# San Ace 200 9GA type

## DC Fan

## Features

### Low Power Consumption

This fan operates on about 36% less power than our current model[1] while maintaining the same airflow and static pressure, achieving a much lower power consumption.

### Contribution to SDGs

Made with lead-free brass, this fan complies with the RoHS Directive.[2] It is also certified as an Eco Product[3] for its use of environmentally friendly resources and technologies.

(1) Current model: Ø200 × 70 mm *San Ace 200* 9GV type DC Fan (model: 9GV2048P0G201)

(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.


## Ø200 × 70 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$^{-1}$] | Max. airflow [m$^3$/min] | [CFM] | Max. static pressure [Pa] | [inch$H_2O$] | SPL [dB(A)] | Operating temperature [°C] | Expected life [h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9GA2048P0G001 | 48 | 36 to 60 | 100 | 8.0 | 384 | 7800 | 30.7 | 1084 | 1350 | 5.40 | 81 | -20 to +70 | 40000/60°C (70000/40°C) |
| | | | 20 | 0.30 | 14.4 | 2000 | 7.87 | 278 | 147 | 0.588 | 48 | | |

* 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.

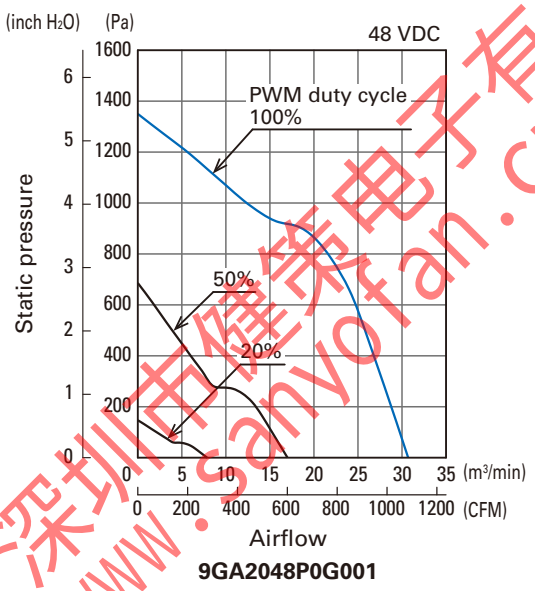
Note: Set the PWM duty cycle to 100% when starting the fan.

## Common Specifications

- ☐ Material ..... Frame: Aluminum (Black coating), 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
- ☐ Mass ..... 1500 g

## Airflow - Static Pressure Characteristics

PWM duty cycle

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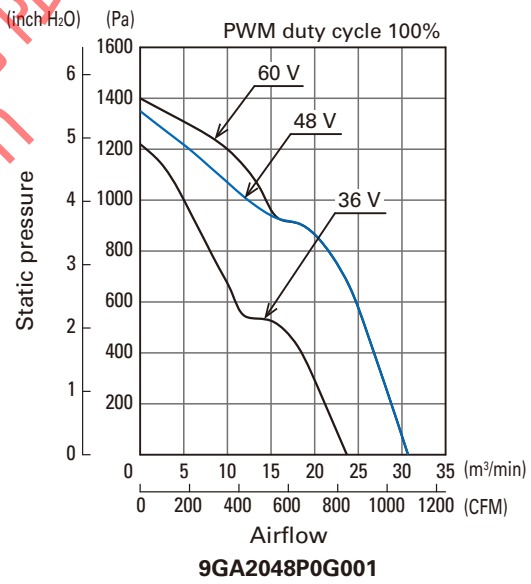
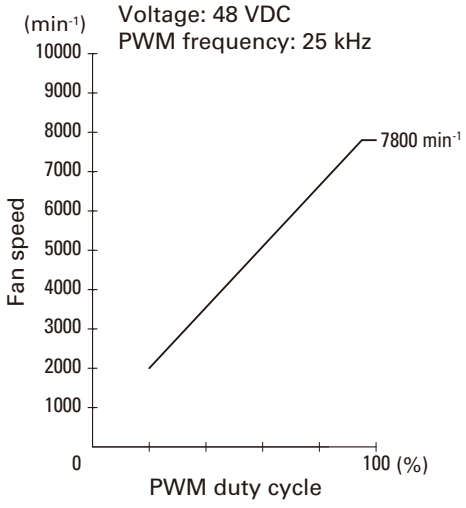
Operating voltage range




9GA2048P0G001

## PWM Duty - Speed Characteristics Example

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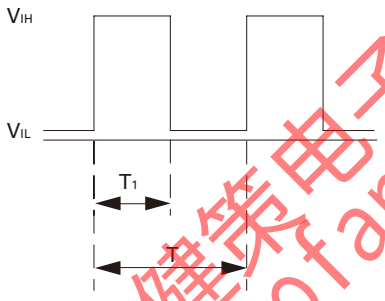
## PWM Input Signal Example

Input signal waveform




$V_{IH}$ = 2.8 to 15 V $V_{IL}$ = 0 to 0.4 V

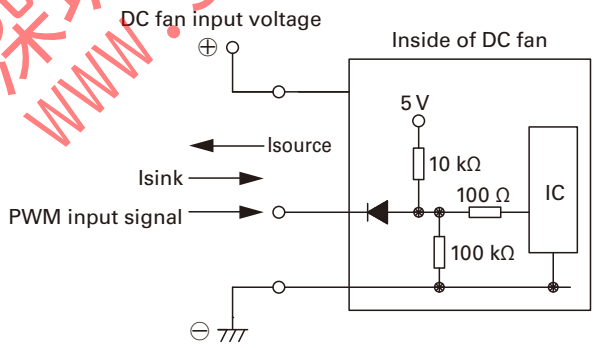
PWM duty cycle (%) = $\frac{T_1}{T} \times 100$ PWM frequency 25 (kHz) = $\frac{1}{T}$

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

Current sink (Isink) = 1.0 mA max. (when control voltage is 15 V)

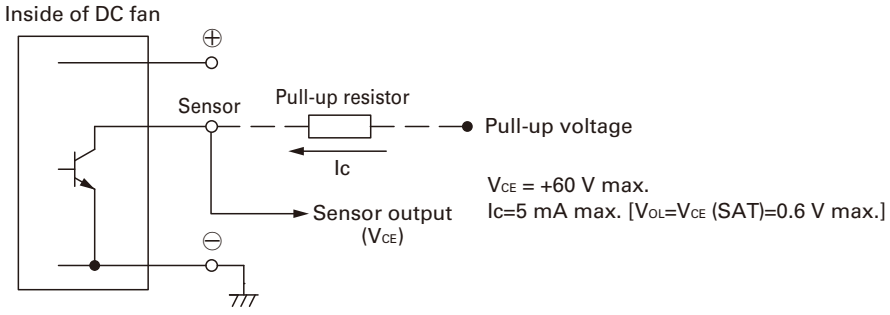
When the PWM control terminal is open,
the fan speed is the same as the speed at 100% PWM duty cycle.
The PWM signal can be used with open collector or drain input.
Note that when using an open collector or drain input,
or inputting a different voltage or frequency,
the speed relative to the PWM duty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

## Example of Connection Schematic




## Specifications for Pulse Sensors

Output circuit: Open collector

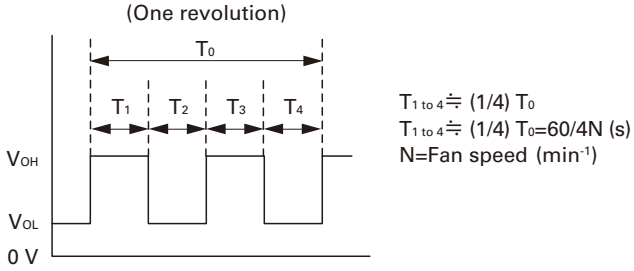



$V_{CE}$ = +60 V max.
Ic=5 mA max. [$V_{OL}$=$V_{CE}$ (SAT)=0.6 V max.]

Output waveform (Need pull-up resistor)

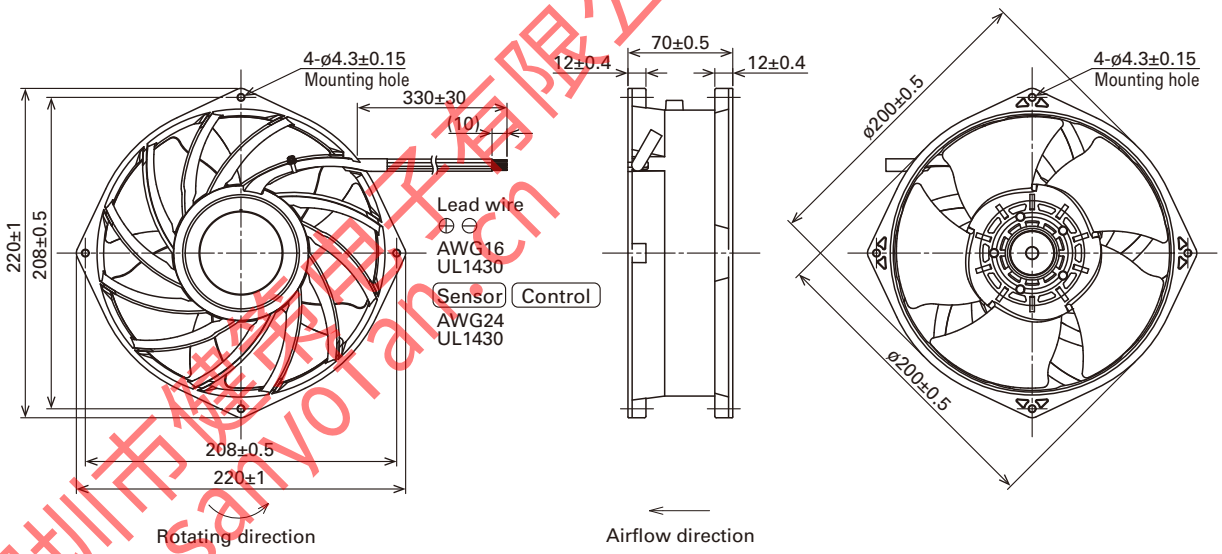
In case of steady running

(One revolution)



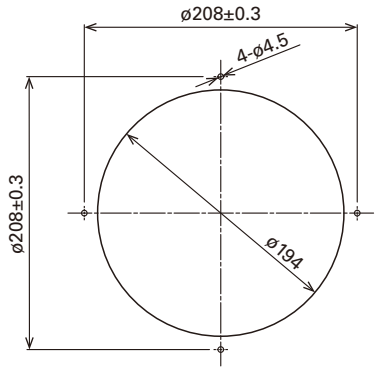

$T_{1\ to\ 4} \fallingdotseq (1/4)\ T_0$
$T_{1\ to\ 4} \fallingdotseq (1/4)\ T_0 = 60/4N$ (s)
N=Fan speed (min$^{-1}$)

## Dimensions (unit: mm)




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

Inlet side, Outlet side




## Options

Finger guards

Model no.: 109-1102, 109-1102H