Specification

Radial Blower U100H4-024KA-4

General Information

Item	
Product type	Radial blower with integrated electronic motor driver
Part no.	U100H4-024KA-4
Manufacturer	Micronel AG
Customer	N/A
Project no.	N/A
Modification	Standard product

Description

This ruggedized and IP67 proof, versatile 24 VDC blower offers standardized scew tubing connection for pressure and vacuum applications in super harsh, industrial environments. The integrated brushless driver provides set-speed input and tacho output. For the M16 cable connector we offer different mating cable harnesses.

SWISS ENGINEERED

CE

REACh Compliant

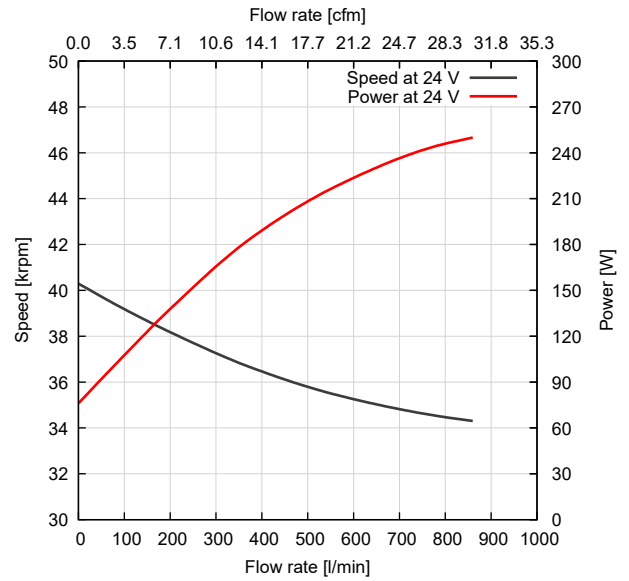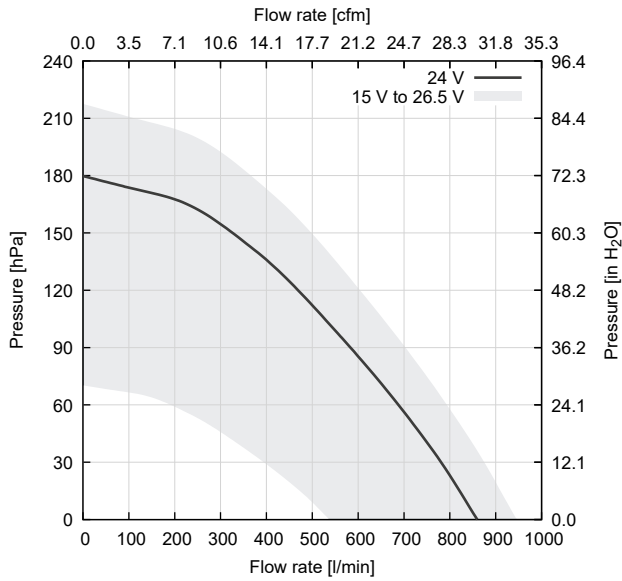RoHS III Compliant

Features

- Static Pressure: 180 hPa, freeflow: 860 l/min
- 24 V_{DC} brushless DC-motor
- Solid full aluminum housing
- For harsh industrial environments
- Ingress protection (EN60529) IP67
- Speed control and tacho frequency output
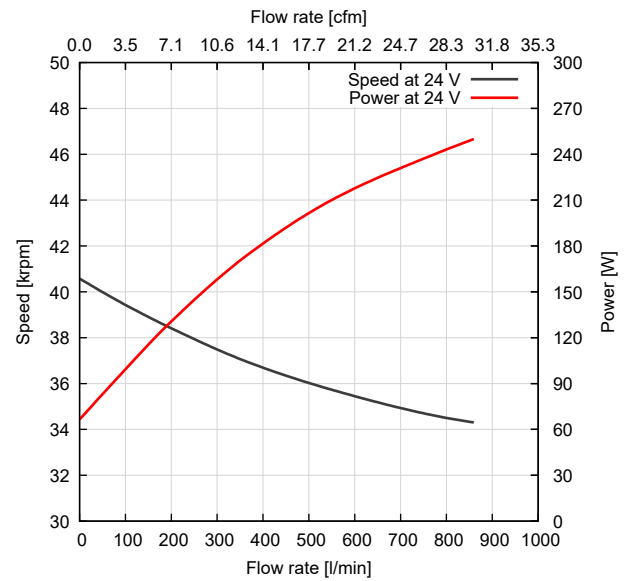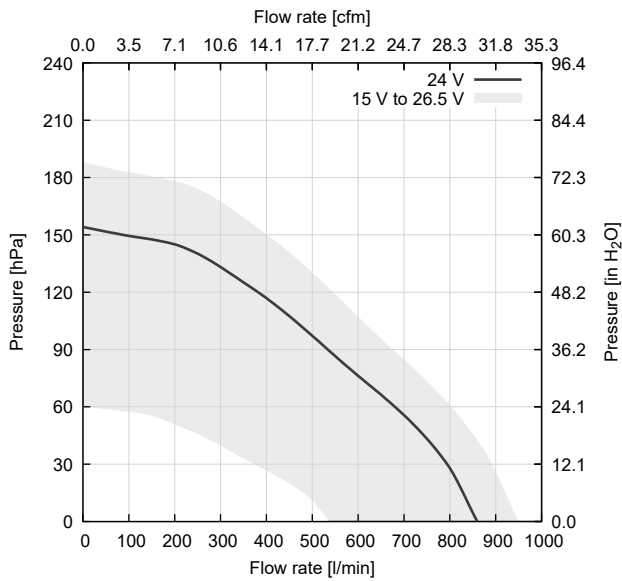- G3/4 inch thread at inlet and outlet

General Conditions

Unless otherwise stated all data are measured at nominal voltage and are valid at 20 °C ambient temperature and 1.2 kg/m³ standard air density. Values listed are nominal and can vary depending on the installation conditions and due to component tolerances. Test setup according to ISO 5801 with standardized inlet and outlet chambers. Tolerances based on specified speed data according to ISO 13348, grade 4: pressure +/-10 %, power +16 %. Tolerances based on constant voltage: speed +/-10 %, pressure +/-21 %, power +33 %. For continuous blower operation please refer to specified maximum ratings. Performance data outside normal operating range plotted for information only.

Performance

Pressure Operation at Outlet

Vacuum Operation at Inlet

Shut-Off in Pressure Operation (Zero Flow Rate)	Unit	Value
Static pressure	[hPa]	180
Power consumption	[W]	76
Speed	[rpm]	40 300

Shut-Off in Vacuum Operation (Zero Flow Rate)	Unit	Value
Static pressure	[hPa]	154
Power consumption	[W]	67
Speed	[rpm]	40 600

Free-Air (Zero Static Pressure)	Unit	Value
Flow rate	[l/min]	860
Power consumption	[W]	250
Speed	[rpm]	34 300

Technical Data

Electrical	Unit	Value
Nominal voltage	[V_{DC}]	24
Voltage range	[V_{DC}]	15 to 26.4
Minimum power supply current[1]	[A]	12.5
Maximum start-up time	[s]	3.2
Maximum ripple voltage	[%]	5

Maximum Ratings for Continuous Operation	Unit	Value
Minimum flow rate	[l/min]	170
Maximum speed	[rpm]	39 500
Maximum acceleration	[rpm/ms]	N/A
Maximum power consumption	[W]	240
Maximum housing surface temperature	[°C]	75
Maximum NTC temperature	[°C]	75

Environmental	Unit	Value
Ambient temperature (operating)	[°C]	-20 to 45
Ambient temperature (storage)	[°C]	-20 to 65
Relative humidity (noncondensing)	[% RH]	10 to 85
Ingress protection (EN60529)		IP67
Maximum oxygen concentration	[%]	21

Motor		Value
Type		Brushless direct current motor
Winding insulation class		H, 180 °C
NTC type		TDK NTCG164KF104F -40 to 125 °C, 100 kΩ, $B_{25/100}$ = 4508 K

Lifetime	Unit	Value
L10 at 25 °C ambient temperature[2]	[h]	20 000

Acoustics	Unit	Value
Sound pressure level[3]	[dB(A)]	56

Leak Tightness	Unit	Value
Maximum leak flow rate	[l/min]	N/A

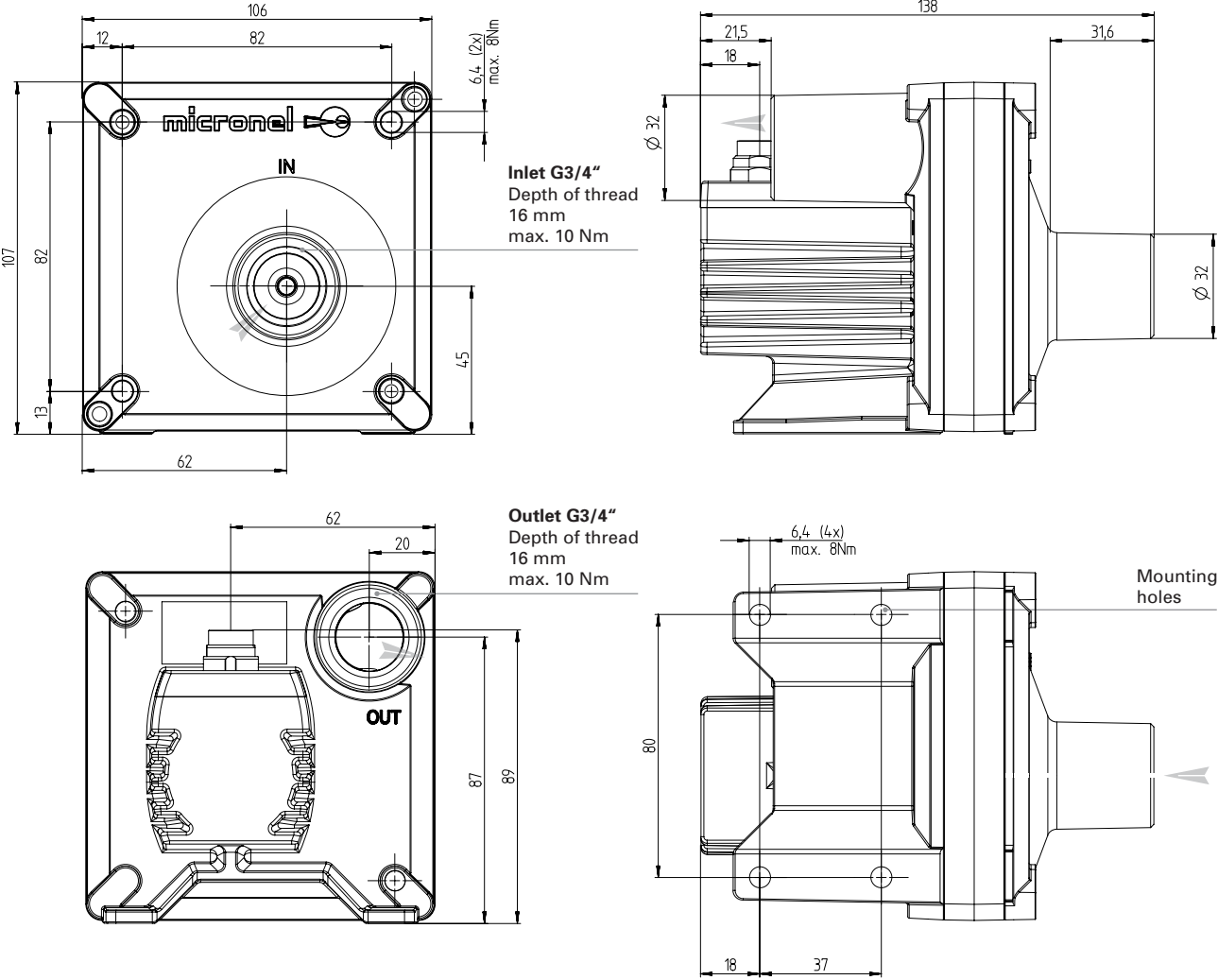| Mechanical	Unit	Value
Blower weight	[g]	1 200

[1] Recommended minimum continuous power supply current for proper start-up behavior at nominal voltage. This is an indicative value. Power supply dimensioning, wiring, safety, setup and validation is the customer's responsibility.

[2] Continuous operation, normal cleanliness according to ISO 281. Temperature dependency of lifetime according to IPC-9591: factor 1.5 per 10 °C.

[3] Measured at distance of 1 meter from inlet, with hose connected to inlet and outlet.

Drawings

Dimensions in mm

Inlet G3/4"
Depth of thread
16 mm
max. 10 Nm

Outlet G3/4"
Depth of thread
16 mm
max. 10 Nm

Mounting holes

Orientations

Direction of rotation	↻ Counter-clockwise (view on inlet)
Mounting position	Any direction

Materials

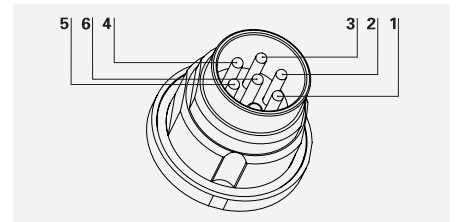| Components	Material
Fan housing	Aluminum
Impeller	Polyamide (PA6)
Hub	Stainless steel
Motor housing	Aluminum
Label	Polyester, Flammability: UL 969
Connector	Body: Nickel plated brass Pin contacts: Brass, gold plated Protection class: IP67
Crimp terminal	N/A
Lead wire	N/A

Identification

Label

Design	
Part number	**U100H4-024KA-4**
Voltage	24 VDC

micronel

Micronel AG
CH-8317 Tagelswangen
Micronel Radial Blower
U100H4-024KA-4
2045 508574 011
24 VDC

CE

**MANUFACTURED
IN SWITZERLAND**

Identification number
• Year, calendar week (YYWW)
• Fabrication number (6 digits)
• Serial number (3 digits)

Blower Pinout

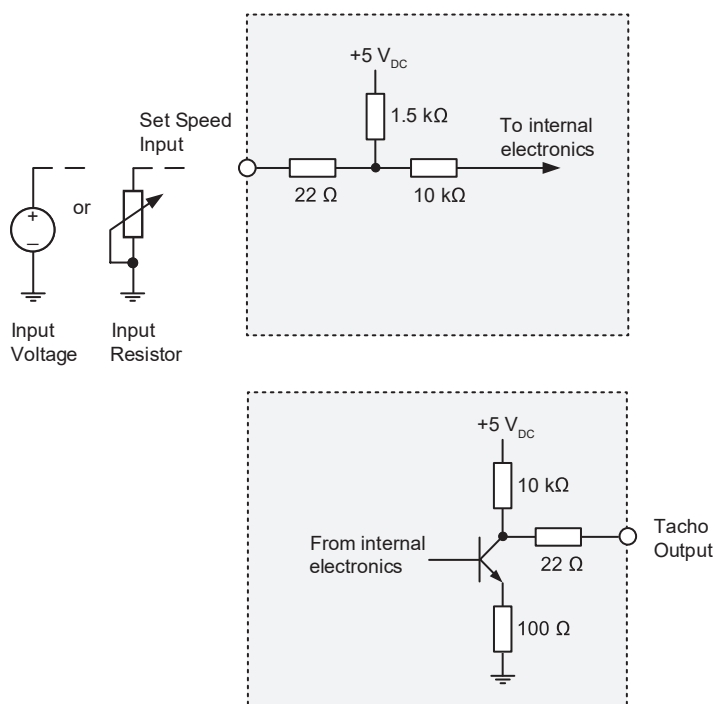| Pin	Color	Description	AWG
1	N/A	NTC$^+$	N/A
2	N/A	V_{CC}	N/A
3	N/A	GND	N/A
4	N/A	Set speed input	N/A
5	N/A	Tachometer output	N/A
6	N/A	NTC$^-$	N/A

5 6 4   3 2 1

Electronic Functions

Integrated Electronic Motor Driver

Type	Micronel brushless direct current motor driver
Features	• Integrated speed control (voltage / resistor) • Tachometer frequency signal • Locked rotor protection

Set Speed Input

+5 V_{DC}

1.5 kΩ

To internal electronics

22 Ω

10 kΩ

or

Input Voltage

Input Resistor

Speed Control Input

The blower speed can be controlled either by input voltage or input resistor value. See „Set Speed Input" tables for further details

+5 V_{DC}

10 kΩ

From internal electronics

22 Ω

Tacho Output

100 Ω

Tachometer Output

Tachometer frequency:
3 pulses per revolution

n = 20 · f

n Rotation speed [rpm]

f Tacho frequency [Hz]

Electronic Functions

Set Speed Input Voltage [V_{DC}]	Operation Mode
Set speed not connected	Blower speed at 100 %
Set Speed to ground	Stop
0.0	Stop
0.2 to 1.5	Not defined, blower might run or stop
2.0	Minimum start-up voltage
1.5 to 4.5	Blower speed depends on input voltage
4.5 to 5.0	Blower speed at 100 %

Set Speed Input Resistor [$k\Omega$]	Operation Mode
Set speed not connected	Blower speed at 100 %
Set speed to ground	Stop
0.0 to 0.047	Stop
0.047 to 0.72	Not defined, blower might run or stop
1.0	Minimum start-up resistance
0.72 to 6.8	Blower speed depends on resistor value
> 6.8 or open input	Blower speed at 100 %

Accessories

Not included!

Micronel Cable U100X-M16 6-Pol

Suitable for blower
Micronel Radial Blower
U100UL-024KA-4

Micronel Cable U100X-M16 6-Pol

Suitable for blower
Micronel Radial Blower
U100UL-024KA-4

⚠ Handle in power-off conditions only!
Read operating manual!

ℹ Please see separate accessories list or contact Micronel Sales for a full list of options and accessories.