protection** | IP55 |
| **Insulation class** | "F" |
| **Moisture (F) / Environmental (H) protection class** | H1 |
| **Max. permitted ambient temp. for motor (transport/storage)** | +80 °C |
| **Min. permitted ambient temp. for motor (transport/storage)** | -40 °C |
| **Installation position** | Shaft horizontal or rotor on bottom; rotor on top on request |
| **Condensation drainage holes** | On rotor side |
| **Mode** | S1 |
| **Motor bearing** | Ball bearing; (sealed) |
| **Technical features** | - Output 10 VDC, max. 10 mA<br>- Operation and alarm display<br>- Alarm relay<br>- Integrated PID controller<br>- Power limiter<br>- Motor current limitation<br>- PFC, active<br>- RS-485 MODBUS-RTU<br>- Soft start<br>- Control input 0-10 VDC / PWM<br>- Control interface with SELV potential safely disconnected from the mains<br>- Thermal overload protection for electronics/motor<br>- Line undervoltage / phase failure detection |
| **EMC immunity to interference** | According to EN 61000-6-2 (industrial environment) |
| **EMC circuit feedback** | According to EN 61000-3-2/3 |
| **EMC interference emission** | According to EN 61000-6-3 (household environment) |
| **Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)** | <= 3.5 mA |
| **Electrical hookup** | Connector with cable |
| **Motor protection** | Thermal overload protector (TOP) internally connected |
| **With cable** | Variable |



ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

# EC centrifugal module - RadiCal

backward-curved, single-intake

with support bracket

| | |
|---|---|
| **Protection class assignment** | I; If a protective earth is connected by the customer<br>This component for installation may have several local protection classes. This information relates to this component's basic design.<br>The final protection class is based on the component's intended installation and connection. |
| **Conformity with standards** | EN 61800-5-1; CE |
| **Approval** | CSA C22.2 No. 77 + CAN/CSA-E60730-1; EAC; UL 1004-7 + 60730-1 |



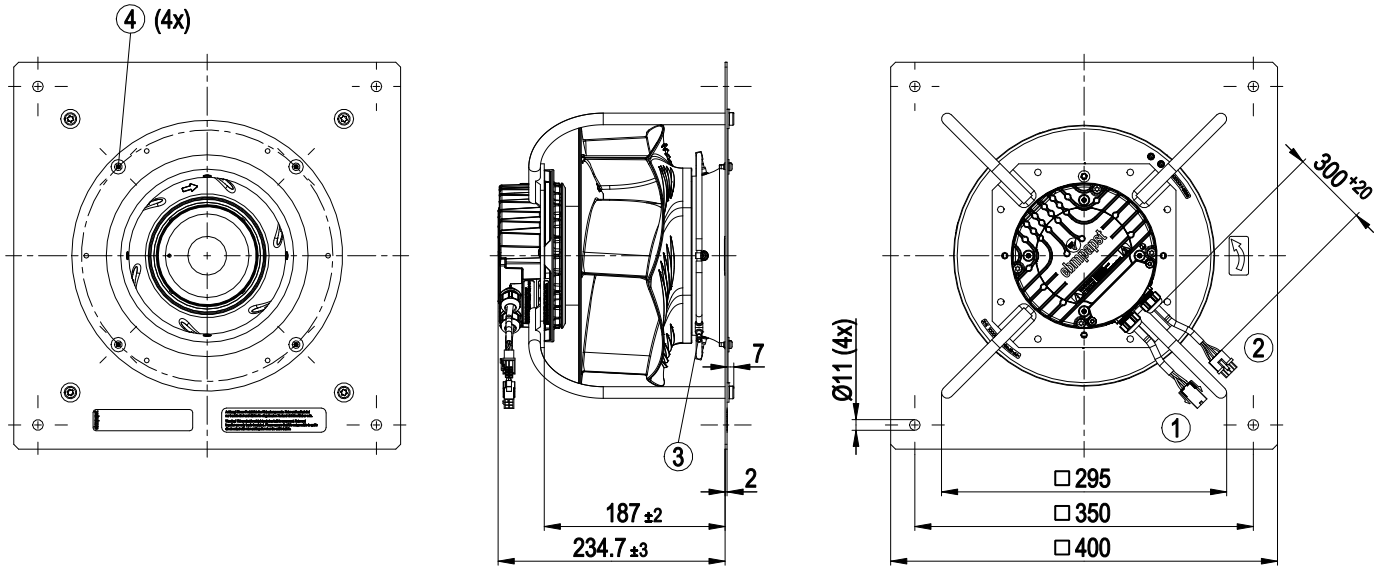
ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

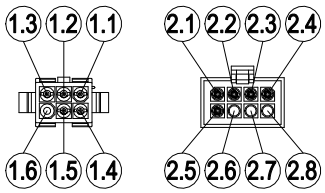
# EC centrifugal module - RadiCal

backward-curved, single-intake

with support bracket

## Product drawing




| | |
|---|---|
| 1 | Cable PVC AWG18 |
| | 6-pole connector housing TE 794940-1, 5x plug pin TE 170360-1, 5x seal TE 794758-1 |
| 1.1 | L |
| 1.2 | N |
| 1.3 | PE |
| 1.4 | NC |
| 1.5 | COM |
| 1.6 | not used |
| 2 | Cable PVC AWG22 |
| | 8-pole connector housing TE 794821-1, 5x socket TE 170362-1, 5x seal TE 794758-1 |
| 2.1 | GND |
| 2.2 | 0-10 V |
| 2.3 | +10 V |
| 2.4 | RSA |
| 2.5 | RSB |
| 2.6 | not used |
| 2.7 | not used |
| 2.8 | not used |
| 3 | Inlet ring with ring line (k-factor: 76) |
| 4 | Attachment for inlet ring and FlowGrid (20280-2-2957 not included in scope of delivery) |



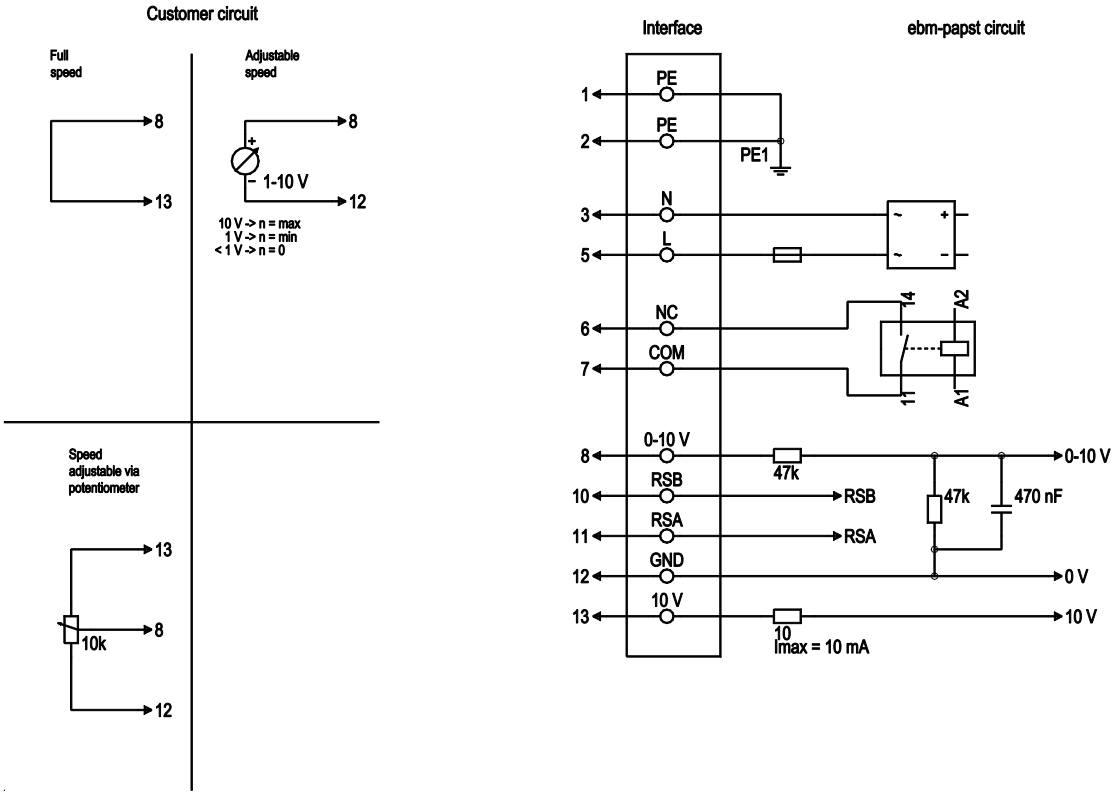
ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

# EC centrifugal module - RadiCal

backward-curved, single-intake

with support bracket

## Connection diagram




| No. | Conn. | Designation | Color | Function/assignment |
|---|---|---|---|---|
| 1 | 1, 2 | PE | green/yellow | Protective earth |
| 1 | 3 | N | blue | Power supply, neutral conductor, 50/60 Hz |
| 1 | 5 | L | black | Power supply, phase, 50/60 Hz |
| 1 | 6 | NC | white 1 | Status relay, floating status contact; break for failure, contact rating 250 VAC / 2A (AC1) / min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side |
| 1 | 7 | COM | white 2 | Status relay, floating status contact; common connection, contact rating 250 VAC / 2A (AC1) / min. 10 mA, basic insulation on supply side and reinforced insulation on control interface side |
| 2 | 8 | 0-10V | yellow | Analog input (set value); 0-10 V; Ri = 100 kΩ; adjustable curve |
| 2 | 10 | RSB | brown | RS485 interface for MODBUS, RSB |
| 2 | 11 | RSA | white | RS485 interface for MODBUS, RSA |
| 2 | 12 | GND | blue | Reference ground for control interface, SELV |
| 2 | 13 | +10V | red | Fixed voltage output 10 VDC, +10 V ±3%; max. 10 mA; short-circuit-proof; power supply for external devices (e.g. pot) |



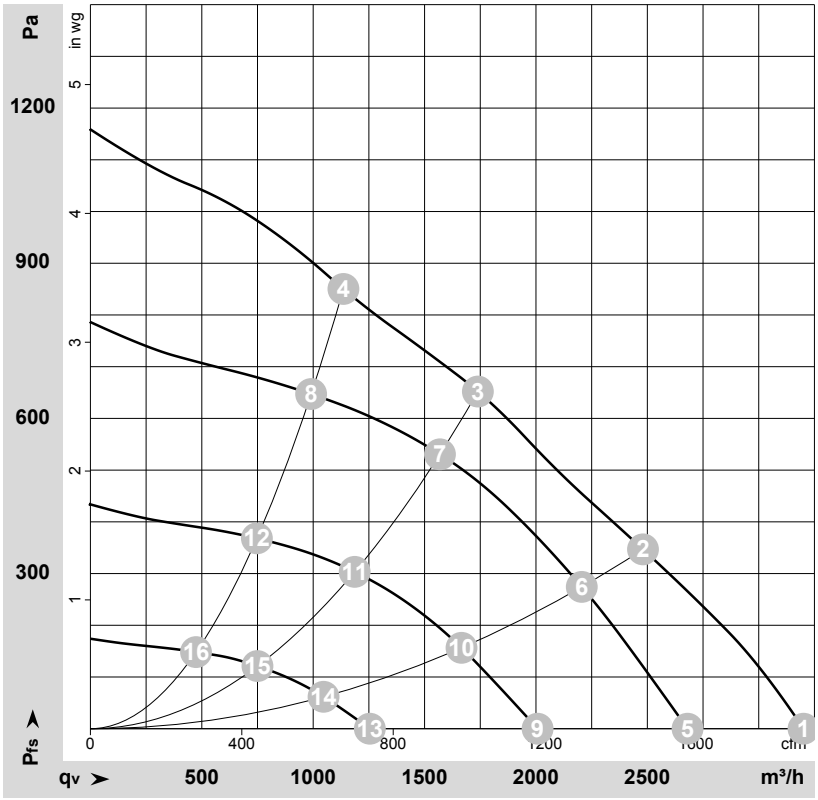
ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com

# EC centrifugal module - RadiCal

backward-curved, single-intake

with support bracket

## Curves: Air performance 50 Hz




ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-174531-1

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

| | U | f | n | $P_{ed}$ | I | $LpA_{in}$ | $LwA_{in}$ | $q_V$ | $p_{fs}$ | $q_V$ | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | Hz | $min^{-1}$ | W | A | dB(A) | dB(A) | $m^3/h$ | Pa | cfm | in. wg |
| 1 | 230 | 50 | 3380 | 494 | 2.16 | 77 | 84 | 3200 | 0 | 1885 | 0.00 |
| 2 | 230 | 50 | 3125 | 500 | 2.30 | 70 | 77 | 2480 | 350 | 1460 | 1.41 |
| 3 | 230 | 50 | 3080 | 500 | 2.30 | 66 | 74 | 1740 | 650 | 1025 | 2.61 |
| 4 | 230 | 50 | 3220 | 500 | 2.30 | 70 | 78 | 1135 | 850 | 670 | 3.41 |
| 5 | 230 | 50 | 2840 | 296 | 1.31 | 73 | 80 | 2680 | 0 | 1575 | 0.00 |
| 6 | 230 | 50 | 2790 | 374 | 1.64 | 67 | 75 | 2205 | 275 | 1300 | 1.10 |
| 7 | 230 | 50 | 2775 | 386 | 1.70 | 64 | 72 | 1570 | 531 | 925 | 2.13 |
| 8 | 230 | 50 | 2805 | 359 | 1.58 | 67 | 74 | 990 | 648 | 585 | 2.60 |
| 9 | 230 | 50 | 2140 | 137 | 0.62 | 66 | 73 | 2005 | 0 | 1180 | 0.00 |
| 10 | 230 | 50 | 2115 | 174 | 0.78 | 60 | 67 | 1665 | 157 | 980 | 0.63 |
| 11 | 230 | 50 | 2105 | 181 | 0.81 | 56 | 63 | 1185 | 304 | 700 | 1.22 |
| 12 | 230 | 50 | 2120 | 164 | 0.74 | 59 | 67 | 745 | 368 | 440 | 1.48 |
| 13 | 230 | 50 | 1355 | 49 | 0.26 | 55 | 63 | 1255 | 0 | 740 | 0.00 |
| 14 | 230 | 50 | 1345 | 57 | 0.29 | 51 | 58 | 1045 | 62 | 615 | 0.25 |
| 15 | 230 | 50 | 1340 | 59 | 0.30 | 45 | 53 | 750 | 121 | 440 | 0.49 |
| 16 | 230 | 50 | 1345 | 55 | 0.29 | 46 | 54 | 475 | 148 | 280 | 0.59 |

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
$q_V$ = Air flow · $p_{fs}$ = Pressure increase



ebm-papst Mulfingen GmbH & Co. KG · Bachmühle 2 · D-74673 Mulfingen · Phone +49 (0) 7938 81-0 · Fax +49 (0) 7938 81-110 · info1@de.ebmpapst.com · www.ebmpapst.com