DC Axial Fans

ebmpapst

Series 4200, Type 4214 119 x 119 x 38 mm

- DC fans with electronically commutated external rotor motor. Fully integrated commutation electronics.
- With electronic protection against reverse polarity, blocking and overloading by PTC-resistor; partially impedance protected.
- Fan of fibreglass reinforced plastic. PBTP housing, PA impeller.
- Air exhaust over struts. Rotational direction CCW looking at rotor.
- Optional Vario-Pro: Highly adaptable software configuration of the fan enables a tailor-made solution to the specific requirements of your applications.
- Electrical connection via 2 leads AWG 22, TR 64. Stripped and tinned ends.
- Mass 290 g.

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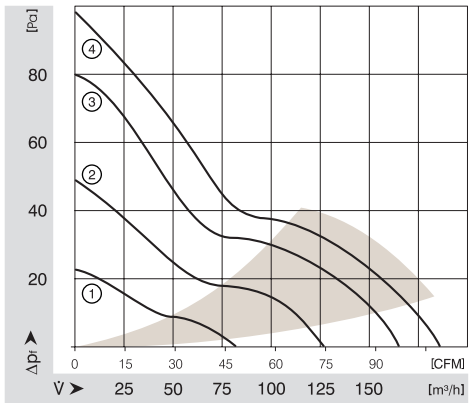
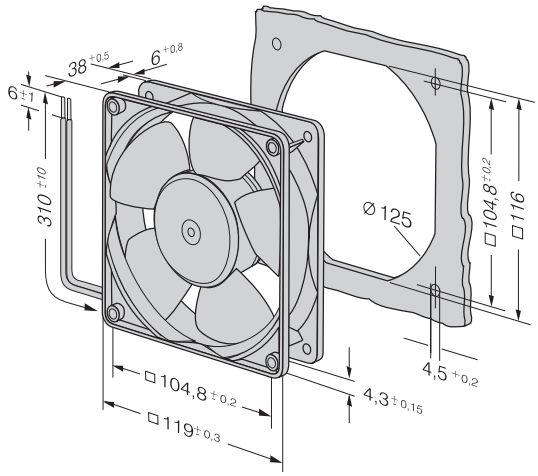
Nominal Data	Air Flow	Air Flow	Nominal Voltage	Voltage Range	Noise		Sintec-Sleeve Bearings Ball Bearings	Power Input	Nominal Speed	Temperature Range	Service Life L_{10} at 40 °C	at t_{max}	Curve
Type	**m^3/h**	**CFM**	**V DC**	**V DC**	**dB(A)**	**Bel**	□ / ■	**Watt**	**min^{-1}**	**°C**	**Hours**	**Hours**	
4212 L	86	50.6	**12**	7...14.5	29	4.2	■	1.2	1 600	-20...+75	80 000 / 35 000		1
4212 GM	127	74.7	**12**	7...14.5	38	4.9	▪	2.2	2 350	-20...+75	70 000 / 30 000		2
4212 M	127	74.7	**12**	7...14.5	38	4.9	■	2.2	2 350	-20...+75	70 000 / 30 000		2
4212	165	97.1	**12**	7...14.5	45	5.6	■	4.3	3 050	-20...+75	62 500 / 27 500		3
4212 H	184	108.3	**12**	7...14.5	49	5.9	■	5.3	3 400	-20...+65	60 000 / 32 500		4
4214 L	86	50.6	**24**	12...28	29	4.2	■	1.2	1 600	-20...+75	80 000 / 35 000		1
4214 G	165	97.1	**24**	12...28	45	5.6	▪	4.3	3 050	-20...+75	62 500 / 27 500		3
4214	165	97.1	**24**	12...28	45	5.6	■	4.3	3 050	-20...+75	62 500 / 27 500		3
4214 H	184	108.3	**24**	12...28	49	5.9	■	5.3	3 400	-20...+65	60 000 / 32 500		4
4218	165	97.1	**48**	36...56	45	5.6	■	4.3	3 050	-20...+75	62 500 / 27 500		3
4218 H	184	108.3	**48**	36...56	49	5.9	■	5.6	3 400	-20...+65	60 000 / 32 500		4





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Sensor signal /2

- Speed-proportional rectangular pulse for external speed monitoring of fan motor
- 2 pulses per revolution
- Open-Collector signal output
- Extremely wide operating voltage range (5 ... 60 V)
- Easy adaptation to user interface
- Connection via separate lead
- The sensor signal also serves as a major comparison variable for setting and maintaining the desired speed for interactive or controlled cooling with one or several interconnected fans.

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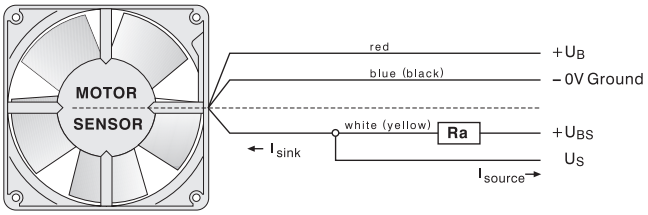
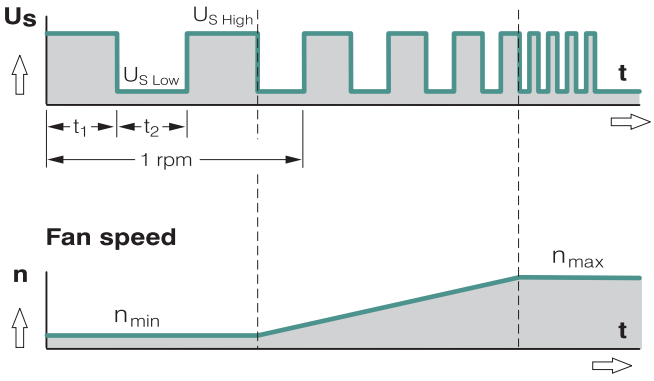
Electrical connection



$$R_a = \frac{U_{BS} - U_{SLOW}}{I_{SINK}}$$

All voltages measured to ground.
External load resistance Ra from US to UBS required.

Signal output voltage



Signal symmetry [t_1, t_2] = 0.8 … 1.2
Signal frequency [F] = 2 x n/60 Hz

Attention:
With these fan options, deviations in regard to temperature range, voltage range and power consumption are possible compared with standard fan data.

Signal data	Sensor signal U_S Low	Condition: I_{sink}	Sensor signal U_S High	Condition: I_{source}	Sensor operating voltage U_{BS}	Perm. sink current I_{sink} max.
Type	**V DC**	**mA**	**V DC**	**mA**	**V DC**	**mA**
255 N/2	≤ 0.4	≤ 2	30	0	≤ 30	2
255 H/2	≤ 0.4	≤ 2	30	0	≤ 30	2
252 N/2	≤ 0.4	≤ 2	30	0	≤ 30	2
405 F/2	≤ 0.4	1	30	0	≤ 30	≤ 2
405 F/2 H	≤ 0.4	1	30	0	≤ 30	≤ 2
412 F/2 H	≤ 0.4	1	30	0	≤ 30	≤ 2
414 F/2	≤ 0.4	1	30	0	≤ 30	≤ 2
405 /2	≤ 0.4	1	30	0	≤ 30	≤ 2
412 /2	≤ 0.4	1	30	0	≤ 30	≤ 2
414 /2	≤ 0.4	1	30	0	≤ 30	≤ 2
414 /2 H	≤ 0.4	1	30	0	≤ 30	≤ 2
412 J/2 H	≤ 0.4	1	30	0	≤ 30	≤ 4
412 J/2 HH	≤ 0.4	1	30	0	≤ 30	≤ 4
414 J/2 H	≤ 0.4	2	30	0	≤ 30	≤ 4
414 J/2 HH	≤ 0.4	2	30	0	≤ 30	≤ 4
512 F/2	≤ 0.4	1	30	0	≤ 30	≤ 2
514 F/2	≤ 0.4	1	30	0	≤ 30	≤ 2
612 F/2	≤ 0.4	1	30	0	≤ 30	≤ 2
612 F/2 H	≤ 0.4	1	30	0	≤ 30	≤ 2
614 F/2	≤ 0.4	1	30	0	≤ 30	≤ 2
612 N/2 H	≤ 0.4	1	30	0	≤ 30	≤ 2
612 N/2 NHH-120	≤ 0.4	1	30	0	≤ 30	≤ 2
612 N/2 N	≤ 0.4	1	30	0	≤ 30	≤ 2
614 N/2 H	≤ 0.4	1	30	0	≤ 30	≤ 2
614 N/2 HH-121	≤ 0.4	1	30	0	≤ 30	≤ 2
614 N/2 M	≤ 0.4	2	28	0	≤ 30	≤ 4
712 F/2 L	≤ 0.4	1	30	0	≤ 30	≤ 2
712 F/2 M	≤ 0.4	1	30	0	≤ 30	≤ 2
8412 N/2 GL	≤ 0.4	2	28	0	≤ 28	≤ 4
8412 N/2 GM	≤ 0.4	2	28	0	≤ 28	≤ 4
8412 N/2 G	≤ 0.4	2	28	0	≤ 28	≤ 4
8414 N/2 GL	≤ 0.4	2	28	0	≤ 28	≤ 4
8414 N/2 GM	≤ 0.4	2	28	0	≤ 28	≤ 4
8414 N/2 G	≤ 0.4	2	28	0	≤ 28	≤ 4
8414 N/2	≤ 0.4	2	28	0	≤ 28	≤ 4
8412 N/2	≤ 0.4	2	28	0	≤ 28	≤ 4
8412 N/2 H	≤ 0.4	2	28	0	≤ 28	≤ 4
8414 N/2 H	≤ 0.4	2	28	0	≤ 28	≤ 4
8312 /2 HL	≤ 0.4	2	30	0	≤ 30	≤ 4
8314 /2	≤ 0.4	2	30	0	≤ 30	≤ 4
8314 /2 H	≤ 0.4	2	30	0	≤ 30	≤ 4

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Available on request:

– Galvanically separated sensor signal circuit
– Varying voltage potentials for power and logic circuit.

Signal data	Sensor signal $U_{S\ Low}$	Condition: I_{sink}	Sensor signal $U_{S\ High}$	Condition: I_{source}	Sensor operating voltage U_{BS}	Perm. sink current $I_{sink\ max.}$
Type	**V DC**	**mA**	**V DC**	**mA**	**V DC**	**mA**
8318 /2	≤ 0.4	2	30	0	≤ 30	≤ 4
8318 /2 HL	≤ 0.4	2	30	0	≤ 30	≤ 4
8318 /2 H	≤ 0.4	2	30	0	≤ 30	≤ 4
3412 N/2 GL	≤ 0.4	2	28	0	≤ 28	≤ 4
3412 N/2 GM	≤ 0.4	2	28	0	≤ 28	≤ 4
3412 N/2	≤ 0.4	2	28	0	≤ 28	≤ 4
3412 N/2 G	≤ 0.4	2	28	0	≤ 28	≤ 4
3412 N/2 HH	≤ 0.4	2	28	0	≤ 28	≤ 4
3412 N/2 GHH	≤ 0.4	2	28	0	≤ 28	≤ 4
3412 N/2 H	≤ 0.4	2	28	0	≤ 28	≤ 4
3414 N/2 GH	≤ 0.4	2	28	0	≤ 28	≤ 4
3414 N/2	≤ 0.4	2	28	0	≤ 28	≤ 4
3312 /2	≤ 0.4	2	30	0	≤ 30	≤ 4
3318 /2	≤ 0.4	2	30	0	≤ 30	≤ 4
4412 F/2 GL	≤ 0.4	2	30	0	≤ 30	≤ 4
4412 F/2 GML	≤ 0.4	2	30	0	≤ 30	≤ 4
4412 F/2 M	≤ 0.4	2	30	0	≤ 30	≤ 4
4412 F/2	≤ 0.4	2	30	0	≤ 30	≤ 4
4414 F/2 L	≤ 0.4	2	30	0	≤ 30	≤ 4
4414 F/2 M	≤ 0.4	2	30	0	≤ 30	≤ 4
4414 F/2 G	≤ 0.4	2	30	0	≤ 30	≤ 4
4414 F/2	≤ 0.4	2	30	0	≤ 30	≤ 4
4418 F/2	≤ 0.4	2	30	0	≤ 30	≤ 4
4312 N/2 H	≤ 0.4	2	30	0	≤ 30	≤ 4
4312 N/2 HH	≤ 0.4	2	30	0	≤ 30	≤ 4
4312 /2	≤ 0.4	2	30	0	≤ 30	≤ 4
4314 /2 G	≤ 0.4	2	30	0	≤ 30	≤ 4
4314 /2	≤ 0.4	2	30	0	≤ 30	≤ 4
4318 /2 G	≤ 0.4	2	30	0	≤ 30	≤ 4
4318 /2 M	≤ 0.4	2	30	0	≤ 30	≤ 4
4318 /2	≤ 0.4	2	30	0	≤ 30	≤ 4
4212 N/2 GN	≤ 0.4	2	30	0	≤ 30	≤ 4
4212 N/2 H	≤ 0.4	2	30	0	≤ 30	≤ 4
4214 N/2 GN	≤ 0.4	2	30	0	≤ 30	≤ 4
4214 N/2 H	≤ 0.4	2	30	0	≤ 30	≤ 4
4218 N/2 GN	≤ 0.4	2	30	0	≤ 30	≤ 4
4218 N/2 H	≤ 0.4	2	30	0	≤ 30	≤ 4
4212 /2 M	≤ 0.4	2	30	0	≤ 30	≤ 4
4212 /2	≤ 0.4	2	30	0	≤ 30	≤ 4
4212 /2 H	≤ 0.4	2	30	0	≤ 30	≤ 4
4214 /2	≤ 0.4	2	30	0	4–30	≤ 4

Signal data	Sensor signal $U_{S\ Low}$	Condition: I_{sink}	Sensor signal $U_{S\ High}$	Condition: I_{source}	Sensor operating voltage U_{BS}	Perm. sink current $I_{sink\ max.}$
Type	**V DC**	**mA**	**V DC**	**mA**	**V DC**	**mA**
4214 /2 H	≤ 0.4	2	30	0	4–30	≤ 4
4218 /2	≤ 0.4	2	30	0	4–30	≤ 4
4218 /2 H	≤ 0.4	2	30	0	4–30	≤ 4
4182 N/2 X	≤ 0.4	2	30	0	4–30	≤ 4
4184 N/2 GX	≤ 0.4	2	30	0	4–30	≤ 4
4184 N/2 X	≤ 0.4	2	30	0	4–30	≤ 4
4184 N/2 XH	≤ 0.4	2	30	0	4–30	≤ 4
5112 N/2	≤ 0.4	2	15	0	≤ 5	≤ 20
5114 N/2	≤ 0.4	2	60	0	≤ 60	≤ 20
5118 N/2	≤ 0.4	2	60	0	≤ 60	≤ 20
5212 N/2 H	≤ 0.4	2	30	0	4–30	≤ 2
5212 N/2 N	≤ 0.4	2	30	0	4–30	≤ 2
5214 N/2 N	≤ 0.4	2	30	0	4–30	≤ 2
5218 N/2 H	≤ 0.4	2	30	0	4–30	≤ 2
7112 N/2	≤ 0.4	2	60	0	≤ 60	≤ 20
7114 N/2	≤ 0.4	2	30	0	≤ 30	≤ 20
7118 N/2	≤ 0.4	2	60	0	≤ 60	≤ 20
6224 N/2	≤ 0.4	8	30	0	≤ 30	≤ 20
6248 N/2	≤ 0.4	8	60	0	≤ 30	≤ 20
DV 6224 /2	≤ 0.4	2	30	0	≤ 60	≤ 20
6424 /2	≤ 0.4	2	60	0	≤ 60	≤ 20
6448 /2	≤ 0.4	2	60	0	≤ 60	≤ 20
6448 /2 T	≤ 0.4	2	60	0	≤ 60	≤ 20
RL 48-19/12/2	≤ 0.4	2	28	0	4–30	≤ 4
RL 48-19/14/2	≤ 0.4	2	28	0	4–30	≤ 4
RL 90-18/12N/2	≤ 0.4	2	30	0	≤ 30	≤ 4
RL 90-18/14N/2	≤ 0.4	2	30	0	≤ 30	≤ 4
RG 90-18/12N/2	≤ 0.4	2	30	0	≤ 30	≤ 4
RG 90-18/14N/2	≤ 0.4	2	30	0	≤ 30	≤ 4
RG 125-19/14N/2	≤ 0.4	2	30	0	≤ 30	≤ 4
RG 125-19/18N/2	≤ 0.4	2	60	0	≤ 30	≤ 4
RER 125-19/14N/2	≤ 0.4	2	30	0	≤ 30	≤ 4
RG 160-28/14N/2	≤ 0.4	2	30	0	≤ 30	≤ 20

Attention:
With these fan options, deviations in regard to temperature range, voltage range and power consumption are possible compared with standard fan data.

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Sensor signal /12

- Speed-proportional rectangular pulse for external speed monitoring of fan motor
- 2 pulses per revolution
- TTL-compatible
- Integrated pull-up resistor
- Connection via separate lead
- The sensor signal also serves as a major comparison variable for setting and maintaining the desired speed for interactive or controlled cooling with one or more interconnected fans.

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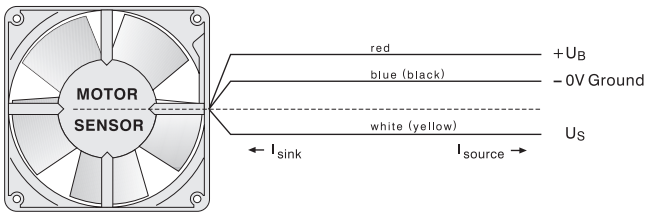
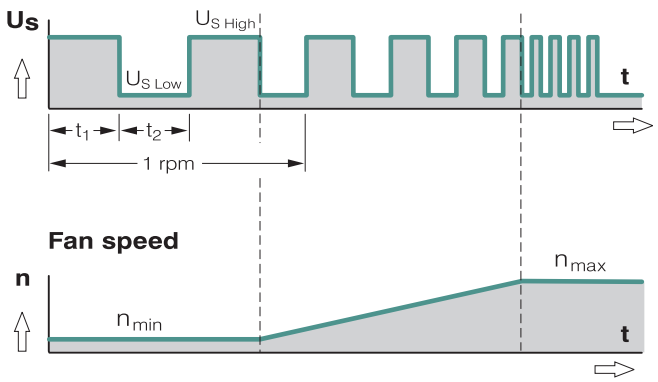
Electrical connection



All voltages measured to ground.

Signal output voltage



Signal symmetry [t_1, t_2] = 0.8 … 1.2
Signal frequency [F] = 2 x n/60 Hz

Signal data	Sensor signal U_S Low	Condition: I_{sink}	Sensor signal U_S High	Condition: I_{source}	Perm. sink current I_{sink} max.
Type	**V DC**	**mA**	**V DC**	**mA**	**mA**
614 N/12 GM	≤ 0.4	1	2.5–5.5	1	1
618 N/12 N	≤ 0.4	1	2.5–5.5	1	1
8412 N/12	≤ 0.4	1	2.5–5.5	1	1
8412 N/12 H	≤ 0.4	1	2.5–5.5	1	1
8312 /12	≤ 0.4	1	2.5–5.5	1	1
8314 /12	≤ 0.4	1	2.5–5.5	1	1
8314 /12 H	≤ 0.4	1	2.5–5.5	1	1
8318 /12	≤ 0.4	1	2.5–5.5	1	1
8318 /12 HL	≤ 0.4	1	2.5–5.5	1	1
8318 /12 H	≤ 0.4	1	2.5–5.5	1	1
3318 /12 H	≤ 0.4	1	2.5–5.5	1	1
4412 F/12 GML	≤ 0.4	1	2.5–5.5	1	1
4412 F/12 GM	≤ 0.4	1	2.5–5.5	1	1
4414 F/12	≤ 0.4	1	2.5–5.5	1	1
4418 F/12	≤ 0.4	1	2.5–5.5	1	1
4312 /12 L	≤ 0.4	1	2.5–5.5	1	1
4312 /12 M	≤ 0.4	1	2.5–5.5	1	1
4314 /12	≤ 0.4	1	2.5–5.5	1	1
4318 /12	≤ 0.4	1	2.5–5.5	1	1
4212 /12 L	≤ 0.4	1	2.5–5.5	1	1
4212 /12	≤ 0.4	1	2.5–5.5	1	1
4212 /12 H	≤ 0.4	1	2.5–5.5	1	1
4214 /12	≤ 0.4	1	2.5–5.5	1	1
4214 /12 H	≤ 0.4	1	2.5–5.5	1	1
4218 /12	≤ 0.4	1	2.5–5.5	1	1

Attention:
With these fan options, deviations in regard to temperature range, voltage range and power consumption are possible compared with standard fan data.

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Available on request:
– Galvanically separated sensor and signal circuit
– Varying voltage potentials for power and logic circuit.

Signal data	Sensor signal U_S Low	Condition: I_{sink}	Sensor signal U_S High	Condition: I_{source}	Perm. sink current I_{sink} max.
Type	**V DC**	**mA**	**V DC**	**mA**	**mA**
4218 /12 H	≤ 0.4	1	2.5–5.5	1	1
4182 N/12 X	≤ 0.4	1	2.5–5.5	1	1
5118 N/12	≤ 0.4	2	2.5–5.5	1	≤ 20
5214 N/2 H	≤ 0.4	1	2.5–5.5	1	≤ 1
7118 N/12	≤ 0.4	2	2.5–5.5	1	≤ 20
7214 N/12	≤ 0.4	2	2.5–5.5	1	≤ 20
6224 N/12 M	≤ 0.4	2	2.5–5.5	1	≤ 20
6248 N/12	≤ 0.4	2	2.5–5.5	1	≤ 20
6248 N/12 T	≤ 0.4	2	2.5–5.5	1	≤ 5
DV 6224 /12	≤ 0.4	2	4.5–5.25	2	≤ 12
DV 6248 /12	≤ 0.4	2	4.5–5.25	2	≤ 12
6424 /12 H	≤ 0.4	2	2.5–5.5	1	≤ 20
RG 125-19/12N/12	≤ 0.4	1	2.5–5.5	1	≤ 1
RG 125-19/14N/12	≤ 0.4	1	2.5–5.5	1	≤ 1
RER 125-19/12N/12	≤ 0.4	1	2.5–5.5	1	≤ 1
RG 160-28/12N/12	≤ 0.4	2	2.5–5.5	1	≤ 5
RG 160-28/18N/12	≤ 0.4	2	2.5–5.5	1	≤ 20
RER 160-28/12N/12	≤ 0.4	2	2.5–5.5	1	≤ 5
RER 160-28/18N/12	≤ 0.4	2	2.5–5.5	1	≤ 20

Attention:
With these fan options, deviations in regard to temperature range, voltage range and power consumption are possible compared with standard fan data.

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Alarm signal /19

- Alarm signal for speed monitoring
- Signal output via open collector
- The fan emits a low continuous signal during trouble-free operation within the permissible voltage range.
- High signal when speed limit is not reached.
- After elimination of fault, the fan returns to its desired speed; the alarm signal reverts to low.

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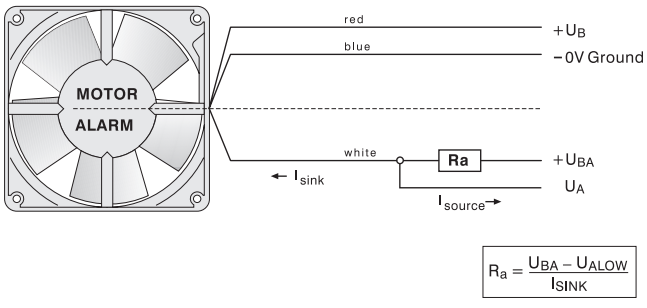
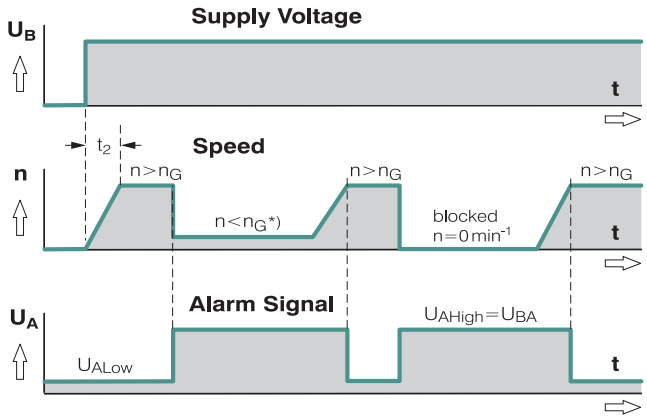
Alarm signal data	Alarm output voltage U_A Low	Condition:	Condition: I_{sink} =	Alarm output voltage U_A High	Condition:	Condition: I_{source} =	Alarm operating voltage U_{BA} max.	Max. permissible sink current	Alarm delay time t_2	Condition:	Speed limit n_G
Type	**V DC**		**mA**	**V DC**		**mA**	**V DC**	**mA**	**S**		**min^{-1}**
8314/19 H	≤ 0.4	n > nG	2	60	n < nG	0	≤ 60	20	≤ 15	*	1500 ± 100
4312/19	≤ 0.4	n > nG	2	60	n < nG	0	≤ 60	20	≤ 15	*	1500 ± 100
4212/19 M	≤ 0.4	n > nG	2	60	n < nG	0	≤ 60	20	≤ 15	*	1500 ± 100
4214/19	≤ 0.4	n > nG	2	60	n < nG	0	≤ 60	20	≤ 15	*	1500 ± 100
7214 N/19	≤ 0.4	n > nG	2	60	n < nG	0	4.5–60	10	10 ± 4	*	1800 ± 20
DV 6224/19	≤ 0.4	n > nG	2	≤ 28	n < nG	0	16–28	10	10 ± 4	*	1900 ± 100

Attention:
With these fan specials, deviations as regards temperature range, voltage range and power consumption are possible compared with standard fans.

Available on request:
- With integrated signal latching for subsequent recognition of short-term faults
- Alarm circuit open collector or TTL
- Galvanically separated for max. device safety; defects in power circuit have no effect on the alarm circuit.

Electrical connection





All voltages measured to ground.
External load resistance R_a from U_A to U_{BA} required.

t_2 = Alarm signal suppression during start-up
* n < Speed limit n_G by braking or blocking.

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