**R3G250-RR01-H1**

# EC centrifugal fan - RadiCal

backward curved, single inlet



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ErP2015 EXCEEDS THE NORM

## Nominal data

| | |
|---|---|
| **Type** | **R3G250-RR01-H1** |
| **Motor** | **M3G084-DF** |

| | | |
|---|---|---|
| Phase | | 1~ |
| Nominal voltage | VAC | 230 |
| Nominal voltage range | VAC | 200 .. 277 |
| Frequency | Hz | 50/60 |
| Type of data definition | | ml |
| Speed | $min^{-1}$ | 3740 |
| Power input | W | 500 |
| Current draw | A | 2.2 |
| 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 2015 |
|---|---|---|---|
| Overall efficiency $\eta_{es}$ | % | 60.1 | 48.3 |
| Efficiency grade N | | 73.8 | 62 |
| Power input $P_{ed}$ | kW | 0.5 | |
| Air flow $q_v$ | $m^3/h$ | 1355 | |
| Pressure increase $p_{fs}$ | Pa | 733 | |
| Speed n | $min^{-1}$ | 3735 | |

Data definition with optimum efficiency. LU-151690
The ErP data is determined using a motor-impeller combination in a standardised measurement configuration.



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## Technical features

| | |
|---|---|
| **Mass** | 3.9 kg |
| **Size** | 250 mm |
| **Surface of rotor** | Coated in black |
| **Material of impeller** | PA plastic |
| **Housing material** | Die-cast aluminium |
| **Number of blades** | 7 |
| **Direction of rotation** | Clockwise, seen on rotor |
| **Type of protection** | IP 54 |
| **Insulation class** | "F" |
| **Humidity class** | F3-1 |
| **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>- Operation and alarm display<br>- Alarm relay<br>- Integrated PID controller<br>- Output limit<br>- Motor current limit<br>- PFC, active<br>- RS485 MODBUS RTU<br>- Soft start<br>- Control input 0-10 VDC / PWM<br>- Control interface with SELV potential safely disconnected from the mains<br>- Over-temperature protected electronics / motor<br>- Line undervoltage / phase failure detection |
| **EMC interference immunity** | Acc. to EN 61000-6-2 (industrial environment) |
| **EMC harmonics** | Acc. to EN 61000-3-2/3 |
| **EMC interference emission** | Acc. to EN 61000-6-3 (household environment) |
| **Touch current acc. IEC 60990 (measuring network Fig. 4, TN system)** | <= 3.5 mA |
| **Motor protection** | Thermal overload protector (TOP) wired internally |
| **Cable exit** | Variable |
| **Protection class** | I (if protective earth is connected by customer at the connection point of the housing) |
| **Product conforming to standard** | EN 61800-5-1; EN 60335-1; CE |
| **Approval** | EAC |

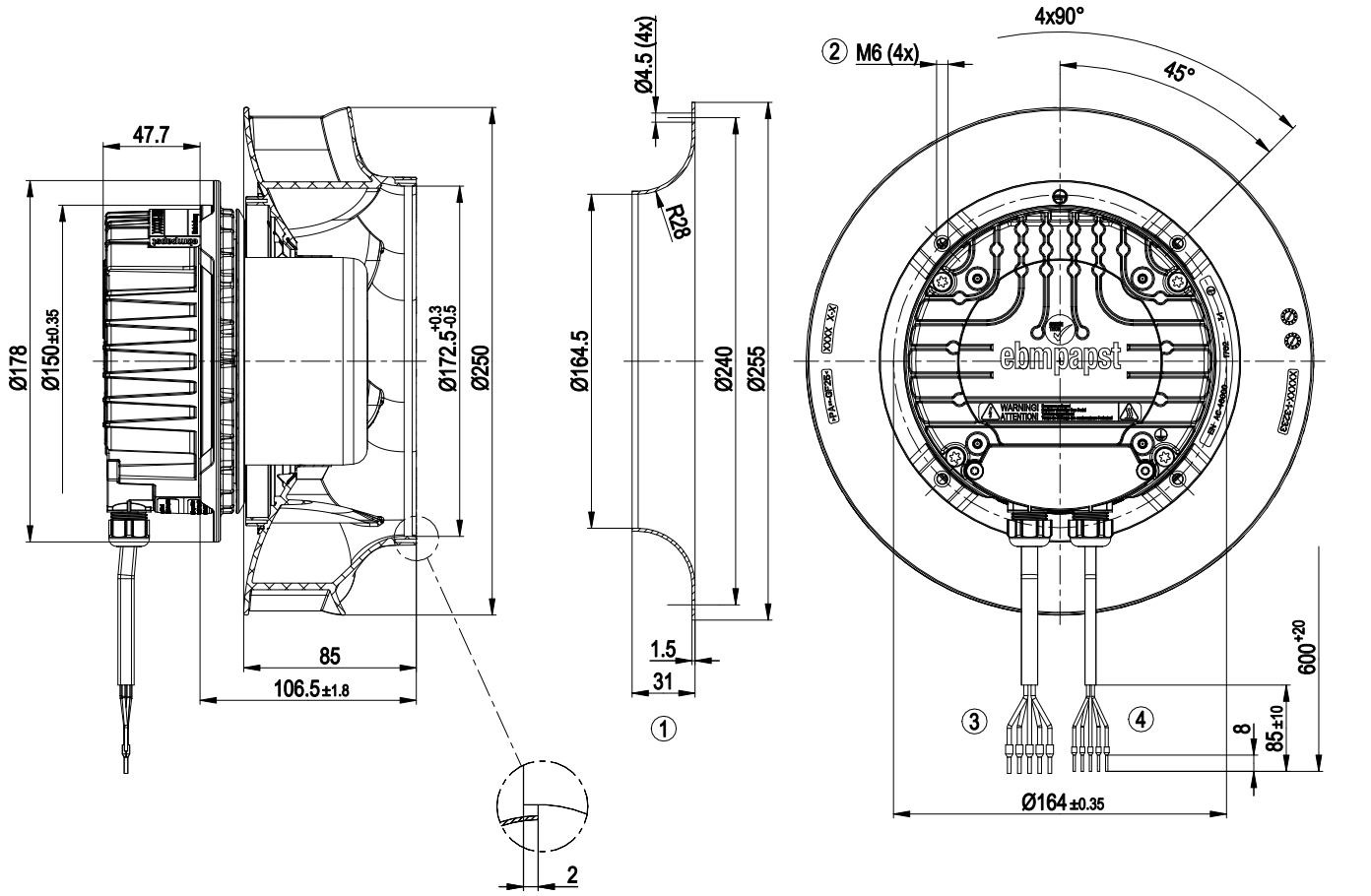


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## Product drawing




| | |
|---|---|
| 1 | Accessory part: inlet nozzle 96359-2-4013 not included in scope of delivery |
| 2 | Depth of screw max. 16 mm |
| 3 | Connection line PVC AWG18, 5x crimped core-end sleeves |
| 4 | Connection line PVC AWG22, 5x crimped core-end sleeves |

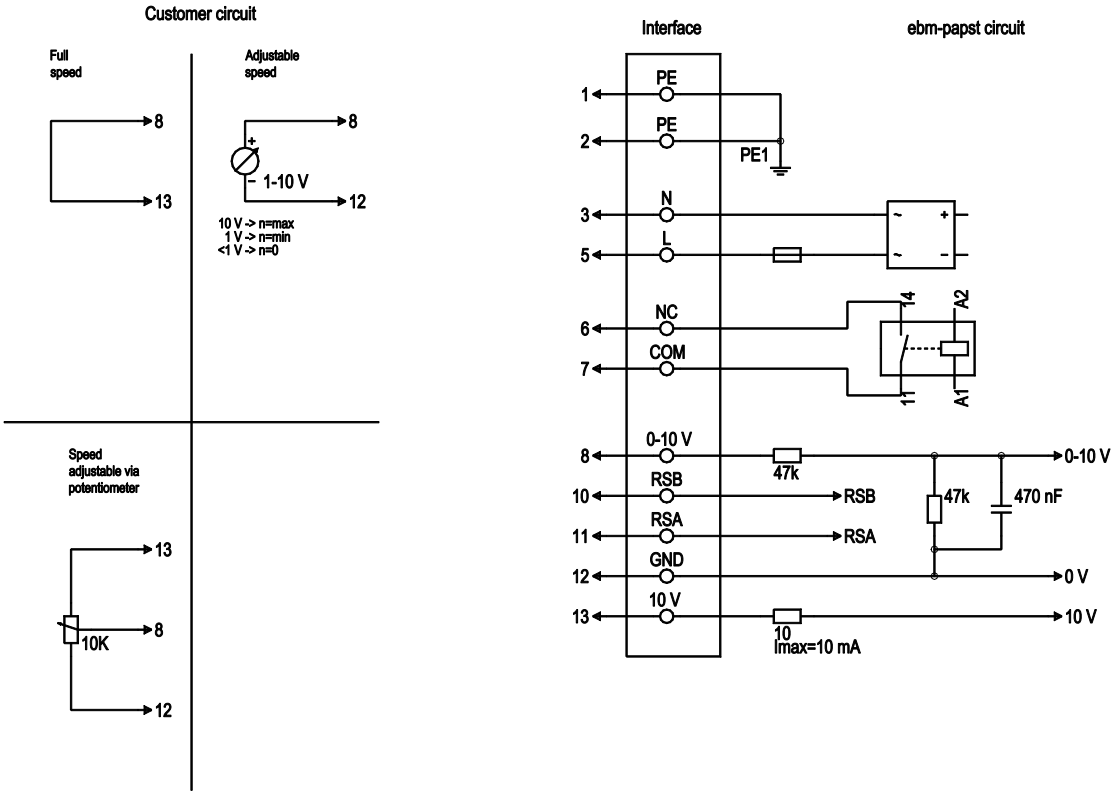


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## Connection screen




| No. | Conn. | Designation | Colour | Function / assignment |
|---|---|---|---|---|
| 1 | 1, 2 | PE | green/yellow | Protective earth |
| 1 | 3 | N | blue | Supply voltage, neutral conductor, 50/60 Hz |
| 1 | 5 | L | black | Supply voltage, 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 mains 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 mains side and reinforced insulation on control interface side |
| 2 | 8 | 0-10V | yellow | Analogue input 1 (set value); 0-10 V; Ri=100kΩ; parametrisable 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. potentiometer) |

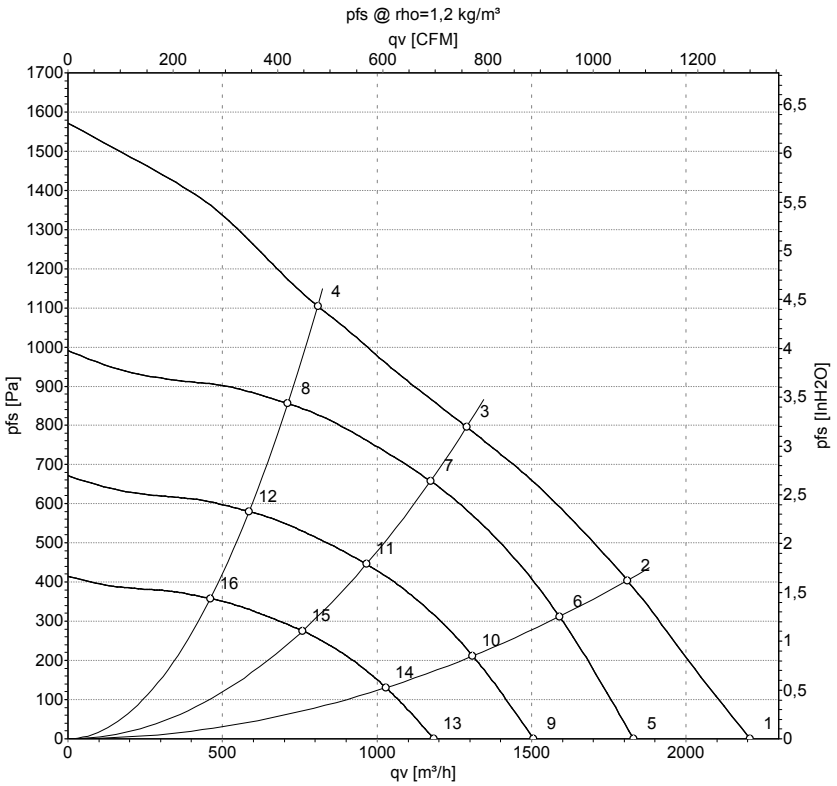


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## Charts: Air flow 50 Hz




Measurement: LU-151690

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 | $LpA_{in}$ | $LwA_{in}$ | qv | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|---|
| | V | Hz | $min^{-1}$ | W | A | dB(A) | dB(A) | $m^3/h$ | Pa |
| 1 | 230 | 50 | 4100 | 500 | 2.20 | 81 | 89 | 2210 | 0 |
| 2 | 230 | 50 | 3870 | 500 | 2.20 | 75 | 83 | 1810 | 400 |
| 3 | 230 | 50 | 3740 | 500 | 2.20 | 70 | 78 | 1290 | 800 |
| 4 | 230 | 50 | 3860 | 500 | 2.20 | 77 | 84 | 810 | 1100 |
| 5 | 230 | 50 | 3400 | 292 | 1.27 | 76 | 84 | 1830 | 0 |
| 6 | 230 | 50 | 3400 | 346 | 1.51 | 72 | 80 | 1590 | 313 |
| 7 | 230 | 50 | 3400 | 383 | 1.67 | 68 | 75 | 1175 | 658 |
| 8 | 230 | 50 | 3400 | 348 | 1.52 | 74 | 81 | 710 | 856 |
| 9 | 230 | 50 | 2800 | 163 | 0.71 | 71 | 79 | 1505 | 0 |
| 10 | 230 | 50 | 2800 | 193 | 0.84 | 67 | 75 | 1310 | 212 |
| 11 | 230 | 50 | 2800 | 214 | 0.93 | 63 | 71 | 965 | 446 |
| 12 | 230 | 50 | 2800 | 194 | 0.85 | 69 | 76 | 585 | 580 |
| 13 | 230 | 50 | 2200 | 79 | 0.35 | 65 | 73 | 1185 | 0 |
| 14 | 230 | 50 | 2200 | 94 | 0.41 | 61 | 69 | 1030 | 131 |
| 15 | 230 | 50 | 2200 | 104 | 0.45 | 57 | 65 | 760 | 276 |
| 16 | 230 | 50 | 2200 | 94 | 0.41 | 63 | 70 | 460 | 358 |

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



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