

# San Ace 225AD 9AD type

## ACDC Fan

### Features

#### No DC Power Supply Needed

With an embedded AC-DC converter, these fans can be driven by an AC power supply. This eliminates the need for a high-capacity DC power supply, reducing the overall costs.

#### High Energy Efficiency and Low Noise

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

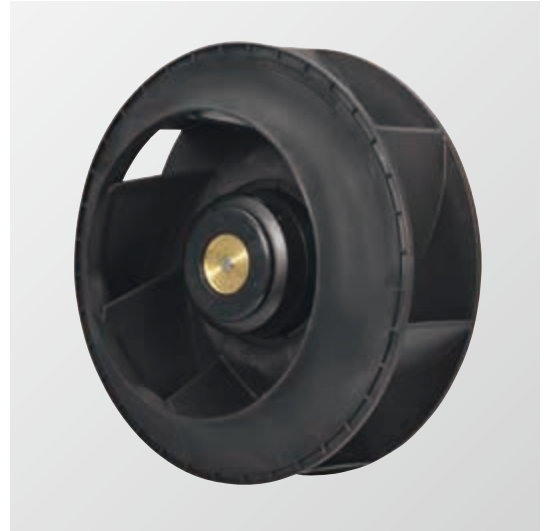
#### Water and Dust Resistance

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).

IP56:

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



∅225 x 99 mm

### Specifications When the optional inlet nozzle (109-1134H) is mounted.

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

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]
9ADW1TS11P0H001	115	90 to 132	100	2.9	140	3100	22.3 787	760 3.05	73	-20 to +60	40000/40°C
			20	0.3	11	1000	7.1 252	80 0.32	50		
9ADW1TS11P0M001			100	1.4	61	2350	16.9 597	440 1.77	67		
			20	0.3	11	1000	7.1 252	80 0.32	50		
9ADW1TS23P0H001	230	180 to 264	100	1.9	140	3100	22.3 787	760 3.05	73		
			20	0.2	11	1000	7.1 252	80 0.32	50		
9ADW1TS23P0M001			100	0.8	61	2350	16.9 597	440 1.77	67		
			20	0.2	11	1000	7.1 252	80 0.32	50		

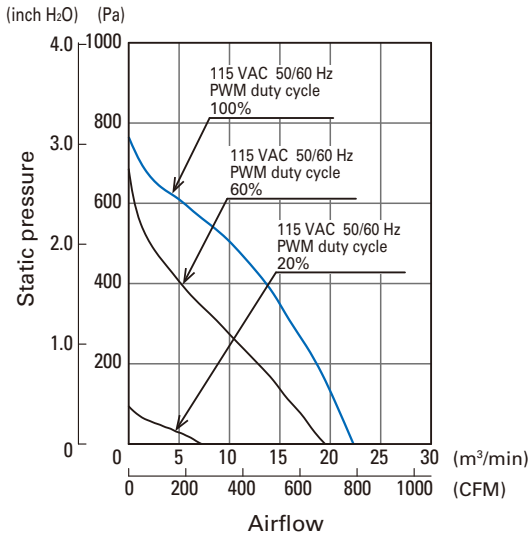
\* PWM frequency: 1 kHz. Fan does not rotate when PWM duty cycle is 0%.

### Common Specifications

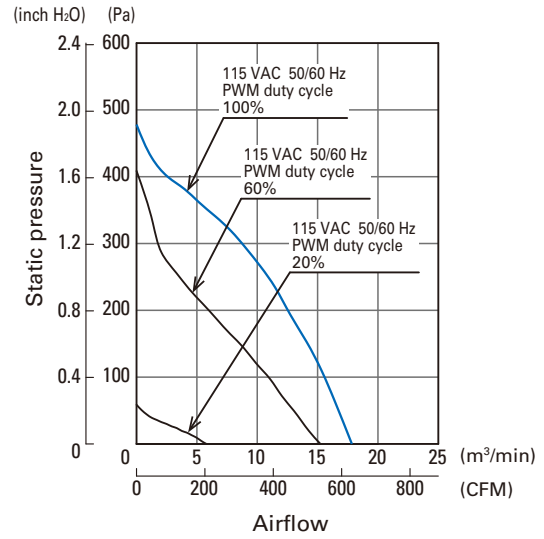
- Material ..... Motor case: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life ..... Refer to specifications  
(L10 life: 90% survival rate for continuous operation in indoor free air at 40°C, rated voltage)
- Motor protection function ..... Burnout protection function at locked rotor condition
- Dielectric strength ..... 50/60 Hz, 1,500 VAC, for 1 minute (between lead wire conductors and motor case)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and motor case)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Operating temperature ..... Refer to specifications (Non-condensing)
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... AC power input L: Orange N: Gray Ground Yellow / Green  
+10 VDC output Red ⊖ Black Sensor Yellow Control Brown
- Mass ..... Approx. 1900 g
- Ingress protection ..... IP56

## Airflow - Static Pressure Characteristics

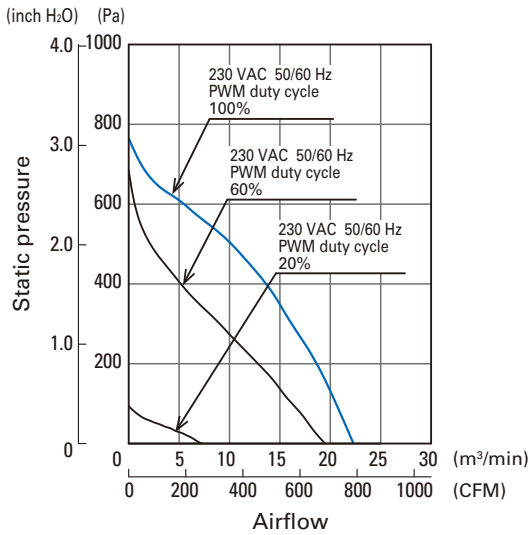
- PWM duty cycle



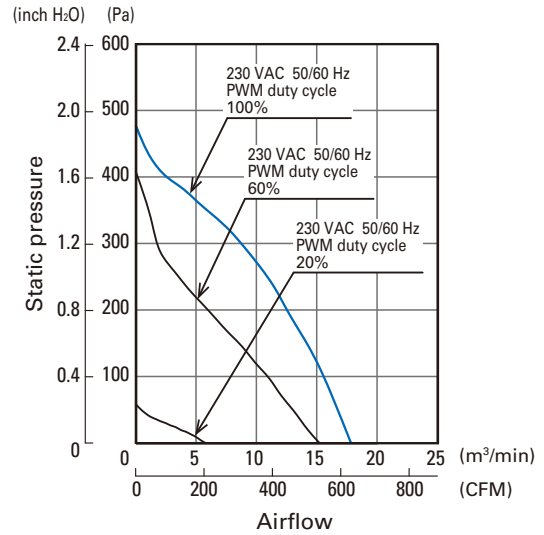
**9ADW1TS11P0H001**



**9ADW1TS11P0M001**

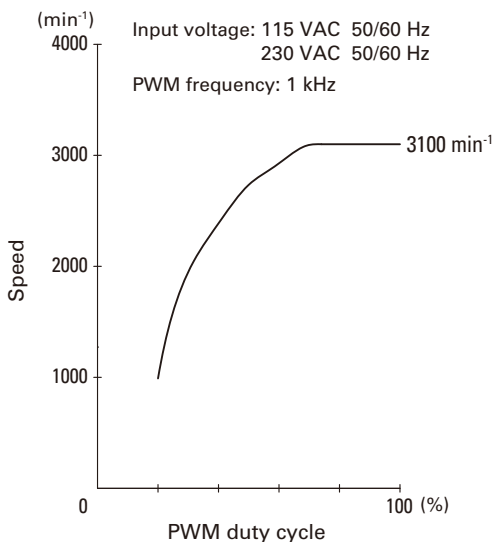


**9ADW1TS23P0H001**

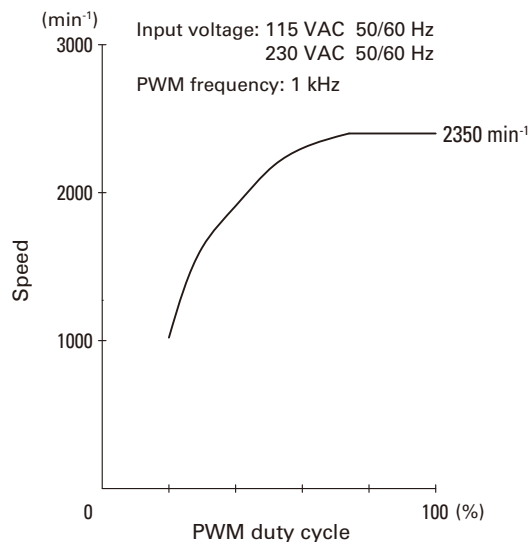


**9ADW1TS23P0M001**

## PWM Duty - Speed Characteristics Example



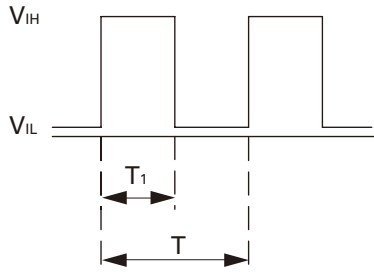
**9ADW1TS11P0H001**  
**9ADW1TS23P0H001**



**9ADW1TS11P0M001**  
**9ADW1TS23P0M001**

**PWM Input Signal Example**

Input signal waveform



$V_{IH} = 9.5 \text{ to } 10.5 \text{ V}$     $V_{IL} = 0 \text{ to } 0.5 \text{ V}$

PWM duty cycle (%) =  $\frac{T_1}{T} \times 100$    PWM frequency 1 (kHz) =  $\frac{1}{T}$

Current source ( $I_{source}$ ) = 5 mA max. (when control voltage is 0 V)

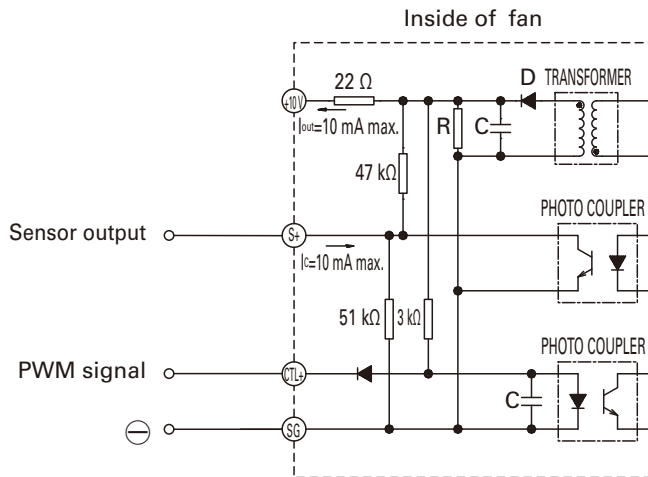
Current sink ( $I_{sink}$ ) = 0.1 mA max. (when control voltage is 10 V)

Control terminal voltage = 11.5 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.

**Wiring example**



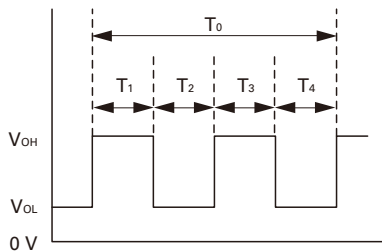
**Specifications for Pulse Sensors**

Output circuit: Open collector, Internal pulled up to 5 V

Output waveform

In case of steady running

(One revolution)

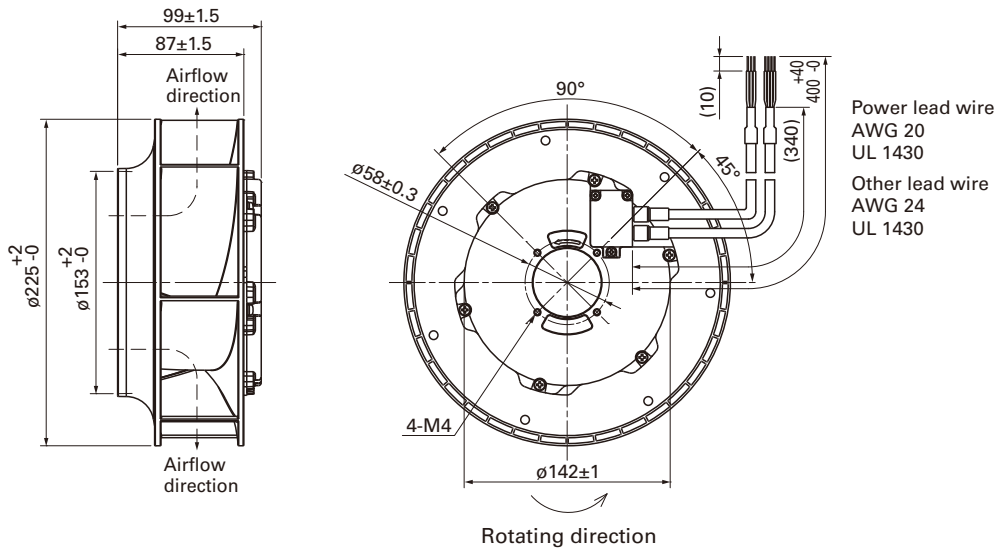


$T_{1to4} \doteq (1/4) T_0$

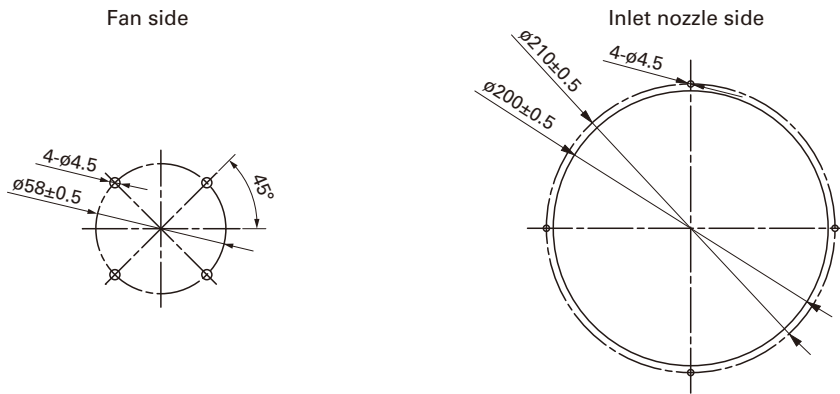
$T_{1to4} \doteq (1/4) T_0 = 60/4N \text{ (s)}$

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

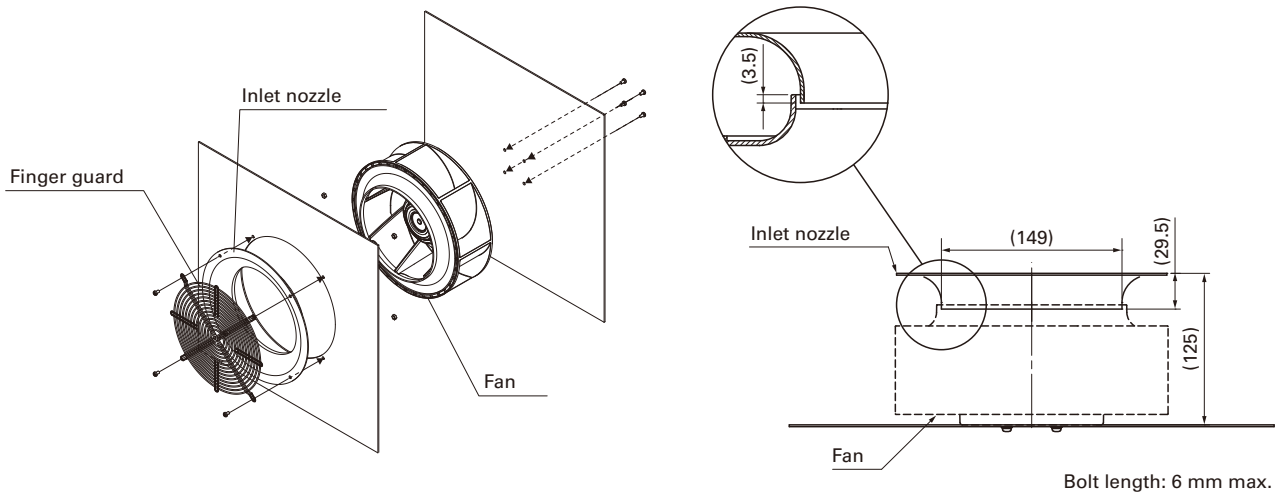
## Dimensions (unit: mm)



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



## Reference Diagram for Mounting



### 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.

**SANYO DENKI CO.,LTD.** 3-33-1 Minami-Otsuka, Toshima-ku, Tokyo 170-8451, Japan TEL: +81 3 5927 1020

<https://www.sanyodenki.com>

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