

DC Silent Fan
**DC MOLD
SILENT**



□ 120 × 38 (□ 4.7" × 1.5")
Max. airflow: 3.5 m³/min
Max. static pressure: 95 Pa
Mass: 250 g

Standard specification

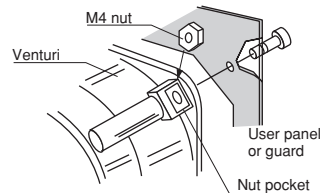
| Max. Airflow | | Max. Static Pressure | | Noise dB | Speed min ⁻¹ | Input W | Voltage Spec. V | | Current mA | | Model Code | Operating Temp. Range °C |
|---------------------|-----|----------------------|--------------------|-------------|----------------------------|------------|-----------------|-----------------|------------|-----------|------------|-----------------------------|
| m ³ /min | CFM | Pa | inH ₂ O | | | | Rating | Operating Range | Rating | Starting | | |
| 3.5 | 124 | 95 | 0.38 | 46 | 3200 | 8.6 | 12 | 7.2-13.8 | 710 | 2350 | SCNDM12Z7 | -20 ~ +70 |
| | | | | | | 9 | 24 | 12-27.6 | 370 | 1200 | SCNDM24Z7 | |
| | | | | | | 10 | 48 | 24-55.2 | 210 | | SCNDM48Z7 | |
| 3 | 106 | 64 | 0.26 | 40 | 2650 | 7 | 12 | 7.2-13.8 | 500 | 1050 | SCNDM12B4 | |
| | | | | | | 24 | 12-27.6 | 320 | 560 | SCNDM24B4 | | |
| | | | | | | 6 | 48 | 24-55.2 | 120 | | SCNDM48B4 | |
| 2.2 | 78 | 39 | 0.16 | 30 | 1950 | 3 | 12 | 8.4-13.8 | 230 | 630 | SCNDM12D4 | |
| | | | | | | 24 | 14.4-27.6 | 130 | 310 | SCNDM24D4 | | |

- Figures in the table are average measured values. Please request the product delivery specification when preparing a purchase specification.
- The characteristics are the values at rated voltage (12 V, 24 V or 48 V), and normal temperature and humidity.
- The life expectancy of SCNDM-B speed products at rated voltage and in continuous operation is 30,000 hours at 60 °C. (40,000 hours for other products)

General specification

| | |
|--------------------|--|
| Materials Used | Venturi: ABS and PBT synthetic resins Propeller: ABS and PBT synthetic resins Bearing: Both side shielded ball bearing |
| Motor | Brushless DC motor, Protection type: Current shut off by detecting lock state, automatically reset |
| Common Elec. Spec. | See pages G-11, G-12, G-13. |
| Standard Carton | 40 to a carton of (450 x 380 x 300) mm, mass 12 kg |

● Fan mounting



M4 nut pockets provided in 4 places for easy mounting. (The customer to provide nuts)

Fan model code

SCNDM12B4

SCNDM12B4S

SCNDM12D4

SCNDM12D4S

SCNDM12Z7

SCNDM12Z7S

SCNDM24B4

SCNDM24B4Q

SCNDM24B4S

SCNDM24D4

SCNDM24D4Q

SCNDM24D4S

SCNDM24Z7

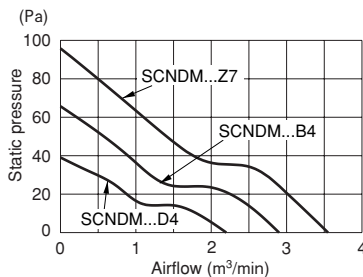
SCNDM24Z7P

SCNDM24Z7S

SCNDM48B4

SCNDM48Z7

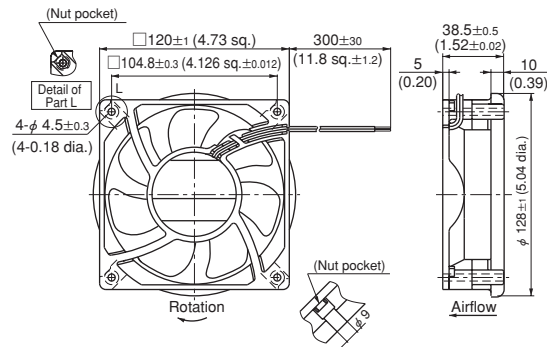
Standard airflow and static pressure characteristics (At rated voltage)
[By double chamber method]



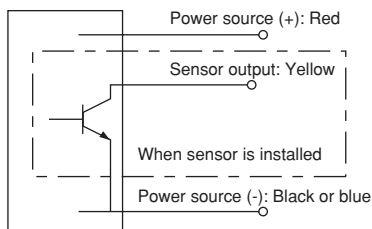
External dimensions in mm (inches)

● Lead wire type

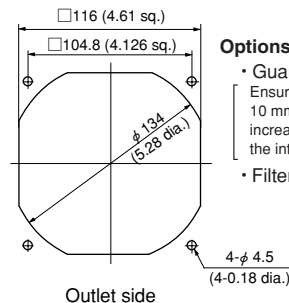
Lead wire spec. AWG24 UL1007 or UL3266
Color (+) Red
(-) Black (SCNDM□D4: Blue)



Wiring connection diagram



Mounting hole dimensions in mm (inches) [Recommendation]



Options (sold separately)

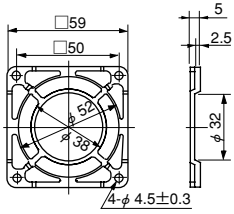
- Guard: F120UL guard
Ensure the guard is situated more than 10 mm from the fan to minimize noise increase when mounting a guard on the intake side. See page G-10.
- Filter: F120 filter

DC axial fan with sensor

| Rated Voltage | Model Code | | |
|---------------|------------|------------|------------|
| 12 V | SCNDM12D4S | SCNDM12B4S | SCNDM12Z7S |
| | SCNDM24D4S | SCNDM24B4S | SCNDM24Z7S |
| 24 V | SCNDM24D4Q | SCNDM24B4Q | SCNDM24Z7P |

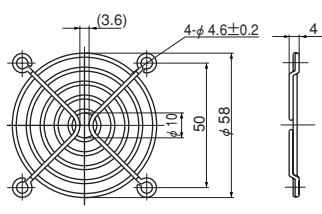
- Japan Servo can meet many of your requirements for customization, such as special connectors, other sensors not listed above, variable speed specifications, and other modifications. Please contact Japan Servo during your product planning and development stage.
- The listed products are registered in the following overseas standards files, UL: E48889, CSA: LR49399, TUV: R9451586
- An electronic version of the Japan Servo catalog can be forwarded upon request. 3D data is also available at our web2-CAD site (www.web2cad.co.jp).

F60P Guard (Mass 4 g)



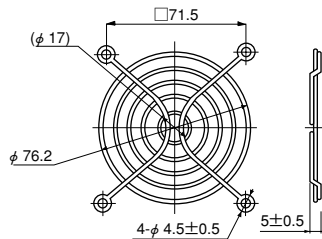
Material: Polycarbonate (black)
UL94V-2

F60UL Guard (Mass 12 g)



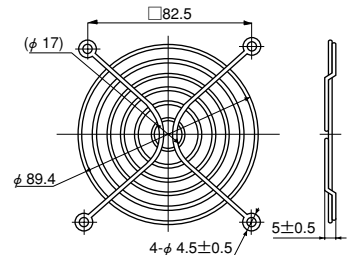
Material: Mild steel wire 1.6 dia.
Surface treatment:
Nickel chromium plating

F80UL Guard (Mass 14 g)



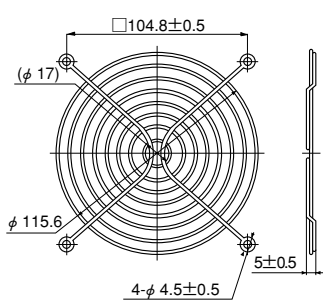
Material: Mild steel wire 1.6 dia.
Surface treatment:
Nickel chromium plating

F92UL Guard (Mass 16 g)



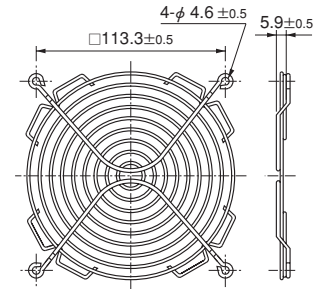
Material: Mild steel wire 1.6 dia.
Surface treatment:
Nickel chromium plating

F120UL Guard (Mass 29 g)



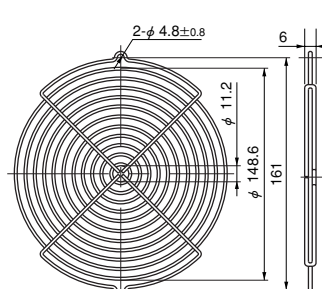
Material: Mild steel wire 1.6 dia.
Surface treatment:
Nickel chromium plating

F127UL Guard



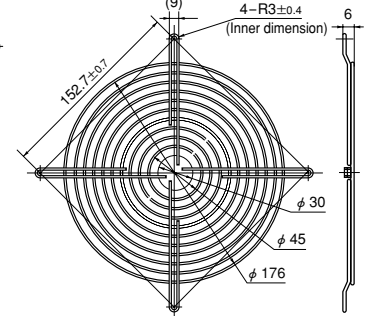
Material: Mild steel wire 1.6 dia.
Surface treatment:
Nickel chromium plating

GUARD 172



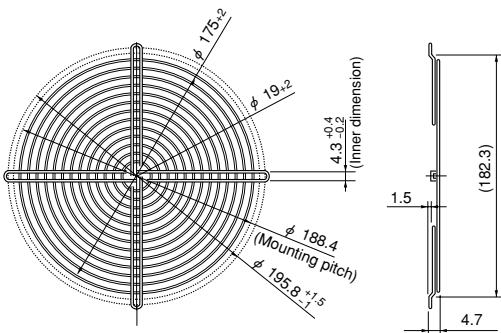
Material: Mild steel wire 2 dia.
Surface treatment:
Nickel chromium plating

F180UL Guard



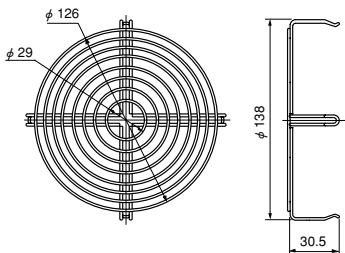
Material: Mild steel wire 1.6 dia.
Surface treatment:
Nickel chromium plating

F200UL Guard (Mass 82 g)



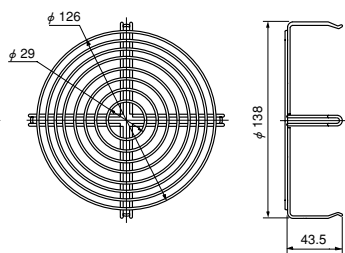
Material: Mild steel wire 1.6 dia.
Surface treatment:
Nickel chromium plating

SCU Guard (Mass 50 g)



Material: Mild steel wire 1.6 dia.
Surface treatment:
Nickel chromium plating

SCN Guard (Mass 55 g)



Material: Mild steel wire 1.6 dia.
Surface treatment:
Nickel chromium plating

• Guard special for intake side of SCUD (metal venturi) fans.

• Guard special for intake side of SCND (metal venturi) fans.

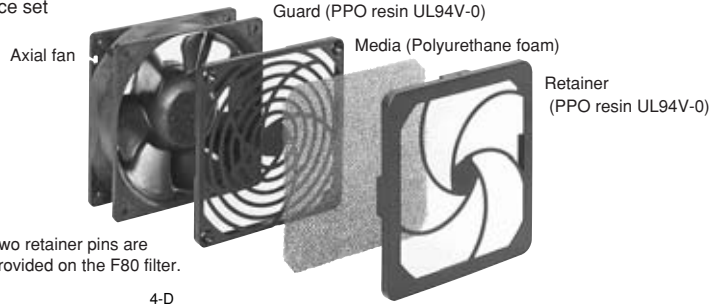
List of mating fan series

| Guard | F60P | F60UL | F80UL | F92UL | F120UL | F127UL | GUARD 172 | F180UL | F200UL | SCN | SCU |
|-------|------|-------|-------|-------|--------|--------|-----------|--------|--------|-----|-----|
| SCU | | | | | ○*1 | | | | | | ○*2 |
| SCN | | | | | ○*1 | | | | | ○*2 | |
| VE | | | ○ | | | | | | | | |
| WE | | | | ○ | | | | | | | |
| KA | | | | ○ | | | | | | | |
| CU | | | | | ○ | | | | | | |
| CN | | | | | ○ | | | | | | |
| MA | | | | | | | ○ | | | | |
| PA | | | | | | | ○ | | | | |
| PL | | | | | | | | ○ | | | |
| SKUD | | | | ○ | | | | | | | |
| SKLD | | | | ○ | | | | | | | |
| SCUD | | | | | ○*1 | | | | | | ○*2 |
| SCND | | | | | ○*1 | | | | | ○*2 | |
| SCUDM | | | | | ○ | | | | | | |
| SCNDM | | | | | ○ | | | | | | |
| TUDC | ○ | ○ | | | | | | | | | |
| PUDC | | | ○ | | | | | | | | |
| KUDC | | | | ○ | | | | | | | |
| KLDC | | | | ○ | | | | | | | |
| CUDC | | | | | ○ | | | | | | |
| CNDC | | | | | ○ | | | | | | |
| D1238 | | | | | ○ | | | | | | |
| D1338 | | | | | | ○ | | | | | |
| MADC | | | | | | | ○ | | | | |
| PADC | | | | | | | ○ | | | | |
| G1751 | | | | | | | ○ | | | | |
| SADC | | | | | | | | ○ | | | |

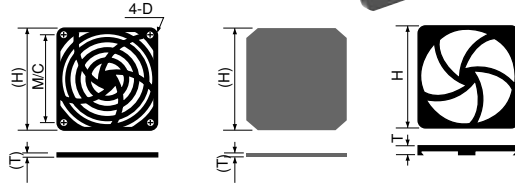
*1: Can be installed only on outlet side. *2: Can be installed only on intake side.
All guards conform to the UL standard when combined with Japan Servo fans.
The installation of a filter, guard and other accessories will constitute a ventilating load, reducing the airflow. Select a suitable guard, taking into consideration the increase in air resistance. (See Figs. 12 and 13 on page G-7.)

Filter

3-piece set



Note: Two retainer pins are provided on the F80 filter.



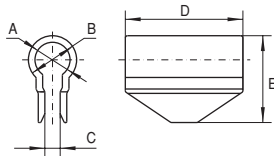
List of mating fan series

| Filter | F80 | F92 | F120 |
|---------------|-------|-----|------|
| DC Axial Fans | SKUD | ○ | |
| | SKLD | ○ | |
| | SCUDM | | ○ |
| | SCNDM | | ○ |
| | KUDC | ○ | |
| | PUDC | ○ | |
| | KLDC | ○ | |
| | CUDC | | ○ |
| | CNDH | | ○ |
| | D1238 | | ○ |

| Filter | F80 | F92 | F120 | |
|---------------|-----|-----|------|---|
| AC Axial Fans | VE | ○ | | |
| | WE | | ○ | |
| | KA | | ○ | |
| | CU | | | ○ |
| | CN | | | ○ |

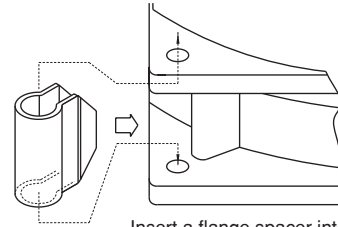
| Component (Model Code) | H | T | M/C | D |
|------------------------|-------|------|-------|-------|
| F80 Filter | 83.6 | 10 | 71.5 | φ 3.8 |
| F92 Filter | 96.5 | 10 | 82.5 | φ 3.8 |
| F120 Filter | 123.7 | 10.7 | 104.8 | φ 4.6 |

Flange spacer



| Component (Model Code) | A mm | B mm | C mm | D mm | E mm | Mating Model Code |
|------------------------|------|------|------|------|------|-------------------|
| Flange Spacer PUDC (※) | 5 | 8 | 2 | 17 | 14.5 | KUDC,PUDC |
| Flange Spacer CUDC (※) | 8 | 11 | 3.5 | 15 | 19.8 | CUDC |
| Flange Spacer CNDC | 8 | 11 | 3.5 | 28 | 19.8 | CNDC |

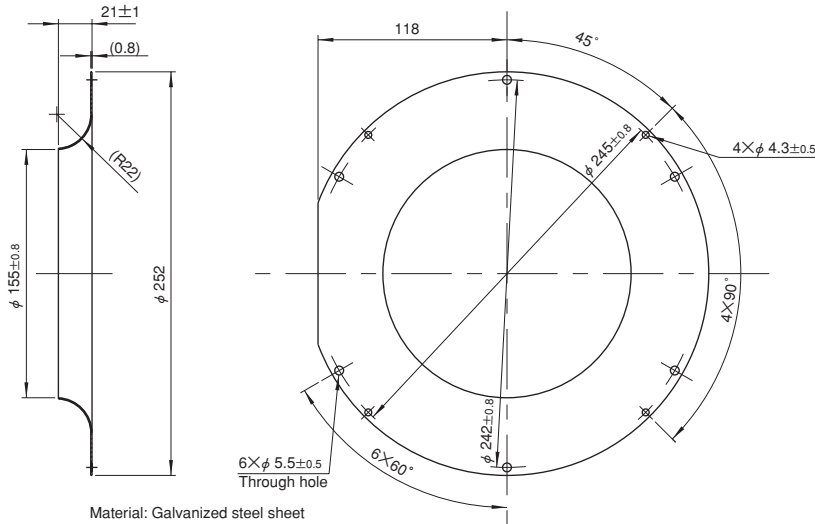
※Ribbed venturis (PUDC-R, CUDC-R) are available for PUDC and CUDC.



Insert a flange spacer into the ribs of a venturi.

(Installing a flange spacer)

Inlet ring



Material: Galvanized steel sheet

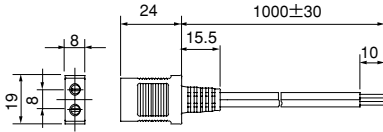
| Component (Model Code) | Mating Model Code |
|------------------------|-------------------|
| E2271 Inlet ring | E2271Z |

Plug cords for AC fans

(Common specification: Rated 3 A, voltage 250 V, dielectric strength 1 minute at 1500 V 50 Hz)

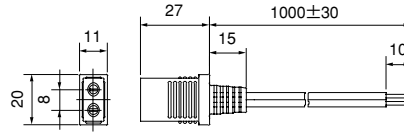
D2P1 cord (Mass 35 g)

Certified under the Electrical Appliance and Material Safety Law (Japan) (<PS>E mark approved)
Cord 0.18 dia. 30 conductors Black, heat resistant vinyl



UL2P1 cord (Mass 41 g)

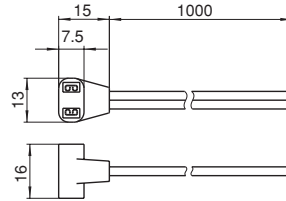
UL standard product (UL file No. E78112)
Cord 0.16 dia. 41 conductors Black, heat resistant vinyl



* UL2P2 cord with 2m length also available.

T2P1 cord

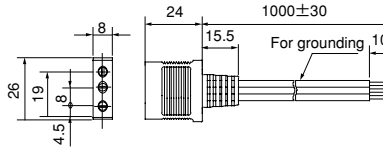
For wiring inside equipment
Cord 0.18 dia. 30 conductors Black, heat resistant vinyl



D3P1 cord (Mass 59 g)

Certified under the Electrical Appliance and Material Safety Law (Japan) (<PS>E mark approved)
Cord:

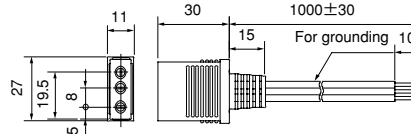
For power feeding 0.18 dia. 30 conductors Black, heat resistant vinyl
For grounding 0.18 dia. 50 conductors Black, heat resistant vinyl



UL3P1 cord (Mass 60 g)

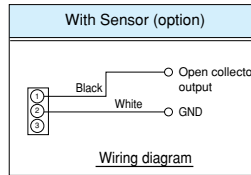
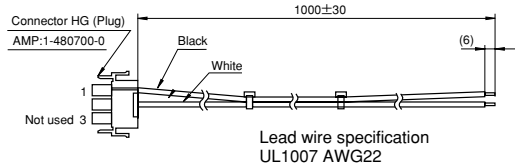
UL standard product (UL file No. E78112)
Cord:

For power feeding 0.16 dia. 41 conductors Black, heat resistant vinyl
For grounding AWG18 green/yellow spiral, heat resistant vinyl

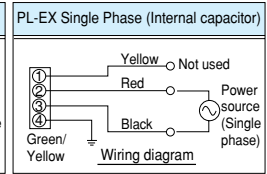
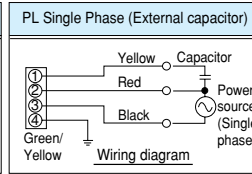
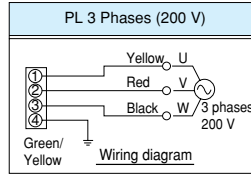
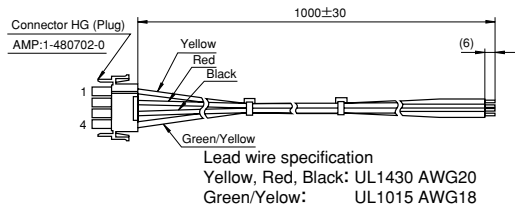


* UL3P2 cord with 2 m length also available.

PL sensor 1 cord



PL4P1 cord



List of mating fan series

| Cord | T2P1 | D2P1 | D3P1 | UL2P1 | UL3P1 | PL4P1 | PL sensor |
|------------------|------|------|------|-------|-------|-------|-----------|
| WE | ○ | ○ | | ○ | | | |
| KA | ○ | ○ | | ○ | | | |
| CU | ○ | ○ | | ○ | | | |
| CN (2 terminals) | ○ | ○ | | ○ | | | |
| CN (3 terminals) | | | ○ | | ○ | | |
| MA | ○ | ○ | | ○ | | | |
| PA | ○ | ○ | | ○ | | | |
| PL | | | | | | ○ | ○ |

Plug cords for DC fans

DCLD030ST-ZZ01 (S sensor output cord)



DCLD030PT-ZZ01 (P sensor output cord)



• Lead wire ends are sheathed to protect conductors. (Sheath peeling dimension 10±5)

| Component (Model Code) | Mating Model Code |
|------------------------|-------------------|
| DCLD030ST-ZZ01 | E1033H□□B□AM-04 |
| DCLD030PT-ZZ01 | |

DC axial fans & blowers with sensors

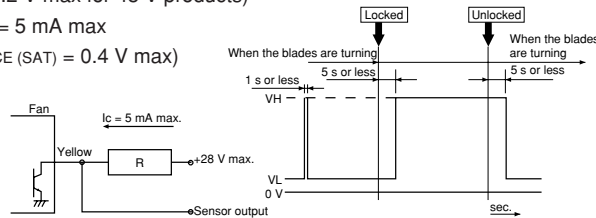
The DC fans and blowers of Japan Servo have a function to send an alarm signal when the fan motor revolutions slow down. Several systems are used to cut off the system power supply by this alarm signal, with three types of sensors available. Select the right type of sensor in accordance with the purpose of use. The lead wire for the sensor is yellow. The output type is an open collector output for all three types.

■ Sensor type

1. Lock detection type (Product code: S)

The output signal indicates an [L] state (transistor is ON) while the propeller is rotating, changing to an [H] state (transistor is OFF) less than five seconds after the propeller stops rotating. The propeller automatically restarts operation within five seconds when the lock is unlocked. ([H] → [L] 5 s). If the pull-up voltage is live, the [H] state (transistor is OFF) will engage in less than five seconds, even when the power is turned off.

- Specification: $V_{CE} = 28\text{ V max}$ (55.2 V max for 48 V products)
 $I_C = 5\text{ mA max}$
($V_{CE(SAT)} = 0.4\text{ V max}$)
- Output waveform

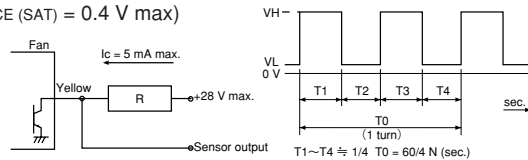


※When the power is turned on, the state sometimes becomes high [H] for several hundred ms.

2. Pulse output type (Product code: P)

A rectangular wave of two pulses will be output for each turn of the propeller while the propeller is rotating, outputting two types of signal depending on the propeller position when the propeller is locked. (See the note below ※)

- Specification: $V_{CE} = 28\text{ V max}$ (55.2 V max for 48 V products)
 $I_C = 5\text{ mA max}$
($V_{CE(SAT)} = 0.4\text{ V max}$)
- Output waveform



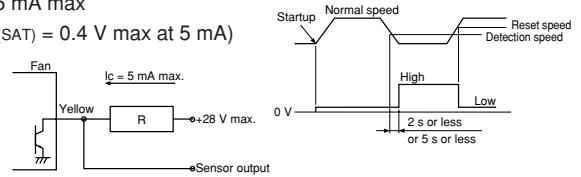
※Output signal waveform when the fan is stopped: The following two types of waveform are output, depending on the blade position when the propeller is stopped:
Pulse outputs of High - constant or restart timing (0.05 Hz to 2 Hz).

3. Speed detection type (Product code: Q)

The output signal indicates the [H] state when the propeller revolutions are slower than the preset speed, changing to the [L] state when the propeller revolutions exceed the reset speed.

[Products with a reversed output waveform are also available, suitable for a wired OR connection when several fans are installed. Contact Japan Servo for further information. {Former code: SQ, new code (15 - digit code products): R}]

- Specification: $V_{CE} = 28\text{ V max}$ (55.2 V max for 48 V products)
 $I_C = 5\text{ mA max}$
($V_{CE(SAT)} = 0.4\text{ V max at } 5\text{ mA}$)
- Output waveform



Note: The output waveform for type SQ (R) will be reversed. The speed setting for the alarm output is about half the rated speed. For more detailed information, please request a product delivery specification from Japan Servo.

AC fans with sensors

By equipping the motor with a rotation detection function, the AC fans of Japan Servo have a system to send an alarm signal when the fan motor revolutions slow down and to cut off the system power supply. In 1980, Japan Servo developed a system to output an alarm signal by detecting the lowering of generated voltage by installing a tachometer generator with the cooling fan and this system has since been incorporated in Japan Servo products. The output type of the alarm signal is an open collector output.

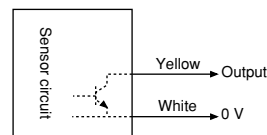
■ Sensor specification

| | | | | |
|-------------------------|--|-----------------------|---|-----------------|
| Type | Tachometer generator type | | | |
| Sensor output operation | Open collector transistor, permissible sync Current: 50 mA max. Permissible imposed voltage: DC 40 V max. Permissible power consumption: 1.5 W max. (at 25 °C) | | | |
| Sensor output operation | AC power supply | Speed | Output transistor operation | Output state |
| | OFF | | OPEN | HIGH (Abnormal) |
| | ON | Below detection speed | OPEN | HIGH (Abnormal) |
| | ON | Above detection speed | CLOSE | LOW (Normal) |
| Detection speed RD | 1500 ~ 2200 rpm | | | |
| Detection delay time TD | 2 s or less 17 Type | | | |
| Type | Standard speed | | | |
| Insulation resistance | 10 M Ω or higher by a DC 500 V: Between the sensor lead and venturi | | | |
| Dielectric strength | Between the sensor lead and venturi | | No anomaly allowed after applying AC 500 V 50 Hz for 1 minute | |

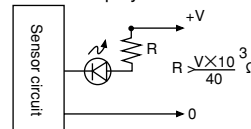
■ Operational and handling precautions

Operate fans and blowers at an ambient temperature of between -10 °C and 60 °C and relative humidity of less than 90 %. Latch output is not used so malfunction by electrical noise can be ruled out. However, note that the semiconductor devices in the internal circuitry may be damaged by electrical noise and high voltage. No delay circuit is provided so a trouble signal is output on startup. As when operating and handling the fan, exercise caution to avoid dropping and exposing the blower to shock and vibration.

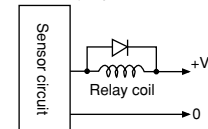
■ Sensor connection



1. LED Display



2. Relay operation



Use in tandem with a flyback diode. Limit the coil current to 50 mA or less.

※ A sensor is available with the AS ad PL series only.