San Ace 80 9RA type

DC Fan

Features

Low Noise and Energy Saving

Compared to our current model,(1) noise level has been reduced by 3 dB(A) and power consumption has been reduced by 25.5%.(2)
Moreover, the models with PWM control, which enables the control of fan speed, provide further optimized noise level and efficiency.

Rich Lineup

The product lineup is available in a wide variety in different 12/24/48 voltage, cooling performance, noise level, and PWM control. This allows users to choose the most suitable one for their applications.

(1) Current model: 80 × 80 × 38 mm *San Ace 80* 9G type DC Fan (model: 9G0812G101).
(2) For models 9RA0812G1001

80× 80× 38 mm

Specifications

The models listed below **have ribs and pulse sensors with PWM control function.** For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min^{-1}]	Max. airflow [m^3/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH_2O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9RA0812P1K001	12	10.8 to 13.2	100	1.52	18.24	8250	2.96	104.5	307	1.23	53	-20 to +70	40000/60°C (70000/40°C)
			20	0.13	1.56	2500	0.90	31.8	27.7	0.11	21		
9RA0812P1G001			100	0.82	9.84	6750	2.42	85.5	206	0.83	48		
			20	0.08	0.96	1800	0.65	22.9	14.6	0.06	15		
9RA0812P1H001			100	0.66	7.92	6100	2.19	77.3	168	0.67	46		
			20	0.08	0.96	1500	0.54	19.0	10.2	0.04	13		
9RA0824P1G001	24	21.6 to 26.4	100	0.41	9.84	6750	2.42	85.5	206	0.83	48		
			20	0.08	1.92	2800	1.00	35.3	35.4	0.14	24		
9RA0848P1G001	48	43.2 to 52.8	100	0.22	10.56	6750	2.42	85.5	206	0.83	48		
			20	0.05	2.40	3000	1.07	37.8	40.7	0.16	26		

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

The models listed below **have ribs and pulse sensors.** For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min^{-1}]	Max. airflow [m^3/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH_2O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9RA0812K1001	12	7 to 13.2	1.52	18.24	8250	2.96	104.5	307	1.23	53	-20 to +70	40000/60°C (70000/40°C)
9RA0812G1001		7 to 13.8	0.82	9.84	6750	2.42	85.5	206	0.83	48		
9RA0812H1001			0.66	7.92	6100	2.19	77.3	168	0.67	46		
9RA0824G1001	24	14 to 27.6	0.41	9.84	6750	2.42	85.5	206	0.83	48		
9RA0824H1001			0.33	7.92	6100	2.19	77.3	168	0.67	46		
9RA0848G1001	48	36 to 55.2	0.22	10.56	6750	2.42	85.5	206	0.83	48		
9RA0848H1001			0.18	8.64	6100	2.19	77.3	168	0.67	46		

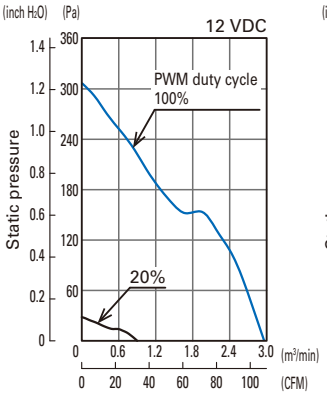
Models with the following sensor specifications are also available as options: Without sensor | Lock sensor

Common Specifications

- ☐ Material ..... Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-1)
- ☐ Expected life ..... Refer to specifications
  (L10 life: 90% survival rate for continuous operation in free air at 60°C, rated voltage)
  Expected life at 40°C is for reference only.
- ☐ Motor protection function ..... Locked rotor burnout protection, Reverse polarity protection
- ☐ Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- ☐ Insulation resistance ..... 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- ☐ Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- ☐ Operating temperature ..... Refer to specifications (Non-condensing)
- ☐ Storage temperature ..... -30 to +70°C (Non-condensing)
- ☐ Lead wire ..... ⊕ Red ⊖ Black Sensor Yellow Control Brown
  (For models without PWM control function, there is no speed control wiring.)
- ☐ Mass ..... 170 g

Airflow - Static Pressure Characteristics

PWM duty cycle



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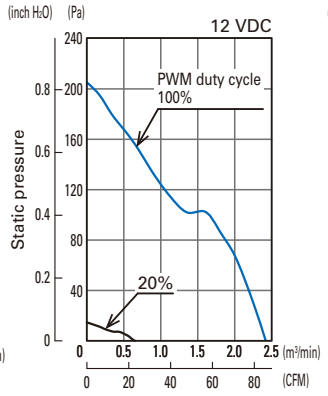

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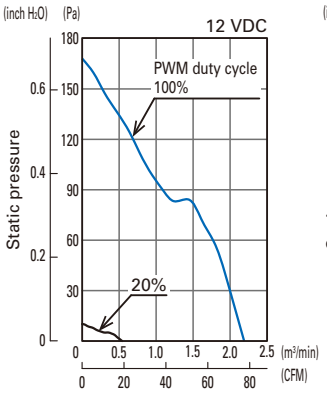

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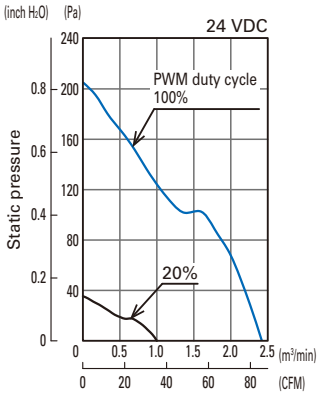
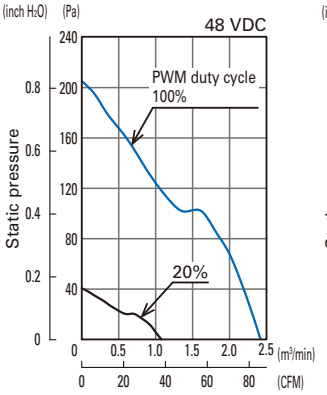


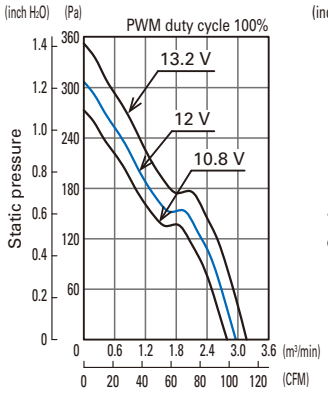
9RA0824P1G001

PWM duty cycle



9RA0848P1G001

Operating voltage range



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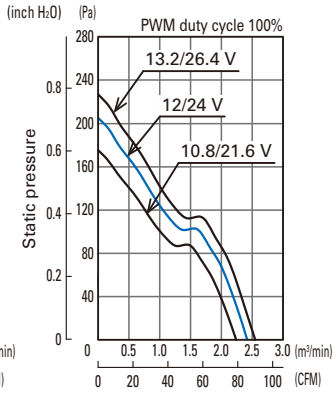

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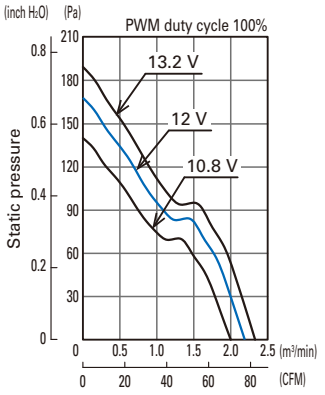
9RA0824P1G001



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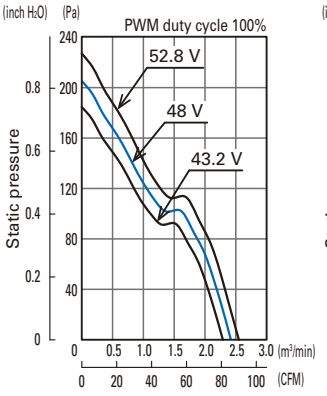
Operating voltage range



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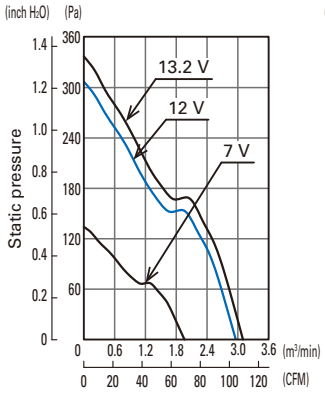

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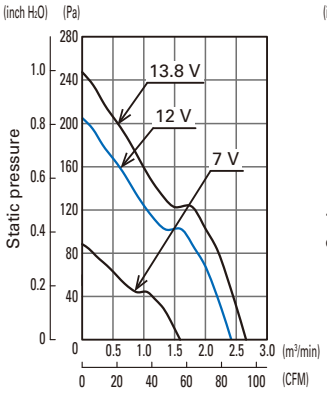

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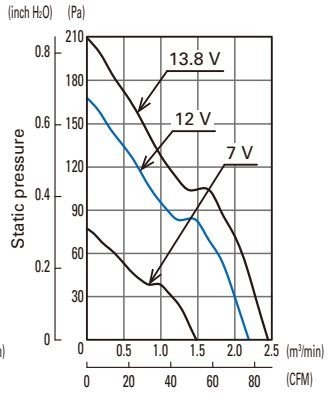

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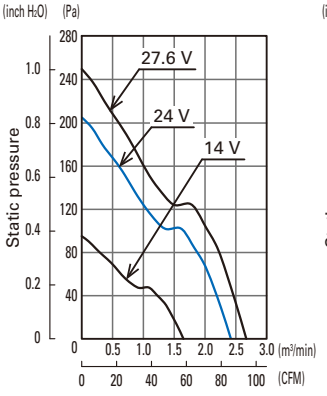

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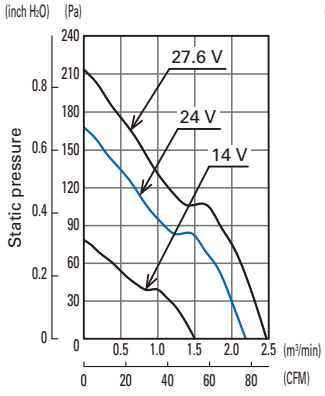

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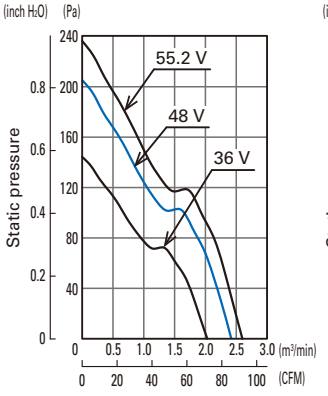

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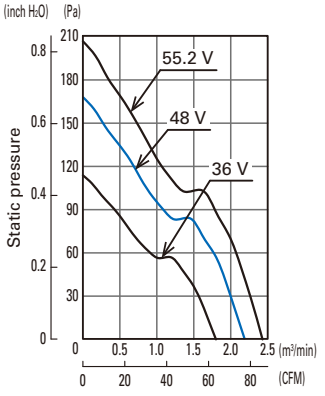
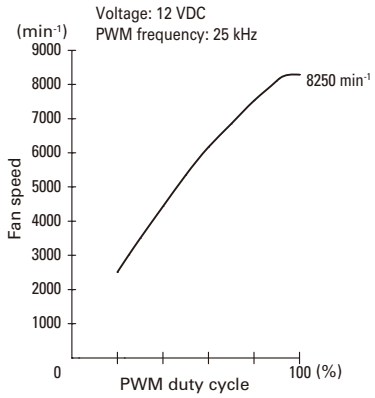


9RA0848H1001

PWM Duty - Speed Characteristics Example



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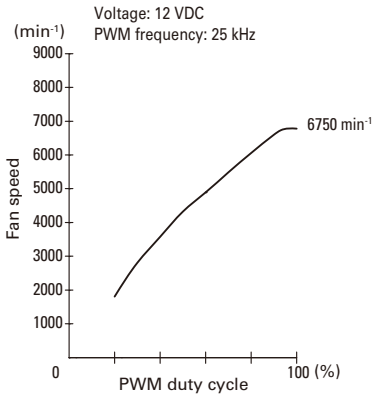

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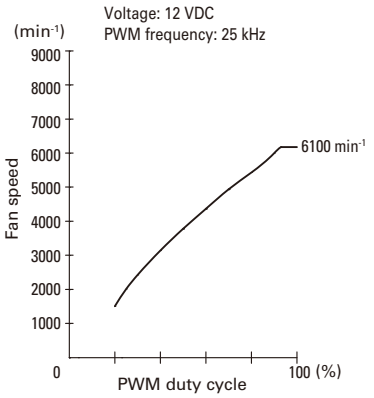

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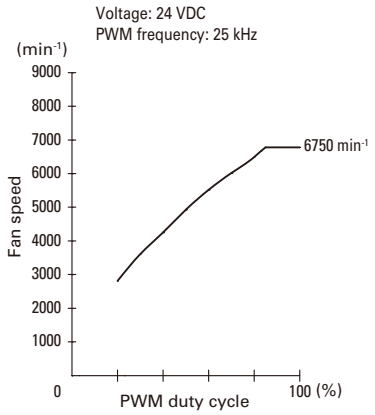

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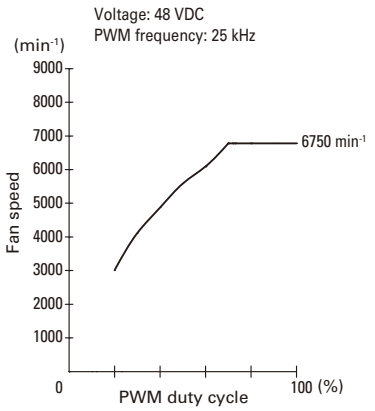

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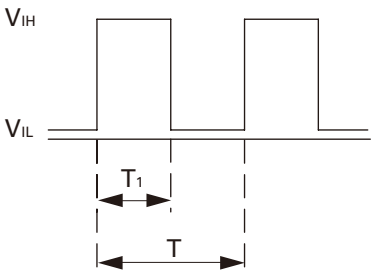
PWM Input Signal Example

Input signal waveform



V_{IH} = 4.75 to 5.25 V V_{IL} = 0 to 0.4 V

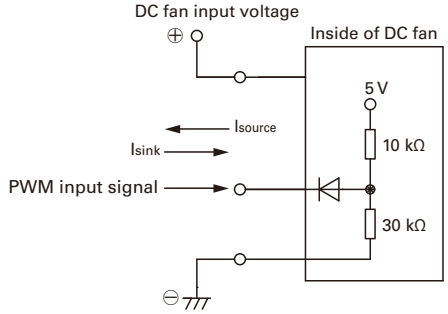
PWM duty cycle (%) = $\frac{T_1}{T} \times 100$ PWM frequency 25 (kHz) = $\frac{1}{T}$

Current source (Isource) = 1.0 mA max. (when control voltage is 0 V)

Current sink (Isink) = 1.0 mA max. (when control voltage is 5.25 V)

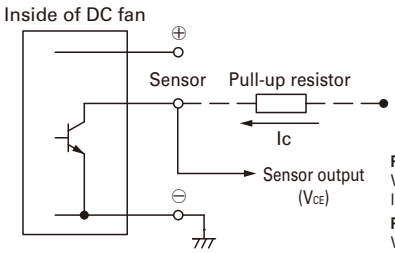
When the PWM control terminal is open,
the fan speed is the same as the speed at 100% PWM duty cycle.
The PWM signal can be used with open collector or drain input.
Note that when using an open collector or drain input,
or inputting a different voltage or frequency,
the speed relative to the PWM duty cycle may differ from this specification.

Example of Connection Schematic



Specifications for Pulse Sensors

Output circuit: Open collector

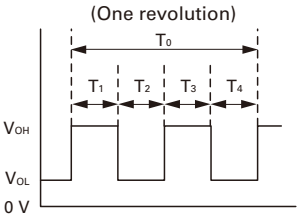


Rated voltage 12/24 V fan
V_{CE} = +30 V max.
Ic=10 mA max. [V_{OL}=V_{CE} (SAT)=0.6 V max.]

Rated voltage 48 V fan
V_{CE} = +60 V max.
Ic=10 mA max. [V_{OL}=V_{CE} (SAT)=0.4 V max.]

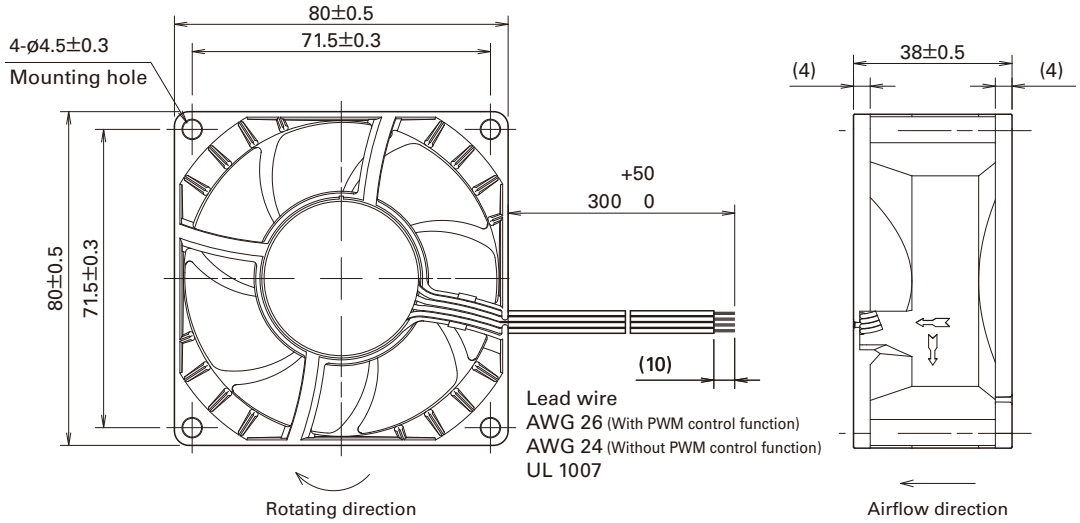
Output waveform (Need pull-up resistor)

In case of steady running

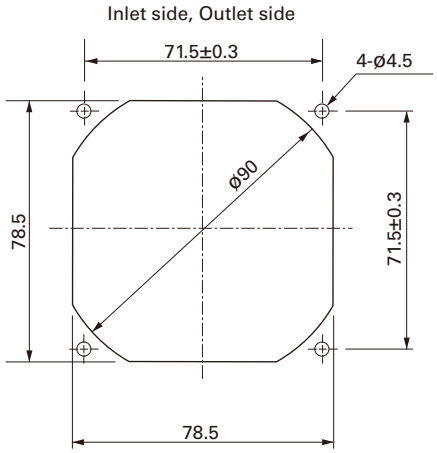


$T_{1\ to\ 4} \fallingdotseq (1/4)\ T_0$
$T_{1\ to\ 4} \fallingdotseq (1/4)\ T_0 = 60/4N$ (s)
N=Fan speed (min^{-1})

Dimensions (unit: mm) (Ribbed frame with pulse sensor with PWM control function)



Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options

Finger guards

Model no.: 109-049E, 109-049H, 109-049C

Notice

- Please read the "Safety Precautions" on our website before using the product.
- The products shown in this catalog are subject to Japanese Export Control Law. Diversion contrary to the law of exporting country is prohibited.
- For protecting fan bearings against electrolytic corrosion near strong electromagnetic noise sources, we provide effective countermeasures such as Electrolytic Corrosion Proof Fans and EMC guards. Contact us for details.

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