

R3G310-RP12-31

# EC centrifugal fan - RadiCal

backward-curved, single-intake



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## Nominal data

|                          |                   |          |
|--------------------------|-------------------|----------|
| Type                     | R3G310-RP12-31    |          |
| Motor                    | M3G084-FA         |          |
| Nominal voltage          | VDC               | 48       |
| Nominal voltage range    | VDC               | 36 .. 57 |
| Method of obtaining data |                   | fa       |
| Speed (rpm)              | min <sup>-1</sup> | 2020     |
| Power consumption        | W                 | 250      |
| Current draw             | A                 | 5.3      |
| Min. ambient temperature | °C                | -25      |
| 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 (EN 17166)

|                                   |   | Actual | Req. 2015 |                               |                   |      |
|-----------------------------------|---|--------|-----------|-------------------------------|-------------------|------|
| 01 Overall efficiency $\eta_{es}$ | % | 63.7   | 46.1      | 09 Power consumption $P_e$    | kW                | 0.3  |
| 02 Measurement category           |   | A      |           | 09 Air flow $q_v$             | m <sup>3</sup> /h | 1605 |
| 03 Efficiency category            |   | Static |           | 09 Pressure increase $p_{fs}$ | Pa                | 388  |
| 04 Efficiency grade N             |   | 79.6   | 62        | 10 Speed (rpm) n              | min <sup>-1</sup> | 1970 |
| 05 Variable speed drive           |   | Yes    |           | 11 Specific ratio*            |                   | 1.00 |

Data obtained at optimum efficiency level.

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

LU-136903

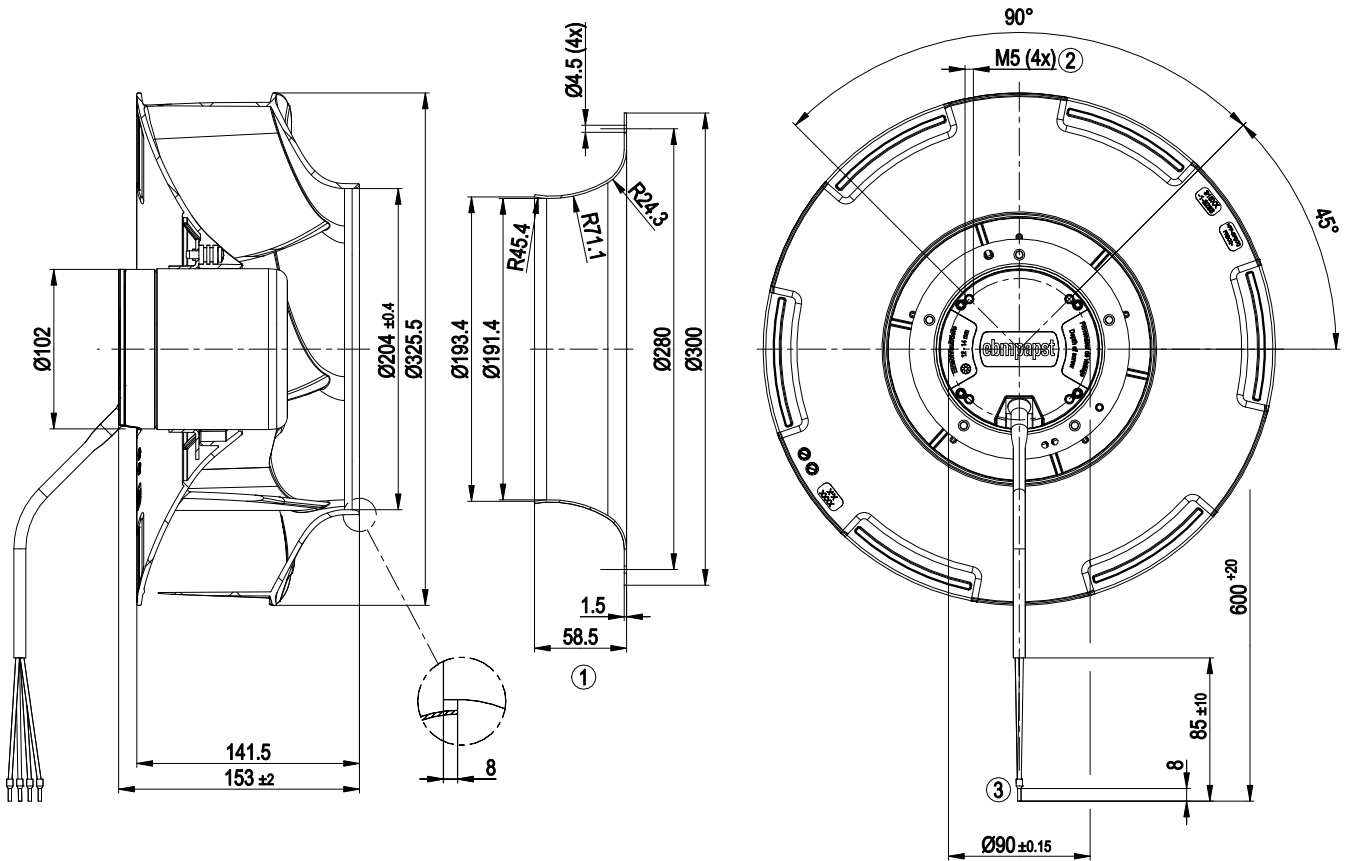
The efficiency values displayed for achieving conformity with the Ecodesign Regulation EU 327/2011 has been reached with defined air duct components (e.g. inlet rings).  
The dimensions must be requested from ebm-papst. If other air conduction geometries are used on the installation side, the ebm-papst 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).



## Technical description

|                                                            |                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weight                                                     | 4.4 kg                                                                                                                                                                                                                                                                                                                       |
| Size                                                       | 310 mm                                                                                                                                                                                                                                                                                                                       |
| Motor size                                                 | 84                                                                                                                                                                                                                                                                                                                           |
| Rotor surface                                              | Painted black                                                                                                                                                                                                                                                                                                                |
| Electronics housing material                               | Die-cast aluminum                                                                                                                                                                                                                                                                                                            |
| Impeller material                                          | PP plastic                                                                                                                                                                                                                                                                                                                   |
| Number of blades                                           | 6                                                                                                                                                                                                                                                                                                                            |
| Direction of rotation                                      | Clockwise, viewed toward rotor                                                                                                                                                                                                                                                                                               |
| Degree of protection                                       | IP42                                                                                                                                                                                                                                                                                                                         |
| Insulation class                                           | "B"                                                                                                                                                                                                                                                                                                                          |
| 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                                      | Any                                                                                                                                                                                                                                                                                                                          |
| Condensation drainage holes                                | None                                                                                                                                                                                                                                                                                                                         |
| Mode                                                       | S1                                                                                                                                                                                                                                                                                                                           |
| Motor bearing                                              | Ball bearing                                                                                                                                                                                                                                                                                                                 |
| Technical features                                         | <ul style="list-style-type: none"> <li>- Tach output</li> <li>- Motor current limitation</li> <li>- Soft start</li> <li>- Control input 0-10 VDC / PWM</li> <li>- Reverse polarity protection</li> </ul>                                                                                                                     |
| Motor protection                                           | Thermal overload protector (TOP) internally connected                                                                                                                                                                                                                                                                        |
| With cable                                                 | Variable                                                                                                                                                                                                                                                                                                                     |
| Protection class assignment                                | <p>Built-in component, protection class is based on the intended installation. This component for installation may have several local protection classes. This information relates to this component's basic design.</p> <p>The final protection class is based on the component's intended installation and connection.</p> |
| Conformity with standards                                  | EN 61800-5-1; CE; UKCA                                                                                                                                                                                                                                                                                                       |
| Approval                                                   | CSA C22.2 No. 100; EAC; UL 1004-1                                                                                                                                                                                                                                                                                            |

## Product drawing

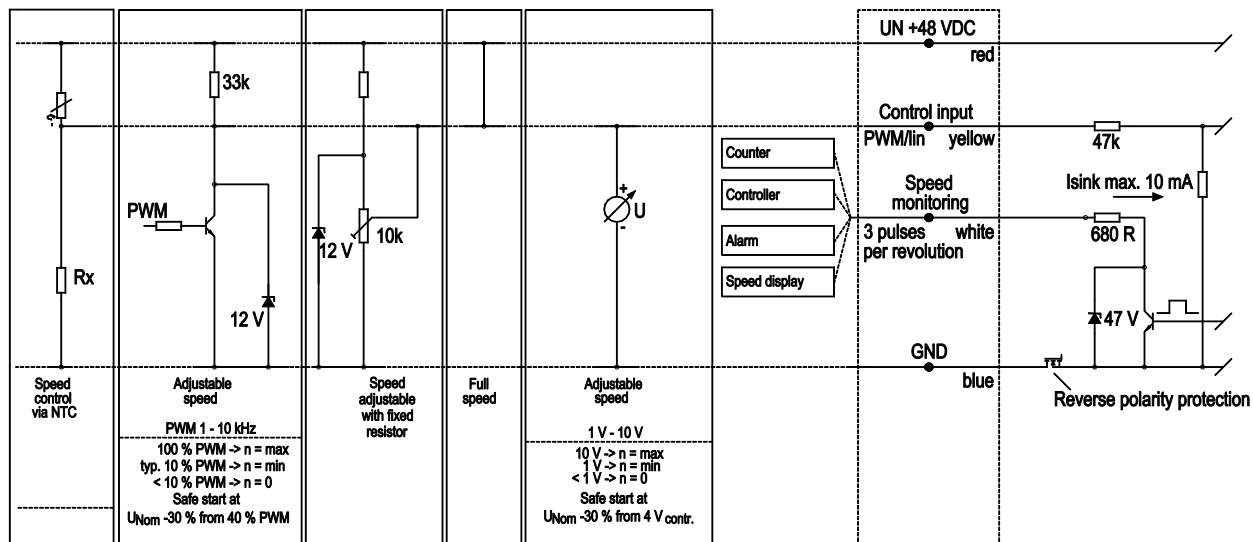


- |   |                                                                                                         |
|---|---------------------------------------------------------------------------------------------------------|
| 1 | Accessory part: Inlet ring 31000-2-4013 not included in scope of delivery, other inlet rings on request |
| 2 | Max. clearance for screw 14 mm                                                                          |
| 3 | Cable, PVC AWG16, 4x crimped ferrules                                                                   |

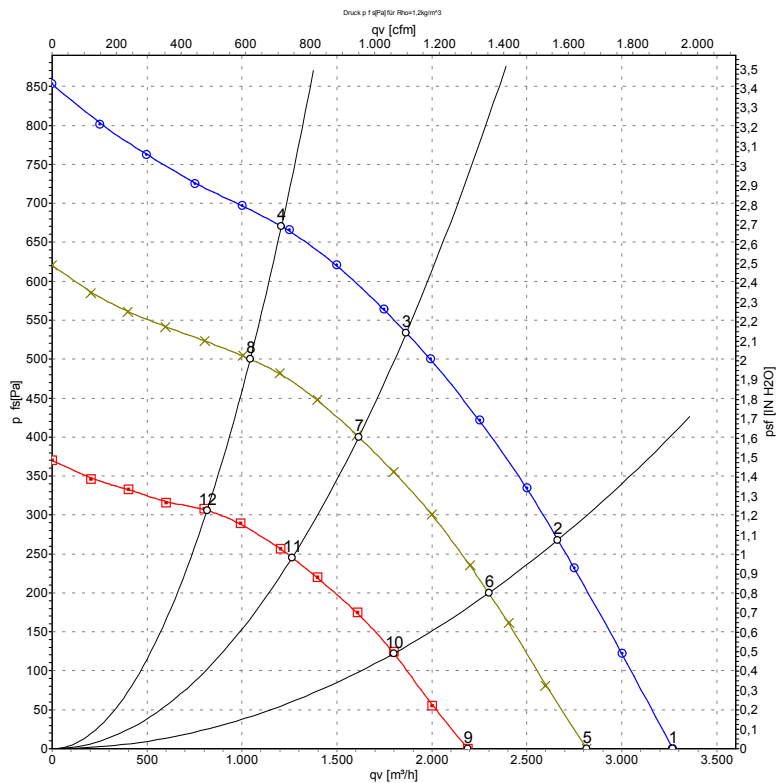
## Connection diagram

## Customer circuit

## Application notes for various control options



## Curves: Air performance



Measurement: LU-137050-1  
 Measurement: LU-138231-1  
 Measurement: LU-137051-1

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  | n                 | P <sub>ed</sub> | I    | Lp <sub>Ain</sub> | Lw <sub>Ain</sub> | q <sub>v</sub> | p <sub>fs</sub> | q <sub>v</sub> | p <sub>fs</sub> |
|----|----|-------------------|-----------------|------|-------------------|-------------------|----------------|-----------------|----------------|-----------------|
|    | V  | min <sup>-1</sup> | W               | A    | dB(A)             | dB(A)             | m³/h           | Pa              | cfm            | in. wg          |
| 1  | 57 | 2335              | 382             | 6.75 | 73                | 81                | 3270           | 0               | 1925           | 0.00            |
| 2  | 57 | 2290              | 437             | 7.72 | 68                | 76                | 2665           | 268             | 1565           | 1.08            |
| 3  | 57 | 2275              | 459             | 8.12 | 64                | 71                | 1865           | 534             | 1100           | 2.14            |
| 4  | 57 | 2310              | 421             | 7.43 | 65                | 73                | 1210           | 671             | 710            | 2.69            |
| 5  | 48 | 2020              | 250             | 5.30 | 70                | 78                | 2815           | 0               | 1655           | 0.00            |
| 6  | 48 | 1980              | 284             | 5.95 | 65                | 73                | 2300           | 200             | 1355           | 0.80            |
| 7  | 48 | 1970              | 300             | 6.30 | 61                | 68                | 1615           | 400             | 950            | 1.61            |
| 8  | 48 | 2000              | 274             | 5.73 | 62                | 70                | 1045           | 500             | 615            | 2.01            |
| 9  | 36 | 1575              | 121             | 3.39 | 63                | 71                | 2190           | 0               | 1290           | 0.00            |
| 10 | 36 | 1555              | 140             | 3.90 | 60                | 67                | 1800           | 124             | 1060           | 0.50            |
| 11 | 36 | 1550              | 147             | 4.10 | 57                | 64                | 1265           | 245             | 745            | 0.98            |
| 12 | 36 | 1565              | 134             | 3.73 | 57                | 65                | 815            | 307             | 480            | 1.23            |

U = Voltage · n = Speed (rpm) · P<sub>ed</sub> = Power consumption · I = Current draw · Lp<sub>Ain</sub> = Sound pressure level intake side · Lw<sub>Ain</sub> = Sound power level intake side · q<sub>v</sub> = Air flow  
 p<sub>fs</sub> = Pressure increase

