**K3G097-AS81-88**

# EC centrifugal fan combination

forward-curved, dual-intake

with housing, for rail applications

**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** | **K3G097-AS81-88** | |
| **Motor** | **M3G084-BF** | |
| Nominal voltage | VDC | 26 |
| Nominal voltage range | VDC | 16 .. 32 |
| Method of obtaining data | | fa |
| Speed (rpm) | $min^{-1}$ | 3900 |
| Power consumption | W | 435 |
| Min. back pressure | Pa | 0 |
| Min. back pressure | in. wg | 0 |
| Min. ambient temperature | °C | -40 |
| Max. ambient temperature | °C | 85 |

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment
Subject to change

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## Technical description

| | |
|---|---|
| **Weight** | 2 kg |
| **Size** | 97 mm |
| **Motor size** | 84 |
| **Impeller material** | PA plastic |
| **Housing material** | PA plastic |
| **Balancing grade according to DIN ISO 1940-1** | G 2.5 |
| **Direction of rotation** | Clockwise, viewed toward rotor |
| **Degree of protection** | Motor IP24 KM, electronics IP6K9K (mating connector installed) |
| **Insulation class** | "B" |
| **Moisture (F) / Environmental (H) protection class** | H3 |
| **Ambient temperature note** | Over +70 °C with power derating; Occasional start-up between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), a fan design with special low-temperature bearings must be used. |
| **Max. permitted ambient temp. for motor (transport/storage)** | +85 °C |
| **Min. permitted ambient temp. for motor (transport/storage)** | -40 °C |
| **Installation position** | Any |
| **Condensation drainage holes** | None, open rotor |
| **Mode** | S1 |
| **Motor bearing** | Ball bearing; (sealed) |
| **Life expectancy** | 40,000 h (typical) |
| **Technical features** | - Lowering input<br>- Error output (high-side switch)<br>- INVLIN (inverse linear control input)<br>- Power limiter<br>- Load dump (58 V)<br>- Motor current limitation<br>- Soft start<br>- Control input 0-10 VDC / PWM<br>- Temperature derating (Fault message via diagnostic output in derating operation)<br>- Overvoltage detection<br>- Thermal overload protection for electronics<br>- Line undervoltage detection<br>- Reverse polarity protection |
| **EMC regulations** | According to EN 50121-3-2 |
| **Electrical hookup** | Connector with cable; Standby current less than 500 µA |
| **Protection class** | I (with customer connection of protective earth) |
| **Conformity with standards** | EN 45545-2, HL3: 2013 + A1:2015; EN 50155: 2008; EN 61373, Cat. 1B: 2010 |



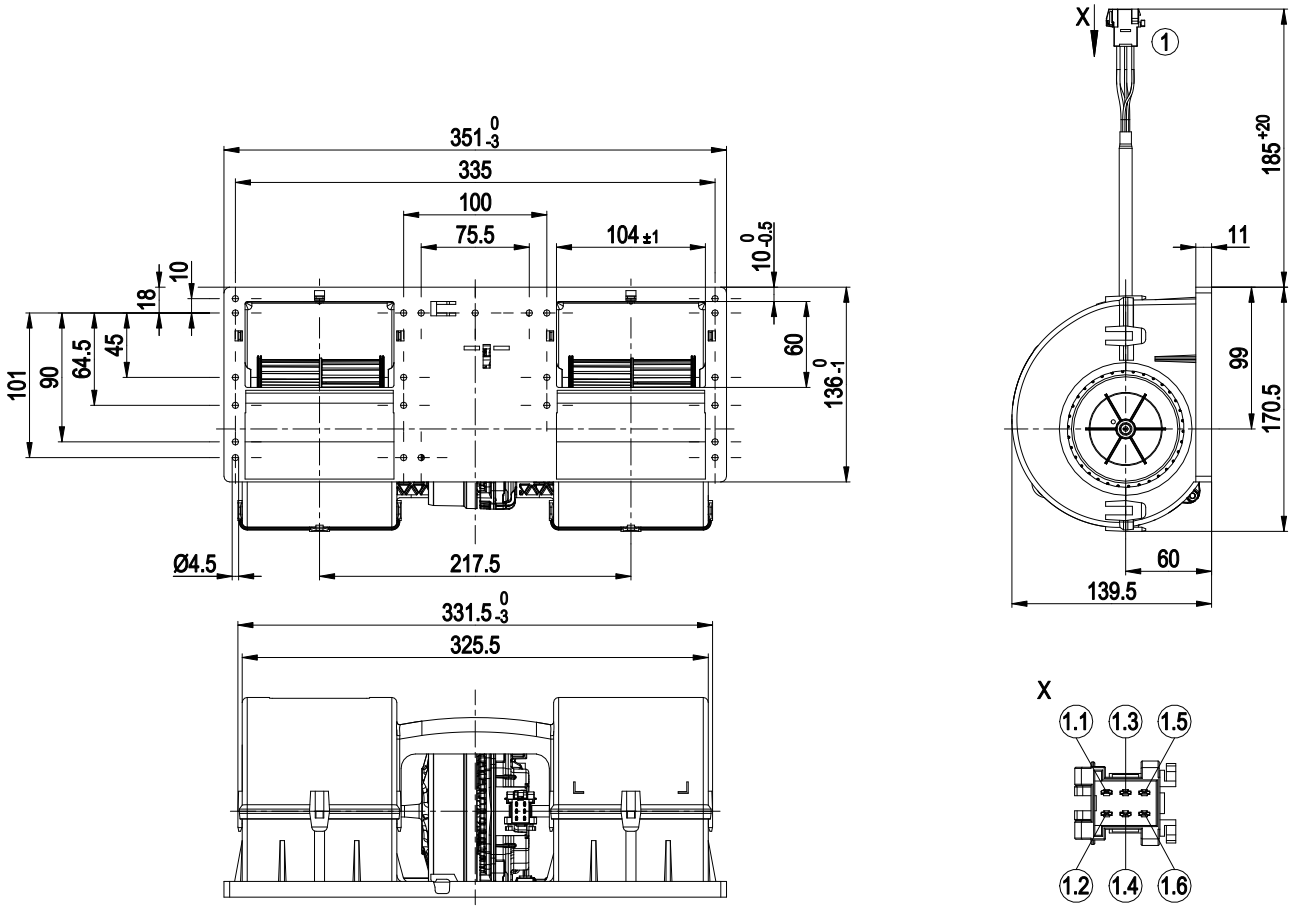
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## Product drawing




| | |
|---|---|
| 1 | Cable, halogen-free, railway application EN 45545, 2x 2.5 mm², 4x 1.0 mm² |
| | 6-pole connector housing TE 929505-2, 4x flat plug TE 0-928930-2, 2x flat plug TE 0-928781-2 |
| 1.1 | + UB |
| 1.2 | GND |
| 1.3 | PWM/LIN |
| 1.4 | INVLIN |
| 1.5 | AUXIN |
| 1.6 | Diagnostic output |
| | 6-pole mating connector TE 929504-2, 4x flat plug TE 0-927771-1, 2x flat plug TE 0-927768-1 |



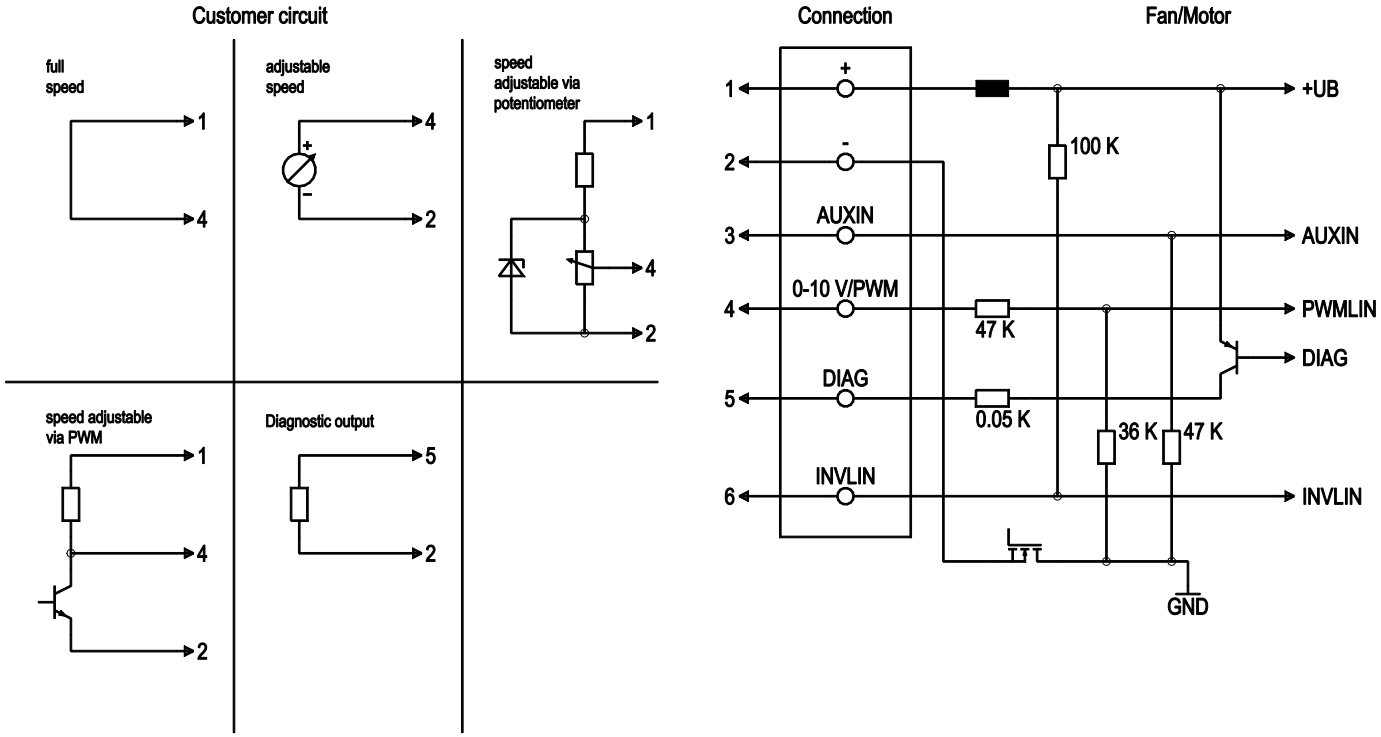
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## Connection diagram




| No. | Conn. | Designation | Function/assignment |
|---|---|---|---|
| | 1 | + | Power supply, see nameplate for voltage range |
| | 2 | - | Power supply, see nameplate for voltage range |
| | 3 | AUXIN | Digital input: when active (> 4 V), value of PWM signal is halved |
| | 4 | 0-10 V / PWM | Control input: Ri > 47 kΩ<br>0-10 V (typ. < 1 V -> n=0; 1.5 V -> n=min; > 10 V -> n=max)<br>PWM (amplitude 10 V; 1-50 kHz; typ. < 5 % -> n=0; 15% -> n=min; > 100% -> n=max) |
| | 5 | DIAG | Diagnostic output: Open collector, Isource max = 20 mA,<br>Fan OK -> low; fan error -> high |
| | 6 | INVLIN | Control input, inverse linear |



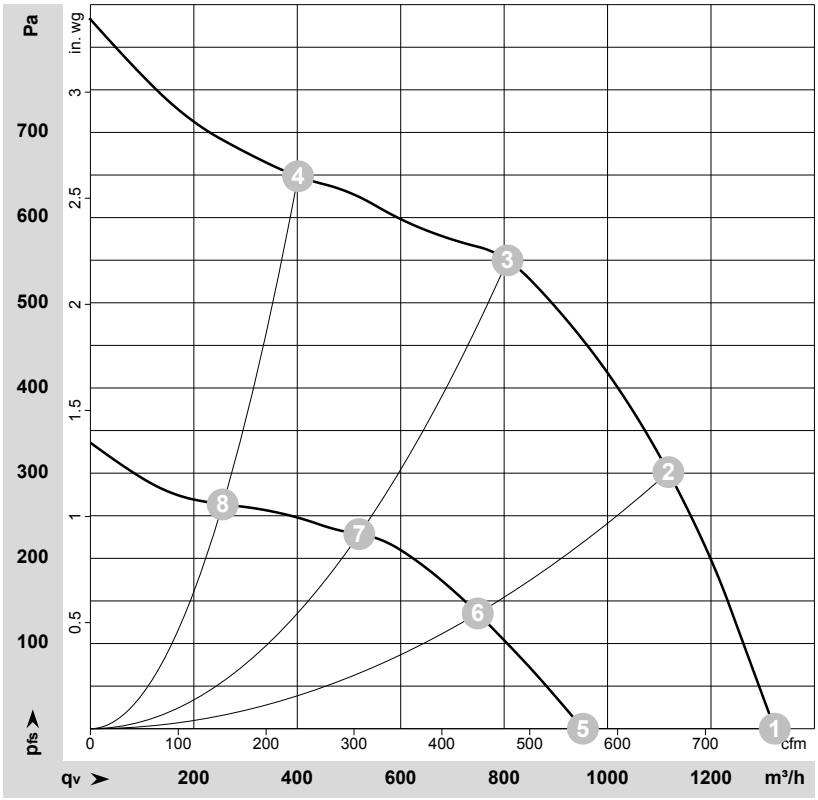
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## Curves: Air performance




ρ = 1.15 kg/m³ ± 2 %

Measurement: LU-163258-1
Measurement: LU-163419-1

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 | $P_{ed}$ | I | $LpA_{in}$ | $LwA_{in}$ | $q_V$ | $p_{fs}$ | $q_V$ | $p_{fs}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | V | $min^{-1}$ | W | A | dB(A) | dB(A) | $m^3/h$ | Pa | cfm | in. wg |
| 1 | 26-32 | 3900 | 435 | 16.60* | 73 | 84 | 1325 | 0 | 780 | 0.00 |
| 2 | 26-32 | 4395 | 408 | 15.70* | 71 | 82 | 1120 | 300 | 660 | 1.20 |
| 3 | 26-32 | 4675 | 309 | 11.90* | 69 | 80 | 805 | 550 | 475 | 2.21 |
| 4 | 26-32 | 4905 | 193 | 7.40* | 69 | 79 | 400 | 650 | 235 | 2.61 |
| 5 | 16 | 2845 | 165 | 10.34 | | | 950 | 0 | 560 | 0.00 |
| 6 | 16 | 2960 | 126 | 7.88 | | | 750 | 135 | 440 | 0.54 |
| 7 | 16 | 3060 | 92 | 5.76 | | | 520 | 228 | 305 | 0.92 |
| 8 | 16 | 3150 | 58 | 3.67 | | | 255 | 263 | 150 | 1.06 |

U = Voltage · n = Speed (rpm) · $P_{ed}$ = Power consumption · I = Current draw · * = Current measured at nominal voltage · $LpA_{in}$ = Sound pressure level intake side · $LwA_{in}$ = Sound power level intake side
$q_V$ = Air flow · $p_{fs}$ = Pressure increase



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