

4414 FN/19NI-197

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1 General

Fan type	Fan	
Rotational direction looking at rotor	counterclockwise	
Airflow direction	Air outlet over struts	
Bearing system	Ball bearing	
Mounting position	any	

2 Mechanics

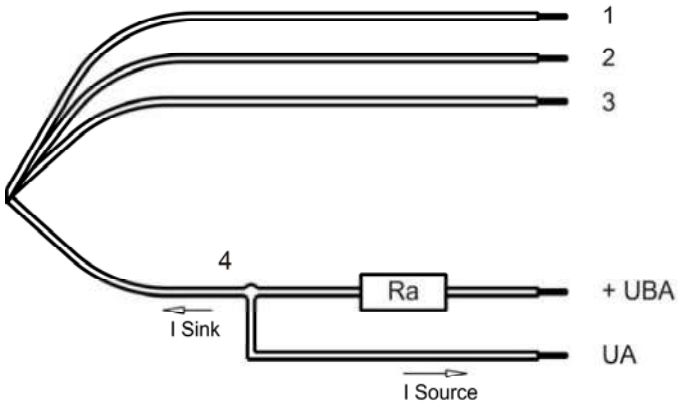
2.1 General

Width	119,0 mm	
Height	119,0 mm	
Depth	25,4 mm	
Weight	0,245 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges Screw size	wire outlet corner: 110 Ncm remaining corners: 110 Ncm ISO 4762 - M4 degreased, without an additional brace and without washer	

2.2 Connections

Electrical connection	Wires - Plug	
Length of lead wire Tolerance		
Wire gauge (AWG)	24	
Insulation diameter	1,55 mm	
Connector + contact	see drawing	





	Colour	Operation
Wire 1	red	+ UB
Wire 2	black	- GND
Wire 3	yellow	BOOST
Wire 4	blue	Alarm

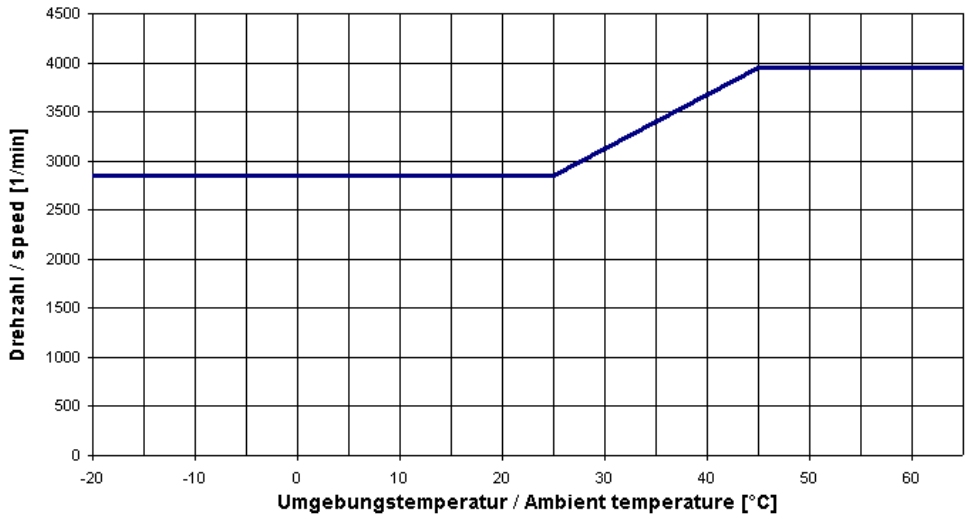
The auxilliaries shown on the schematic diagram (which are required for the intended use) are not part of our delivery.

3 Operating Data

3.1 Operating Data - Electrical Interface - Input

Control input	Internal Temperature Sensor

Features

Characteristics	
Control input	Analog

Features

Inpute type	TTL	

Speed control (yellow lead wire) by Boost-Input (TTL-Level):
<0,8 V --> Speed control by temperature curve
>2,4 V --> Boost-function 3.950 1/min

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 should not be any solid obstruction within 0,5 m.

Δp = 0: corresp. to free air flow (see section 3.5)
I: corresp. to arithm. mean current value

Name	Condition		
TU 0001	TU: > 45 °C		
NTC 0001			

Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	18,0 V		32,0 V
Nominal voltage	Δp = 0	U_N		27,0 V	
Power consumption Tolerance	Δp = 0 TU / NTC 0001	P	2,4 W +- 25,0 %	5,3 W +- 25,0 %	4,6 W +- 25,0 %
Current consumption Tolerance	Δp = 0 TU / NTC 0001	I	130 mA +- 25,0 %	195 mA +- 25,0 %	170 mA +- 25,0 %
Speed Tolerance	Δp = 0 TU / NTC 0001	n	2.700 1/min +- 10,0 %	3.950 1/min +- 6,0 %	3.950 1/min +- 6,0 %
Starting current consumption				1.800 mA	

Name	Condition		
TU 0002	TU: < 25 °C		
NTC 0002			

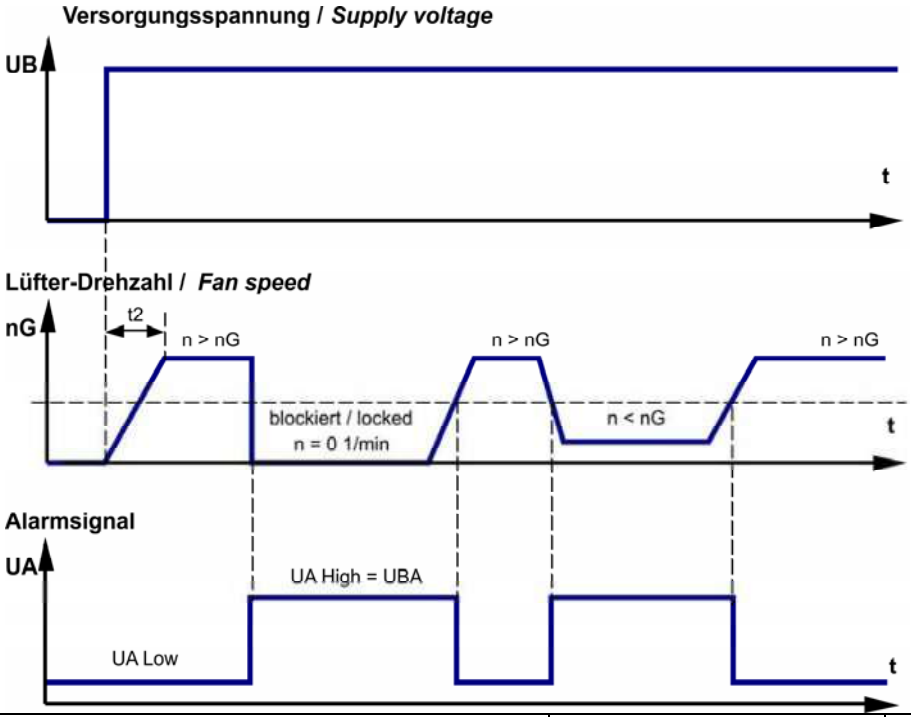
Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	18,0 V		32,0 V
Nominal voltage	Δp = 0	U_N		27,0 V	
Power consumption Tolerance	Δp = 0 TU / NTC 0002	P	2,4 W +- 25,0 %	3,0 W +- 25,0 %	3,5 W +- 25,0 %
Current consumption Tolerance	Δp = 0 TU / NTC 0002	I	130 mA +- 25,0 %	110 mA +- 25,0 %	110 mA +- 25,0 %
Speed Tolerance	Δp = 0 TU / NTC 0002	n	2.700 1/min **)	2.850 1/min **)	2.850 1/min **)

) ***Vario Pro:*	Unless otherwise specified in the table a general fan speed tolerance applies, relating to the maximum value of the required characteristic curve. Tolerance:+- 6,0 %

3.3 Operating Data - Electrical Interface -Output

Tacho type	None

Alarm type	/19 (low = ok, Open collector inverse)

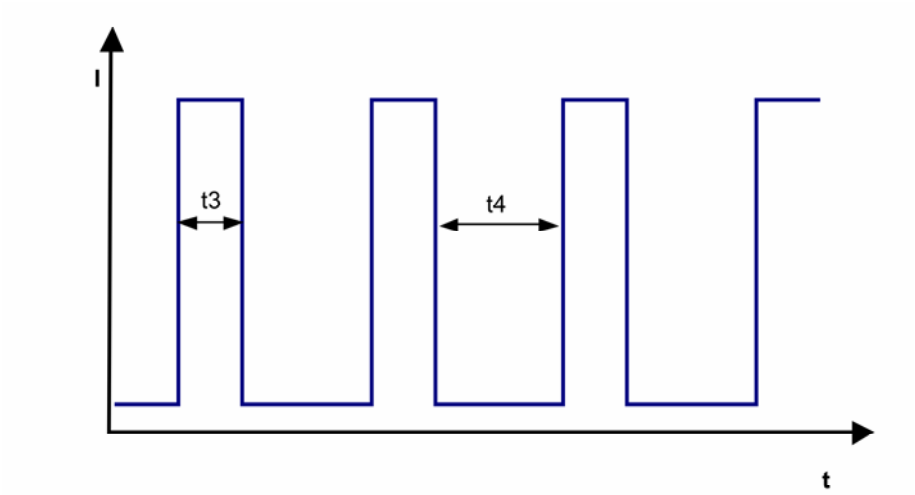


$$Ra = \frac{UBA - UA\ Low}{I\ Sink}$$

Features	Note	Values
Alarm operating voltage (UBA)		<= 60 V
Alarm signal Low *)	I sink: 2 mA	<= 0,4 V
Alarm signal High *)	I source: 0 mA	60 V
Maximum sink current		<= 20 mA
External resistor	External resistor Ra from UBA to UA required. All voltage measured to GND.	
Alarm start-up delay time (t2) Tolerance		10 s +- 4 s
Alarm trip speed limit (nG) Tolerance		1.250 1/min +- 100 1/min
Alarm at sense failure	No	
Alarm latch	No	
Alarm isolated from motor	No	

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at Un	Rectifying diode IF <= 10 mA	
Locked rotor protection	Auto restart	
Locked rotor current at Un	approx. 1.300 mA	
Clock signal t3/t4 at locked rotor	Typical: 0,4 s / 10 s	



4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-20 °C	
Max. permitted ambient temperature TU max.	70 °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	
Radiation exposure	None	
Dust requirements	None	
Salt fog requirements	None	
Harmful gas requirements	None	

*) Permittet 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.

5 Safety

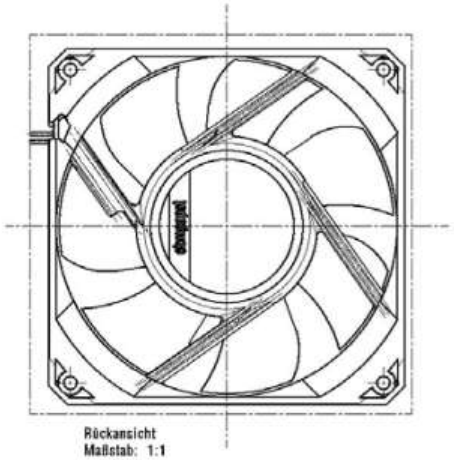
5.1 Electrical Safety

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.	
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	

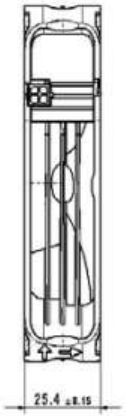
5.2 Approval Tests

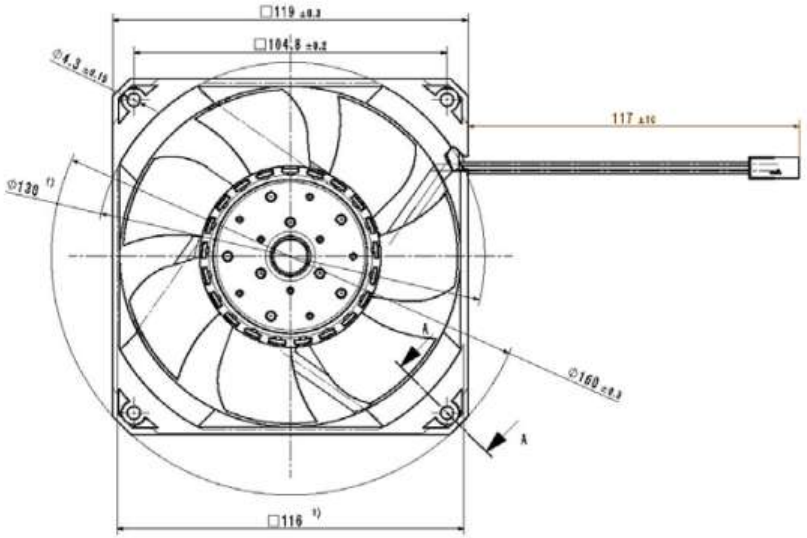
CE	Yes
UL	No
VDE	No
CSA	No
CCC	No

The approval tests are observed to:
Maximal permitted operating voltage (see section 3.1) and max. permitted ambient temperature TU max.



Rückansicht
Maßstab: 1:1



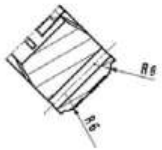




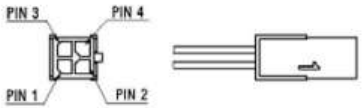
Steckergehäuse / plug housing: Molex 43020-0401
Kontakt / contact: Molex 43031-0003

Steckerbelegung / pin assignment :
Pin 1 = rot / red (UB)
Pin 2 = schwarz / black (GND)
Pin 3 = blau / blue (AILARM)
Pin 4 = gelb/ yellow (BOOST)

A-A



M 2:1



1) Maße für Montagewand

- Axialspiel bei Kugellagerung (K) : 0 (durch Federausgleich)
- Axialspiel bei Gleitlagerung (G) : 0,1bis 0,6

1) measures for mounting cut-out

- axial clearance by ball bearing (K) = 0 (by a pre-loaded spring)
- axial clearance by sleeve bearing (G) = 0,1 to 0,6

Zeichnung entspricht 3D-Modell:
Drawing is equivalent to 3D-Model:
9694398197_000_CPR_-
System: CATIA V5 R 19

axial fan

ebmpapst

5:1