

San Ace 60 L CRL type

Long Life Counter Rotating Fan



Features

Long Life

The San Ace 60 CRL type has an expected life of 130,000 hours (approximately 15 years), about 3.3 times that of our conventional counter rotating fan,* making this fan ideal for equipment that must operate without maintenance for extended periods.

* : Specification of Model No. 9CRL0612P0G001.
Our conventional counter rotating fan is 60 x 60 x 76 mm "San Ace 60" CRA type, Model No. 9CRA0612P0G001.

60×60×76mm

Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM Duty Cycle ^{Note} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]		Max. Air Flow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
			100			Inlet	Outlet							
9CRL0612P0G001	12	10.8 to 13.2	100	2.3	27.6	16,500	13,000	2.0	70.6	1000	4.0	66	-20 to +70	130,000/60°C
			0			0.22	2.7	3,600	2,800	0.43	15.1			

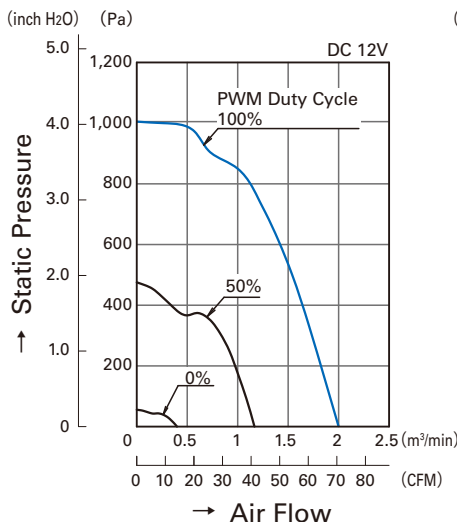
Note : PWM Frequency : 25kHz

Common Specifications

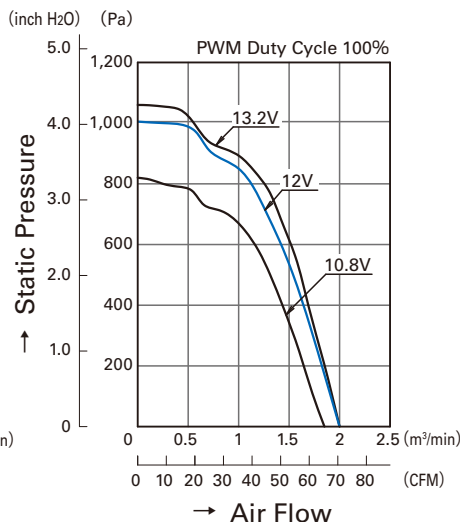
- Material Frame:Aluminum, Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy Varies for each model
(L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Motor Protection System Current blocking function and Reverse polarity protection
- Dielectric Strength 50/60 Hz, 500VAC, 1 minute (between lead conductor and frame)
- Sound Pressure Level (SPL) Expressed as the value at 1m from air inlet side
- Operating Temperature Varies for each model (Non-condensing)
- Storage Temperature -30°C to +70°C (Non-Condensing)
- Lead Wire Inlet : ⊕Red ⊖Black Sensor: Yellow Control: Brown
Outlet : ⊕Orange ⊖Gray Sensor: Purple Control: White
- Mass Approx. 300g

Air Flow - Static Pressure Characteristics

• PWM Duty Cycle

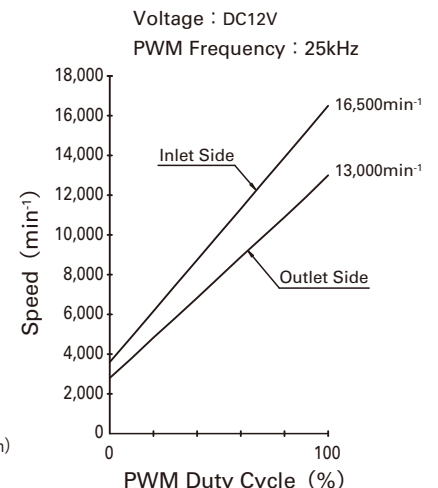


• Operating Voltage Range



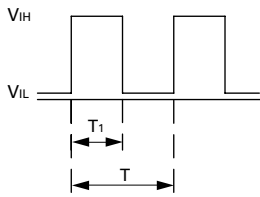
PWM Duty -

Speed Characteristics Example



PWM Input Signal Example

Input Signal Waveform



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

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

$$\text{PWM Duty Cycle (\%)} = \frac{T_1}{T} \times 100$$

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

Source Current : 5mA Max. at control voltage 0V

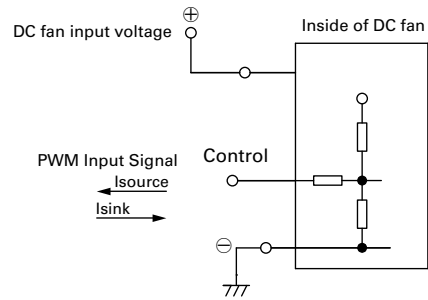
Sink Current : 5mA Max. at control voltage 5.25V

Control Terminal Voltage : 5.25V 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



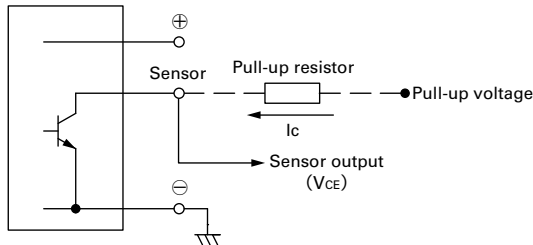
Specifications for Pulse Sensors

Output circuit : Open collector

$V_{CE} = +13.8V$ MAX.

$I_c = 5mA$ MAX. [$V_{CE(SAT)} = 0.6V$ MAX.]

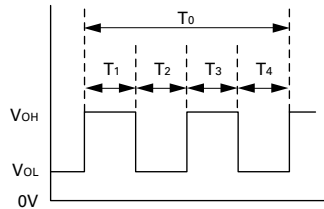
Inside of DC fan



Output Waveform (Need pull-up resistor)

In case of steady running

(One revolution)

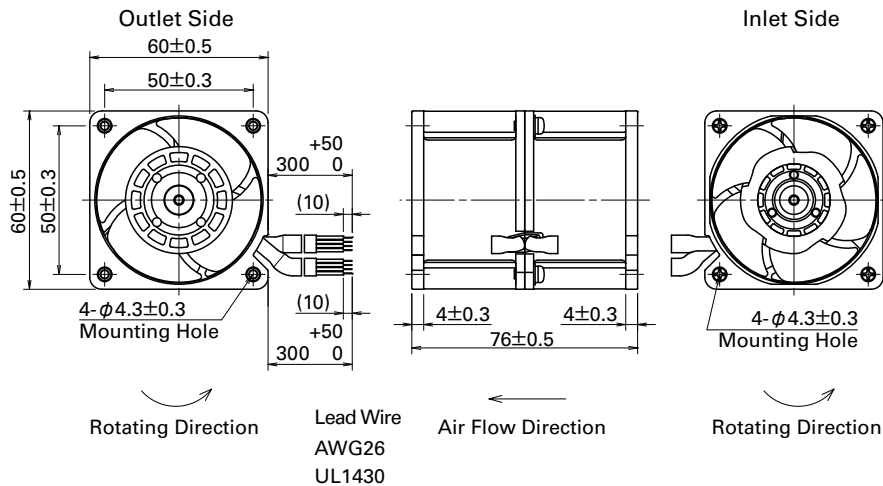


$$T_{1-4} \doteq (1/4) T_0$$

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

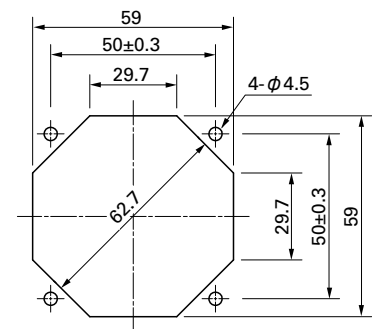
$$N = \text{Fan speed (min}^{-1}\text{)}$$

Dimensions (unit : mm)



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

Inlet Side , Outlet Side



Notice

- The products shown in the 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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Specifications are subject to change without notice.

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