# San Ace 36 9HV type

## **High Static Pressure Fan**

#### Features

#### **High Static Pressure and High Airflow**

This fan delivers a maximum static pressure of 1,400 Pa and a maximum airflow of 0.72 m<sup>3</sup>/min.

Compared with the current model,\* the maximum static pressure has increased by 1.67 times and maximum airflow has increased by 1.04 times.

#### Space-saving

This fan provides the same cooling performance as our conventional  $40 \times 40 \text{ mm}$ 

The reduced fan size enables enhanced design flexibility.

#### **High Energy Efficiency and Low Noise**

The PWM control function enables the external control of fan speed, contributing to lowering noise and improving energy efficiency of devices.

- \* Current model: San Ace 36 9GX type 36 x 36 x 28 mm (9GX3612P3K001).
- \*\* Conventional fans: 40 × 40 × 28 mm San Ace 40 9GV type (9HV0412P3K001) and 9GAX type (9GAX0412P3S001).



# 36×36×28<sub>mm</sub>

#### 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. a [m³/min]	irflow [CFM]		c pressure inchH <sub>2</sub> O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9HV3612P3K001	12	10.8 to 13.2	100	1.75	21.0	32500	0.72	25.4	1400	5.62	67	-20 to +60	30000/60°C
			20	0.05	0.6	6000	0.12	4.2	47.2	0.19	26		

<sup>\*</sup> PWM frequency: 25 kHz. Fan does not rotate when PWM duty cycle is 0%.

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

#### Common Specifications =

☐ Material · · · · · · Frame: Plastic (Flammability: UL 94V-1), 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)

Motor protection system · · · · · Current blocking function and reverse polarity protection

☐ Dielectric strength · · · · · · · · · · · · 50/60 Hz, 500 VAC, for 1 minute (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)

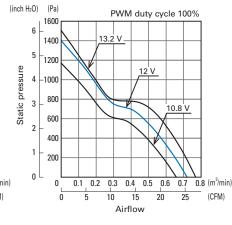
□ Lead wire · · · · · · · · · ⊕ Red ⊝ Black Sensor Yellow Control Brown

☐ Mass · · · · · Approx. 53 g

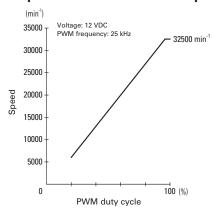
### Airflow - Static Pressure Characteristics

#### PWM duty cycle (inch H<sub>2</sub>O) (Pa) 12 VDC 1600 1400 PWM duty cycle 1200 Static pressure 4 -1000 800 3 -600 2 400 200 0.3 0.4 0.5 0.6 0.7 0.8 (m³/min) 0.1 0.2 15 20 Airflow

#### · Operating voltage range

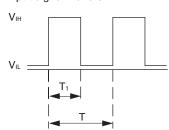


#### **PWM Duty -**Speed Characteristics Example



#### PWM Input Signal Example

#### Input signal waveform



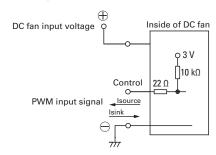
 $V_{IH} = 4.75 \text{ to } 5.25 \text{ V} \quad V_{IL} = 0 \text{ to } 0.4 \text{ V} \\ \text{PWM duty cycle (\%)} = \frac{T_1}{T} \times 100 \qquad \text{PWM frequency } 25 \text{ (kHz)} = 0.00 \text{ (kHz)} =$ Current source (Isource) = 1 mA max. (when control voltage is 0 V) Current sink (Isink) = 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%.

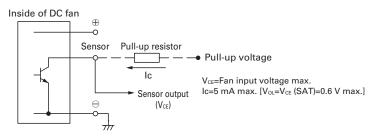
Either TTL input, open collector or open drain can be used for PWM control input signal.

#### Example of Connection Schematic



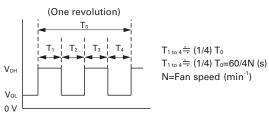
#### Specifications for Pulse Sensors

#### Output circuit: Open collector

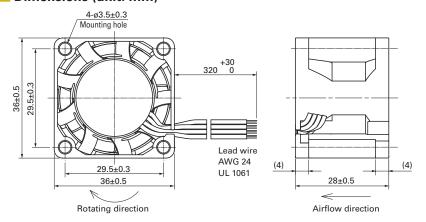


#### Output waveform (Need pull-up resistor)

In case of steady running

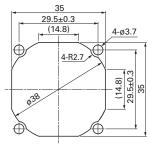


#### Dimensions (unit: mm)



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

Inlet side, Outlet side



- ●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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