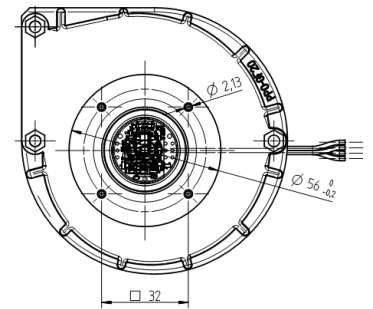
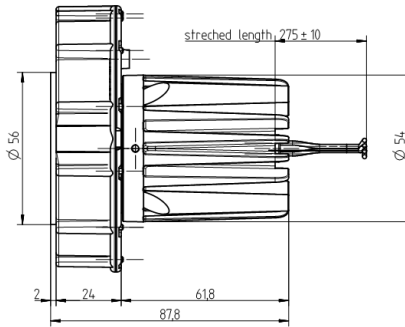
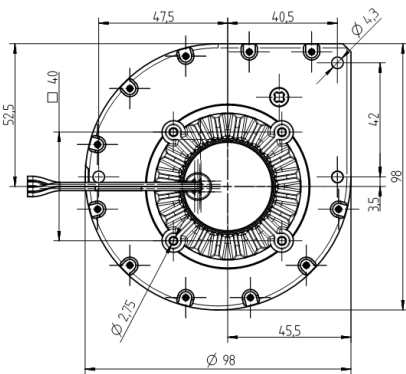
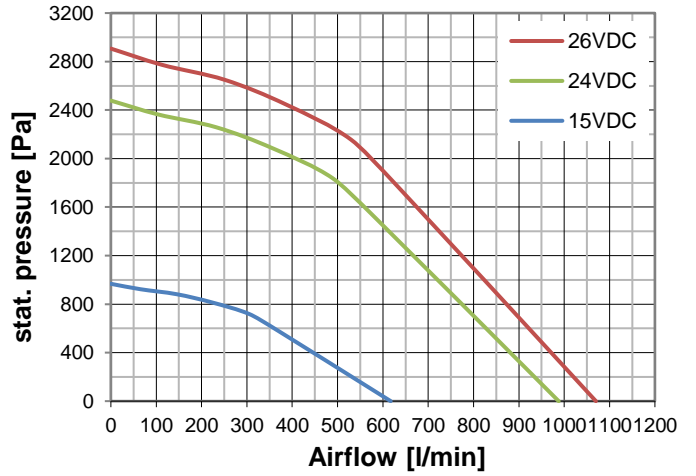
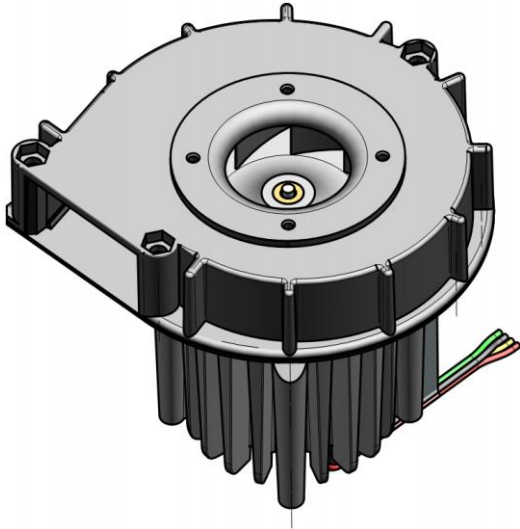


**Miniatur Radial Gebläse mit integrierter Elektronik**  
**Miniature Radial Blower with integrated electronic**



Direction of rotation CCW



## Technische Daten

### Allgemeine Beschreibung

Kompakter Lüfter mit effizientem Motor. Eigenschaften: Gehäuse: PSU, Flügelrad: PPE. Bürstenloser und sensorloser 3-Phasen Motor mit integrierter Treiber Elektronik. Anschluss über Einzelleitungen (AWG24).

## Technical data

### General description

Compact blower with an efficient motor. Features: housing: PSU, impeller: PPE. Brushless and sensorless 3-Phase motor with integrated driver electronic. Connection via single leads AWG 24.

|                                 |                   | U97HL-024KM-4                                   |
|---------------------------------|-------------------|---|
| U <sub>N</sub>                  | VDC               | 24  |
| U                               | VDC               | 15 - 26   |
| I <sub>N</sub> freeblowing      | mA                | 1'500   |
| I <sub>N</sub> typ. work. point | mA                | 1'270   |
| I <sub>N</sub> static           | mA                | 740   |
| P <sub>N</sub> typ. work. point | W                 | 30.5  |
| n freeblowing                   | min <sup>-1</sup> | 18'270  |
| n typ. work. point              | min <sup>-1</sup> | 18'560  |
| n static                        | min <sup>-1</sup> | 19'420  |
| V freeblowing                   | l/min             | 990   |
| V typ. work. point              | l/min             | 360   |
| p work. point                   | Pa                | 2'090   |
| p static                        | Pa                | 2'480   |
| LpA (WP)                        | dB(A)             | 73.6 dB(A) at 1000 Pa (10 mbar) and 1m distance |
| T                               | °C                | -20...+45                                       |
| m                               | gr                | 358   |
| Leads                           | mm                | 275 (AWG24)                                     |
| Housing material                |                   | PSU   |
| Impeller material               |                   | PPE   |
| Sleeve Bearing                  |                   | N/A   |
| Ball Bearing                    |                   | •   |
| Tacho                           |                   | •   |

Data's at Density: 1.2kg/m<sup>3</sup>

U97HL-024KM-4

**Electrical connection**

|                 | Description                  | Lead wire | Diagram   |
|-----------------|------------------------------|-----------|---|
| FG              | Frequency Generator (output) | yellow    |  |
| SP              | Set speed (input)            | Green     |   |
| V <sub>cc</sub> | + Power                      | Red       |   |
| GND             | Ground                       | Black     |   |

**Blower Features**

- Integrated speed control input
- FG frequency signal output
- ON / OFF control by logic signal
- Locked rotor protection
- Power supply overvoltage protection: maximum 28VDC
- ESD Protection 16 kV
- SURGE and burst protection 600W 10/1000 µm
- Polarity protection

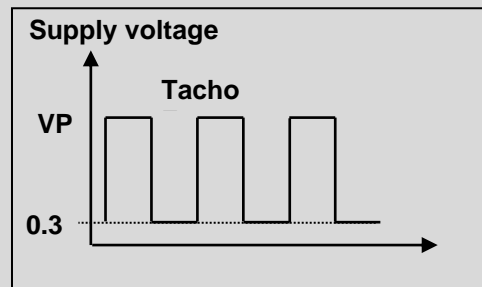
**FG Frequency signal (yellow wire)**

Speed calculation

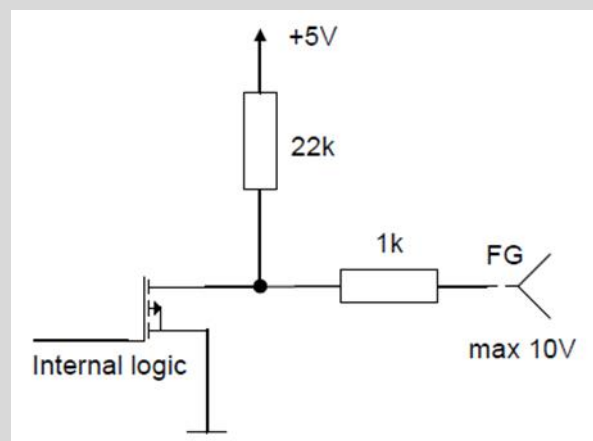
$$f * 20 = \text{rpm (3 pulse / rotation)}$$

f = FG Frequency Generator [Hz]

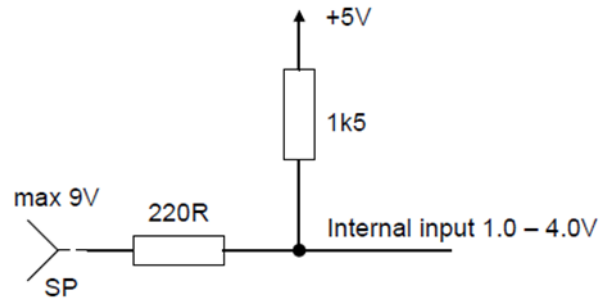
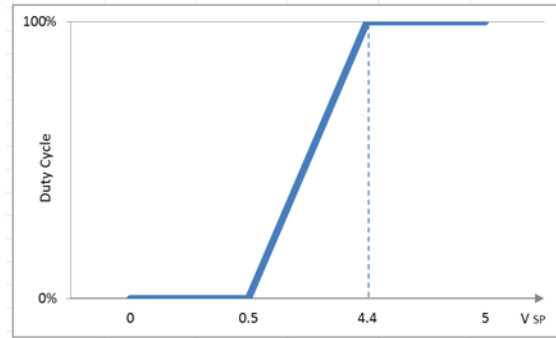
rpm = Rotation speed [min<sup>-1</sup>]



Pull-up resistor (22kOhm) to 5 V is integrated. Do not connect to V<sub>cc</sub>!



**SP Set speed  
(green wire)**



|                      |               |                                  |
|----------------------|---------------|----------------------------------|
| <b>Input voltage</b> | 0 – 0.5 VDC   | → Stop                           |
|                      | 0.5 – 2.0 VDC | → Starting (not guaranteed)      |
|                      | 2.0 – 4.4 VDC | → Fan is running compared to VDC |
|                      | 4.4 – 5.0 VDC | → Fan is running with 100% speed |

>> or >>

|                       |  |                                  |
|-----------------------|--|----------------------------------|
| <b>Input resistor</b> | Connect between SP (green) and GND (black) |                                  |
|                       | < 0.4 kΩ                                   | → Stop                           |
|                       | 0.4 – 1.2 kΩ                               | → Starting (not guaranteed)      |
|                       | 1.2 – 7.5 kΩ                               | → Fan is running compared to VDC |
| > 7.5 kΩ              | → Fan is running with 100% speed           |                                  |

|                         |                               |
|-------------------------|-------------------------------|
| <b>SP not connected</b> | Blower operates at 100% Speed |
| <b>SP to GND</b>        | Speed zero → Stop             |

**Blower limits during continuous operation and warning**

- Max. allowed temperature on heat sink surface: 65° C
- Maximum speed 25'000 1/min
  
- **As a result of the sensorless driver technology, the startup behavior may be impaired under certain operating conditions. For safe start-up under all operating conditions, we recommend the use of a Hall sensor drive system or the use of an external monitoring function.**
  
- **Handle only in currentless condition**

**Power supply requirement**      Ripple voltage < 5%  
3000 mA

**Info**

**Specifications are subject to change without notice.  
Specifications on this Datasheet are for reference.**

Version: 24.11.2022 / DH

Doc: U97HL-024KM-4 with integrated electronics.doc