RG CPAP 24 V (939.3020.016) with 24V power modul sensor less (9920.640.001)

Customer specification: No
Version: 1.0
Created: 19.07.2010
technical project manager: Nocita, Elvis, 560
responsible for technical design: Kieninger, Annemarie, 560

9920640001 ebmpapst Datasheet FansCo
sales@fansco.com
www.fansco.com

INDEX

Special features according to QMH 2-5.4.7 and company standard 1-23.00 have the following definitions:

"A" : Product features or process parameters which influence the safety of a product or the compliance of legal requirements. (Must not necessary verified and documented 100%). Standards and legal requirements must be considered.)

"FK" : Product features or process parameters which influence the fit and function of a product or which have to be controlled or documented for some other reasons (e.g. Customer requirements).

1 General

Fan type	Blower	
Rotational direction looking at rotor	counterclockwise	**FK**
Airflow direction	Air in axially, Air out radially	**FK**
Bearing system	Ball bearing	
Impeller weight	40 g	

2 Mechanics

2.1 General

2.1.1 Blower

Width	78.2 mm	
Height	73.5 mm	
Depth	57.7 mm	
Weight	0.245 kg	
Housing material	Plastic	
Impeller material	Plastic	

2.1.2 External Electronics

Diameter	63.5 mm ± 0.5 mm	
Height	20 mm ± 1 mm	
Weight	0.105 kg	
Housing material	Plastic / PUR	

2.2 Motor

Type of motor	Electronically commutated internal rotor	
Diameter of the motor	30 mm	
Height of the motor	20 mm	
Number of phases	3	
Operating mode	Continuous duty	
Insulation material class	E	

Motor RG CPAP 24 V (9393020016)

Data see section 3. operating data ff. relating to the operation of the motor with external electronics 9920640001.

2.3 Connections

2.3.1 Blower

Electrical connection	Lead wires - plug	
Lead wire length	210 mm ± 10 mm	
Plug	see drawing	
Contact	see drawing	

2.3.2 External Electronics

Electrical connection	Lead wires - plug	
Lead wire length (to customer's interface)	250 mm ± 10 mm	
Lead wire length (to blower interface)	100 mm ± 10 mm	
Plug	see drawing	
Contact	see drawing	

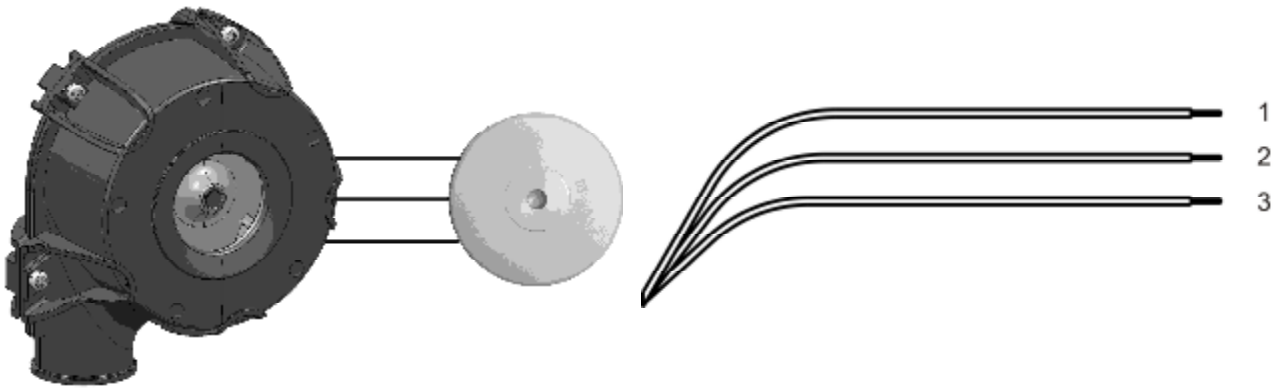
PIN Assignment (towards blower)

U: yellow (PIN 1)
V: violet (PIN 2)
W: brown (PIN 3)

Attention: The inverting of two Motor lead wires turns the rotating direction!

PIN Assignment (towards customer's interface)

	Color	Operation
Wire 1	red	+ UB
Wire 2	blue	- GND
Wire 3	green	CONTR



3 Operating Data

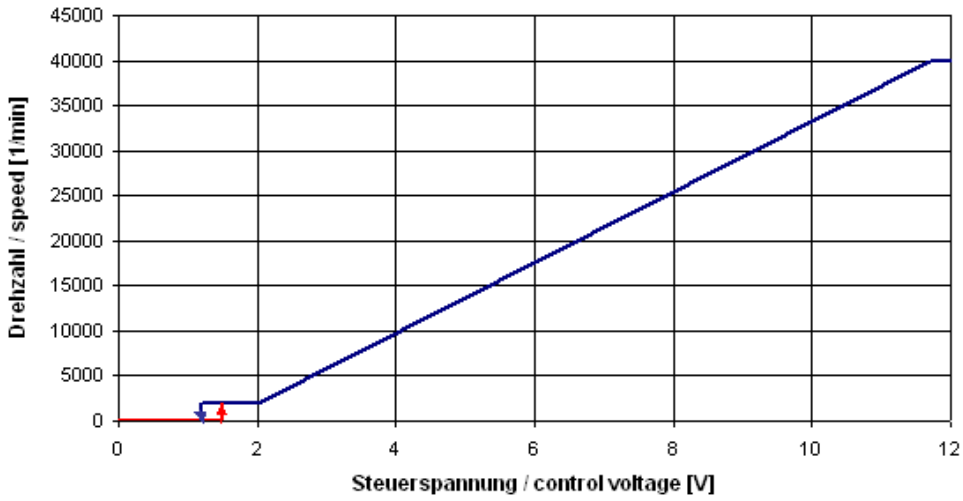
3.1 Operating Data - Electrical Interface - Input

Control input	Analog

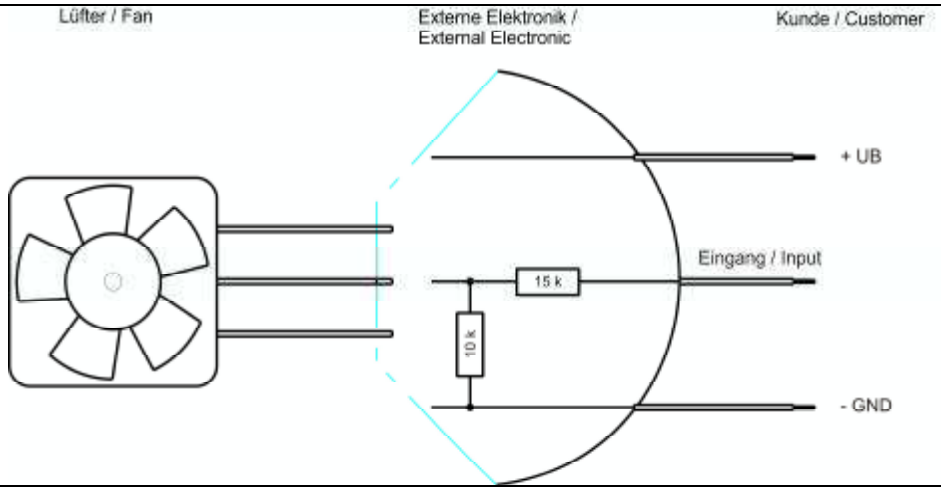
Features

Input voltage range		0 V - 12 V

Characteristics



Schematics



Information to the curve:

>=1.5 V: 2,000 1/min (Fan on, coming from 0 V)
2 V – 11.7 V: Linear increasing curve
11.7 - 12 V: 40,000 1/min
<=1.2 V: 0 1/min (Fan off, coming from 12 V)

3.2 Electrical Operating Data

Measurement conditions:	Normal air density = 1.2 kg/m3; Temperature 23°C +/- 3°C; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified).In the intake and outlet area there may not be any solid obstruction within 0.5 m.

Δp = 0: corresp. to free air flow
I: corresp. to arithm. mean current value

Name	**Condition**				
U Contr. 0001			U Contr. min.: 11.7 V		U Contr. max.: 12.0 V
Features	**Condition**	**Symbol**	**Values**		
Voltage range	Δp = 0	U	16.0 V		30.0 V
Nominal voltage	Δp = 0	U_N		28.0 V	
Power consumption	Δp = 0 U Contr. 0001	P	14.0 W	48.0 W	48.0 W
Current consumption	Δp = 0 U Contr. 0001	I	900 mA	1,700 mA*)	1,600 mA
Speed	Δp = 0 U Contr. 0001	n	26,000 1/min	40,000 1/min*)	40,000 1/min

In the fan is an additionally under- and overvoltage control build-in. This switches the power stage and the fan off.
At U < 13.0 V and / or U > 35.0 V is n= 0 1/min

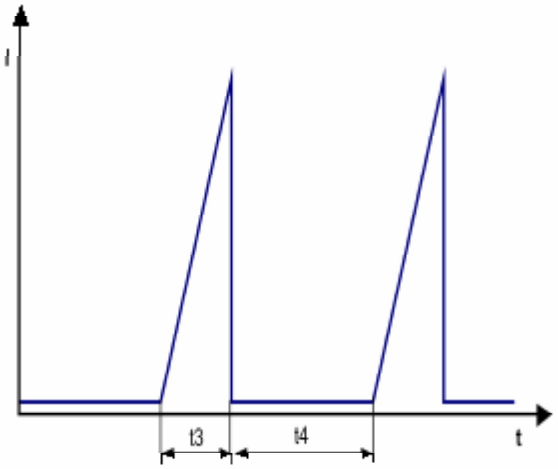
Name	**Condition**				
U Contr. 0002			U Contr. min.: 1.5 V		U Contr. max.: 2 V
Features	**Condition**	**Symbol**	**Values**		
Voltage range	Δp = 0	U	16.0 V		30.0 V
Nominal voltage	Δp = 0	U_N		28.0 V	
Power consumption	Δp = 0 U Contr. 0002	P	0.5 W	0.8 W	0.9 W
Current consumption	Δp = 0 U Contr. 0002	I	30 mA	29 mA*)	30 mA
Speed	Δp = 0 U Contr. 0002	n	2,000 1/min	2,000 1/min*)	2,000 1/min

Name	**Condition**				
U Contr. 0003			U Contr. min.: 0 V		U Contr. max.: 1 V
Features	**Condition**	**Symbol**	**Values**		
Voltage range	Δp = 0	U	16.0 V		30.0 V
Nominal voltage	Δp = 0	U_N		28.0 V	
Power consumption	Δp = 0 U Contr. 0003	P	0.3 W	0.5 W	0.6 W
Current consumption	Δp = 0 U Contr. 0003	I	18 mA	19 mA*)	20 mA
Speed	Δp = 0 U Contr. 0003	n	0 1/min	0 1/min*)	0 1/min

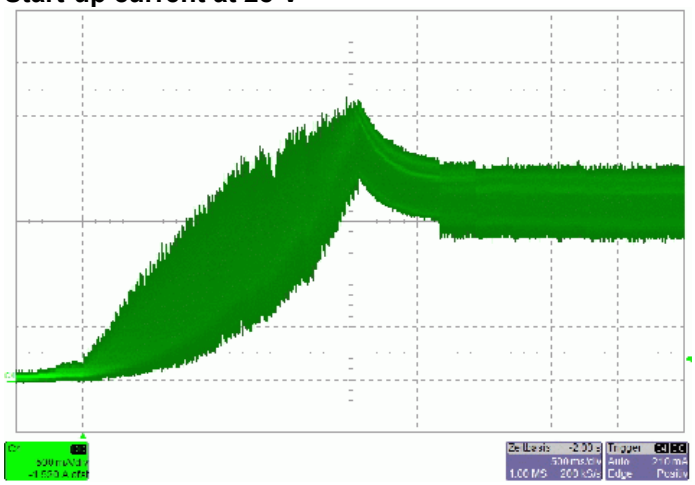
Note:
The start-up currency depends on the electronic capacitor and resistance of the lead wire. It's an 120 uF capacitor build-in.
*) Attention: Marked values are "FK" features

3.3 Electrical Features

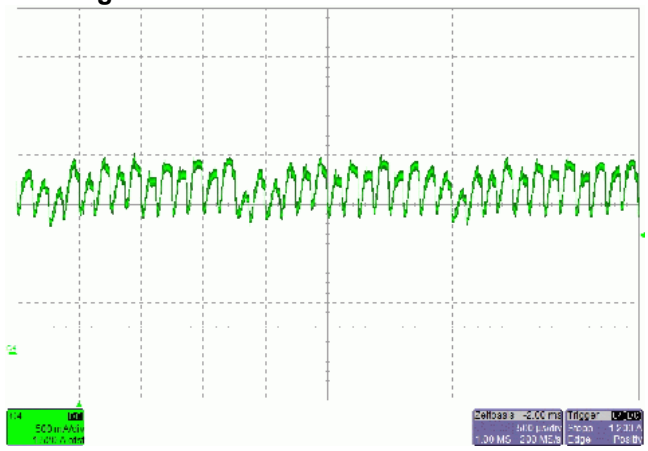
Electronic function	Speed-Controlled	
Reversed polarity protection	N-CH FET	**A**
Locked rotor protection	Electronically restart	**A**
Locked rotor current at Un	approx. 300 mA	
Clock signal t3/t4 at locked rotor	Typical: 1.2 s / 1.2 s	



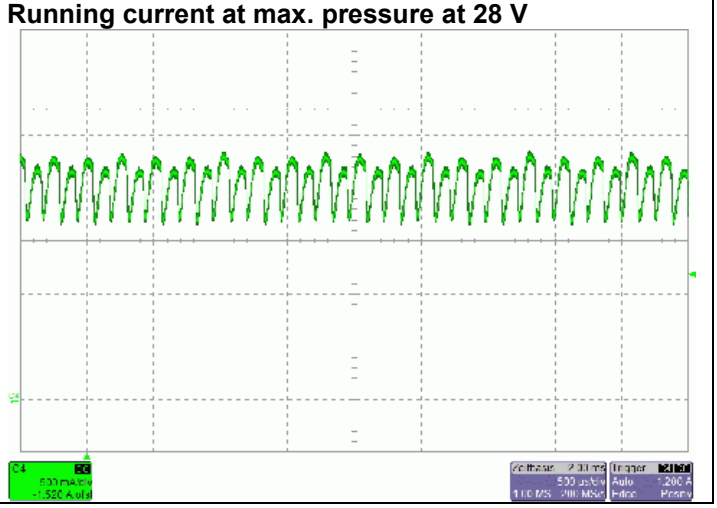
Start-up current at 28 V



Running current at free air at 28 V



Running current at max. pressure at 28 V



4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C (0 °C)*	
Max. permitted ambient temperature TU max.	+75 °C (+40 °C)*	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

* Values in brackets are related to the blower.

4.2 Climatic requirements*)

*) Permitted application area:
The product is for the use in sheltered rooms with controlled temperature and controlled humidity. Directly exposure to water must be avoided.

4.3 Mechanical requirements

not specified

4.4 EMC

not specified

5 Safety

5.1 Electrical Safety

Dielectric strength DIN EN 60950 (VDE 0805) and DIN EN 60335 (VDE 0700) A.) Type test Measuring conditions: After 48h of storage at 95% R.H. and 25°C. No arcing or breakdown is allowed! All connections together to ground. B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	500 VAC / 1 Min. 500 VAC / 1 Sec.	**A**
Insulation resistance Measuring conditions: After 48h of storage at 95% R.H. and 25°C measured with U=500 VDC for 1 min.	RI > 10 MOhm	
Air and leakage distances	1.0 mm / 1.2 mm	
Protection class	III	

5.2 Approval Tests

CE	No
UL	No
VDE	No
CSA	No
CCC	No