San Ace 80 9CRH type

Counter Rotating Fan

Features

High Static Pressure
This fan achieves a maximum static pressure of 1,950 Pa, delivering a 70% improvement over our current model.(1)

High Airflow
The fan delivers a maximum airflow of 5.7 m^3/min, achieving about a 3.6% increase compared to the current model.(1)

Low Power Consumption
While providing improved cooling performance, it maintains the same power consumption as the current model.(1)

Contribution to SDGs
This fan uses a lead-free brass material and is RoHS Directive-compliant.(2)
Using eco-friendly resources and technologies, it is certified as an Eco Products.(3)

(1) Current model: 80 × 80 × 80 mm *San Ace 80* 9CRB type Counter Rotating Fan (model: 9CRB0812P8G001)
(2) The RoHS (Restriction of Hazardous Substances) Directive restricts the use of certain hazardous substances in electrical and electronic equipment distributed within the European Union.
(3) Eco Products are eco-friendly products designed to reduce the environmental impact of the product and its packaging materials compared to conventional products on the market. Our products are assessed over the product's life cycle against our own eco-design requirements including product size, weight, power consumption, and CO_2 emissions, and those meeting our standards and higher standards qualify as Eco Products and Eco Products Plus, respectively.

80 × 80 × 80 mm

Specifications

The models listed below **have a pulse sensor with PWM control.**

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min^{-1}] Inlet	Rated speed [min^{-1}] Outlet	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]
9CRH0812P8G001	12	10.8 to 12.6	100	10	120	15400	15200	5.7	201	1950	7.80	82	-20 to +70	40000/60°C (70000/40°C)
			20	0.20	2.40	2000	1900	0.7	24.7	36.0	0.14	30		
9CRH0848P8G001	48	40.8 to 60.0	100	2.5	120	15400	15200	5.7	201	1950	7.80	82		
			20	0.15	7.20	2000	1900	0.7	24.7	36.0	0.14	30		

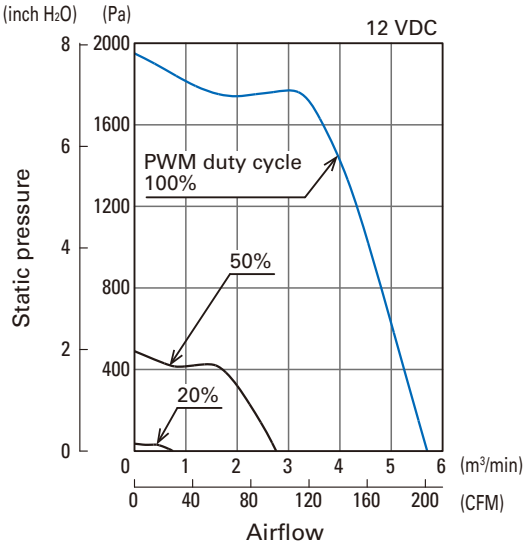
* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

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 ····· Inlet ⊕Red ⊖Black [Sensor] Yellow [Control] Brown
  Outlet ⊕Orange ⊖Gray [Sensor] Purple [Control] White
- ☐ Mass ····· 430 g

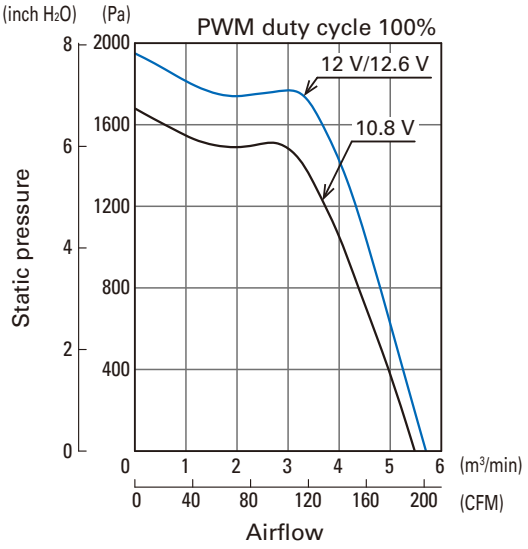
Airflow - Static Pressure Characteristics

PWM duty cycle



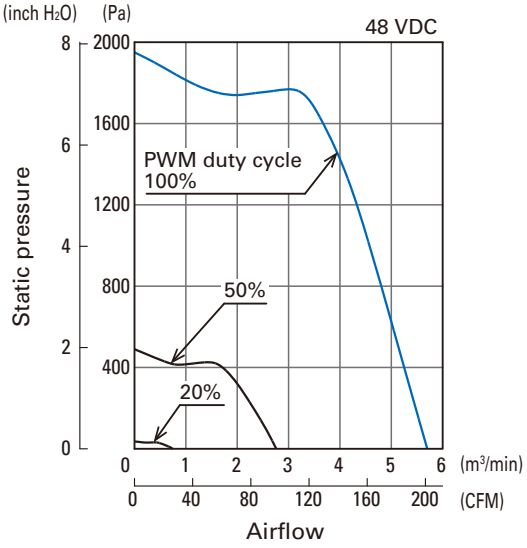
9CRH0812P8G001

Operating voltage range



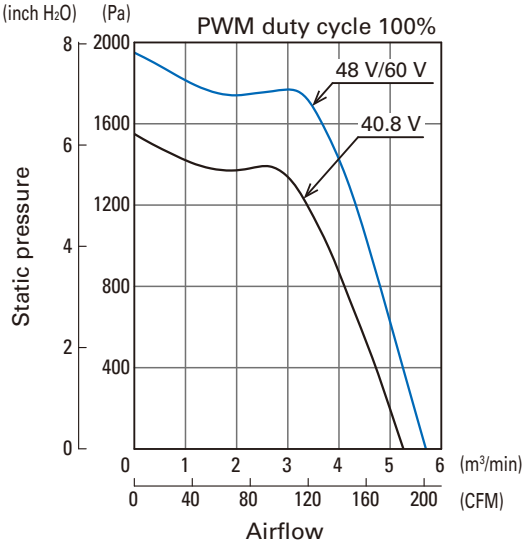
9CRH0812P8G001

PWM duty cycle



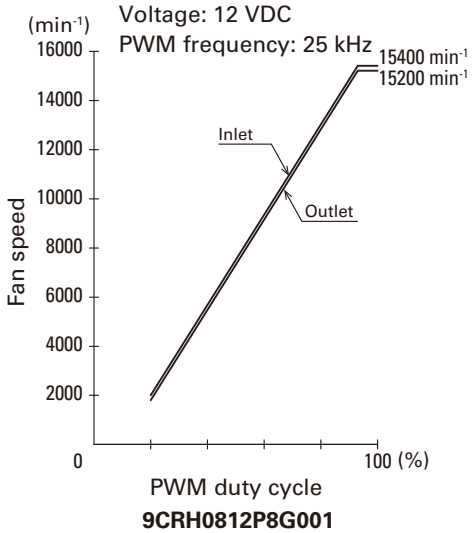
9CRH0848P8G001

Operating voltage range



9CRH0848P8G001

PWM Duty - Speed Characteristics Example



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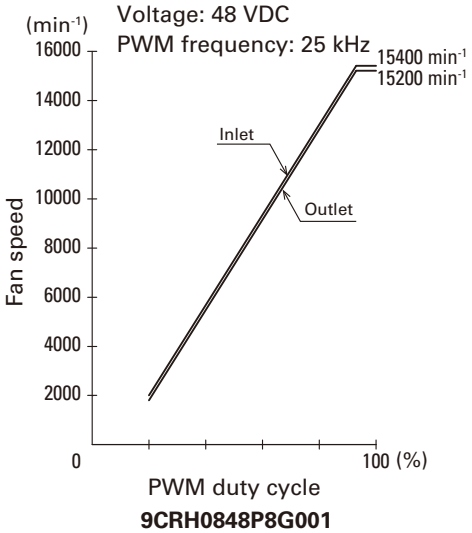

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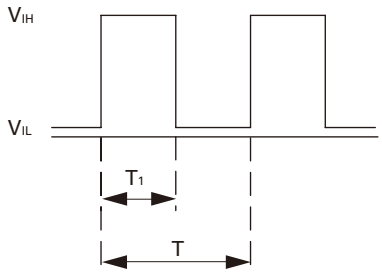
PWM Input Signal Example

Input signal waveform



V_{IH} = 2.8 to 5.25 V V_{IL} = 0 to 0.4 V

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

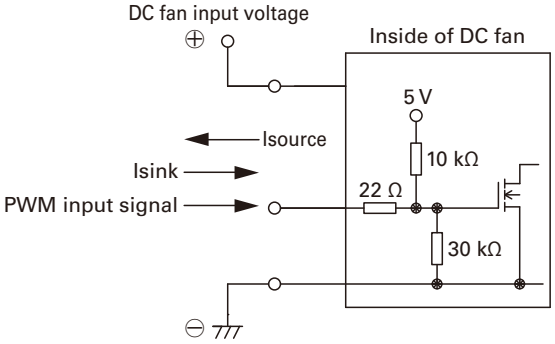
Current source (Isource) = 5.0 mA max. (when control voltage is 0 V)
Current sink (Isink) = 5.0 mA max. (when control voltage is 5.25 V)

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.

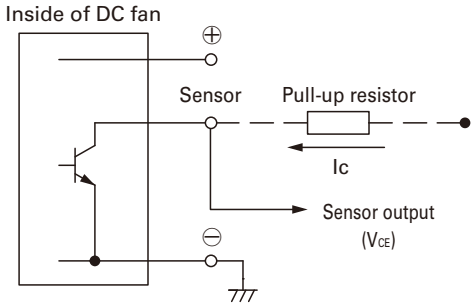
Note that when using an open collector or drain input,
or inputting a different voltage or frequency,
the speed relative to the PWM duty cycle may differ from this specification.

Example of Connection Schematic



Specifications for Pulse Sensors

Output circuit: Open collector



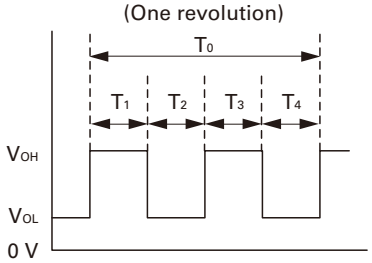
Rated voltage 12 V fan
V_{CE} = +12.6 V max.
Ic=5 mA max. [V_{OL}=V_{CE} (SAT)=0.6 V max.]

Rated voltage 48 V fan
V_{CE} = +60 V max.
Ic=5 mA max. [V_{OL}=V_{CE} (SAT)=0.6 V max.]

Output waveform (Need pull-up resistor)

In case of steady running

(One revolution)

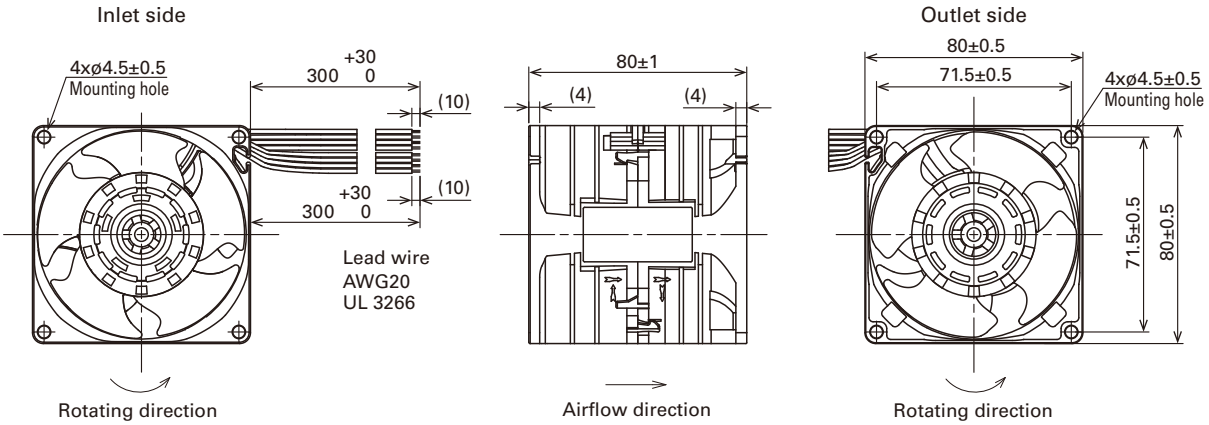


$T_{1\ to\ 4} \fallingdotseq$ (1/4) T_0

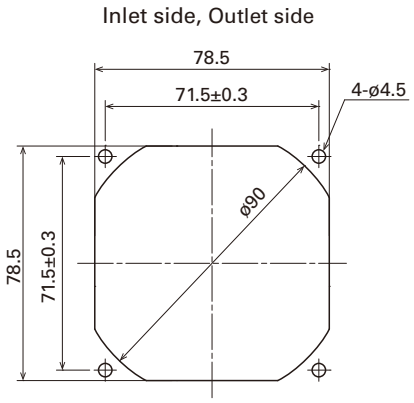
$T_{1\ to\ 4} \fallingdotseq$ (1/4) T_0=60/4N (s)

N=Fan speed (min^{-1})

Dimensions (unit: mm)



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



Options

Finger guards

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

Resin filter kits

Model no.: 109-1002F13 (13PPI), 109-1002F20 (20PPI), 109-1002F30 (30PPI), 109-1002F40 (40PPI)

Resin finger guards

Model no.: 109-1002G

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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