

San Ace 120T ^{9GT type}

Wide Temperature Range Fan

Features

Wide Operating Temperature Range

These products operate in a wide temperature range of -40°C to +85°C.

They can be safely used in both low-temperature and high-temperature applications ranging from refrigerators and freezers to heat-generating lighting devices. With these new products, the San Ace lineup can now serve in conventional applications such as communications devices, PV inverters, and rapid EV charging stations in even more demanding environments.



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 (Note 1, 2) [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9GT1212P1S001	12	9.0 to 13.8	100	2.2	26.4	5,600	6.00 211.8	270 1.08	58	-40 to +85	40,000 / 85°C
			35	0.48	5.76	2,900	3.00 106.0	85.6 0.34	41		
9GT1224P1S001	24	18.0 to 27.6	100	1.1	26.4	5,600	6.00 211.8	270 1.08	58		
			35	0.24	5.76	2,900	3.00 106.0	85.6 0.34	41		

Note1: PWM frequency: 25 kHz

Note2: Fans do not rotate when PWM duty cycle is 0%.

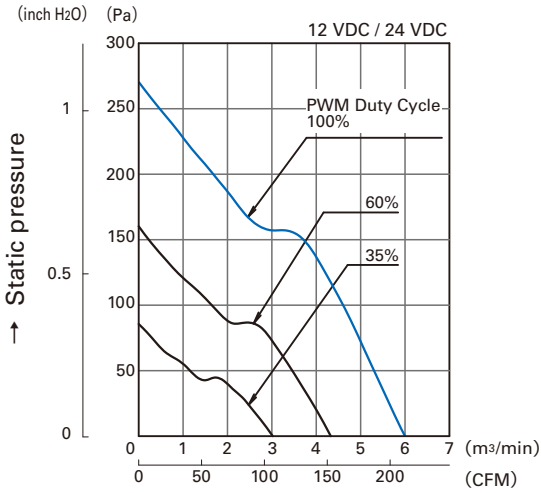
Available options: **Without sensor** **Lock sensor**

Common Specifications

- Material Frame: Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Expected life Refer to specifications
(L10: Survival rate: 90% at 85 °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 -40 °C to +85 °C (Non-condensing)
- Lead wire ⊕Red ⊖Black Sensor: Yellow Control: Brown
- Mass Approx. 420 g

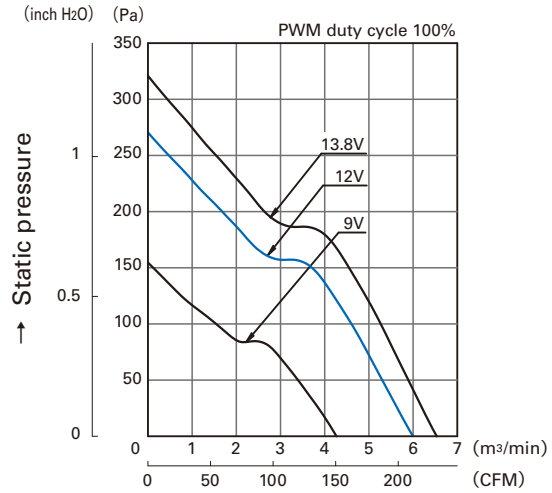
Airflow - Static Pressure Characteristics

• PWM duty cycle

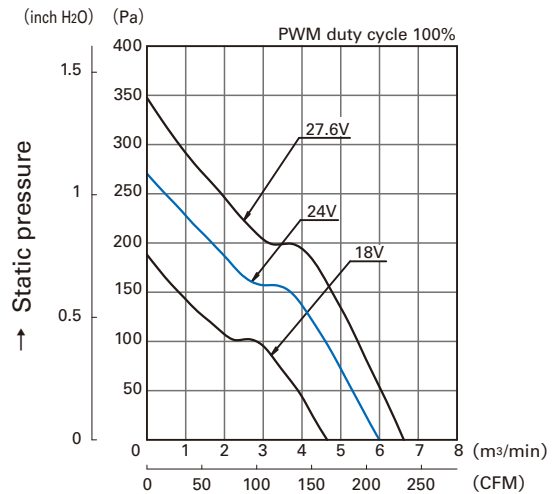


→ Airflow
9GT1212P1S001
9GT1224P1S001

• Operating voltage range

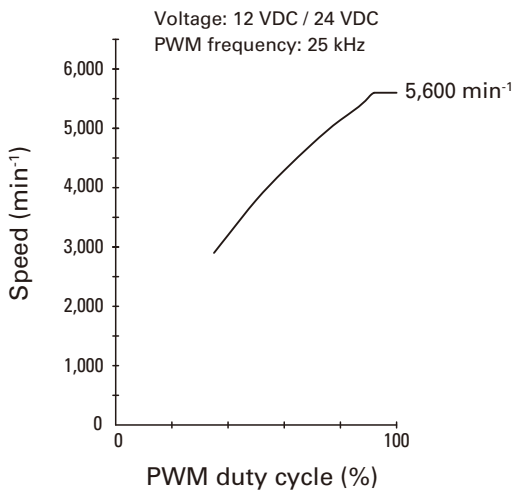


→ Airflow
9GT1212P1S001



→ Airflow
9GT1224P1S001

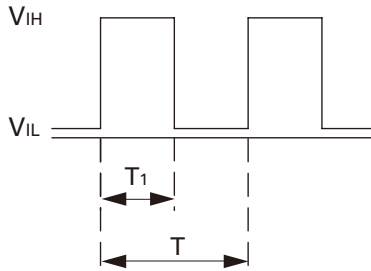
PWM Duty - Speed Characteristics Example



9GT1212P1S001
9GT1224P1S001

PWM Input Signal Example

Input signal waveform



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

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

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

$$\text{PWM frequency } 25\text{ (kHz)} = \frac{1}{T}$$

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

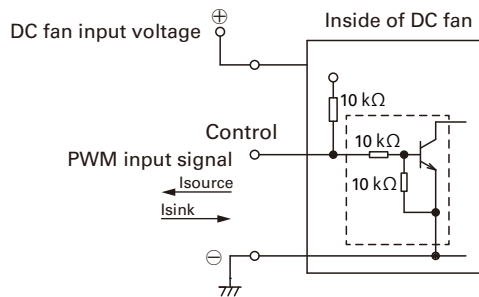
Control terminal voltage: 5.25 V Max. (Open circuit)

When the control lead wire is open, the fan speed is the same as the one at a PWM duty cycle of 100%.

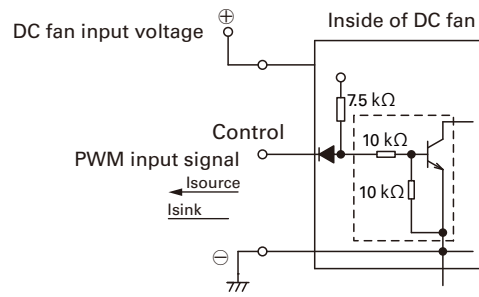
Either TTL input, open collector or open drain can be used for PWM control input signal.

Example of Connection Schematic

Rated voltage 12 V fan

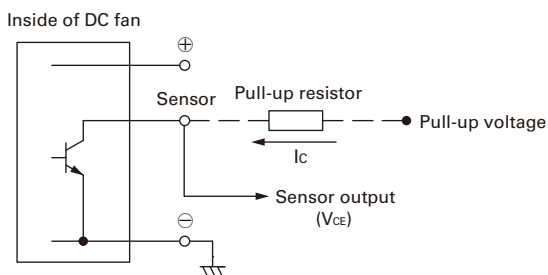


Rated voltage 24 V fan



Specifications for Pulse Sensors

Output circuit: Open collector



Rated voltage 12 V fan

$V_{CE} = +30\text{ V MAX.}$

$I_c = 10\text{ mA MAX. [VOL} = V_{CE}(\text{SAT}) = 0.6\text{ V MAX.]}$

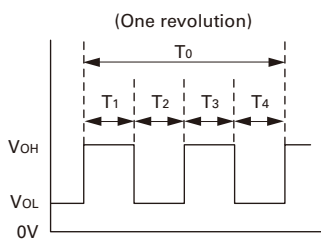
Rated voltage 24 V fan

$V_{CE} = +30\text{ V MAX.}$

$I_c = 10\text{ mA MAX. [VOL} = V_{CE}(\text{SAT}) = 0.6\text{ V MAX.]}$

Output waveform (Need pull-up resistor)

In case of steady running

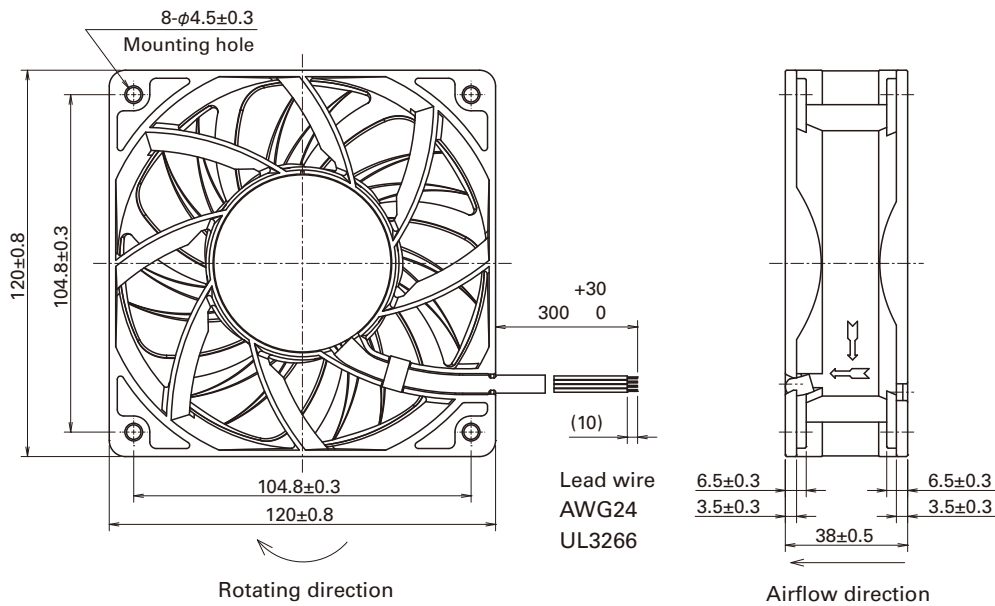


$T_{1\sim4} \cong (1/4) T_0$

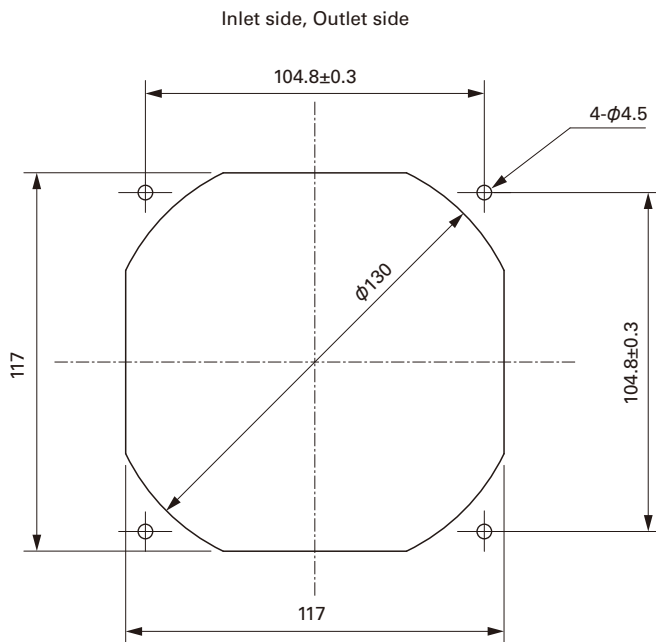
$T_{1\sim4} \cong (1/4) T_0 = 60/4N\text{ (sec)}$

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

■ Dimensions (unit: mm)



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



Notice

- Please read the "Safety Instructions" on our website once you have decided on a product for use.
- 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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