San Ace 40W 9WPA type
Splash Proof Fan

Features

High Airflow and High Static Pressure

This fan delivers a maximum airflow of 0.38 m^3/min and maximum static pressure of 210 Pa,(1) which are about 1.68 times and 3.19 times higher than our current model,(2) respectively.

Low Noise and Energy Saving

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

Water and Dust Protection

This fan achieves excellent IP68(3) water and dust protection, maintaining stable operation in harsh environments.



(1) For models 9WPA0412P6G001 and 9WPA0424P6G001
(2) Current model: 40 × 40 × 20 mm *San Ace 40W* 9WP type Splash Proof Fan (model no. 9WP0412H6001).
(3) The degree of protection (IP code) is defined by IEC 60529 (International Electrotechnical Commission) as follows.
The protection rating applies only to electrical components (motor coils and electronic components) in our fans.
The mechanical components other than the electrical components are not subject to protection.

40 × 40 × 20 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^{-1}]	Max. airflow [m^3/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH_2O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9WPA0412P6G001	12	10.8 to 13.2	100	0.17	2.0	13700	0.38	13.4	210	0.84	44	-20 to +70	40000/60°C (70000/40°C)
			25	0.03	0.36	3000	0.07	2.5	9.8	0.04	12		
9WPA0424P6G001	24	21.6 to 26.4	100	0.09	2.0	13700	0.38	13.4	210	0.84	44		
			25	0.03	0.72	3600	0.09	3.2	15	0.06	14		

* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

The models listed below **have ribs and pulse sensors.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min^{-1}]	Max. airflow [m^3/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH_2O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9WPA0412H6001	12	7 to 13.8	0.075	0.9	8800	0.24	8.5	81	0.33	34	-20 to +70	40000/60°C (70000/40°C)
9WPA0424H6001	24	14 to 27.6	0.038									

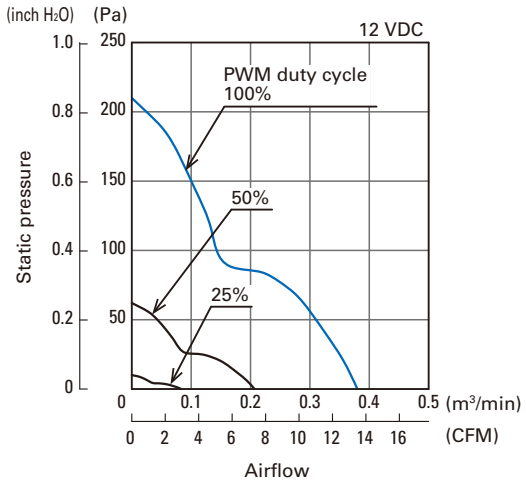
Models with the following sensor specifications are also available as options: Without sensor

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 indoor 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 min. at 500 VDC (between lead wire conductors and frame)
- ☐ Sound pressure level (SPL) ····· A-weighted 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
  (For models without PWM control function, there is no speed control wiring.)
- ☐ Mass ····· 47 g
- ☐ Ingress protection ····· IP68

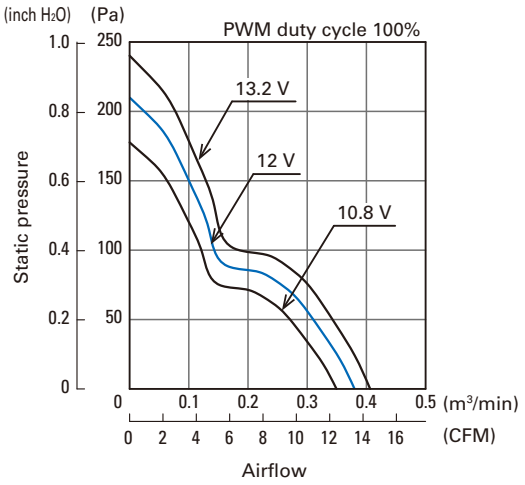
Airflow - Static Pressure Characteristics

PWM duty cycle



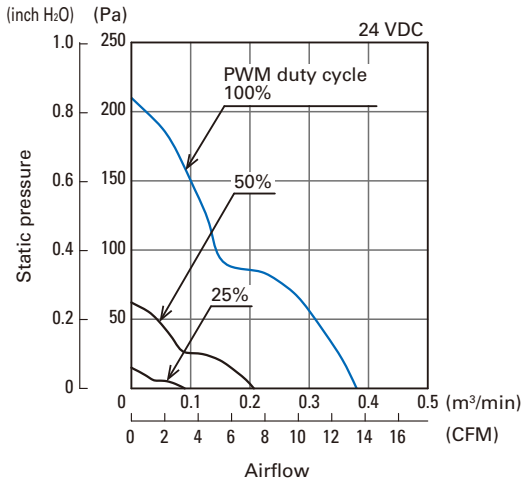
9WPA0412P6G001

Operating voltage range



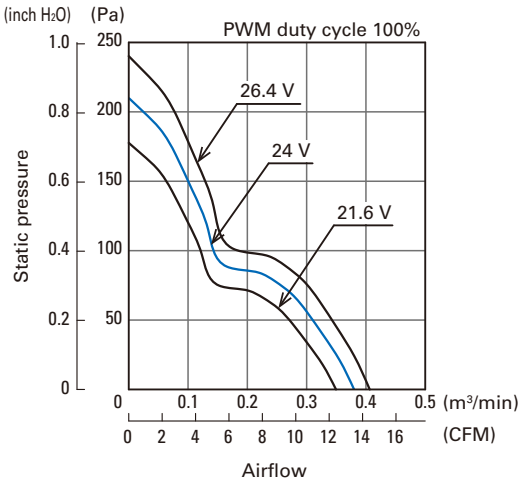
9WPA0412P6G001

PWM duty cycle



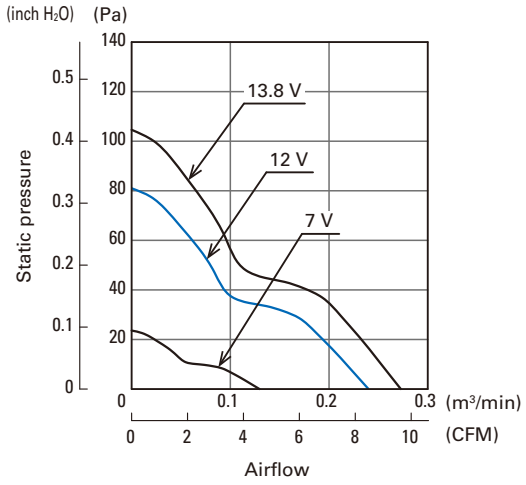
9WPA0424P6G001

Operating voltage range

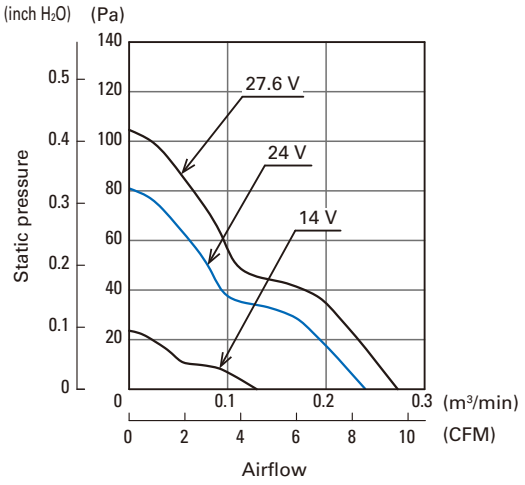


9WPA0424P6G001

Operating voltage range

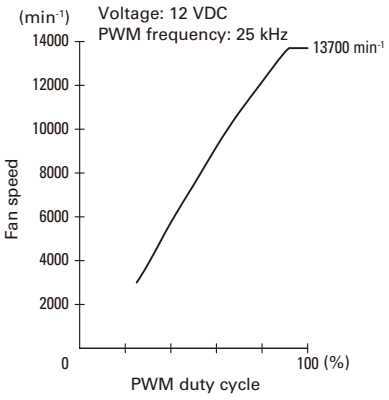


9WPA0412H6001

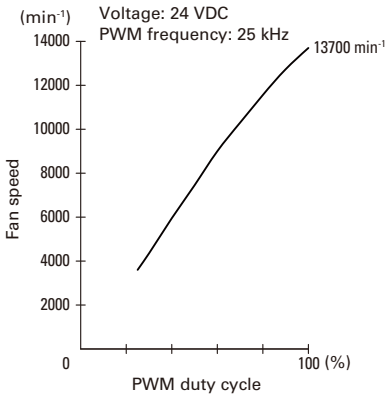


9WPA0424H6001

PWM Duty - Speed Characteristics Example



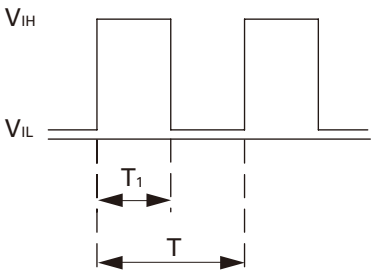
9WPA0412P6G001



9WPA0424P6G001

PWM Input Signal Example

Input signal waveform



V_{IH} = 4.75 to 5.25 V V_{IL} = 0 to 0.4 V

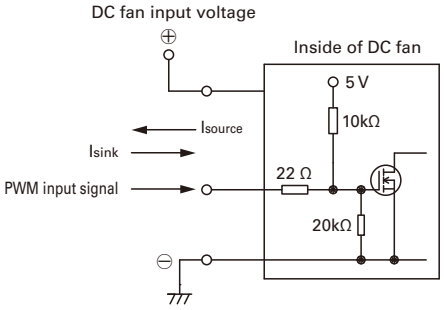
PWM duty cycle (%) = $\frac{T_1}{T} \times 100$ PWM frequency 25 (kHz) = $\frac{1}{T}$

Current source (Isource) = 1.0 mA max. (when control voltage is 0 V)

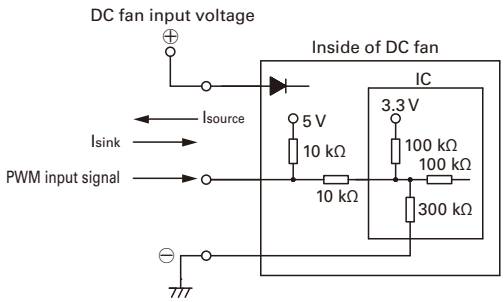
Current sink (Isink) = 1.0 mA max. (when control voltage is 5.25 V)

When the PWM control terminal is open,
the fan speed is the same as the speed at 100% PWM duty cycle.
The PWM signal can be used with open collector or drain input.
Note that when using an open collector or drain input,
or inputting a different voltage or frequency,
the speed relative to the PWM duty cycle may differ from this specification.

Example of Connection Schematic



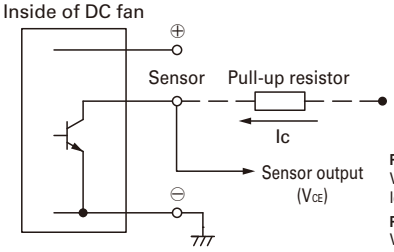
9WPA0412P6G001



9WPA0424P6G001

Specifications for Pulse Sensors

Output circuit: Open collector



Rated voltage 12 V fan (With PWM control function)
V_{CE} = +13.2 V max.
Ic=5 mA max. [V_{OL}=V_{CE} (SAT)=0.6 V max.]

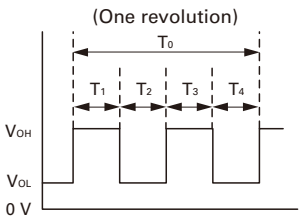
Rated voltage 24 V fan (With PWM control function)
V_{CE} = +26.4 V max.
Ic=5 mA max. [V_{OL}=V_{CE} (SAT)=0.6 V max.]

Rated voltage 12 V fan (Without PWM control function)
V_{CE} = +13.8 V max.
Ic=5 mA max. [V_{OL}=V_{CE} (SAT)=0.6 V max.]

Rated voltage 24 V fan (Without PWM control function)
V_{CE} = +27.6 V max.
Ic=5 mA max. [V_{OL}=V_{CE} (SAT)=0.6 V max.]

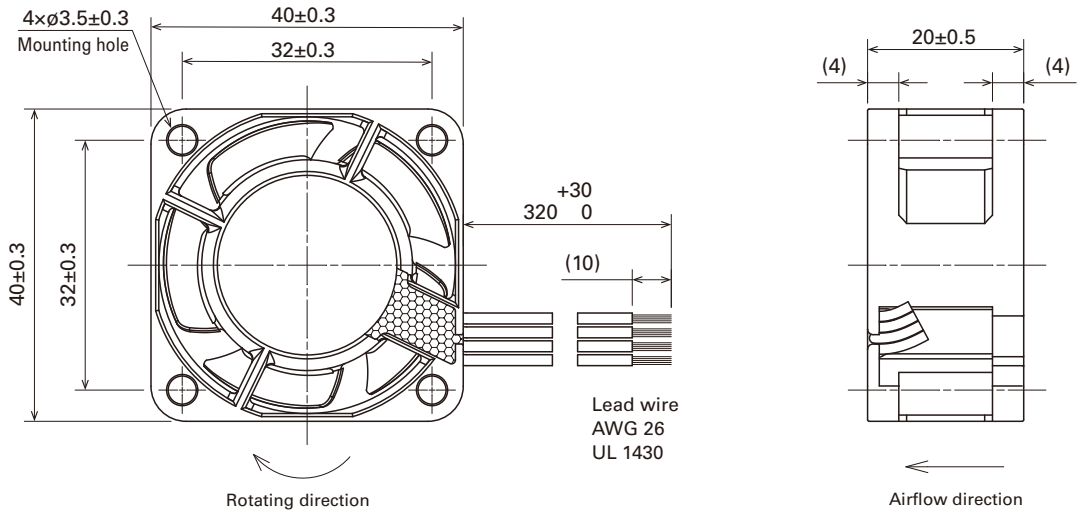
Output waveform (Need pull-up resistor)

In case of steady running

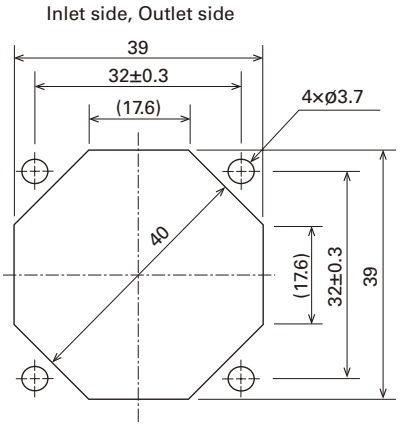


$T_{1\ to\ 4} \fallingdotseq (1/4)\ T_0$
$T_{1\ to\ 4} \fallingdotseq (1/4)\ T_0 = 60/4N$ (s)
N=Fan speed (min-1)

Dimensions (unit: mm) (With pulse sensor with PWM control function)



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



Options

Finger guards

Model no.: 109-059, 109-059H

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.

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

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