San Ace C270 9B1TP type
Bracket-mounted Centrifugal Fans

Features

Maximizes Strengths of the Centrifugal Fan
To maximize fan performance, an air inlet needs to be precisely mounted to the fan. Bracket-mounted centrifugal fan has an air inlet and a mounting bracket integrated in one unit. The precise assembly at factory ensures the optimized balance, helping the fan perform at its maximum potential.

Easy Installation
Centrifugal fan comes equipped with an air inlet and a mounting bracket, making your installation work easy.

Specifications

The following nos. have PWM controls and pulse sensors.

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<tbody>
<tr>
<td>9B1TP24P0H001</td>
<td>24</td>
<td>16 to 36</td>
<td>100</td>
<td>3.2</td>
<td>76.8</td>
<td>3,050</td>
<td>17.6</td>
<td>622</td>
<td>530</td>
<td>2.13</td>
<td>-20 to +70</td>
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<td>15</td>
<td>0.4</td>
<td>9.6</td>
<td>1,000</td>
<td>5.75</td>
<td>203</td>
<td>57.4</td>
<td>0.23</td>
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<tr>
<td>9B1TP48P0G001</td>
<td>48</td>
<td>36 to 72</td>
<td>100</td>
<td>2.75</td>
<td>132</td>
<td>3,650</td>
<td>21.0</td>
<td>742</td>
<td>760</td>
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<td>-20 to +60</td>
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<td>57.4</td>
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Note 1: PWM frequency: 25 kHz
Note 2: Fans do not rotate when PWM duty cycle is 0%.
Note 3: Maximal input of 9B1TP24P0H001 / 9B1TP48P0G001: 160 W, 9B1TP48P0G001: 280 W at rated voltage.
Models with the following sensor specifications are also available as options: Without Sensor

Common Specifications

- Material: Motor case: Aluminum, Impeller: Plastics (Flammability: UL94V-0), Bracket: Aluminum, Plastics (Flammability: UL94V-0)
- Expected life: Refer to specifications (L10: Survival rate: 90% at 60 ℃, 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 bracket)
- 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 ℃ to +70 ℃ (Non-condensing)
- Lead wire: Red: Sensor, Yellow: Control, Brown
- Mass: Approx. 1,700 g
Airflow - Static Pressure Characteristics

- PWM duty cycle

![Graphs showing static pressure characteristics for different PWM duty cycles and voltages.](image)

Operating voltage range

![Graphs showing static pressure characteristics for different voltages.](image)

PWM Duty - Speed Characteristics Example

<table>
<thead>
<tr>
<th>Voltage: 24 VDC / 48 VDC</th>
<th>Voltage: 48 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWM frequency: 25 kHz</td>
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</table>

![Graphs showing speed characteristics for different PWM duty cycles and voltages.](image)
### Specifications for Pulse Sensors

**Output circuit:** Open collector

**Rated Voltage 24 V Fan**

- $V_{CE}=+36$ VDC max.
- $I_c=10$ mA max. [$V_{CE} (SAT)=1$ V max.]

**Rated Voltage 48 V Fan**

- $V_{CE}=+72$ VDC max.
- $I_c=10$ mA max. [$V_{CE} (SAT)=1$ V max.]

**Output waveform (Need pull-up resistor)**

In case of steady running

- $T_1$ to $4 \times (1/4) \times T_0$
- $T_1$ to $4 \times (1/4) \times T_0=60/4N$ (sec)
- $N=$Fan speed ($\text{min}^{-1}$)

**PWM Input Signal Example**

Input signal waveform

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

DC fan input voltage

Inside of DC fan

PWM input signal

Pull-up resistor

Sensor output ($V_{CE}$)

Control terminal voltage

Sink current ($I_{sink}$)

Source current ($I_{source}$)

**PWM Duty - Speed Characteristics Example**

Voltage: 24 VDC / 48 VDC

PWM frequency: 25 kHz

<table>
<thead>
<tr>
<th>Speed ($\text{min}^{-1}$)</th>
<th>3,050</th>
<th>3,650</th>
</tr>
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<tbody>
<tr>
<td>(%) (%</td>
<td>100</td>
<td>100</td>
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**Airflow - Static Pressure Characteristics**

24 VDC

<table>
<thead>
<tr>
<th>(CFM)</th>
<th>(m3/min)</th>
<th>(Pa) (inch H2O)</th>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0.5</td>
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48 VDC

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<tr>
<th>(CFM)</th>
<th>(m3/min)</th>
<th>(Pa) (inch H2O)</th>
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<tbody>
<tr>
<td>0</td>
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**PWM Input Signal Example**

Input signal waveform

$V_{IH}$

$V_{IL}$

$T_1$

$T$
Referance Diagram for Mounting

Finger guard (Model: 109-1146)
Surface treatment: Nickel-chrome plating (Color: silver)
Mass: 106 g

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

Reference Diagram for Mounting

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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