

6318/2TDH4P-009

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6.1 General 12

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

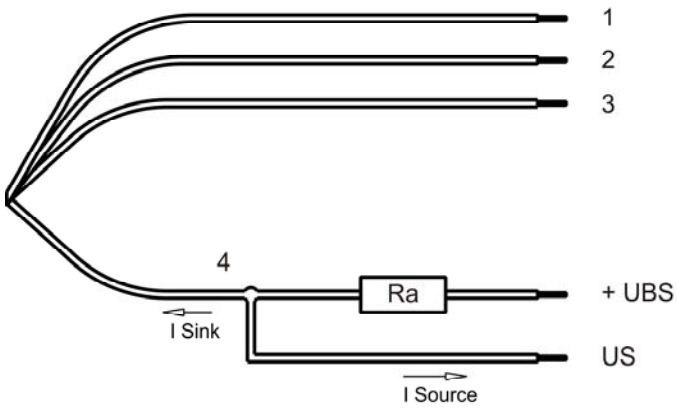
2.1 General

Width	160,0 mm	
Depth	51,0 mm	
Diameter	172,0 mm	
Weight	0,875 kg	
Housing material	Metal	
Impeller material	Plastic	

2.2 Connections

Electrical connection	Wires	
Length of lead wire Tolerance	490 mm +- 10,0 mm	
Length of tube Tolerance	10 mm +- 2,0 mm	
Wire gauge (AWG)	20	
Insulation diameter	2,05 mm	
Contact	see drawing	





	Colour	Operation	plug connection
Wire 1	red	+ UB	Pin 1
Wire 2	blue	- GND	Pin 4
Wire 3	violet	PWM	Pin 3
Wire 4	white	Tacho	Pin 2

3 Operating Data

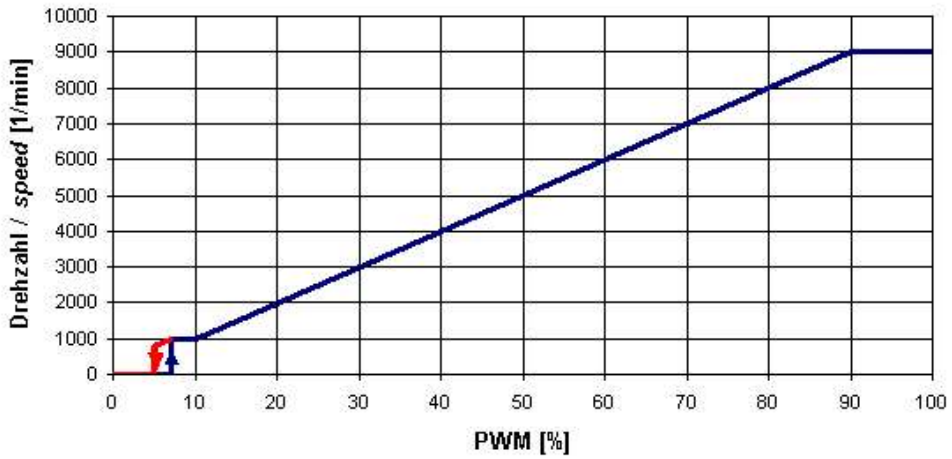
3.1 Operating Data - Electrical Interface - Input

Control input	PWM

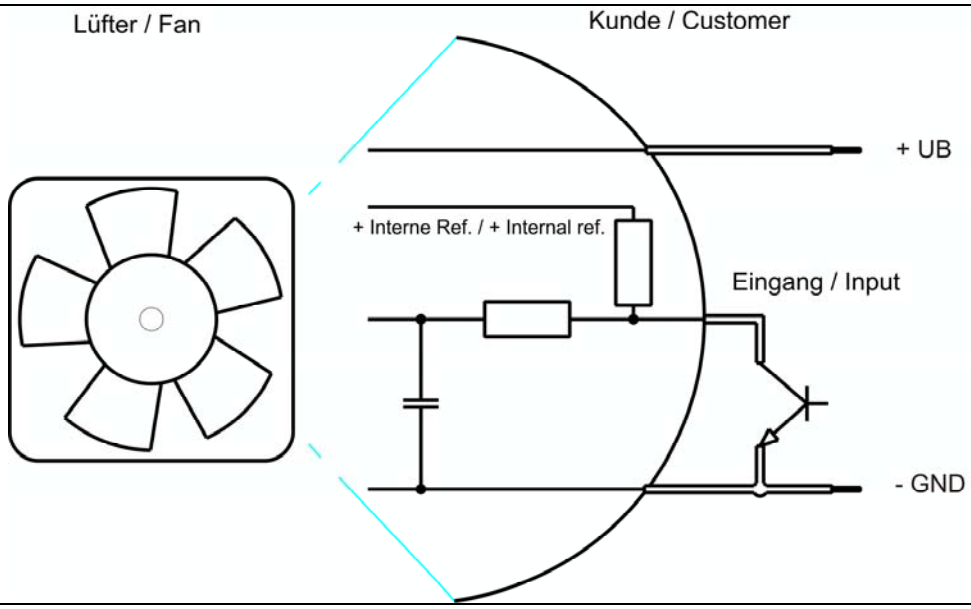
Features

Inpute type	Open collector	
PWM - Frequency		1 kHz - 10 kHz Typical: 2 kHz

Characteristics



Schematics



Information to the curve:

0 % - <=7% PWM:	0 1/min
7 % PWM:	1.000 1/min (Fan on, comming from 0% PWM)
7 % - 10% PWM:	1.000 1/min (corresponding to min. speed)
10 % - 90% PWM:	linear increasing curve
90 % - 100% PWM:	9.000 1/min (corresponding to max. speed)
7 % - 5 % PWM:	linear decreasing curve (comming from 100% PWM)

5 % PWM:	800 1/min or 0 1/min (Fan off, comming from 100% PWM)

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.

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

Name	Condition		
PWM 0001	PWM: 100 %; f: 2 kHz		

Features	Condition	Symbol	Values		
Voltage range	∆p = 0	U	36,0 V		72,0 V
Nominal voltage	∆p = 0	U_N		48,0 V	
Power consumption Tolerance	∆p = 0 PWM 0001	P	100,5 W +- 10,0 %	135 W +- 10,0 %	137 W +- 10,0 %
Current consumption Tolerance	∆p = 0 PWM 0001	I	2.790 mA +- 10,0 %	2.810 mA +- 10,0 %	1.900 mA +- 10,0 %
Speed Tolerance	∆p = 0 PWM 0001	n	8.180 1/min +- 5,0 %	9.000 1/min +- 5,0 %	9.000 1/min +- 5,0 %

100% PWM; f = 2 kHz or broken lead wire (open control input)

In the fan is an additionally under- and overvoltage control build-in. This switches the power stage and the fan off.
At U <= 32 V and / or U >= 80 V is n= 0 1/min

Tests at U <= 32 V only.

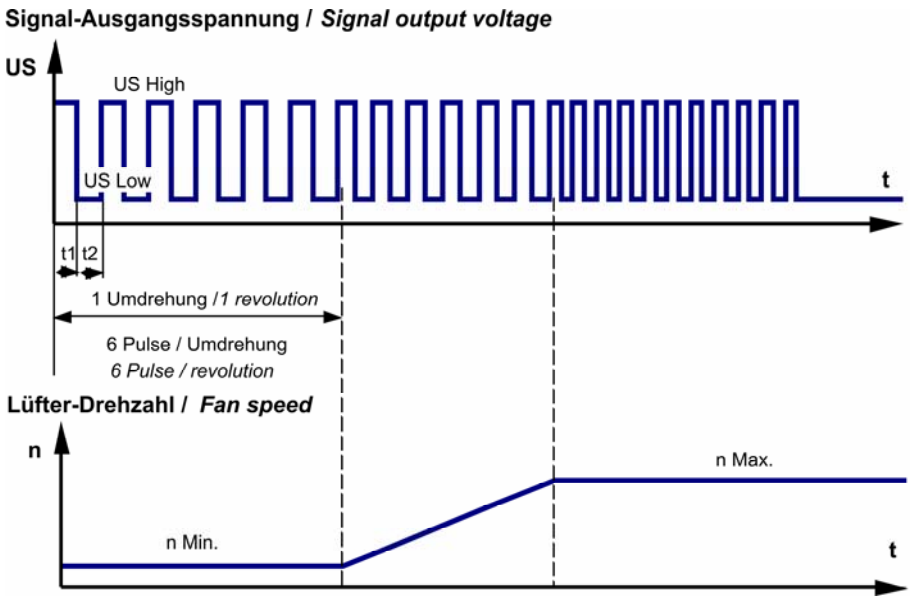
Measured values at 24°C:
U ON = 33,7 V; U OFF = 31,7 V
U ON = 74,8 V; U OFF = 77,2 V
The values depends on temperature and fan speed, i. e. they may differ minimal and provide a basis.

Name	Condition		
PWM 0002	PWM: 50 %; f: 2 kHz		

Features	Condition	Symbol	Values		
Voltage range	Δp = 0	U	36,0 V		72,0 V
Nominal voltage	Δp = 0	U_N		48,0 V	
Power consumption Tolerance	Δp = 0 PWM 0002	P	25,0 W +- 10,0 %	26 W +- 10,0 %	28,5 W +- 10,0 %
Current consumption Tolerance	Δp = 0 PWM 0002	I	695 mA +- 10,0 %	540 mA +- 10,0 %	395 mA +- 10,0 %
Speed Tolerance	Δp = 0 PWM 0002	n	4.860 1/min +- 5,0 %	4.870 1/min +- 5,0 %	4.870 1/min +- 5,0 %

3.3 Operating Data - Electrical Interface -Output

Tacho type	/2 (Open collector)



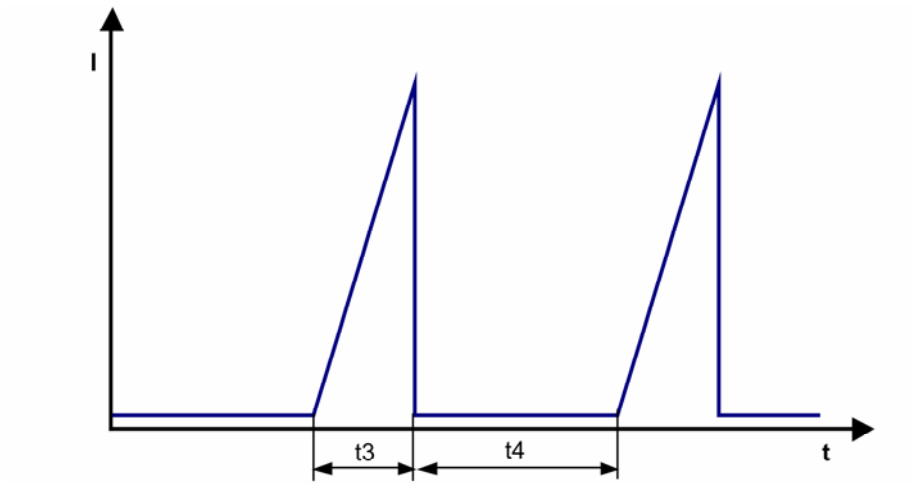
$$Ra = \frac{UBS - US\ Low}{I\ Sink}$$

Features	Note	Values
Tacho operating voltage (UBS)		<= 60 V
Tacho signal Low	I sink: 2 mA	<= 0,4 V
Tacho signal High	I source: 0 mA	<= 60 V
Maximum sink current		<= 20 mA
External resistor	External resistor Ra from UBS to US required. All voltages measured to GND.	
Tacho frequency	(6 x n) / 60	
Tacho isolated from motor	No	
Slew rate		=> 0,5 V/us

Alarm type	None

3.4 Electrical Features

Electronic function	Speed-Controlled	
Reversed polarity protection Max. residual current at Un	P-CH FET IF <= 5 mA	
Locked rotor protection	Auto restart	
Locked rotor current at Un		
Clock signal t3/t4 at locked rotor	Typical: 2,5 s / 10 s	



3.5 Aerodynamic

Measurement conditions:	Measured with a double chamber intake rig acc. to DIN EN ISO 5801. Normal air density = 1,2 kg/m3; Temperature 23°C +/- 3°C; In the intake and outlet area should not be any solid obstruction within 0,5 m.

a.) Operation condition:

9.000 1/min at free air flow	PWM 100 %; f: 2 kHz		

Max. free-air flow (Δp = 0 / $\dot{V}$ = max.)	890 m3/h	
Max. static pressure (Δp = max. / $\dot{V}$ =0)	1.200 Pa	

3.6 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 Lp(A) < 5 dB(A) For further measurement conditions see section 3.5

a.) Operation condition:

at free air flow	

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.**Mechanical requirements**

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.	1000 VAC / 1 Min. 1000 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	
Air and leakage distances	1,0 mm / 1,5 mm	
Protection class	I	

5.2 Approval Tests

CE	No
UL	Yes / UL audited by CSA according to UL507, Electric Fans
VDE	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Yes / CSA audited by UL according to C22.2 No. 113 Fans and Ventilators
CCC	No

The approval tests are observed to:
U approval max.:65,0 V @ TU approval max.: 72,0 °C

6 Reliability

6.1 General
