

San Ace 40

9HV type

High Static Pressure Fan

Features

High Static Pressure

- Static pressure: 1.4 times that of our conventional DC fan.*
- Servers, data storage systems, ICT devices, and power supplies are becoming denser and generating more heat.
- Offers effective cooling even for these devices with its greatly increased static pressure.

* : Our conventional DC fan is 40 × 40 × 28 mm "San Ace 40 9GA type", Model No. 9GA0412P3K01.



40×40×28mm

Specifications

The following nos. have **PWM controls, pulse sensors**.

Model No.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle (Note) [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9HV0412P3K001	12	10.8 to 12.6	100	1.52	18.3	25,000	0.83 29.3	1,100 4.42	65	-20 to +60	40,000 / 60 °C
			0	0.2	2.4	7,500	0.25 8.8	99 0.40	37		

Note: PWM frequency: 25 kHz

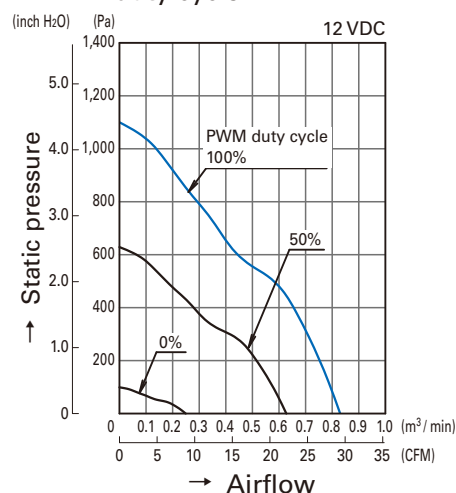
Available options: **Without Sensor** **Pulse Sensor**

Common Specifications

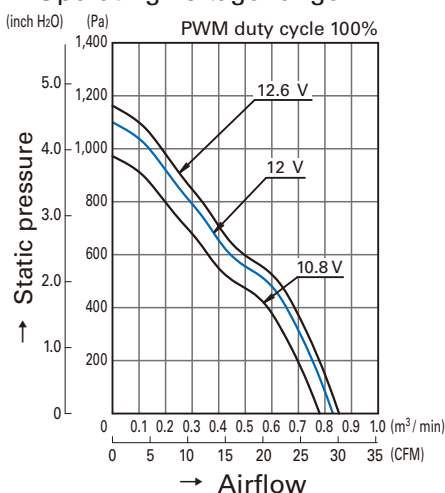
- ☐ Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-0)
- ☐ Expected life Refer to specifications
(L10: Survival rate: 90% at 60 °C, rated voltage, and continuously run in a free air state)
- ☐ Motor protection system Current blocking function and reverse polarity protection
- ☐ Dielectric 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 Approx. 60 g

Airflow - Static Pressure Characteristics

• PWM duty cycle

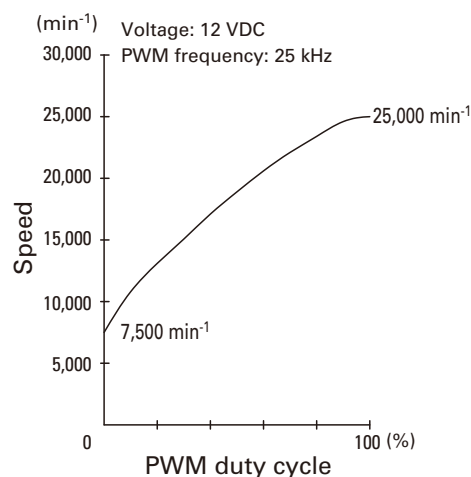


• Operating voltage range



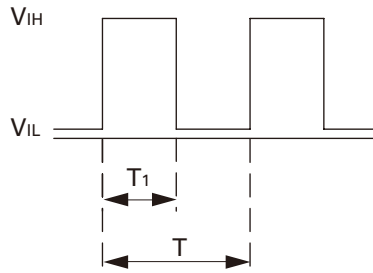
PWM Duty

- Speed Characteristics Example



PWM Input Signal Example

Input signal waveform



$V_{IH}=2.8\text{ V to }3.8\text{ V}$

$V_{IL}=0\text{ V to }0.4\text{ V}$

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

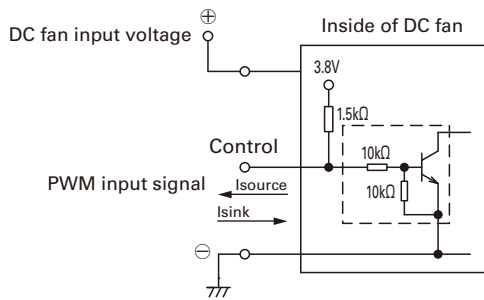
Sink current (I_{sink}) : 5 mA max. at control voltage 3.8 V

Control terminal voltage: 3.8 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.

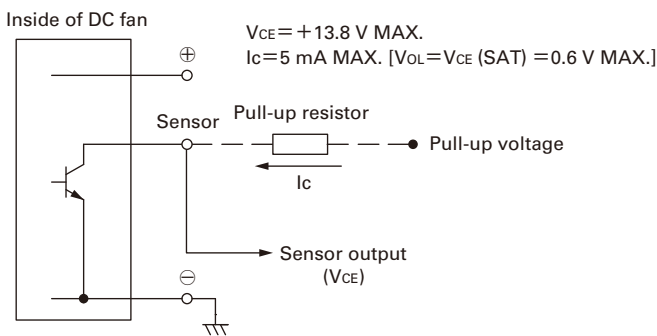
Example of Connection Schematic



Specifications for Pulse Sensors

Output circuit: Open collector

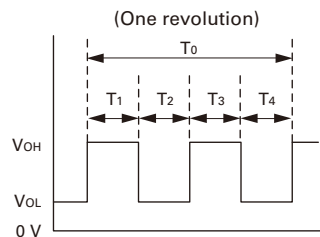
Output waveform (Need pull-up resistor)



$V_{CE}=+13.8\text{ V MAX.}$

$I_C=5\text{ mA MAX. [V}_{OL}=V_{CE}(\text{SAT})=0.6\text{ V MAX.}]$

In case of steady running



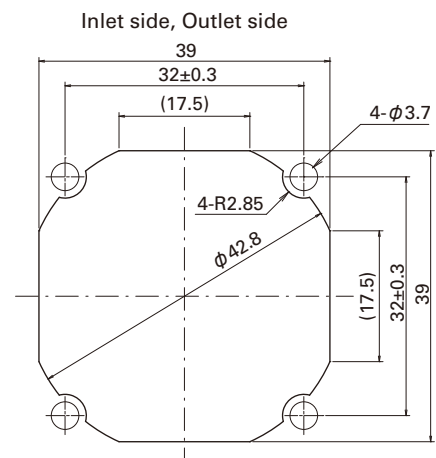
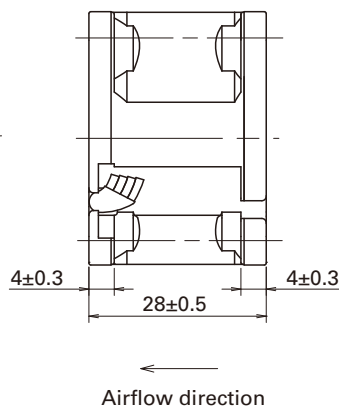
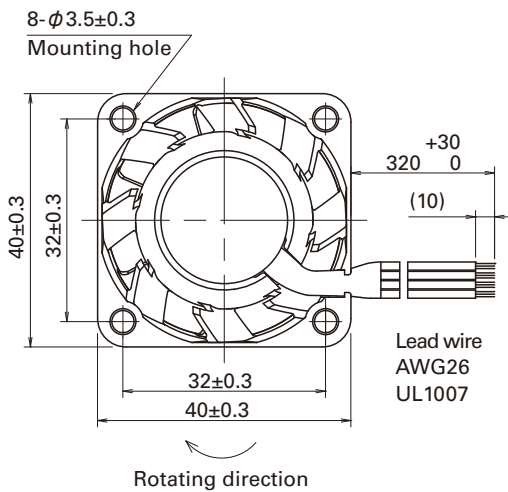
$T_1 \sim 4 \div (1/4) T_0$

$T_1 \sim 4 \div (1/4) T_0 = 60/4N \text{ (sec)}$

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

Dimensions (unit: mm)

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



Notice

- Please read the "Safety Precautions" on our website once you have decided on a product for use.
- The products shown in this catalog are subject to Japanese Export Control Law. Diversion contrary to the law of exporting country is prohibited.
- To protect against electrolytic corrosion that may occur in locations with strong electromagnetic noise, we provide fans that are unaffected by electrolytic corrosion.

SANYO DENKI CO., LTD. 3-33-1, Minami-Otsuka, Toshima-ku, Tokyo, 170-8451, Japan TEL: +81 3 5927 1020

<http://www.sanyodenki.com>

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