

# San Ace 40

## 9HVA type

### High Static Pressure Fan

#### Features

##### High Static Pressure and High Airflow

This fan delivers a maximum static pressure of 2300 Pa and a maximum airflow of 1.05 m<sup>3</sup>/min.  
Compared with our current model,\* the maximum static pressure has increased by 2.1 times and the maximum airflow has increased by 1.3 times.

##### Energy-saving

Power consumption has been reduced by approximately 20% compared with the current model.\*

##### Space-saving

This fan delivers higher cooling performance than our 40 × 40 × 56 mm Counter Rotating Fan.\*\*  
The smaller fan size provides enhanced design flexibility.

\* Current model: San Ace 40 9HV type 40 × 40 × 28 mm DC Fan (model no. 9HV0412P3K001).  
\*\* San Ace 40 9CRV type 40 × 40 × 56 mm Counter Rotating Fan (model no. 9CRV0412P5J201).



## 40 × 40 × 28 mm

#### Specifications

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

Model no.	Rated voltage [V]	Operating voltage range [V]	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]
9HVA0412P3J001	12	10.2 to 13.8	100	2.6	31.2	38000	1.05 37.1	2300 9.24	71	-20 to +70	30000/60°C (53000/40°C)
			20	0.12	1.4	8000	0.22 7.8	101 0.41	34		

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

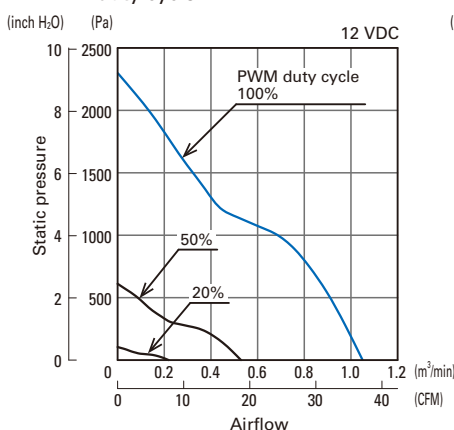
Models with the following sensor specifications are also available as options: **Without sensor** **Lock sensor**

#### Common Specifications

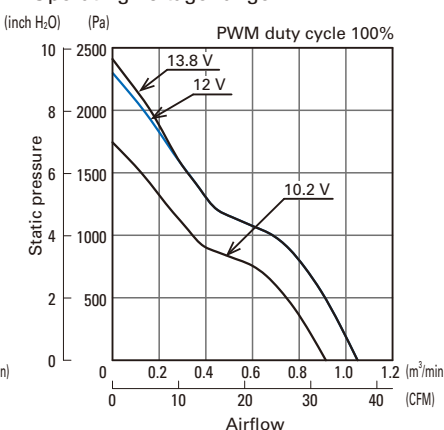
- Material ..... Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life ..... Refer to specifications  
(L10 life: 90% survival rate for continuous operation in free air at 60°C, rated voltage)  
Expected life at 40°C is for reference only.
- Motor protection function ..... Locked rotor burnout protection, Reverse polarity protection
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors 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 ..... ⊕ Red ⊖ Black (Sensor) Yellow (Control) Brown
- Mass ..... 57 g

#### Airflow - Static Pressure Characteristics

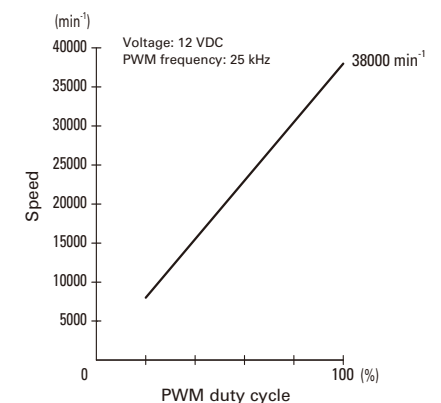
- PWM duty cycle



- Operating voltage range

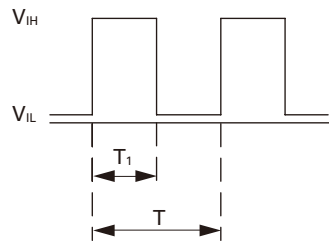


#### PWM Duty - Speed Characteristics Example



## PWM Input Signal Example

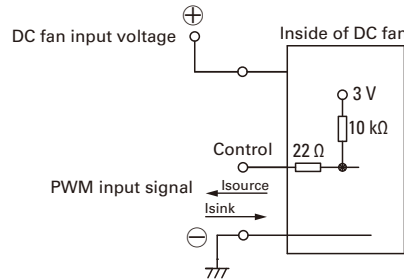
Input signal waveform



$V_{IH} = 4.75 \text{ to } 5.25 \text{ V}$     $V_{IL} = 0 \text{ to } 0.4 \text{ V}$   
 PWM duty cycle (%) =  $\frac{T_1}{T} \times 100$    PWM frequency 25 (kHz) =  $\frac{1}{T}$   
 Current source ( $I_{source}$ ) = 1 mA max. (when control voltage is 0 V)  
 Current sink ( $I_{sink}$ ) = 1 mA max. (when control voltage is 5.25 V)  
 Control terminal voltage = 5.25 V max. (when control terminal is open)

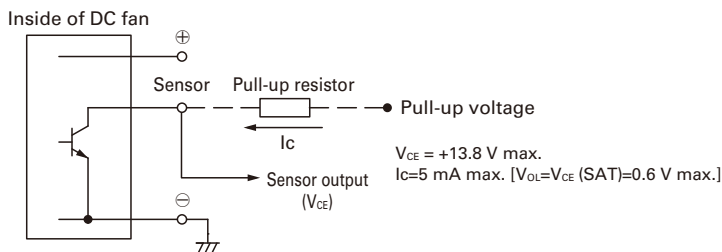
When the control terminal is open,  
 fan speed is the same as when PWM duty cycle is 100%.  
 Either TTL input, open collector or open drain can be used for PWM control input signal.

## Example of Connection Schematic

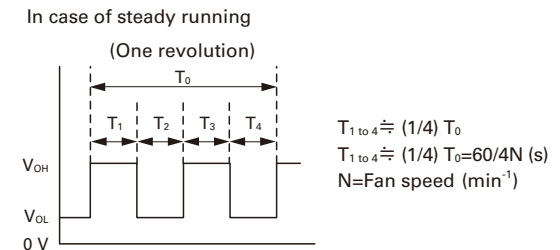


## Specifications for Pulse Sensors

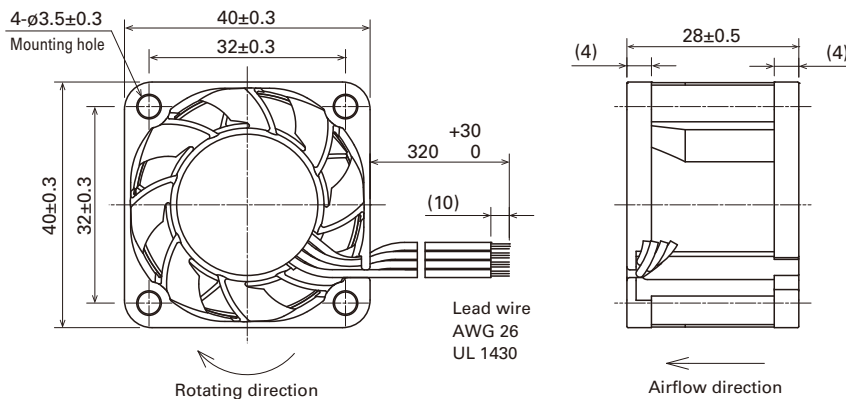
Output circuit: Open collector



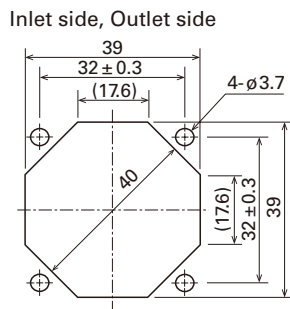
Output waveform (Need pull-up resistor)



## Dimensions (unit: mm)



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



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- 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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