

# San Ace 172AD

## ACDC Fan

9AD type

### Features

#### High Airflow and High Static Pressure

These fans deliver a maximum airflow of 6.7 m<sup>3</sup>/min and a maximum static pressure of 195 Pa.

#### Low Power Consumption

Power consumption has been reduced by approximately 32% compared with the current model.\* Also, the PWM control function enables the control of fan speed, contributing to lowering noise and improving energy efficiency of devices.

#### Wide Operating Voltage Range

These fans have an input voltage range of 100 to 240 VAC, supporting both 100 and 200 VAC systems.

\* For San Ace 172AC Fan (Model 109S301)



∅172 × 150 × 51 mm

### Specifications

#### Lead wire model

The models listed below **have pulse sensors with PWM control function.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min <sup>-1</sup> ]	Max. airflow [m <sup>3</sup> /min] [CFM]	Max. static pressure [Pa] [inchH <sub>2</sub> O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9AD5701P5H003	100 to 240	90 to 264	50/60	100	0.3	17	3800	6.7 236	195 0.78	54	-20 to +70	40000/60°C (70000/40°C)
				0	0.08	3.2	1500	2.64 93	40 0.16	31		

\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

#### Terminal model

The models listed below **have pulse sensors with PWM control function.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min <sup>-1</sup> ]	Max. airflow [m <sup>3</sup> /min] [CFM]	Max. static pressure [Pa] [inchH <sub>2</sub> O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
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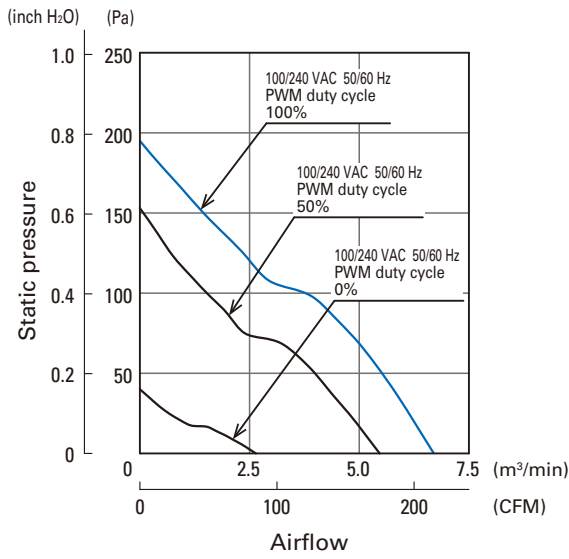
\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

Models with the following sensor specifications are also available as options: **Without sensor** **Lock sensor** **Low-speed sensor**

### Common Specifications

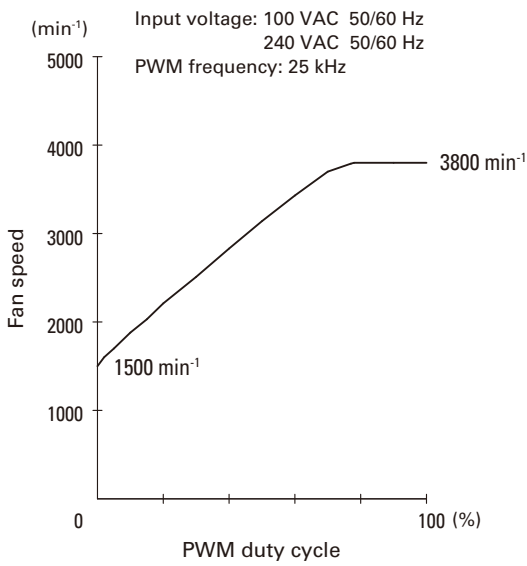
- Material ..... Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life ..... Refer to specifications  
(L10 life: 90% survival rate for continuous operation in free air at 60°C, rated voltage)  
Expected life at 40°C is for reference only.
- Motor protection function ..... Locked rotor burnout protection
- Dielectric strength ..... 50/60 Hz, 1500 VAC, for 1 minute  
(Lead wire model: between lead wire conductors and frame, Terminal model: between terminal and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger  
(Lead wire model: between lead wire conductors and frame, Terminal model: between terminal and frame)
- 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 ..... **AC power input** L: Orange N: Gray  
**Sensor** Yellow **Control** Brown **GND** Black
- Mass ..... 750 g

## Airflow - Static Pressure Characteristics



**9AD5701P5H003**  
**9AD5701P5HT03**

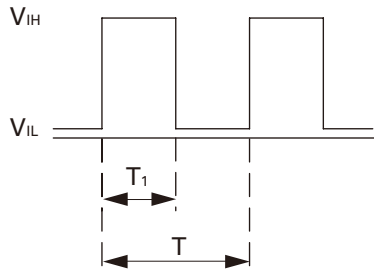
## PWM Duty - Speed Characteristics Example



**9AD5701P5H003**  
**9AD5701P5HT03**

## PWM Input Signal Example

Input signal waveform



$$V_{IH} = 4.75 \text{ to } 5.25 \text{ V} \quad V_{IL} = 0 \text{ to } 0.4 \text{ V}$$

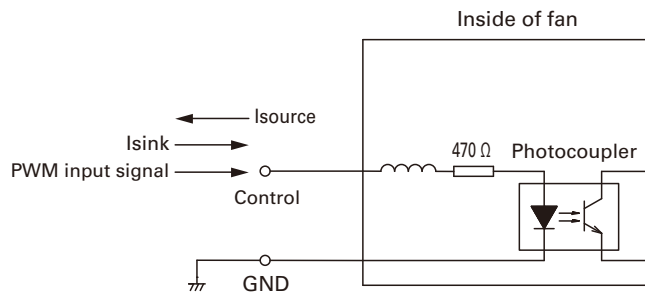
$$\text{PWM duty cycle (\%)} = \frac{T_1}{T} \times 100 \quad \text{PWM frequency } 25 \text{ (kHz)} = \frac{1}{T}$$

Current source ( $I_{source}$ ) = 1.0 mA max. (when control voltage is 0 V)

Current sink ( $I_{sink}$ ) = 10 mA max. (when control voltage is 5.25 V)

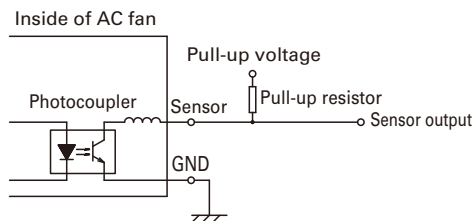
When the PWM control terminal is open, the fan speed is the same as the speed at 0% PWM duty cycle. A TTL input can be used for the PWM input signal.

## Example of Connection Schematic



## Specifications for Pulse Sensors

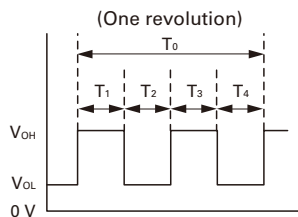
Output circuit: Open collector



$V_{CE} = +60 \text{ V max.}$   
 $I_C = 10 \text{ mA max. [} V_{OL} = V_{CE} \text{ (SAT)} = 1.2 \text{ V max.]}$

Output waveform (Need pull-up resistor)

In case of steady running



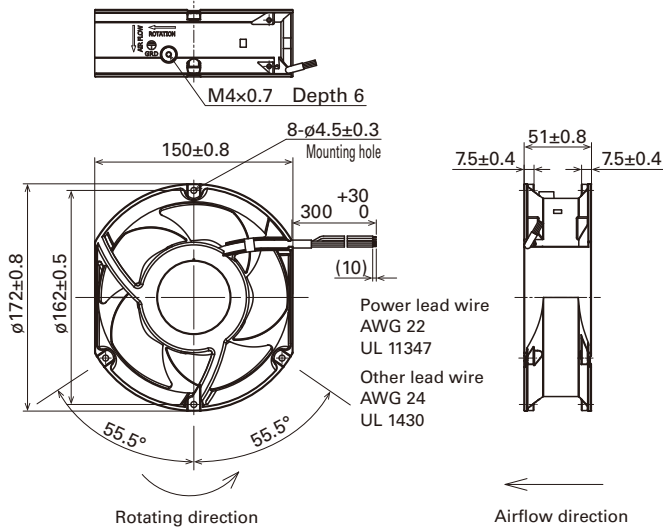
$$T_{1 \text{ to } 4} \approx (1/4) T_0$$

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

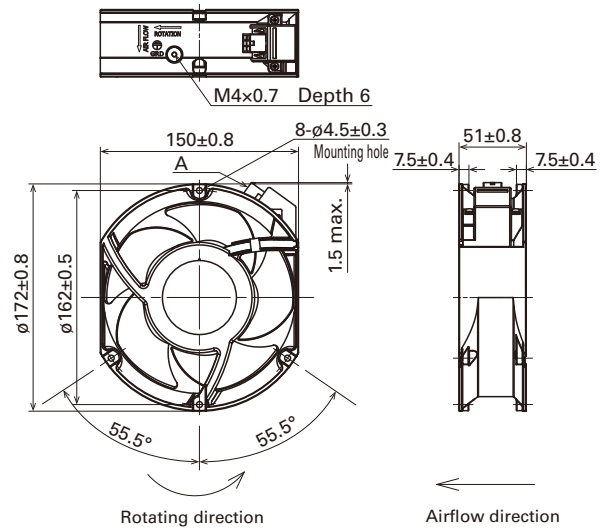
$$N = \text{Fan speed (min}^{-1}\text{)}$$

## Dimensions (unit: mm)

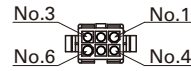
### Lead wire model



### Terminal model



A Connector contact



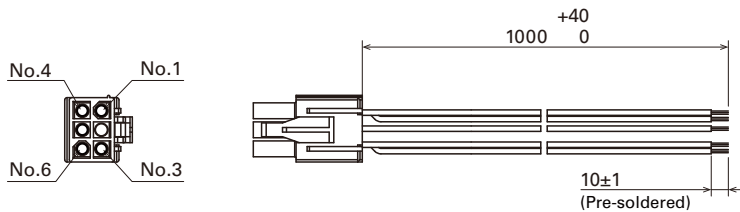
Pin arrangement

Connector (Model no.: TE Connectivity: 1-172160-9)

Pin No.	Function	Input
1	L	AC
2	No connection	-
3	N	AC
4	PWM	DC
5	GND	DC
6	Sensor	DC

### Wiring harness

Model no.: 489-1647 Mass: 27 g

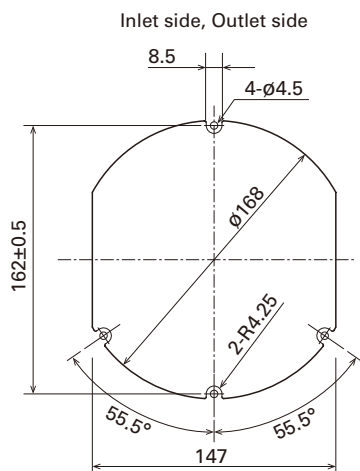


Connector Model no.: TE Connectivity: 1-172168-9

Power lead wire  
AWG22 UL11347

Other lead wire  
AWG24 UL3385

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



## 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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