

San Ace 140W 9WL type

Splash Proof Fan

Features

Long Service Life

This fan achieves an expected life as long as 100,000 hours, which is 1.7 times that of our current model⁽¹⁾.

High Airflow and High Static Pressure

This fan delivers a maximum airflow of 9.0 m³/min and maximum static pressure of 655 Pa.⁽²⁾

Compared with the current model⁽¹⁾, the maximum airflow has been increased to 1.1 times and maximum static pressure has been increased to 2.7 times.

Water and Dust Resistance

Superior IP68-rated⁽³⁾ water and dust protection ensures stable fan operation even in harsh environments.

High Energy Efficiency and Low Noise

Power consumption has been reduced by 35%⁽⁴⁾ compared with the current model⁽¹⁾. The PWM control function enables the external control of fan speed, contributing to the lower noise and higher energy efficiency of devices.



(1) Current model: *San Ace 140W* 9WB type 140 × 140 × 51 mm Splash Proof Fan (model no. 9WB14□□S501).

(2) The values are for 9WL14□□P5G001 models, where □'s are wildcard characters.

(3) Based on the testing method standardized by International Electrotechnical Commission (IEC) in IEC 60529.

(4) The values are for 9WL14□□P5S001 models, where □'s are wildcard characters.

140×140×51 mm

Specifications

The models listed below **have 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] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9WL1412P5G001	12	10.2 to 13.8	100	5.16	62	7500	9.0 318	655 2.63	69	-20 to +70	100000/60°C
			20	0.31	3.72	2300	2.75 97	80 0.32	38		
9WL1412P5S001			100	1.83	22	5000	6.0 212	295 1.18	57		
			20	0.31	3.72	2300	2.75 97	80 0.32	38		
9WL1424P5G001	24	20.4 to 27.6	100	2.58	62	7500	9.0 318	655 2.63	69		
			20	0.16	3.84	2300	2.75 97	80 0.32	38		
9WL1424P5S001			100	0.91	22	5000	6.0 212	295 1.18	57		
			20	0.16	3.84	2300	2.75 97	80 0.32	38		
9WL1448P5G001	48	40.8 to 55.2	100	1.29	62	7500	9.0 318	655 2.63	69		
			20	0.12	5.76	2300	2.75 97	80 0.32	38		
9WL1448P5S001			100	0.45	22	5000	6.0 212	295 1.18	57		
			20	0.12	5.76	2300	2.75 97	80 0.32	38		

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

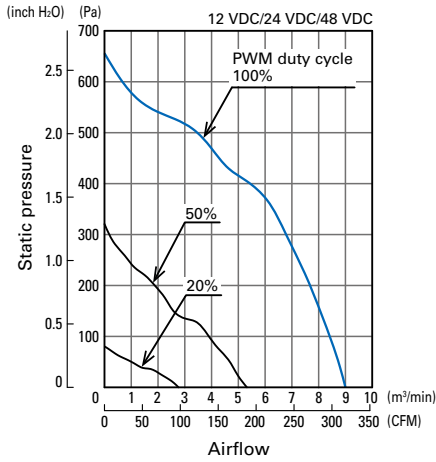
Models with the following sensor specifications are also available as options: **Lock sensor**

Common Specifications

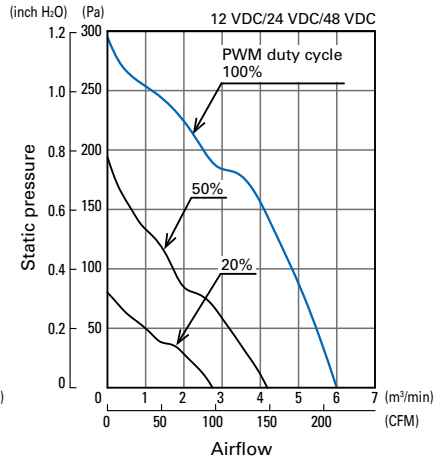
- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life See the table below.
(L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)
- Motor protection system Current blocking function and reverse polarity protection
- 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)
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕ Red ⊖ Black Sensor Yellow Control Brown
- Mass Approx. 930 g

Airflow - Static Pressure Characteristics

• PWM duty cycle

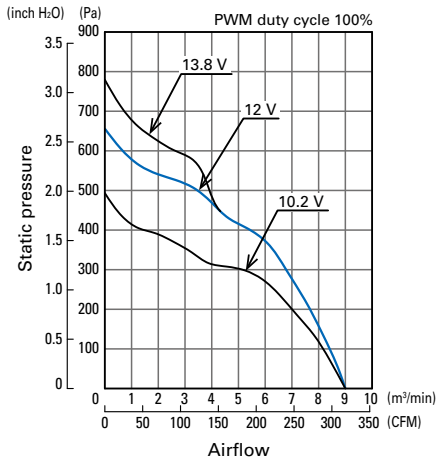


9WL1412P5G001
9WL1424P5G001
9WL1448P5G001

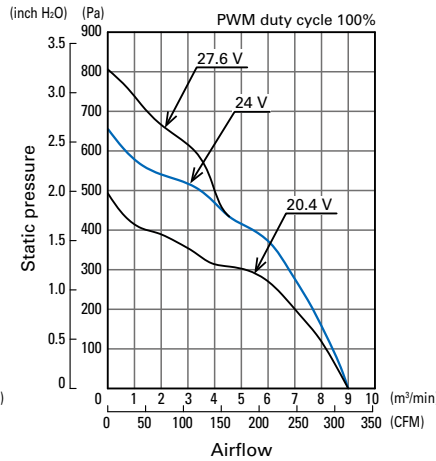


9WL1412P5S001
9WL1424P5S001
9WL1448P5S001

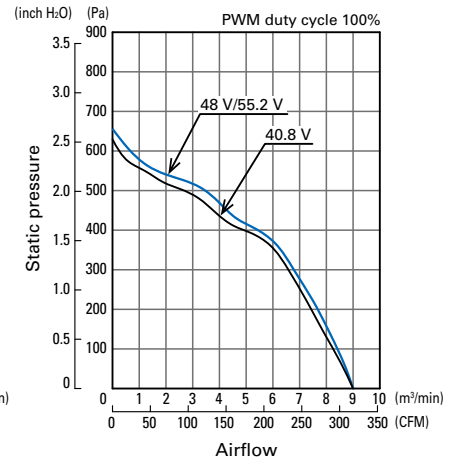
• Operating voltage range



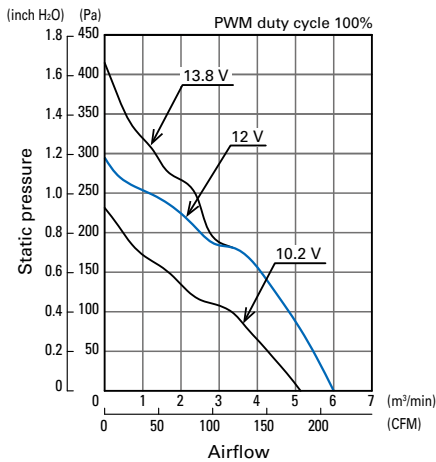
9WL1412P5G001



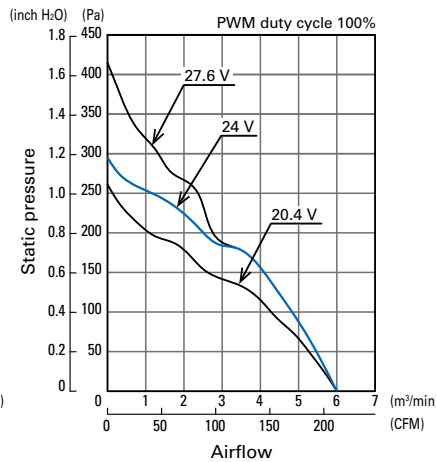
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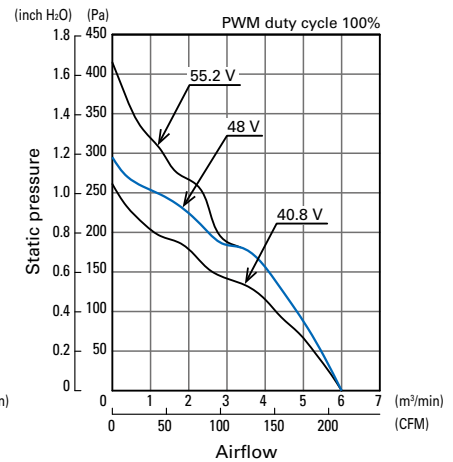
9WL1448P5G001



9WL1412P5S001

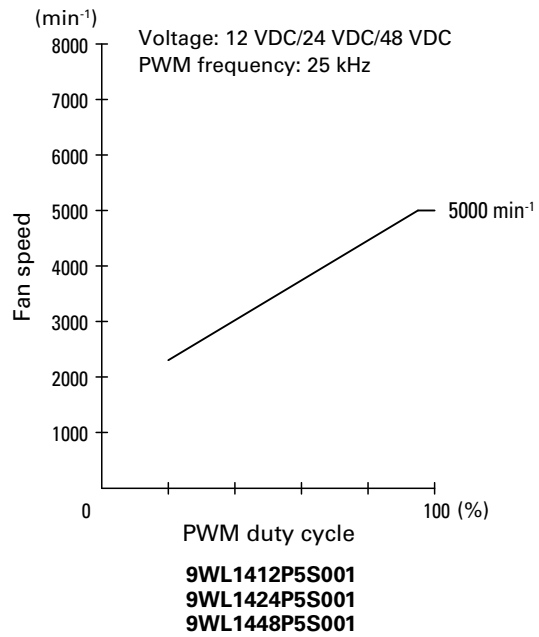
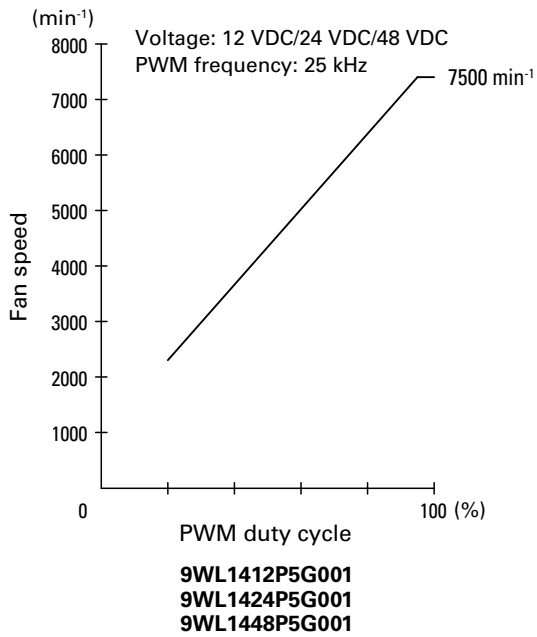


9WL1424P5S001



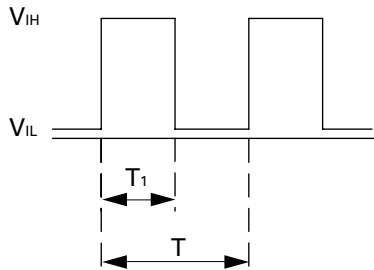
9WL1448P5S001

PWM Duty - Speed Characteristics Example



PWM Input Signal Example

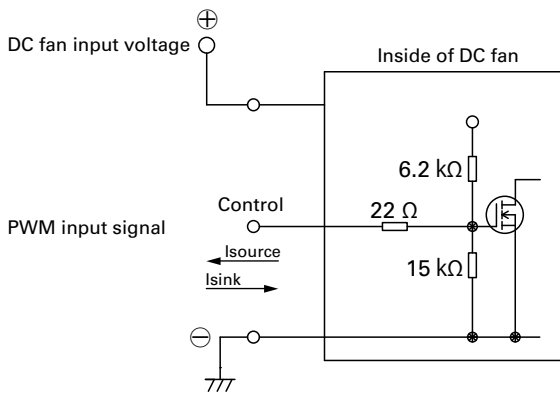
Input signal waveform



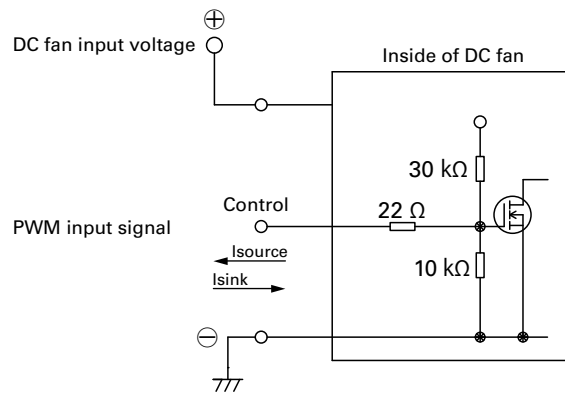
$V_{IH} = 4.75 \text{ to } 5.25 \text{ V}$ $V_{IL} = 0 \text{ to } 0.4 \text{ V}$
 $\text{PWM duty cycle (\%)} = \frac{T_1}{T} \times 100$ $\text{PWM frequency } 25 \text{ (kHz)} = \frac{1}{T}$
 Current source (I_{source}) = 1 mA max. (when control voltage is 0 V)
 Current sink (I_{sink}) = 1 mA max.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



Rated voltage 12 V fan

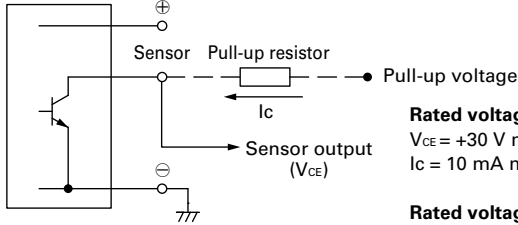


Rated voltage 24 V/48 V fan

Specifications for Pulse Sensors

Output circuit: Open collector

Inside of DC fan

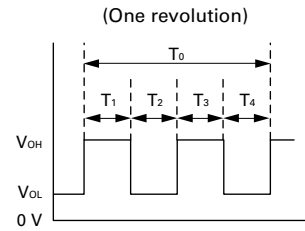


Rated voltage 12 V/24 V fan
 $V_{CE} = +30 \text{ V max.}$
 $I_C = 10 \text{ mA max.}$ [$V_{OL} = V_{CE} \text{ (SAT)} = 0.6 \text{ V max.}$]

Rated voltage 48 V fan
 $V_{CE} = +60 \text{ V max.}$
 $I_C = 10 \text{ mA max.}$ [$V_{OL} = V_{CE} \text{ (SAT)} = 0.6 \text{ V max.}$]

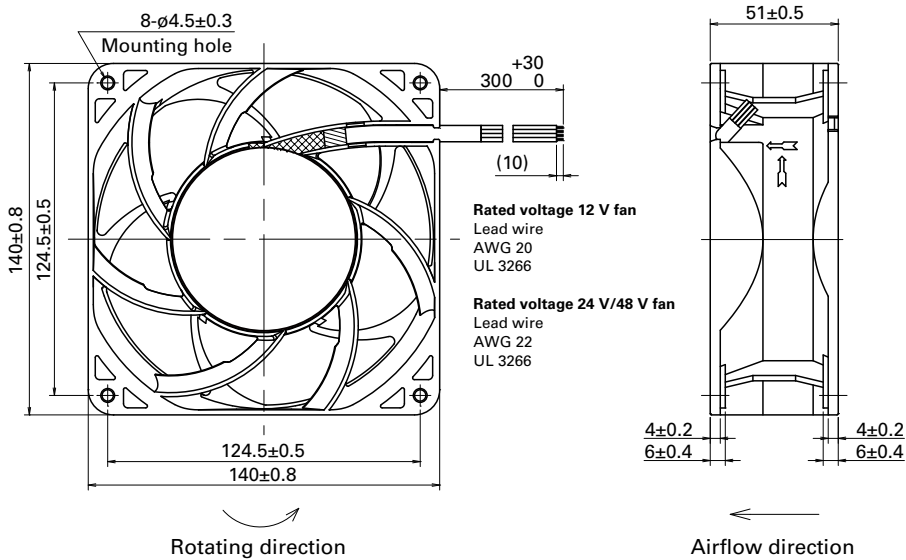
Output waveform (Need pull-up resistor)

In case of steady running

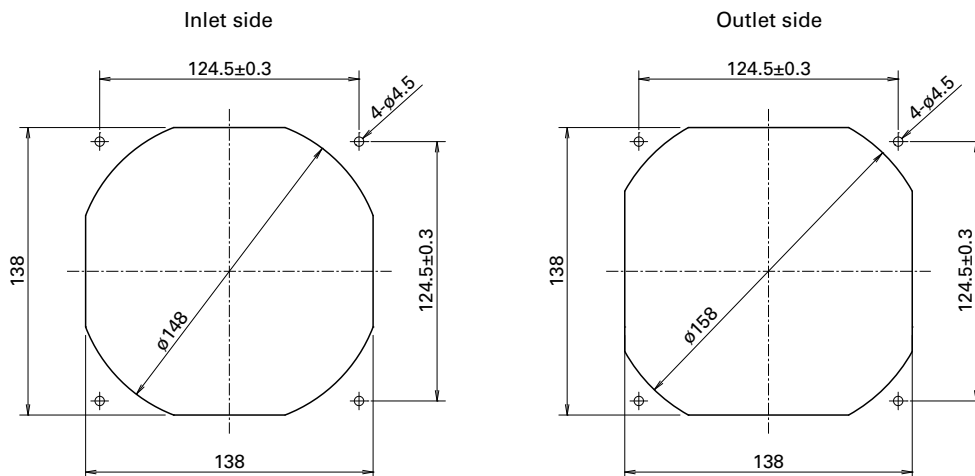


$T_{1 \text{ to } 4} \doteq (1/4) T_0$
 $T_{1 \text{ to } 4} \doteq (1/4) T_0 = 60/4N \text{ (s)}$
 $N = \text{Fan speed (min}^{-1}\text{)}$

Dimensions (unit: mm)



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



Notice

- Please read the "Safety Precautions" on our website 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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