# San Ace 221W 9B1W2TP type
Bracket-mounted Splash Proof Centrifugal Fan

## 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.

**Water and Dust Resistance**
Its IP56-rated* water and dust protection ensures stable fan operation even in harsh environments.

* The degree of protection (IP code) is defined by IEC 60529 (International Electrotechnical Commission).
  
- Protection against a level of dust that could hinder operation or impair safety
- Protection against high pressure water jets

### 270 × 270 × 99 mm

## Specifications

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

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<tbody>
<tr>
<td>9B1W2TP24P0H001</td>
<td>24</td>
<td>16 to 36</td>
<td>100</td>
<td>3.35</td>
<td>80.4</td>
<td>3050</td>
<td>17.6</td>
<td>621</td>
<td>530</td>
<td>2.13</td>
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<td>15</td>
<td>0.4</td>
<td>9.6</td>
<td>1000</td>
<td>5.75</td>
<td>203</td>
<td>57.0</td>
<td>0.23</td>
<td>73.5</td>
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<tr>
<td>9B1W2TP48P0S001</td>
<td>48</td>
<td>36 to 72</td>
<td>100</td>
<td>2.3</td>
<td>110.4</td>
<td>3400</td>
<td>19.6</td>
<td>692</td>
<td>659</td>
<td>2.65</td>
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</table>

* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

Max input of 9B1W2TP24P0H001: 150 W, 9B1W2TP48P0S001: 210 W at rated voltage.

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

## Common Specifications

- **Material**  
  Motor case: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)  
  Bracket: Aluminum (Black coating), 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.

- **Dielectric strength**  
  50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and bracket)

- **Insulation resistance**  
  10 MΩ or more with a 500 VDC megger (between lead wire conductors and bracket)

- **Sound pressure level (SPL)**  
  At 1 m away from the air inlet

- **Storage temperature**  
  -30 to +70°C (Non-condensing)

- **Lead wire**  
  - Red  
  - Black  
  - Sensor  
  - Yellow  
  - Control  
  - Brown

- **Mass**  
  1900 g

- **Ingress protection**  
  IP56
### Airflow - Static Pressure Characteristics

- **PWM duty cycle**
  - 24 VDC
  - Static pressure vs. airflow
    - 24/36 V
    - PWM duty cycle 100%
    - Voltage: 24 VDC
    - PWM frequency: 25 kHz
    - Fan speed: 3050 min⁻¹
    - Voltage: 48 VDC
    - PWM frequency: 25 kHz
    - Fan speed: 3400 min⁻¹

- **Operating voltage range**
  - 24/36 V
  - PWM duty cycle 100%
  - Voltage: 24 VDC
  - PWM frequency: 25 kHz
  - Fan speed: 3050 min⁻¹
  - Voltage: 48 VDC
  - PWM frequency: 25 kHz
  - Fan speed: 3400 min⁻¹

### PWM Duty - Speed Characteristics Example

- Voltage: 24 VDC
  - PWM frequency: 25 kHz
  - Fan speed: 3050 min⁻¹
  - Voltage: 48 VDC
  - PWM frequency: 25 kHz
  - Fan speed: 3400 min⁻¹
### PWM Input Signal Example

**Input signal waveform**

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

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

- 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

![Connection Schematic]

### Specifications for Pulse Sensors

**Output circuit:** Open collector

**Inside of DC fan**

- Sensor
- Pull-up resistor
- Pull-up voltage
- Sensor output ($V_{CE}$)

**Rated Voltage 24 V Fan**

- $V_{CE}$=36 V max.
- $I_{C}$=10 mA max. [$V_{CE}=V_{CE}(SAT)=1$ V max.]

**Rated Voltage 48 V Fan**

- $V_{CE}$=72 V max.
- $I_{C}$=10 mA max. [$V_{CE}=V_{CE}(SAT)=1$ V max.]

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

- In case of steady running

  - $T_1 = \frac{1}{4} T_0$
  - $T_1 = \frac{1}{4} T_0$ = 60/4N (s)
  - $N$= Fan speed (min$^{-1}$)
**Dimensions (unit: mm)**

- 4-ø5±0.2 Mounting hole
- 270±1
- 97.8±0.3
- 73.1±0.3
- 73.1±0.3

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

- Inlet panel side
  - 247.5±0.5
  - 247±0.5
  - 97.8±0.3

**Referance Diagram for Mounting**

- Finger guard
- Fan

**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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**Features**

- Water and Dust Resistance
- Easy Installation
- Maximizes Strengths of the Centrifugal Fan
- Common Specifications

**Specifications**

- **Model No.**
  - C1103B001 '20.3
- **Rated Voltage**
  - 220±2 V
- **Max. Static Pressure**
  - 7±0.5 Pa
- **Max. Airflow**
  - 92±1 m³/min
- **Max. Flow Rate**
  - 2-33-1
- **Max. Temperature**
  - -25 to +70°C
- **Motor Protection Function**
  - Locked rotor burnout protection, Reverse polarity protection
- **Lead Wire**
  - AWG 18
- **Rated Input**
  - 9.6 W
- **Rated Current**
  - 0.2 A
- **PWM Input Frequency**
  - 25 kHz
- **PWM Duty Cycle**
  - 0%
- **Expected Life**
  - (L10 life: 90% survival rate for continuous operation in indoor free air at 60°C, rated voltage)

**Environmental Conditions**

- Protection against high pressure water jets
- Protection against a level of dust that could hinder operation or impair safety

**References**

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- Specifications are subject to change without notice.

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