

# San Ace 92 9HV type

## High Static Pressure Fan

### ■ Features

#### High Static Pressure

Maximum static pressure is increased by approximately 2.5 times compared with our conventional product.\*

#### Low Power Consumption

Provides the same cooling performance as three of our conventional products connected in series, while consuming approximately 46% less power.\*

\* Specification of Model No. 9HV0912P1G001.  
Our conventional product is 92 x 92 x 38 mm "San Ace 92", Model No. 9GV0912P1G03.



**92×92×38mm**

### ■ Specifications

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

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM Duty Cycle [%] <sup>(Note1)</sup>	Rated Current [A]	Rated Input [W]	Rated Speed [min <sup>-1</sup> ]	Max. Air Flow [m <sup>3</sup> /min] [CFM]		MAX. Static Pressure [Pa] [inchH <sub>2</sub> O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life <sup>(Note2)</sup> [h]
9HV0912P1G001	12	8 to 12.6	100	5.2	62.4	14,900	5.1	180	1,100	4.42	72	-20 to +70	40,000 / 60°C (70,000 / 40°C)
			0	0.8	9.6	4,500	1.54	54.4	160	0.64	44		
9HV0948P1G001	48	36 to 60	100	1.2	57.6	14,900	5.1	180	1,100	4.42	72		
			0	0.15	7.2	4,500	1.54	54.4	160	0.64	44		

Note1: PWM Frequency: 25 kHz

Note2: Expected life at 40 degreeC ambient is just reference value.

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

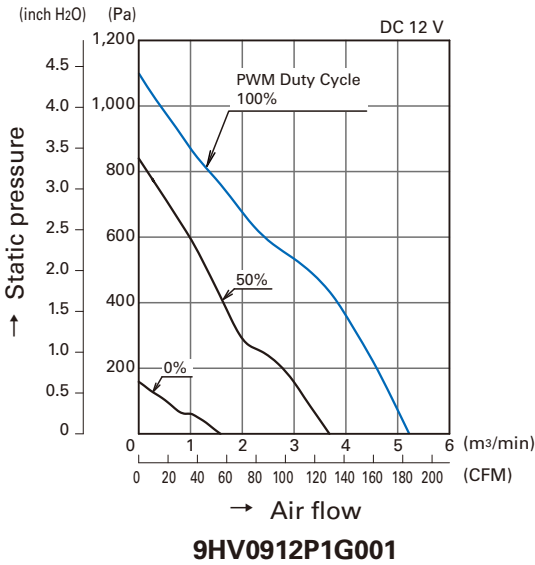
Please inquire as the availability of these functions depend on the model: **Lock Sensor** **Low Speed Sensor**

### ■ Common Specifications

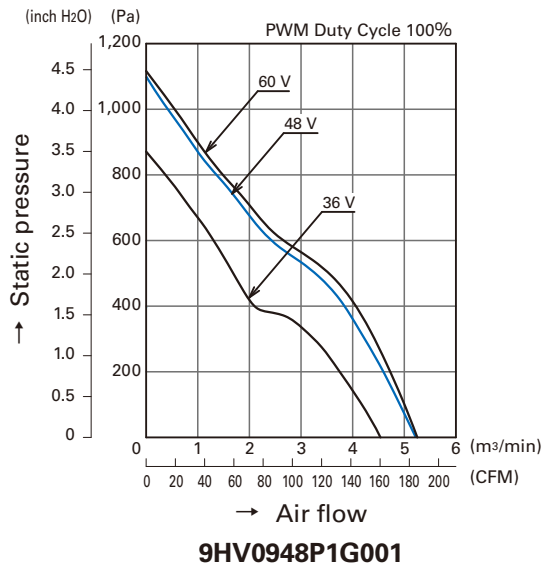
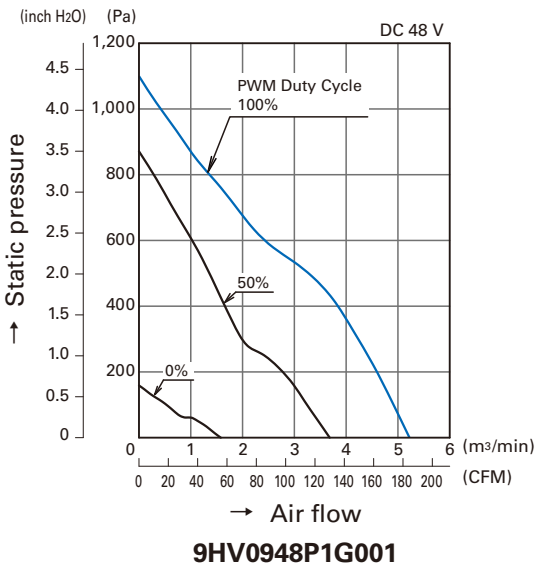
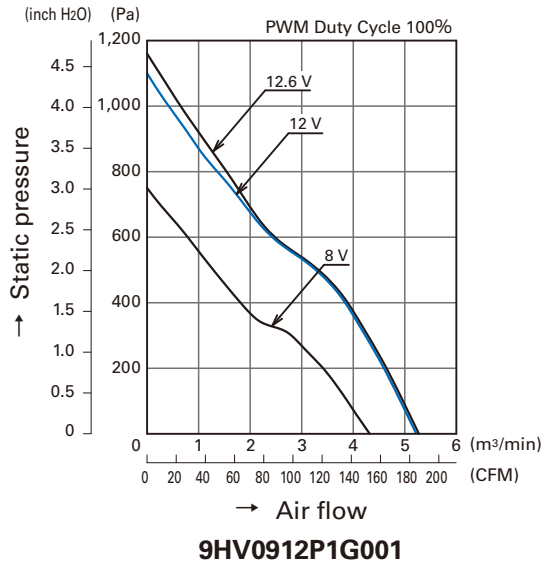
- Material ..... Frame: Plastics (Flammability: UL94V-0), Impeller: Plastics (Flammability: UL94V-1)
- Expected Life ..... Refer to specifications  
(L10: Survival rate: 90% at 60 °C, rated voltage, and continuously run in a free air state)
- Motor Protection System ..... Current blocking function and 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. 250 g

## Air Flow - Static Pressure Characteristics

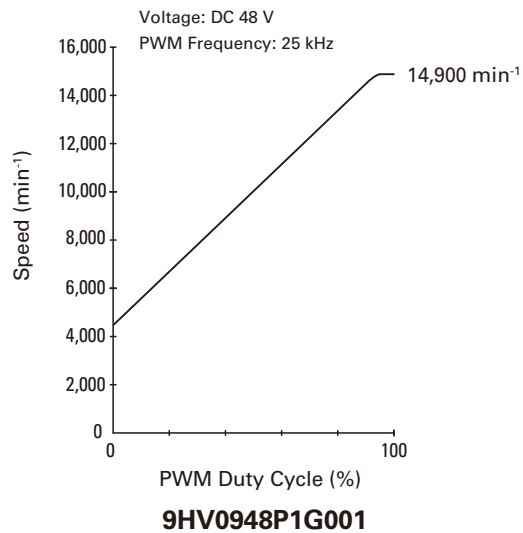
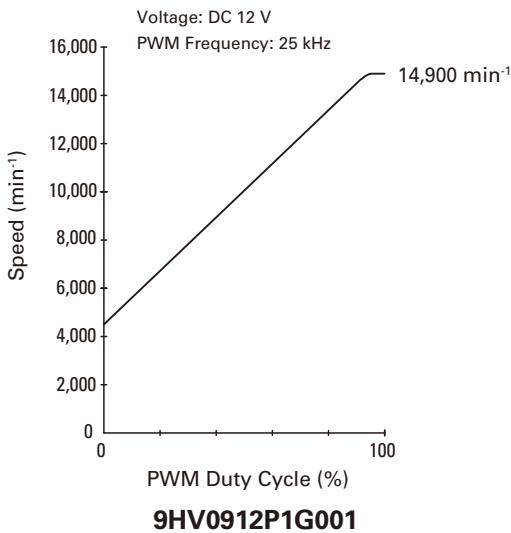
- PWM Duty Cycle



- Operating Voltage Range

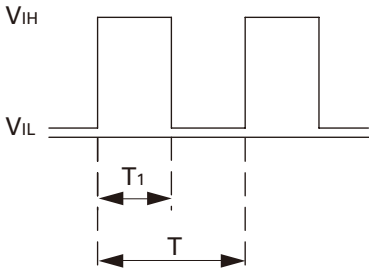


## PWM Duty - Speed Characteristics Example



**PWM Input Signal Example**

Input Signal Waveform



$V_{IH}=4.75\text{ V to }5.25\text{ V}$

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

$\text{PWM Duty Cycle (\%)} = \frac{T_1}{T} \times 100$

$\text{PWM Frequency } 25\text{ (kHz)} = \frac{1}{T}$

Source Current ( $I_{source}$ ) : 1 mA Max. at control voltage 0 V

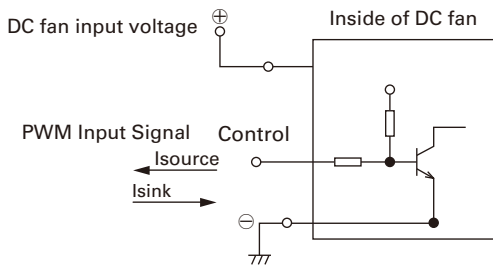
Sink Current ( $I_{sink}$ ) : 1 mA Max. at control voltage 5.25 V

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.

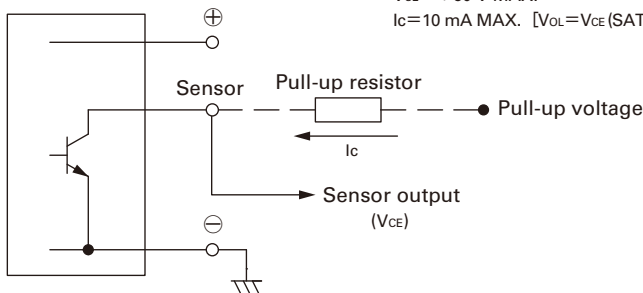
**Example of Connection Schematic**



**Specifications for Pulse Sensors**

Output circuit: Open collector

Inside of DC fan



**Rated Voltage 12 V Fan**

$V_{CE} = +15\text{ V MAX.}$

$I_c = 10\text{ mA MAX. } [V_{OL} = V_{CE(SAT)} = 0.6\text{ V MAX.}]$

**Rated Voltage 48 V Fan**

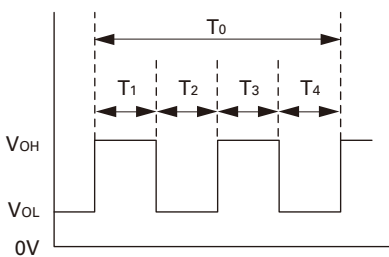
$V_{CE} = +60\text{ V MAX.}$

$I_c = 10\text{ mA MAX. } [V_{OL} = V_{CE(SAT)} = 0.6\text{ V MAX.}]$

Output Waveform (Need pull-up resistor)

In case of steady running

(One revolution)

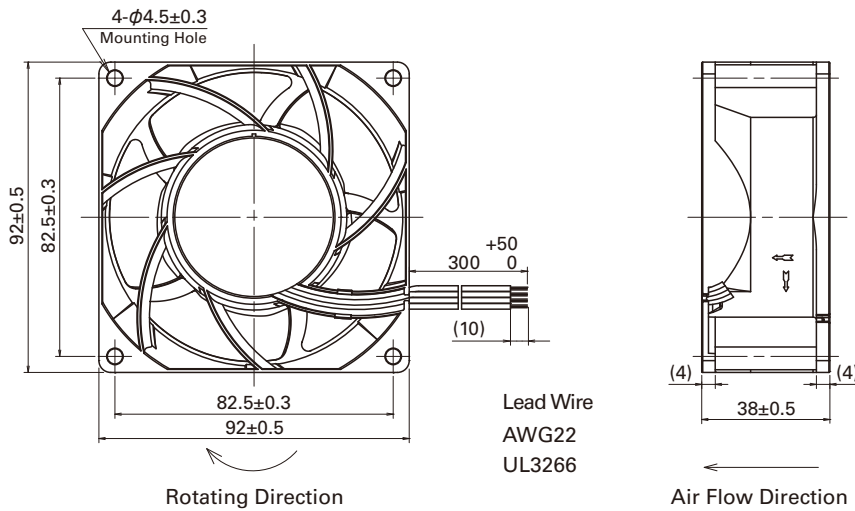


$T_{1\sim 4} \doteq (1/4) T_0$

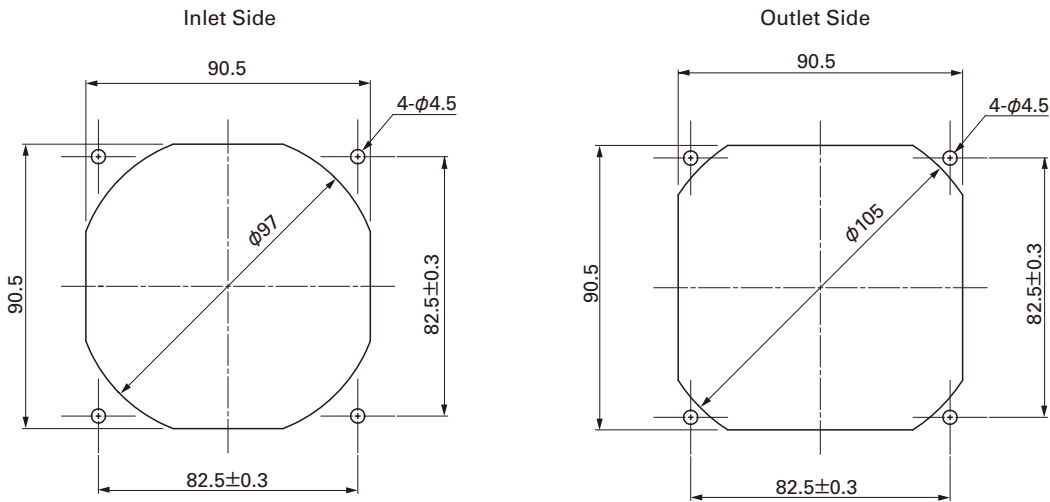
$T_{1\sim 4} \doteq (1/4) T_0 = 60/4N\text{ (sec)}$

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

**Dimensions (unit : mm) (With ribs)**



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



- 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>

The names of companies and/or their products specified in this catalog are the trade names, and/or trademarks and/or registered trademarks of such respective companies.

"San Ace" is a trademark of SANYO DENKI CO.,LTD.

Specifications are subject to change without notice.

CATALOG No. C1031B001 '13.12