

# San Ace 190AD

## ACDC Fan

9ADTU type

### Features

#### High Static Pressure

This fan delivers a maximum static pressure of 1200 Pa. They are ideal for blowing applications in air conditioning systems such as FFU (fan filter units) and air purifiers, which require high static pressure performance, and for cooling inverters and the housings of communication systems, which have high mounting density.

#### No DC Power Supply Required

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 overall costs.

#### Low Noise and High Energy Efficiency

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



∅190 × 88 mm

### Specifications When the optional inlet nozzle (109-1073) is mounted.

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

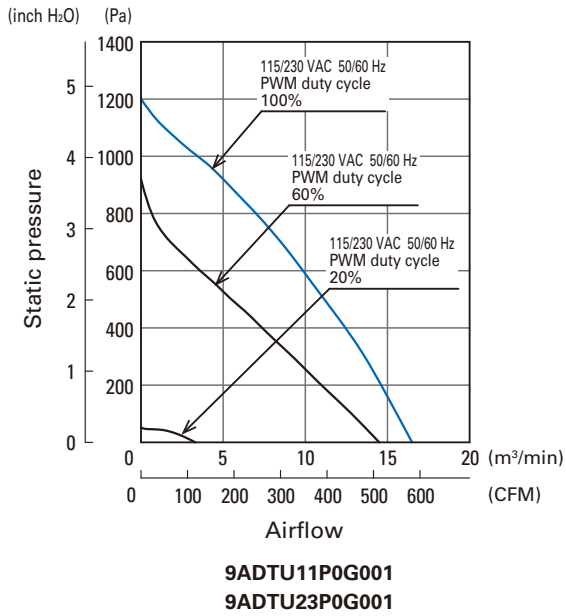
Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min <sup>-1</sup> ]	Max. airflow [m <sup>3</sup> /min] [CFM]	Max. static pressure [Pa] [inchH <sub>2</sub> O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9ADTU11P0G001	115	90 to 132	50/60	100	2.5	150	4800	16.5 583	1200 4.82	72	-25 ~ +60	40000/60°C (70000/40°C)
				20	0.3	10	1000	3.3 116	52 0.21	43		
9ADTU23P0G001	230	180 to 264		100	1.3	150	4800	16.5 583	1200 4.82	72		
				20	0.2	10	1000	3.3 116	52 0.21	43		

\* PWM input frequency is 1 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

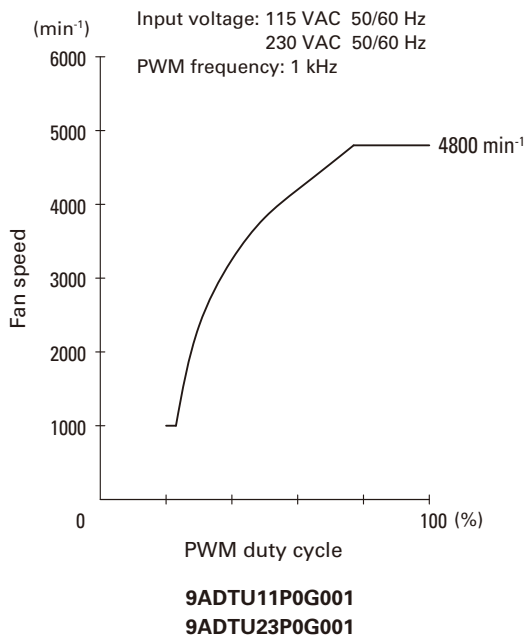
### Common Specifications

- 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 free air at 60°C, rated voltage)  
Expected life at 40°C is for reference only.
- Motor protection function ..... Locked rotor burnout protection
- Dielectric strength ..... 50/60 Hz, 1500 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 ..... 1600 g

## Airflow - Static Pressure Characteristics

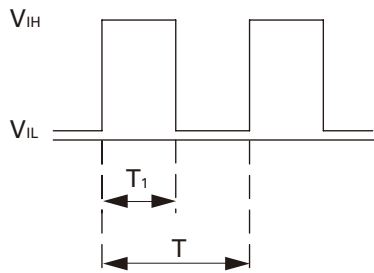


## PWM Duty - Speed Characteristics Example



### PWM Input Signal Example

Input signal waveform



$V_{IH} = 2.8 \text{ to } 10.5 \text{ V}$     $V_{IL} = 0 \text{ to } 0.5 \text{ V}$

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

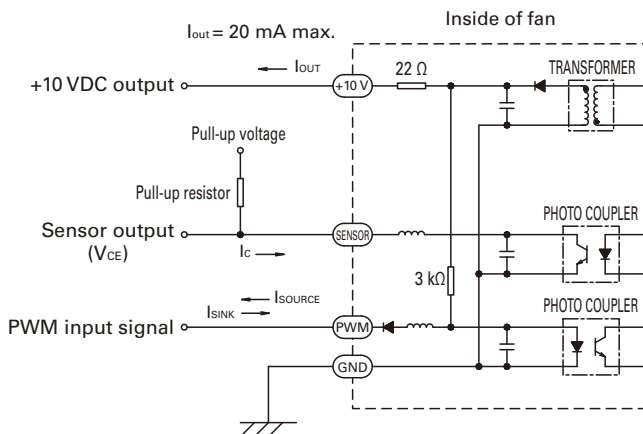
Current source ( $I_{source}$ ) = 5 mA max. (when control voltage is 0 V)

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.

### Example of Connection Schematic



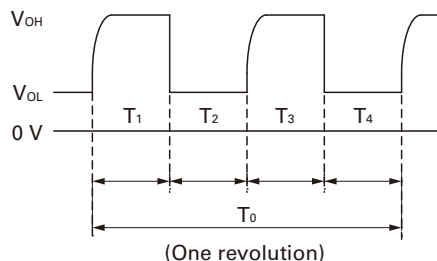
$V_{CE} = +27.6 \text{ V max.}$   
 $I_C = 10 \text{ mA max. [} V_{OL} = V_{CE} \text{ (SAT)} = 1 \text{ V max.]}$   
Pull-up resistor = 5 kΩ max.

### Specifications for Pulse Sensors

Output circuit: Open collector

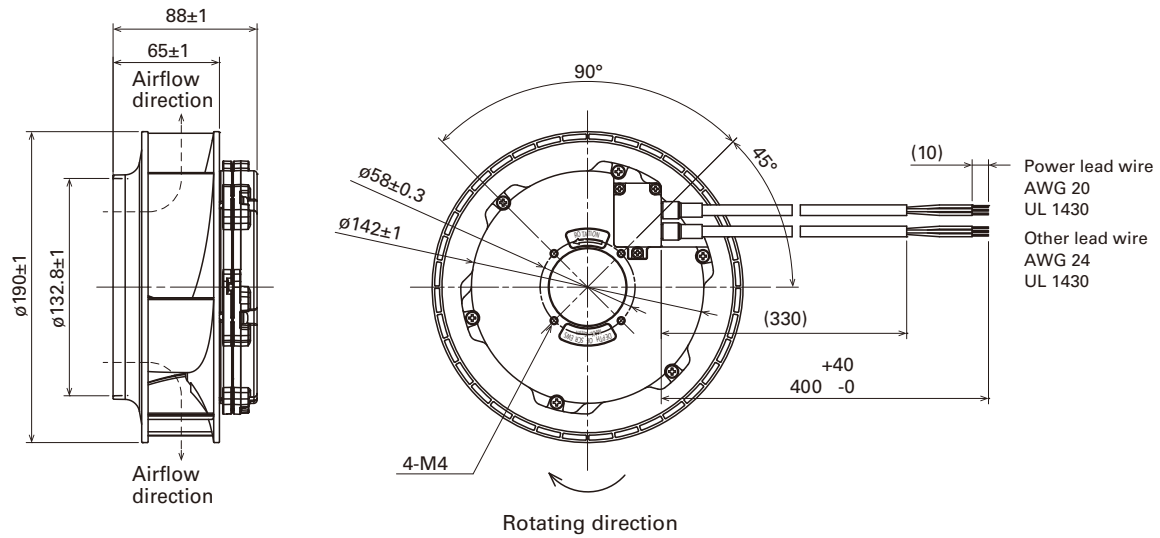
Output waveform

In case of steady running

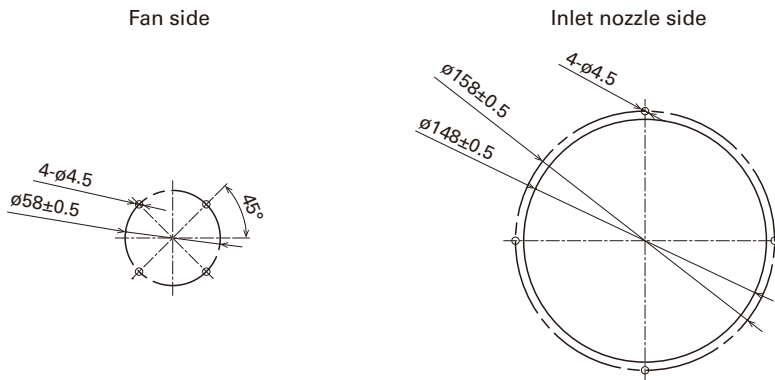


$T_{1 \text{ to } 4} \approx (1/4) T_0$   
 $T_0 = 60/4N \text{ (s)}$   
 $N = \text{Fan speed (min}^{-1}\text{)}$

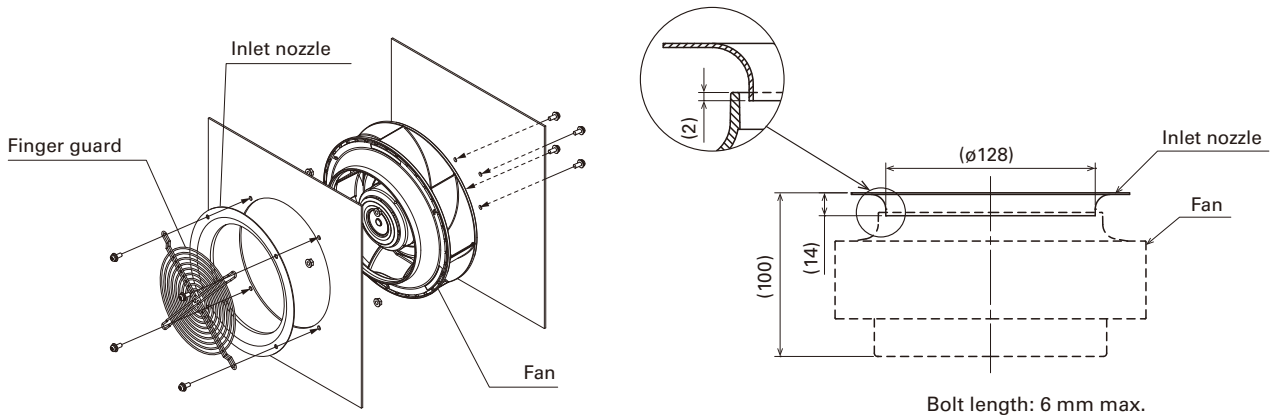
## Dimensions (unit: mm)



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



## Reference Diagram for Mounting



## Notice

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- 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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