

# San Ace 120GP 9GP type

## G Proof Fan

### ■ Features

#### Highly Resistant to G-Forces

This fan can withstand G-forces of 735 m/s<sup>2</sup> (75 G) for 1000 hours.\*

#### Low Noise and High Energy Efficiency

The PWM control function enables the external control of fan speed, contributing to lower noise and higher energy efficiency of devices.

\* Measured with our G-force testing machine.



**120×120×38 mm**

### ■ Specifications

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

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min <sup>-1</sup> ]	Max. airflow [m <sup>3</sup> /min] [CFM]	Max. static pressure [Pa] [inchH <sub>2</sub> O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9GP1224P1G001	24	15 to 30	100	1.60	38.4	6550	7.0 247	370 1.48	62	-20 to +70	40000/60°C (70000/40°C)
			20	0.12	2.88	2000	2.13 75.2	34.4 0.13	36		
9GP1248P1G001	48	36 to 60	100	0.80	38.4	6550	7.0 247	370 1.48	62		
			20	0.08	3.84	2000	2.13 75.2	34.4 0.13	36		

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

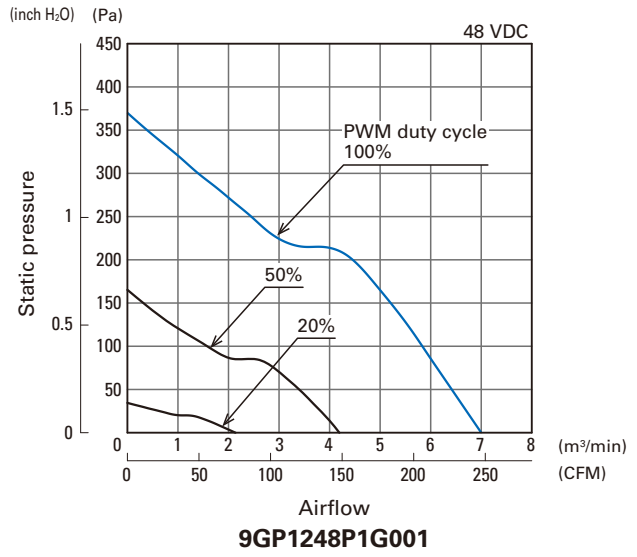
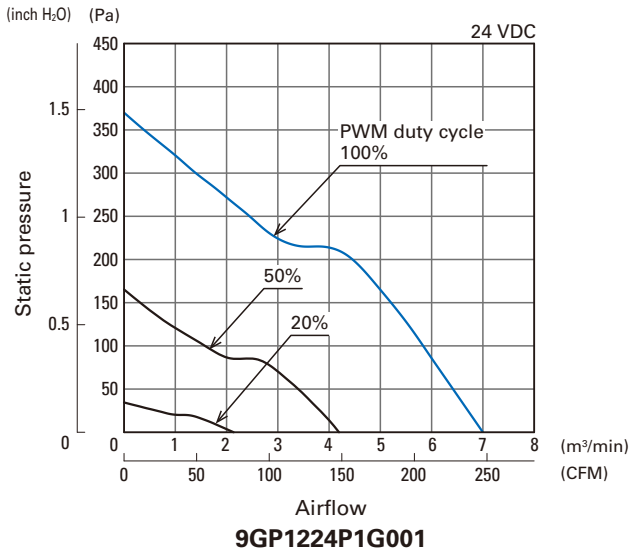
Models with the following sensor specifications are also available as options: Without sensor Lock sensor

### ■ Common Specifications

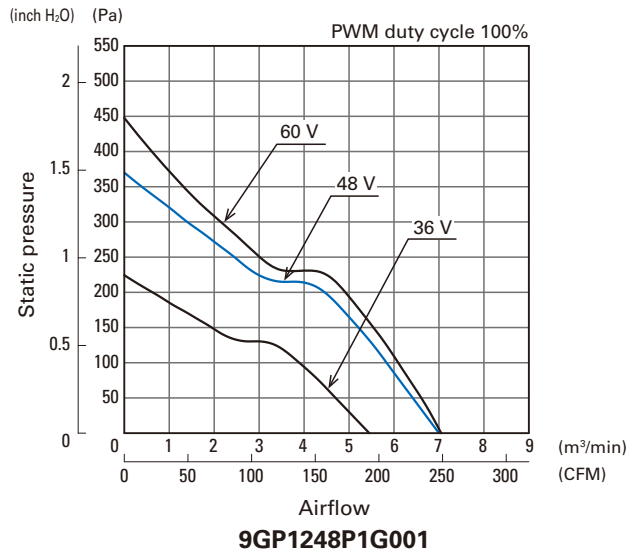
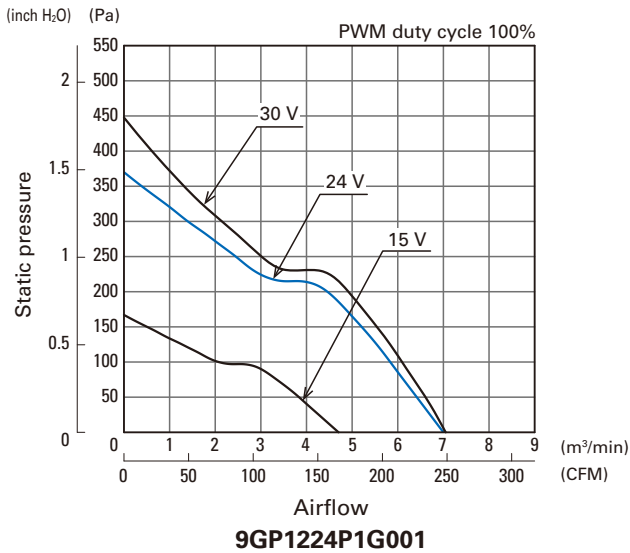
- Material ..... Frame: Aluminum (Black coating), Impeller: Plastics (Flammability: UL 94V-1)
- Expected life ..... Refer to specifications  
(L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)  
Expected life at 40°C ambient is just reference value.
- Motor protection 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 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black Sensor: Yellow Control: Brown
- Mass ..... Approx. 440 g
- G-force tolerance ..... 735 m/s<sup>2</sup> (75 G) for 1000 hours (Measured with our G-force testing machine)

## Airflow - Static Pressure Characteristics

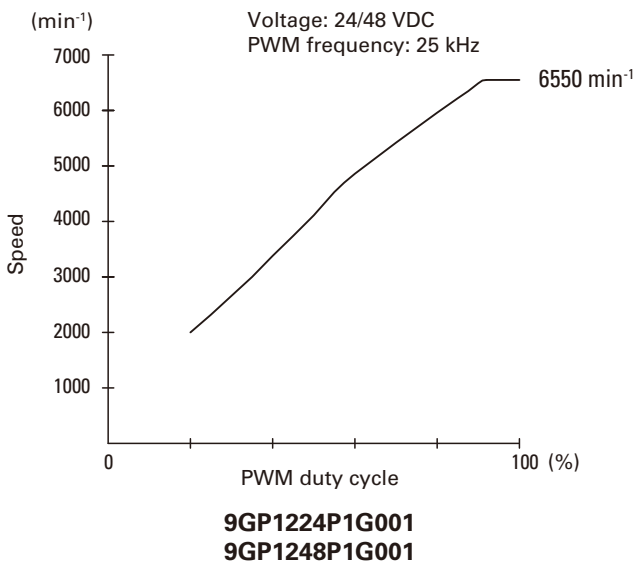
- PWM duty cycle



- Operating voltage range

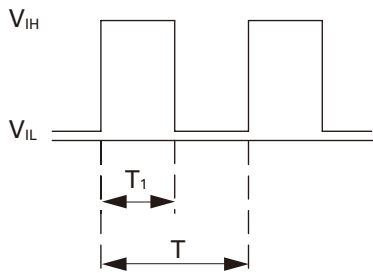


## PWM Duty - Speed Characteristics Example



**PWM Input Signal Example**

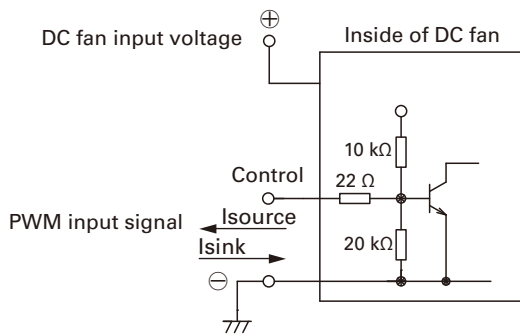
Input signal waveform



$V_{IH} = 4.75 \text{ V}$  to  $5.25 \text{ V}$     $V_{IL} = 0$  to  $0.4 \text{ V}$   
 PWM duty cycle (%) =  $\frac{T_1}{T} \times 100$    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)

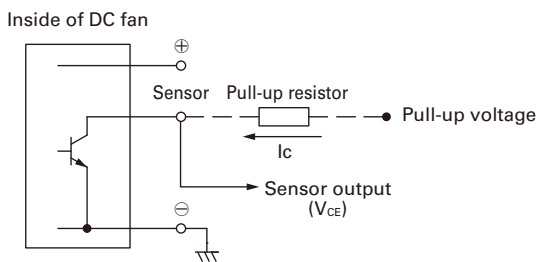
When the control terminal is open, fan speed is the same as when PWM duty cycle is 100%.  
 Either TTL input, open collector or open drain can be used for PWM control input signal.

**Example of Connection Schematic**



**Specifications for Pulse Sensors**

Output circuit: Open collector

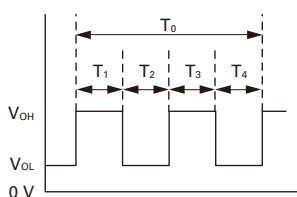


**Rated voltage 24 V fan**  
 $V_{CE} = +30 \text{ V max.}$   
 $I_C = 10 \text{ mA max. [} V_{OL} = V_{CE} \text{ (SAT)} = 0.6 \text{ V max.]}$

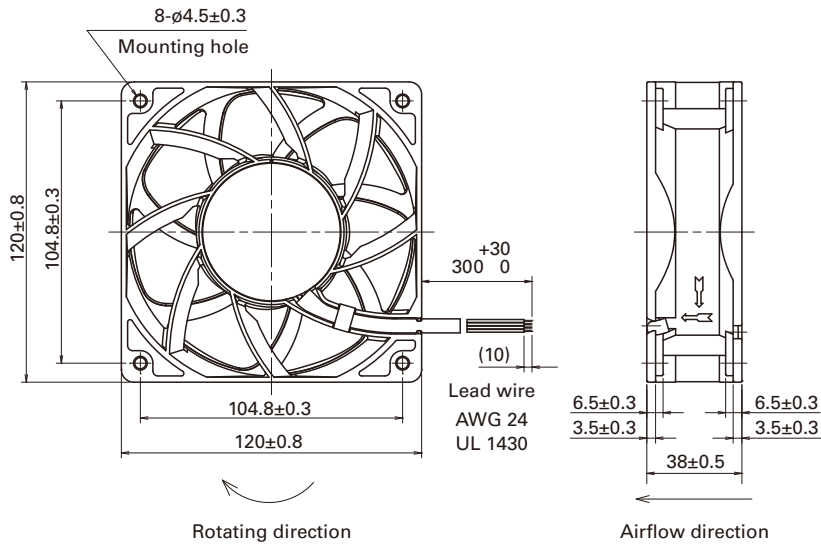
**Rated voltage 48 V fan**  
 $V_{CE} = +60 \text{ V max.}$   
 $I_C = 10 \text{ mA max. [} V_{OL} = V_{CE} \text{ (SAT)} = 0.6 \text{ V max.]}$

Output waveform (Need pull-up resistor)

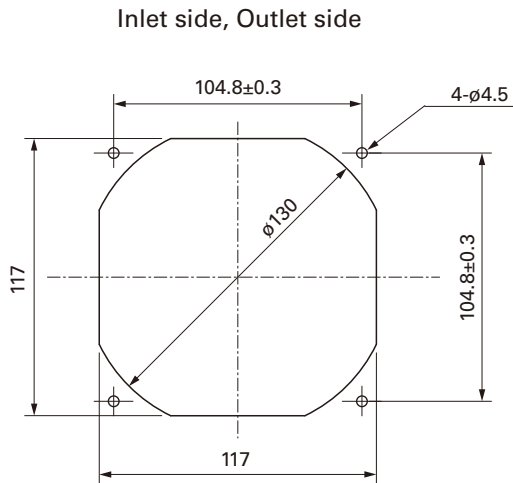
In case of steady running  
 (One revolution)  
 $T_{1 \text{ to } 4} \doteq (1/4) T_0$   
 $T_{1 \text{ to } 4} \doteq (1/4) T_0 = 60/4N \text{ (s)}$   
 $N = \text{Fan speed (min}^{-1}\text{)}$



■ 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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