

San Ace 136RF

Reversible Flow Fan

Features

Reduces the required number of fans

- Multiple fans are usually needed to blow air in both directions to ventilate houses, and to cool drink vending machines, food display cases, and printers.
- Wind direction of the fan can be switched so fewer fans are required.
- Reduces equipment costs and saves space.
- Rotational speed is controlled using an external PWM signal to deliver an appropriate rotational speed, reducing noise and saving energy.

Same cooling performance in both directions

- Has approximately the same airflow and static pressure in both blowing directions, so it is easy to control performance.



φ 136×28mm

Specifications

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

Model no.	Rotation direction	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle (Note) [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow		Max. static pressure		SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
								[m ³ /min]	[CFM]	[Pa]	[inchH ₂ O]			
9RF1312P3H001	Forward	12	10.2 to 13.8	100	0.15	1.8	3,100	2.00	70.7	102	0.410	35	-20 to +70	40,000 / 60°C
	Reverse			0										
9RF1324P3H001	Forward	24	20.4 to 27.6	100	0.09	2.2	3,100	2.00	70.7	102	0.410	35		
	Reverse			0										

Note: PWM frequency: 25 kHz

Available options: **Without Sensor**

Please inquire as the availability of these options depends on the model. ⇒

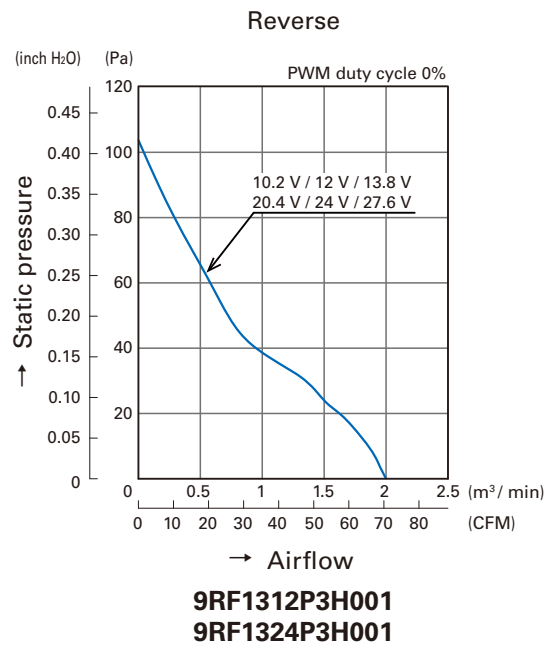
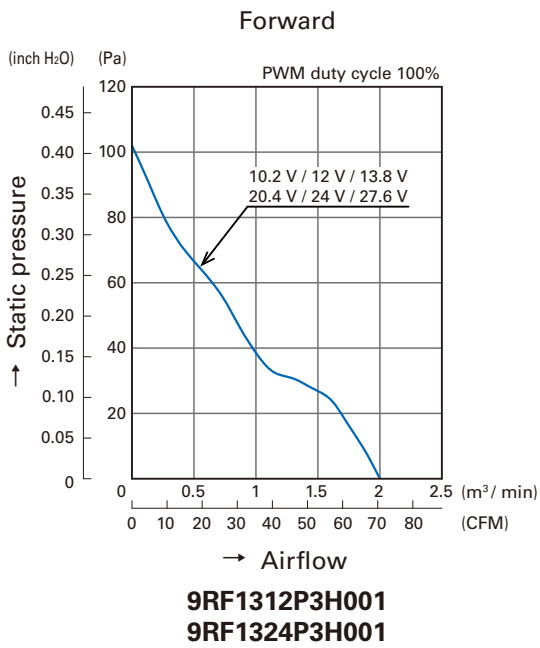
Lock sensor

Common Specifications

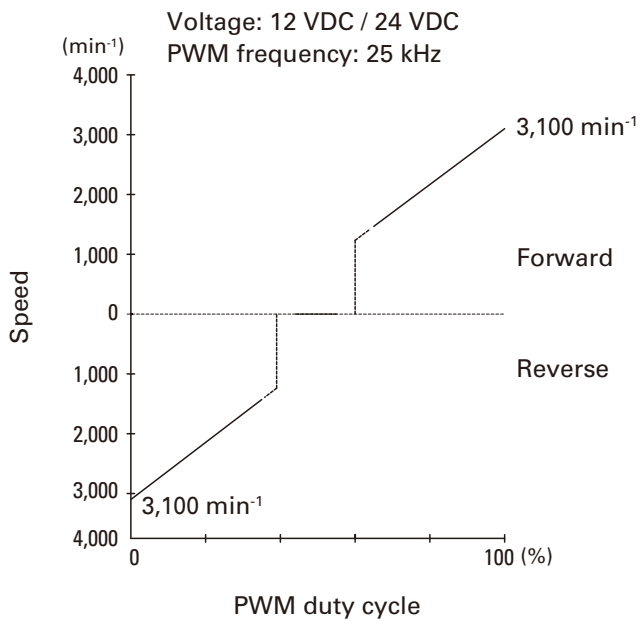
- Material Frame, Impeller: Plastics (Flammability: UL94V-0)
- Expected life Refer to specifications
(L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Motor protection system Current blocking function and reverse polarity protection
- Dielectric strength 50 / 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. 220 g

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Airflow - Static Pressure Characteristics

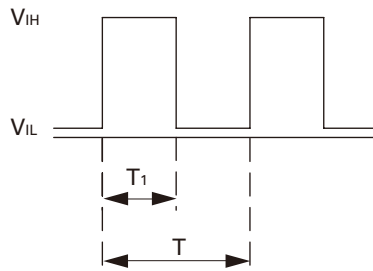


PWM Duty - Speed Characteristics Example



PWM Input Signal Example

Input signal waveform



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

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

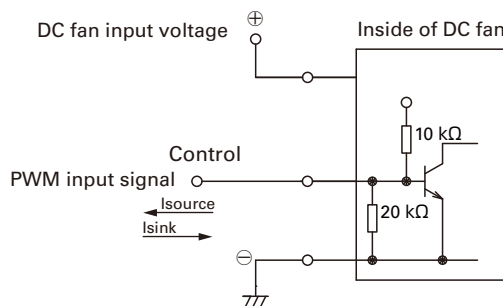
Source current (I_{source}) : 1 mA max. at control voltage 0 V

Sink current (I_{sink}) : 1 mA max. at control voltage 5.25 V

Control terminal voltage: 5.25 V max. (Open circuit)

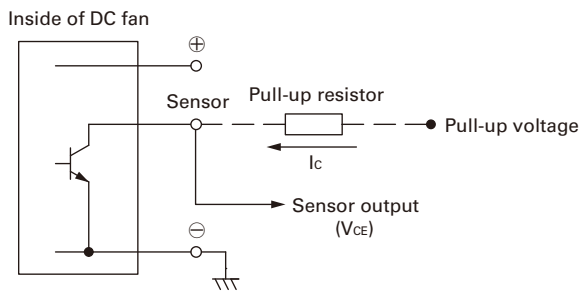
When the control lead wire is open, the fan speed is the same as the one at a PWM duty cycle of 100%.
Either TTL input, open collector or open drain can be used for PWM control input signal.

Example of Connection Schematic



Specifications for Pulse Sensors

Output circuit: Open collector



Rated voltage 12 V fan

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

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

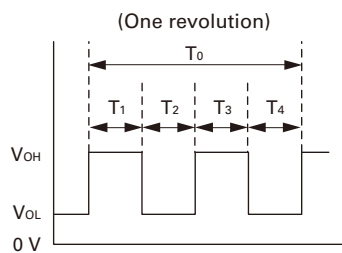
Rated voltage 24 V fan

$V_{CE} = +27.6\text{ V max.}$

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

Output waveform (Need pull-up resistor)

In case of steady running

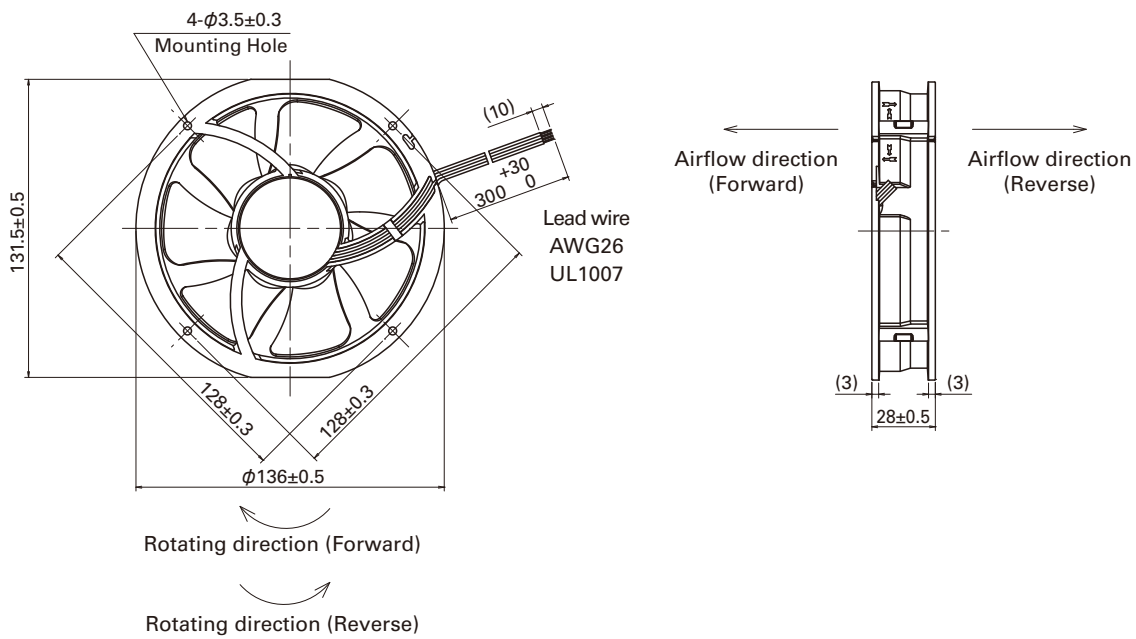


$T_{1\text{ to }4} \doteq (1/4) T_0$

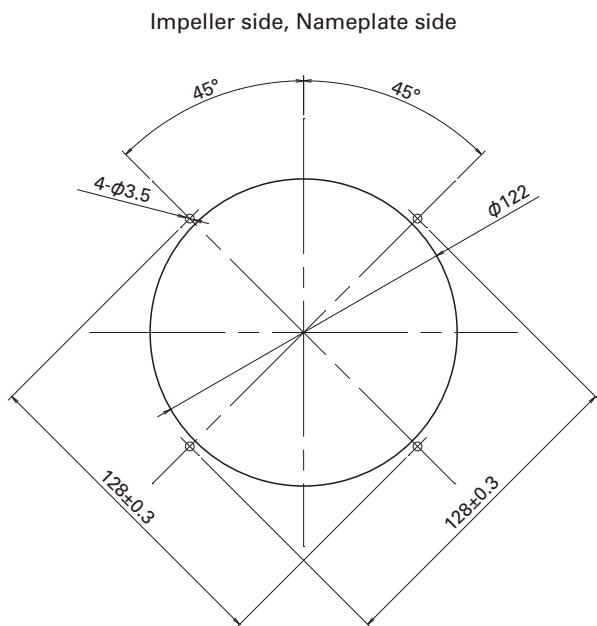
$T_{1\text{ to }4} \doteq (1/4) T_0 = 60/4N \text{ (sec)}$

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

■ Dimensions (unit: mm)



■ Reference Dimension 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.
- To protect against electrolytic corrosion that may occur in locations with strong electromagnetic noise, we provide fans that are unaffected by electrolytic corrosion.

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