

# EC centrifugal module - RadiPac

backward curved, single inlet

with support bracket

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## Nominal data

|                          |                   |            |
|--------------------------|-------------------|------------|
| Type                     | K3G280-PS10-J5    |            |
| Motor                    | M3G084-FA         |            |
| 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> | 3400       |
| Power input              | W                 | 1050       |
| Current draw             | A                 | 1.6        |
| Min. ambient temperature | °C                | -25        |
| Max. ambient temperature | °C                | 45         |

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 $\eta_{es}$ | % | 67.1   | 51.6         |
| 02 Measurement category           |   | A      |              |
| 03 Efficiency category            |   | Static |              |
| 04 Efficiency grade N             |   | 77.5   | 62           |
| 05 Variable speed drive           |   | Yes    |              |

Data definition with optimum efficiency.

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

|                               |                   |      |
|-------------------------------|-------------------|------|
| 09 Power input $P_{ed}$       | kW                | 1.02 |
| 09 Air flow $q_v$             | m <sup>3</sup> /h | 2810 |
| 09 Pressure increase $p_{fs}$ | Pa                | 808  |
| 10 Speed (rpm) n              | min <sup>-1</sup> | 3390 |
| 11 Specific ratio*            |                   | 1.01 |

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

LU-174002



## Technical features

|                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mass                                                               | 9.7 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Size                                                               | 280 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Motor size                                                         | 84                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Surface of rotor                                                   | Coated in black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Material of electronics housing                                    | Die-cast aluminium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Material of impeller                                               | PP plastic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Material of mounting plate                                         | Sheet steel, galvanised                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Material of support bracket                                        | Steel, coated in black                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Material of inlet nozzle                                           | Sheet steel, galvanised                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Number of blades                                                   | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Direction of rotation                                              | Clockwise, seen on rotor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Type of protection                                                 | IP55                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Insulation class                                                   | "F"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Humidity (F) / environmental protection class (H)                  | H1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Note ambient temperature                                           | Occasional start-up between -40 °C and -25 °C is permissible. For continuous operation at ambient temperatures below -25 °C (e.g. refrigeration applications), a fan version with special low-temperature bearings must be used.                                                                                                                                                                                                                                                                                                                                                                                                  |
| 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>- Operation and alarm display</li> <li>- External 24 V input (programming)</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 61000-6-3 (household environment), except EN 61000-3-2 for professionally used devices with a total rated power greater than 1 kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Touch current acc. IEC 60990 (measuring network Fig. 4, TN system) | <= 3.5 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Electrical connection                                              | Terminal box                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Motor protection                                                   | Thermal overload protector (TOP) wired internally                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Protection class                                                   | I (if protective earth is connected by customer)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

K3G280-PS10-J5

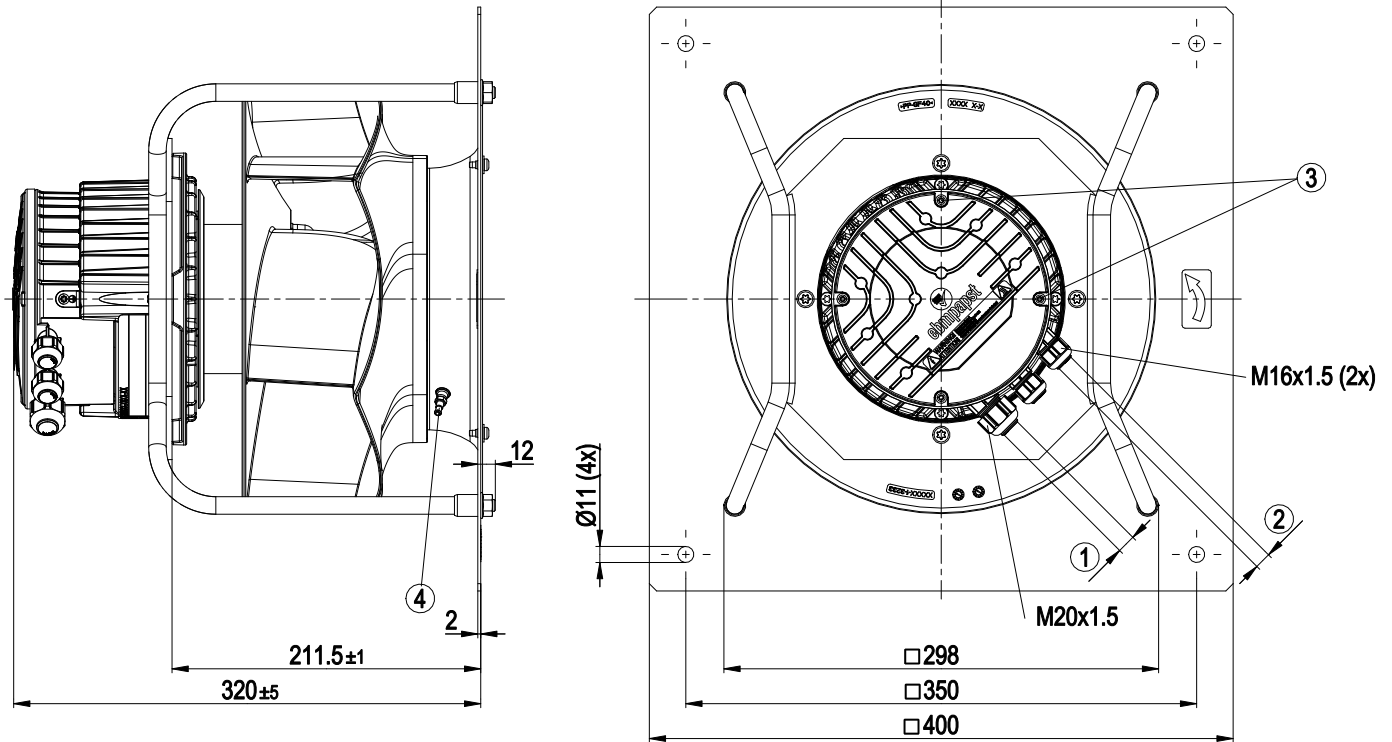
## EC centrifugal module - RadiPac

backward curved, single inlet  
with support bracket

|                                |                                                             |
|--------------------------------|-------------------------------------------------------------|
| Product conforming to standard | EN 61800-5-1; CE                                            |
| Approval                       | CSA C22.2 no. 77 + CAN/CSA-E60730-1; UL 1004-7 + 60730; CCC |



## Product drawing



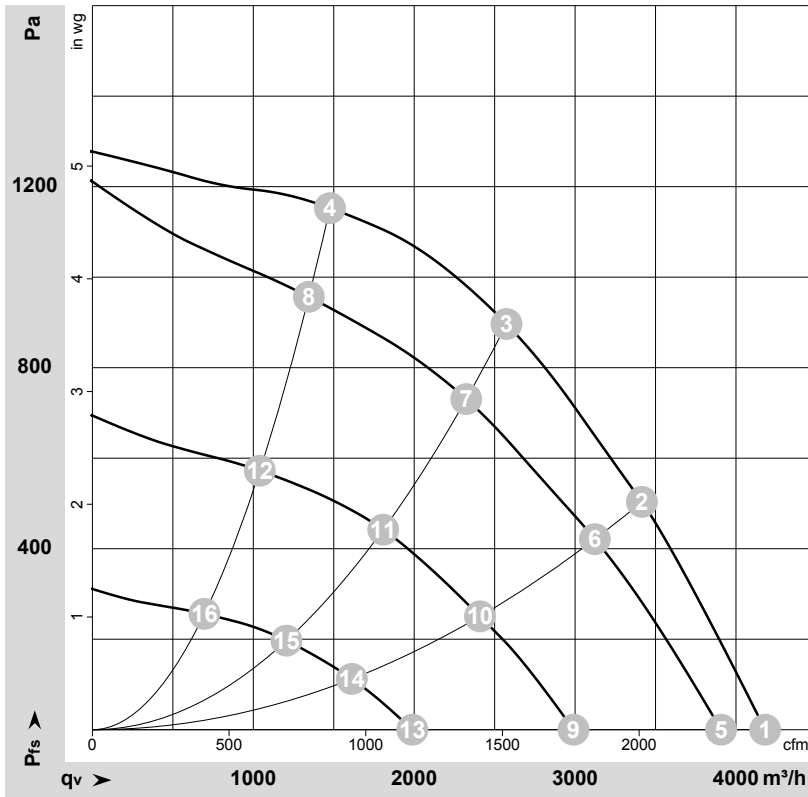
|   |                                                                                                                                                                              |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Cable diameter min. 8 mm, max. 12 mm, tightening torque $1.8 \pm 0.3$ Nm (use the provided seal)<br>Cable diameter min. 4 mm, max. 10 mm, tightening torque $1.8 \pm 0.3$ Nm |
| 2 | Cable diameter min. 6 mm, max. 10 mm, tightening torque $1.8 \pm 0.3$ Nm (use the provided seal)<br>Cable diameter min. 4 mm, max. 7 mm, tightening torque $1.8 \pm 0.3$ Nm  |
| 3 | Tightening torque $3.5 \pm 0.5$ Nm                                                                                                                                           |
| 4 | Inlet nozzle with pressure tap (k-factor: 77)                                                                                                                                |

## Connection screen

|    |    |    |    |    |    |     |     |     |     |        |                  |  |
|----|----|----|----|----|----|-----|-----|-----|-----|--------|------------------|--|
|    |    |    |    |    |    |     |     |     |     |        |                  |  |
| PE | PE | L1 | L2 | L3 | NC | COM | GND | RSA | RSB | 0-10 V | +10 V<br>24 V IN |  |
| 1  | 2  | 3  | 4  | 5  | 6  | 7   | 8   | 9   | 10  | 11     | 12               |  |

| No. | Conn. | Designation | Function / assignment                                                                                                                                                                                                         |
|-----|-------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | 1     | PE          | Protective earth                                                                                                                                                                                                              |
|     | 2     | PE          | Protective earth                                                                                                                                                                                                              |
|     | 3     | L1          | Power supply                                                                                                                                                                                                                  |
|     | 4     | L2          | Power supply                                                                                                                                                                                                                  |
|     | 5     | L3          | Power supply                                                                                                                                                                                                                  |
|     | 6     | NC          | Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on mains side and basic insulation on control interface side                                 |
|     | 7     | COM         | Status relay, floating status contact, break for failure, contact rating 250 VAC / 2 A (AC1) / min. 10 mA; reinforced insulation on mains side and basic insulation on control interface side                                 |
|     | 8     | GND         | Signal ground for control interface, SELV                                                                                                                                                                                     |
|     | 9     | RSA         | RS-485 interface for MODBUS, RSA; SELV                                                                                                                                                                                        |
|     | 10    | RSB         | RS-485 interface for MODBUS, RSB; SELV                                                                                                                                                                                        |
|     | 11    | 0-10 V      | Analogue input (set value) SELV, 0-10 V, Ri=100kΩ, parametrisable curve                                                                                                                                                       |
|     | 12    | +10 V       | Fixed voltage output 10 VDC, SELV, +10 V +/-3%, max. 10 mA short-circuit-proof, power supply for ext. devices (e.g. potentiometer);<br>Fixed voltage input 24 VDC for parameter setting via MODBUS without mains power supply |

## Charts: Air flow 50 Hz



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

Measurement: LU-174002-1

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 <sub>ed</sub> | I    | LpA <sub>in</sub> | LwA <sub>in</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)             | m³/h           | Pa              | cfm            | in. wg          |
| 1  | 400 | 50 | 3400              | 743             | 1.17 | 81                | 88                | 4180           | 0               | 2460           | 0.00            |
| 2  | 400 | 50 | 3400              | 963             | 1.49 | 75                | 83                | 3415           | 500             | 2010           | 2.01            |
| 3  | 400 | 50 | 3400              | 1050            | 1.60 | 72                | 80                | 2575           | 900             | 1515           | 3.61            |
| 4  | 400 | 50 | 3400              | 926             | 1.43 | 76                | 85                | 1475           | 1150            | 870            | 4.62            |
| 5  | 400 | 50 | 3185              | 624             | 0.99 | 79                | 86                | 3905           | 0               | 2300           | 0.00            |
| 6  | 400 | 50 | 3110              | 717             | 1.12 | 73                | 80                | 3125           | 423             | 1840           | 1.70            |
| 7  | 400 | 50 | 3060              | 779             | 1.21 | 69                | 77                | 2325           | 732             | 1370           | 2.94            |
| 8  | 400 | 50 | 3110              | 710             | 1.11 | 74                | 81                | 1345           | 957             | 790            | 3.84            |
| 9  | 400 | 50 | 2445              | 295             | 0.54 | 72                | 79                | 2990           | 0               | 1760           | 0.00            |
| 10 | 400 | 50 | 2400              | 351             | 0.61 | 65                | 73                | 2410           | 251             | 1420           | 1.01            |
| 11 | 400 | 50 | 2380              | 384             | 0.65 | 61                | 68                | 1805           | 446             | 1065           | 1.79            |
| 12 | 400 | 50 | 2410              | 345             | 0.60 | 68                | 75                | 1040           | 572             | 615            | 2.30            |
| 13 | 400 | 50 | 1635              | 107             | 0.29 | 62                | 70                | 1990           | 0               | 1170           | 0.00            |
| 14 | 400 | 50 | 1615              | 125             | 0.31 | 56                | 63                | 1615           | 113             | 950            | 0.45            |
| 15 | 400 | 50 | 1605              | 134             | 0.33 | 52                | 59                | 1205           | 198             | 710            | 0.79            |
| 16 | 400 | 50 | 1615              | 123             | 0.31 | 55                | 63                | 695            | 256             | 410            | 1.03            |

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 · q<sub>v</sub> = Air flow  
P<sub>fs</sub> = Pressure increase

