

# San Ace 80 <sup>9HVA type</sup> High Static Pressure Fan

## Features

### High Static Pressure

The maximum static pressure increased by approximately 35% compared with our conventional DC fan, while maintaining equivalent maximum airflow performance.\*

It is an ideal cooling solution especially for densely-packed equipment.

### Suitable for 2U Devices

Measuring 80 mm square, this new fan is ideal for 2U sized equipment.

\*: Our conventional DC fan is 80 x 80 x 38 mm "San Ace 80" 9HV type, Model No. 9HV0812P1G001.



**80×80×38 mm**

## Specifications

The following nos. have **PWM controls, pulse sensors**. For ribless, append "1" to the model no.

Model No.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle (Note 1,2) [%]	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]
9HVA0812P1G001	12	10.8 to 13.2	100	3.5	42	16,100	3.75 132	1,350 5.4	73	-20 to +70	40,000 / 60°C (70,000 / 40°C)
			20	0.2	2.4	4,200	0.96 33.9	105 0.42	44		

Note1: PWM frequency: 25 kHz Note2: Fan does not rotate when PWM duty cycle is 0%.

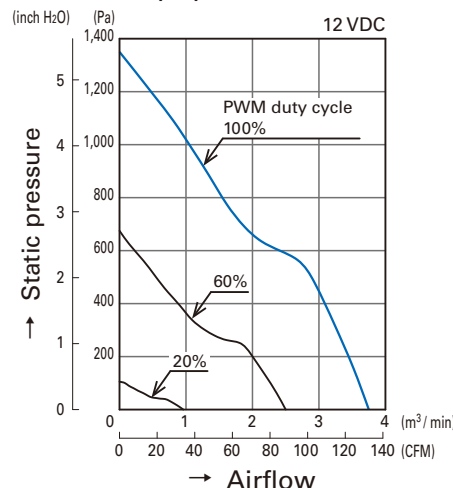
Available options: **Without Sensor**

## Common Specifications

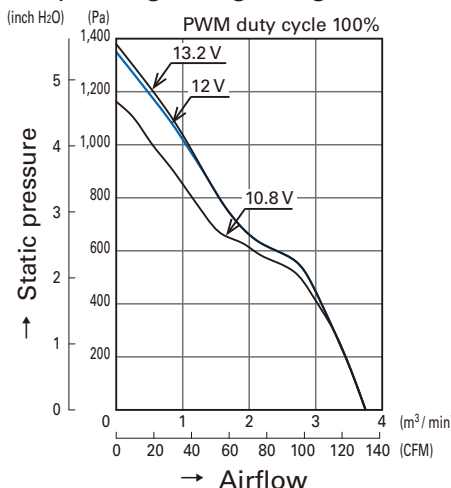
- Material ..... Frame, Impeller: Plastics (Flammability: UL94V-0)
- Expected life ..... Refer to specifications  
(L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Motor protection system ..... Current blocking function and reverse polarity protection
- Dielectric strength ..... 50 / 60 Hz, 500 VAC, 1 minute (between lead conductor and frame)
- Sound pressure level (SPL) ..... Expressed as the value at 1 m from air inlet side
- Operating temperature ..... Refer to specifications (Non-condensing)
- Storage temperature ..... -30°C to +70°C (Non-condensing)
- Lead wire ..... ⊕ Red ⊖ Black Sensor: Yellow Control: Brown
- Mass ..... 220 g

## Airflow - Static Pressure Characteristics

### • PWM duty cycle

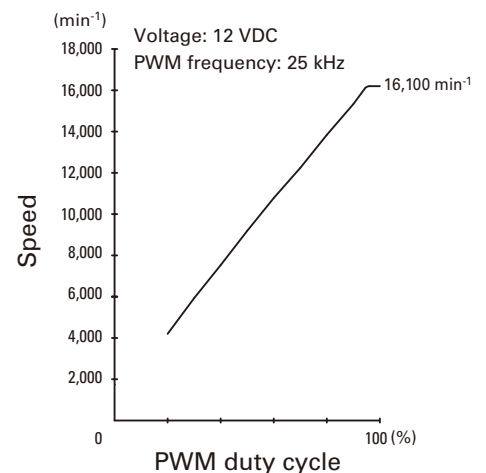


### • Operating voltage range



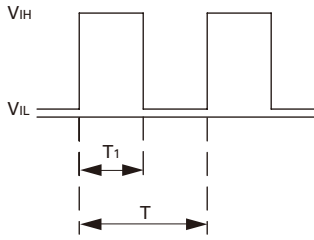
## PWM Duty

### - Speed Characteristics Example



## PWM Input Signal Example

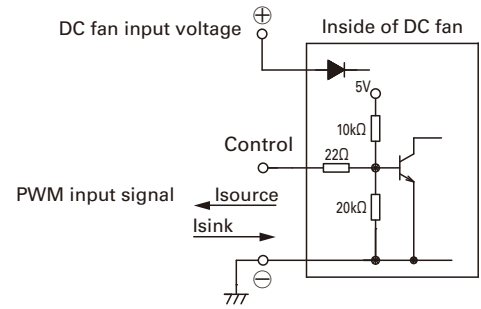
Input signal waveform



$V_{IH}=4.75\text{ V to }5.25\text{ V}$   
 $V_{IL}=0\text{ V to }0.4\text{ V}$   
 PWM duty cycle (%) =  $\frac{T_1}{T} \times 100$   
 PWM frequency 25 (kHz) =  $\frac{1}{T}$   
 Source current ( $I_{source}$ ): 5 mA max. at control voltage 0 V  
 Sink current ( $I_{sink}$ ): 5 mA max. at control voltage 5.25 V  
 Control terminal voltage: 5.25 V max. (Open circuit)

When the control lead wire is open, the fan speed is the same as the one at a PWM duty cycle of 100%.  
 Either TTL input, open collector or open drain can be used for PWM control input signal.

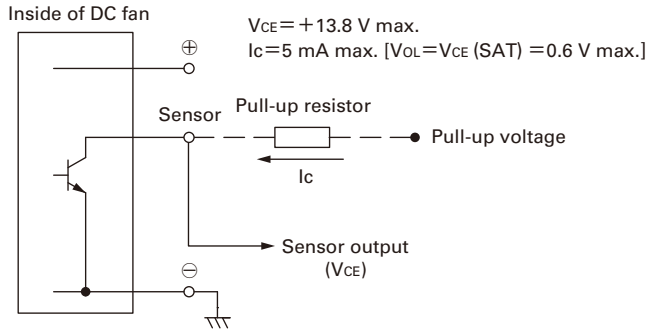
## Example of Connection Schematic



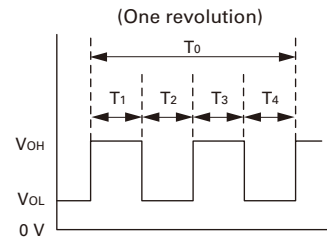
## Specifications for Pulse Sensors

Output circuit: Open collector

Output waveform (Need pull-up resistor)

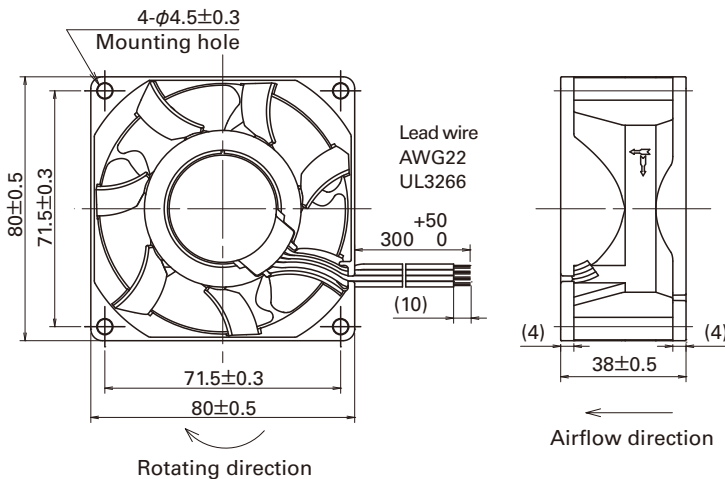


In case of steady running

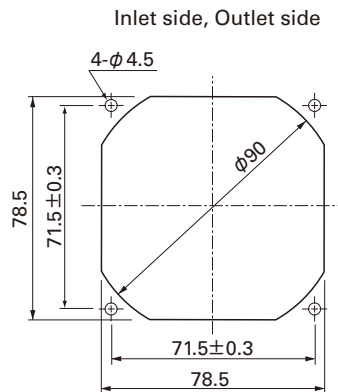


$T_{1\text{ to }4} \doteq (1/4) T_0$   
 $T_{1\text{ to }4} \doteq (1/4) T_0 = 60/4N \text{ (sec)}$   
 $N = \text{Fan speed (min}^{-1}\text{)}$

## Dimensions (unit: mm) (with ribs)



## 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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