

Product Data Sheet 3412 NGV

**ebmpapst**

The engineer's choice



**3412 NGV**

**INDEX**

<b>1</b>	<b>General .....</b>	<b>3</b>
<b>2</b>	<b>Mechanics .....</b>	<b>3</b>
2.1	General .....	3
2.2	Connections .....	3
<b>3</b>	<b>Operating Data .....</b>	<b>4</b>
3.1	Electrical Interface - Input .....	4
3.2	Electrical Operating Data .....	5
3.3	Electrical Features .....	5
3.4	Aerodynamics .....	6
3.5	Sound Data .....	7
<b>4</b>	<b>Environment.....</b>	<b>7</b>
4.1	General .....	7
4.2	Climatic Requirements.....	7
<b>5</b>	<b>Safety.....</b>	<b>8</b>
5.1	Electrical Safety .....	8
5.2	Approval Tests .....	8
<b>6</b>	<b>Reliability.....</b>	<b>8</b>
6.1	General .....	8

**1 General**

Fan type	Fan	
Rotating direction looking at rotor	Counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Sleeve bearing	
Mounting position - shaft	Any	

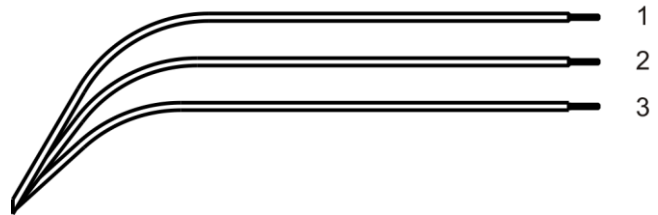
**2 Mechanics**

**2.1 General**

Width	92,0 mm	
Height	92,0 mm	
Depth	25,4 mm	
Mass	0,106 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	Wire outlet corner: 40 Ncm Remaining corners: 60 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	

**2.2 Connections**

Electrical connection	Wires	
Lead wire length	L = 310 mm	
Tolerance	+ - 10,0 mm	



Wire	Color	Operation	Wire size	Insulation diameter
1	red	+ UB	AWG 24	1,55 mm
2	blue	- GND	AWG 24	1,55 mm
3	violet	NTC	AWG 24	1,55 mm

3 Operating Data

3.1 Electrical Interface - Input

Control input	External Temperature Sensor
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Features

<p><b>Characteristics</b></p>	<table border="1"> <caption>Graph Data: Drehzahl / speed [r/min] vs Umgebungstemperatur / Ambient temperature [°C]</caption> <thead> <tr> <th>Umgebungstemperatur / Ambient temperature [°C]</th> <th>Drehzahl / speed [r/min]</th> </tr> </thead> <tbody> <tr><td>-20</td><td>1600</td></tr> <tr><td>-10</td><td>1600</td></tr> <tr><td>0</td><td>1600</td></tr> <tr><td>10</td><td>1600</td></tr> <tr><td>20</td><td>1600</td></tr> <tr><td>30</td><td>1600</td></tr> <tr><td>40</td><td>2100</td></tr> <tr><td>50</td><td>2700</td></tr> <tr><td>60</td><td>2700</td></tr> </tbody> </table>	Umgebungstemperatur / Ambient temperature [°C]	Drehzahl / speed [r/min]	-20	1600	-10	1600	0	1600	10	1600	20	1600	30	1600	40	2100	50	2700	60	2700
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<p><b>Schematics</b></p>	<p>The schematic shows a fan (Lüfter / Fan) connected to a power supply (+ UB) and ground (- GND). The fan's control input (Eingang / Input) is connected to a circuit that includes an internal reference voltage (+ Interne Ref. / + Internal ref.), a resistor, and an NTC (Negative Temperature Coefficient) sensor. The NTC sensor is connected to the input terminal and ground.</p>																				

### 3.2 Electrical Operating Data

Measurement conditions: Normal air density = 1,2 kg/m<sup>3</sup>; Temperature 23°C +/- 3°C; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

$\Delta p = 0$ : corresp. to free air flow (see chapter aerodynamics)  
 I: corresp. to arithm. mean current value

Name	Condition
TU 0001	TU: $\geq 50$ °C
NTC 0001	NTC < 34 kOhm

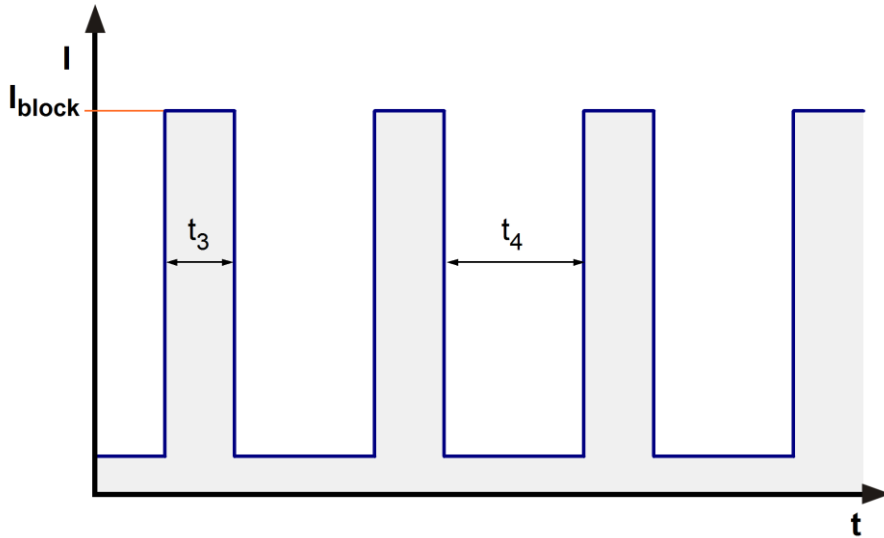
#### Attention!

Fan and NTC must be exposed to the same ambient temperature. It's to exclude that the fan operate at higher ambient temperature and the NTC is placed in a colder environment!

Features	Condition	Symbol	Values		
Voltage range		U	8,0 V		12,6 V
Nominal voltage		$U_N$		12,0 V	
Power consumption	$\Delta p = 0$	P	1,0 W	2,5 W	2,7 W
Tolerance	TU / NTC 0010		+/- 20,0 %	+/- 20,0 %	+/- 20,0 %
Current consumption	$\Delta p = 0$	I	125 mA	208 mA	215 mA
Tolerance	TU / NTC 0010		+/- 20,0 %	+/- 20,0 %	+/- 20,0 %
Speed	$\Delta p = 0$	n	1.700 1/min	2.700 1/min	2.800 1/min
Tolerance	TU / NTC 0010		+/- 10,0 %	+/- 10,0 %	+/- 10,0 %
Starting current consumption				760 mA	

### 3.3 Electrical Features

Electronic function	None
Reversed polarity protection	Rectifying diode
Max. residual current at $U_N$	$I_F \leq 50$ uA
Locked rotor protection	Auto restart
Locked rotor current at $U_N$	$I_{block}$ approx. 760 mA
Clock signal at locked rotor	$t_3 / t_4$ typical: 0,23 s / 1,1 s



### 3.4 Aerodynamics

Measurement conditions:

Measured with a double chamber intake rig acc. to DIN EN ISO 5801.

Normal air density = 1,2 kg/m<sup>3</sup>; Temperature 23°C +/- 3°C;

In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.

The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions.

a.) Operation condition:

2.700 1/min at free air flow	TU >= 50 °C NTC < 34 kOhm		
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Max. free-air flow ( $\Delta p = 0 / \dot{V} = \text{max.}$ )	82,0 m <sup>3</sup> /h	
Max. static pressure ( $\Delta p = \text{max.} / \dot{V} = 0$ )	39 Pa	

**3.5 Sound Data**

Measurement conditions: Sound pressure level: 1 meter distance between microphone and the air intake.  
 Sound power level: Acc. to DIN 45635 part 38 (ISO 10302)  
 Measured in a semianchoic chamber with a background noise level of  $L_p(A) < 5 \text{ dB(A)}$   
 For further measurement conditions see chapter aerodynamics.

a.) Operation condition:

2.700 1/min at free air flow	TU $\geq 50 \text{ }^\circ\text{C}$ NTC $< 34 \text{ k}\Omega$		
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Optimal operating point	57,0 m <sup>3</sup> /h @ 12 Pa	
Sound power level at the optimal operating point	4,6 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	33,0 dB(A)	

**4 Environment**

**4.1 General**

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	65 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

**4.2 Climatic Requirements**

Humidity requirements	humid heat, constant; according to DIN EN 60068-2-78, 14 days	
Water exposure	None	
Dust requirements	None	
Salt fog requirements	None	

Permitted application area:

The product is intended for use in sheltered rooms with controlled temperature and controlled humidity. Directly exposure to water must be avoided.

Pollution degree 1 (according DIN EN 60664-1)

There is either no pollution or it occurs only dry, non-conductive pollution. The pollution has no negative impact.

Please require severity levels and specification parameters from the responsible development departments.

**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.	Not applicable	
B.) Routine test Measuring conditions: At indoor climate. No arcing or breakdown is allowed! All connections together to ground.	Not applicable	
Isolation 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	
Clearance / creepage distance	1,0 mm / 1,2 mm	
Protection class	III	

**5.2 Approval Tests**

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Not applicable

**6 Reliability**

**6.1 General**

Life expectancy L10 at TU = 40 °C	75.000 h	
Life expectancy L10 at TU max.	42.500 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	127.500 h	



