San Ace 40
9CRJ type

Counter Rotating Fan

Features

High Static Pressure and High Airflow
This fan delivers a maximum static pressure of 2400 Pa and a maximum airflow of 1.06 m³/min.
Compared with our current model,* the maximum static pressure has increased by 1.4 times and the maximum airflow has increased by 1.1 times.
This fan can efficiently cool high-density equipment that is hard to ventilate, contributing to system downsizing.

Energy Saving
Power consumption has been reduced by approximately 20% compared with the current model.*
The PWM control function enables the control of fan speed, contributing to energy saving.

* San Ace 40 9CRH type 40 x 40 x 56 mm Counter Rotating Fan (model: 9CRH0412PSJ001).

Specifications

The models listed below have pulse sensors with PWM control function.

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</thead>
<tbody>
<tr>
<td>9CRJ0412PSJ001</td>
<td>12</td>
<td>10.8 to 12.6</td>
<td>100</td>
<td>3.1</td>
<td>37.2</td>
<td>36200</td>
<td>32000</td>
<td>1.06</td>
<td>37.4</td>
<td>2400</td>
<td>9.64</td>
<td>72</td>
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* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.
Models with the following sensor specifications are also available as options: [Without sensor] [Lock sensor]

Common Specifications

- Material: Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life: Refer to specifications
- 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 or more with a 500 VDC megger (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)
- Mass: 110 g

Airflow - Static Pressure Characteristics

- PWM duty cycle
- Operating voltage range

PWM Duty - Speed Characteristics Example

Voltage: 12 VDC
PWM frequency: 25 kHz

<table>
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<tr>
<th>Speed Characteristics Example</th>
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<tbody>
<tr>
<td>Voltage: 12 VDC</td>
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<tr>
<td>PWM frequency: 25 kHz</td>
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<tr>
<td>Inlet</td>
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<td>Outlet</td>
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<table>
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<tr>
<th>Voltage [V]</th>
<th>12 VDC</th>
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<tbody>
<tr>
<td>PWM frequency</td>
<td>25 kHz</td>
</tr>
<tr>
<td>Inlet</td>
<td>36200 min⁻¹</td>
</tr>
<tr>
<td>Outlet</td>
<td>32000 min⁻¹</td>
</tr>
</tbody>
</table>
PWM Input Signal Example

Input signal waveform

\[ V_{IL} \]
\[ T_1 \]
\[ T \]

\[ V_{IN} \]

PWM duty cycle (\%) = \frac{V_{IL}}{V_{IN}} \times 100

PWM frequency (kHz) = \frac{1}{T_1}

Current source (I_{source}) = 2 mA max. (when control voltage is 0 V)

Current sink (I_{sink}) = 2 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

Specifications for Pulse Sensors

Output circuit: Open collector

- Inside of DC fan
  - Sensor
  - Pull-up resistor
  - Pull-up voltage
  - Pull-up resistor

- Sensor output (V_{sensor}) = +12.6 V max., I_{c}=5 mA max. [V_{sensor}(SART)=0.6 V max.]

Output waveform (Need pull-up resistor)

- [One revolution]
  - \( T_1 = \frac{1}{4} T_0 \)
  - \( T_1 = \frac{1}{4} \) T0
- \( N = \text{Fan speed (min}^{-1}) \)

Dimensions (unit: mm)

Inlet side

- 4-ø3.5±0.3 Mounting hole
- 320 0
- 320 0
- +30
- 56±0.5
- 40±0.3
- 32±0.3
- 4-ø3.5±0.3 Mounting hole
- Lead wire
  - AWG 26
  - UL 10368
- Rotating direction

Outlet side

- 4-ø3.5±0.3 Mounting hole
- 32±0.3
- 32±0.3
- 10
- 56±0.5
- 40±0.3
- Airflow direction

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

Inlet side, Outlet side

- 4-ø3.7
- 176±0.3
- 25±0.3
- 39

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.