ACDC Fan

This fan works while internally converting AC power into DC power, providing the superior performance of a DC fan with the flexibility of AC input.

Model Numbering System

Not every combination of the following codes or characters is available. Contact us for an available combination.

9AD	09	01	H	1	2	
Type name	Frame size	Voltage	Speed code	Frame thickness	Sensor specifications	Frame form

Fans with PWM control

9AD	12	01	P	4	H	001	
Type name	Frame size	Voltage	PWM control	Frame thickness	Speed code	Individual customer's spec (2 to 3 digits)	Frame form

Type name	9AD 9ADA 9ADAW 9ADW Only the 9ADW and 9ADAW fans are waterproof
Frame size (mm)	09: 92×92 / 12: 120×120 / 16: 160×160 / 57: ø172×150 (sidecut)
Voltage (V)	01: 100 to 240
Speed code	H M etc.
Frame thickness (mm)	1: 38 / 4: 25 / 5: 51
Sensor specifications	001, 003, T03: With a pulse sensor / 002, 2, T02: Without a sensor / H, H001, HT01: With a low-speed sensor
Frame form	Nil: Plastic frame: Ribbed frame / 1: Plastic frame: Ribless frame

Centrifugal Fan

9ADT	S	11	P	0	G	001
Type name	Impeller size	Voltage	PWM control	Thickness	Speed code	Individual customer's spec

See category EC AC Centrifugal fans on https://motorsandfans.co.uk/products/cooling-fans/ec- ac-centrifugal-fans/

Bracket-mounted Splash Proof Centrifugal Fan

9ADB1T	S	11	P	0	G	001
Type name	Impeller size	Voltage	PWM control	Thickness	Speed code	Individual customer's spec

Type name	9ADT 9ADW1T 9ADB1T 9ADB1W1T
Impeller size (mm)	S: ø225
Voltage (V)	11: 115 / 23: 230
Thickness (mm)	0: 69 min.
Speed code	G H etc.

How to Read Specifications (ACDC fan)

The following is a sample. See respective product pages for detailed information.

Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	Rated current [A]	Rated input [W]	Rated speed [min⁻¹]	Max. airflow [m³/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH₂O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9AD0901H12	100 to 240	90 to 264	50/60	0.08	4.5	3850	1.5	53.0	90	0.36	40	-20 to +75	60000/60°C (90000/40°C)
9AD0901M12				0.06	3.0	3100	1.18	41.7	56	0.22	33		

Rated voltage ····· This is the necessary voltage to drive the fan. Single-phase 100 to 240 VAC are also available.
Operating voltage range ····· The voltage range over which fan operation is guaranteed.
Frequency ····· This is a frequency of alternating current (AC). The frequencies of 50 Hz and 60 Hz are existing in Japan.
Rated current ····· The current when the fan is operating at rated voltage (at free air).
Rated input ····· The power value when the fan is operating at rated voltage (at free air).
Rated speed ····· The speed when the fan is operating at rated voltage (at free air).
Max. airflow ····· The airflow at 0 Pa static pressure when the fan is operating at rated voltage. (Measured using the double chamber method)
Max. static pressure ····· The static pressure at 0 m^3/min airflow when the fan is operating at rated voltage. (Measured using the double chamber method)
SPL ····· A-weighted sound pressure level (SPL) when the fan operates at the rated speed.
For the measurement method, see the Technical Materials section in the catalog.
Operating temperature ····· The temperature range over which fan operation is guaranteed (Non-condensing).
Expected life ····· Service life hours that 90% of bearings will survive without failing when continuously operated at the rated voltage and 60°C temperature. Expected life at 40°C is for reference only.
For more information, please refer to the technical material section.

120×120×38 mm

San Ace 120AD 9ADAW type

IP68

General Specifications

- Material ..... Frame: Plastic (Flammability: UL 94V-0), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life ..... See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60˚C, rated voltage) Expected life at 40°C is for reference only.
- Motor protection function ..... Locked rotor burnout protection For details, please refer to p. 616.
- Dielectric strength ..... 50/60 Hz, 2500 VAC, for 1 second (between lead wire conductors and frame) 50/60 Hz, 1500 VAC, for 1 minute (between input lead wire (L, N) conductors and other lead wire conductors)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -30 to +70˚C (Non-condensing)
- Lead wire ..... AC power input L: Orange N: Gray Sensor Yellow Control Brown GND Black
- Mass ..... 420 g
- Ingress protection ..... IP68 For more information on IP rating, refer to p. 625.

Take safety measures not to touch this product (including lead wires) while the power is on.
Please ensure appropriate insulation within the final product because of functional insulation between input leads wire (L, N) and other lead wire conductors.

Specifications

The models listed below **have ribs and no sensor.** For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	Rated current* [A]	Rated input [W]	Rated speed [min⁻¹]	Max. airflow [m³/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH₂O]	SPL [dB (A)]	Operating temperature [˚C]	Expected life [h]
9ADAW1201H1002	100 to 240	90 to 264	50/60	0.13	6.6	3800	3.36	119	128	0.514	48	-20 to +70	60000/60˚C (90000/40˚C)

* Rated current ratings are the values at 100 V.

The models listed below **have ribs and a low-speed sensor.** For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	Rated current* [A]	Rated input [W]	Rated speed [min⁻¹]	Max. airflow [m³/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH₂O]	SPL [dB (A)]	Operating temperature [˚C]	Expected life [h]
9ADAW1201H1H001	100 to 240	90 to 264	50/60	0.13	6.6	3800	3.36	119	128	0.514	48	-20 to +70	60000/60˚C (90000/40˚C)

* Rated current ratings are the values at 100 V.

The models listed below **have ribs and a pulse sensor with PWM control.** For models without ribs, append "1" to the end of model numbers.

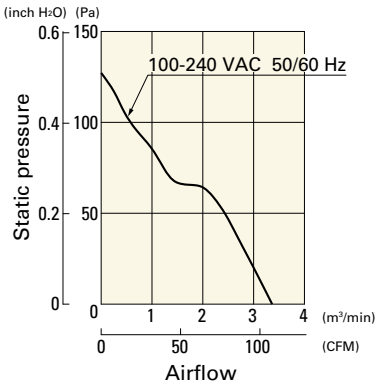
Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	PWM duty cycle(1) [%]	Rated current(2) [A]	Rated input [W]	Rated speed [min⁻¹]	Max. airflow [m³/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH₂O]	SPL [dB (A)]	Operating temperature [˚C]	Expected life [h]
9ADAW1201P1H001	100 to 240	90 to 264	50/60	100	0.13	6.6	3800	3.36	119	128	0.514	48	-20 to +70	60000/60˚C (90000/40˚C)
				25	0.04	1.4	1050	0.93	32.8	15	0.06	25		

(1) PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 0% duty cycle.
(2) Rated current ratings are the values at 100 V.

Airflow - Static Pressure Characteristics

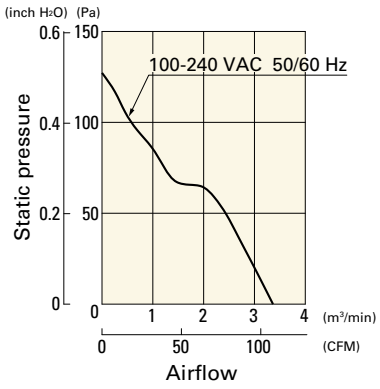
9ADAW1201H1002 No sensor

Operating voltage range



9ADAW1201H1H001 With low-speed sensor

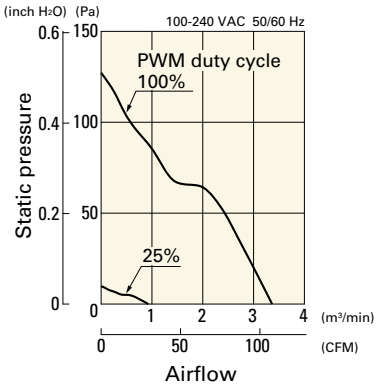
Operating voltage range



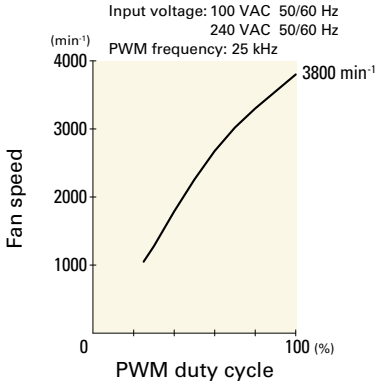
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9ADAW1201P1H001 With pulse sensor with PWM control

PWM duty cycle

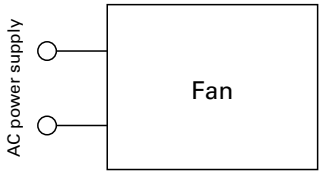


PWM duty - Speed characteristics example

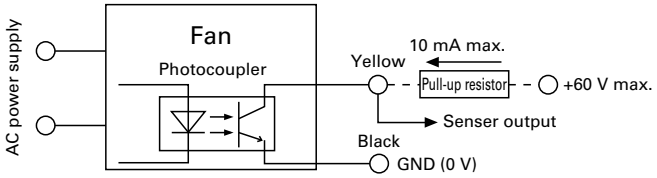


Connection Schematic

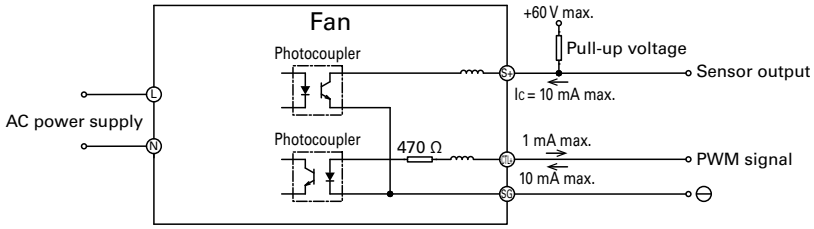
without Sensor



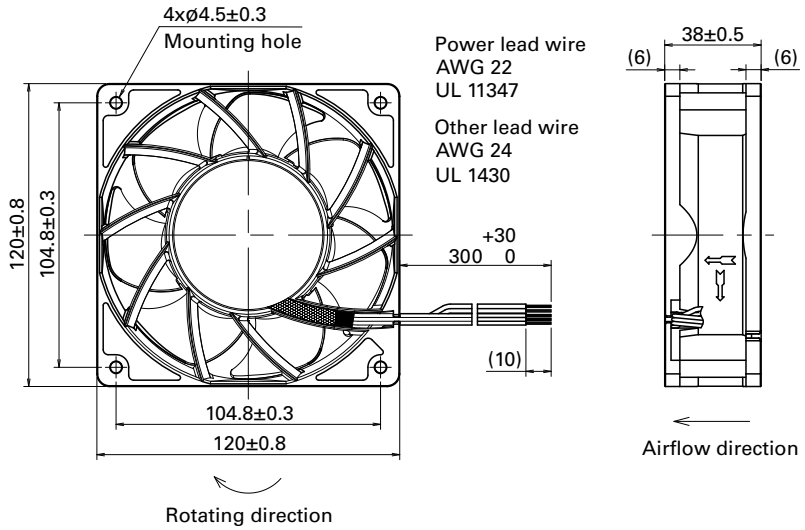
with Low-speed sensor



with PWM control and pulse sensor

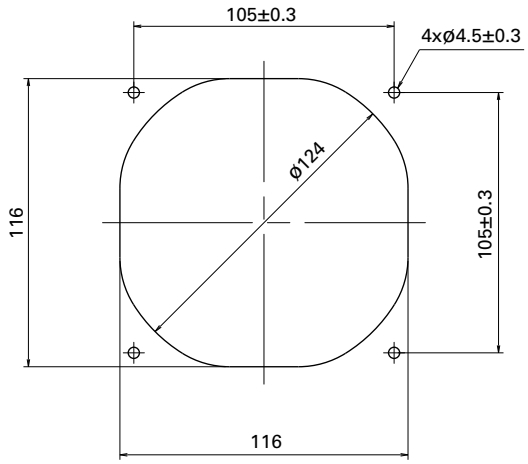


Dimensions (unit: mm) (Ribbed frame with pulse sensor with PWM control)

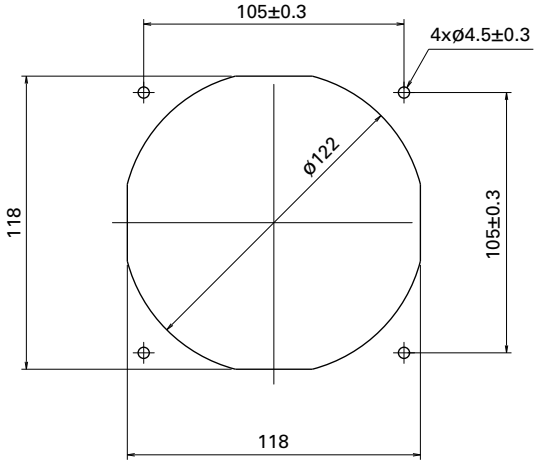


Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)

Inlet side



Outlet side



Options

Finger guards page: p. 599

Model no.: 109-019E, 109-019K

Resin filter kits page: p. 606

Model no.: 109-1000F13 (13PPI), 109-1000F20 (20PPI), 109-1000F30 (30PPI), 109-1000F40 (40PPI)

Resin finger guards page: p. 605

Model no.: 109-1000G

160×160×51 mm

IP56

San Ace 160AD 9ADW type

General Specifications

- Material ..... Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life ..... See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60˚C, rated voltage) Expected life at 40°C is for reference only.
- Motor protection function ..... Locked rotor burnout protection For details, please refer to p. 616.
- Dielectric strength ..... 50/60 Hz, 1500 VAC, for 1 minute (Lead wire model: between lead wire conductors and frame, terminal model: between terminals and frame)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (Lead wire model: between lead wire conductors and frame, terminal model: between terminals and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -30 to +70˚C (Non-condensing)
- Lead wire ..... AC power input L: Orange N: Gray Sensor Yellow Control Brown GND Black
- Mass ..... 940 g
- Ingress protection ..... IP56 (Excluding the connectors of terminal models) For more information on IP rating, refer to p. 625.

To display CE mark/UKCA mark on system, refer to p. 621.

Specifications

The models listed below **have no sensor.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	Rated current[3] [A]	Rated input [W]	Rated speed [min⁻¹]	Max. airflow [m³/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH₂O]	SPL [dB (A)]	Operating temperature [˚C]	Expected life [h]
9ADW1601H5002(1)	100 to 240	90 to 264	50/60	0.46	22	4150	8.2	290	167	0.66	58	-20 to +70	40000/60˚C (70000/40˚C)
9ADW1601H5T02(2)				0.46	22	4150	8.2	290	167	0.66	58		

(1) Lead wire model (2) Terminal model (3) Rated current ratings are the values at 100 V.

The models listed below **have a low-speed sensor.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	Rated current[3] [A]	Rated input [W]	Rated speed [min⁻¹]	Max. airflow [m³/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH₂O]	SPL [dB (A)]	Operating temperature [˚C]	Expected life [h]
9ADW1601H5H001(1)	100 to 240	90 to 264	50/60	0.46	22	4150	8.2	290	167	0.66	58	-20 to +70	40000/60˚C (70000/40˚C)
9ADW1601H5HT01(2)				0.46	22	4150	8.2	290	167	0.66	58		

(1) Lead wire model (2) Terminal model (3) Rated current ratings are the values at 100 V.

The models listed below **have a pulse sensor with PWM control.**

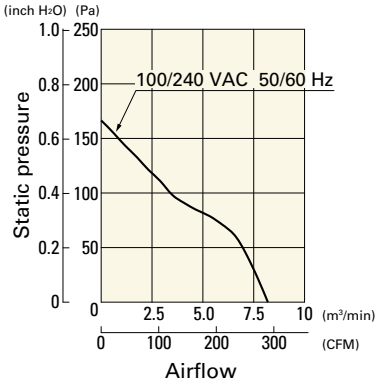
Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	PWM duty cycle[3] [%]	Rated current[4] [A]	Rated input [W]	Rated speed [min⁻¹]	Max. airflow [m³/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH₂O]	SPL [dB (A)]	Operating temperature [˚C]	Expected life [h]
9ADW1601P5H003(1)	100 to 240	90 to 264	50/60	100	0.46	22	4150	8.2	290	167	0.66	58	-20 to +70	40000/60˚C (70000/40˚C)
				0	0.10	4.0	1500	3.07	108	44	0.17	31		
9ADW1601P5HT03(2)				100	0.46	22	4150	8.2	290	167	0.66	58		
				0	0.10	4.0	1500	3.07	108	44	0.17	31		

(1) Lead wire model (2) Terminal model
(3) PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 0% duty cycle.
(4) Rated current ratings are the values at 100 V.

Airflow - Static Pressure Characteristics

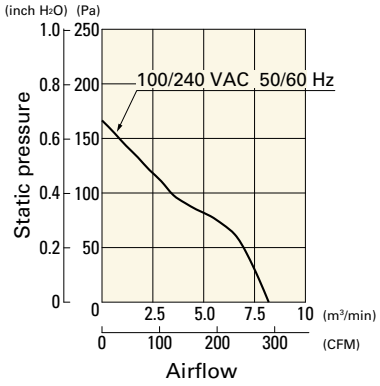
9ADW1601H5002, 9ADW1601H5T02
No sensor

Operating voltage range



9ADW1601H5H001, 9ADW1601H5HT01
With low-speed sensor

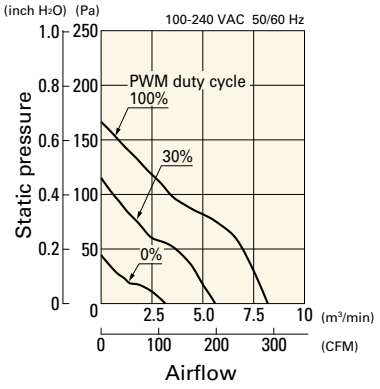
Operating voltage range



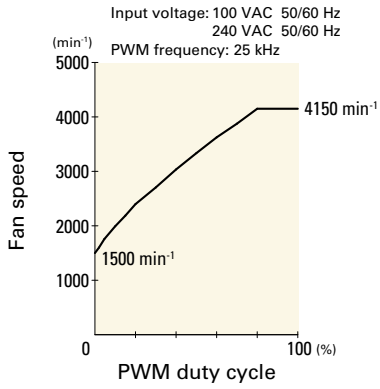
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9ADW1601P5H003, 9ADW1601P5HT03 With pulse sensor with PWM control

PWM duty cycle

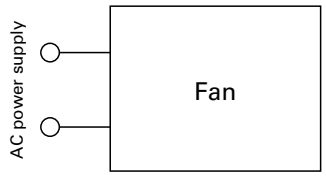


PWM duty - Speed characteristics example

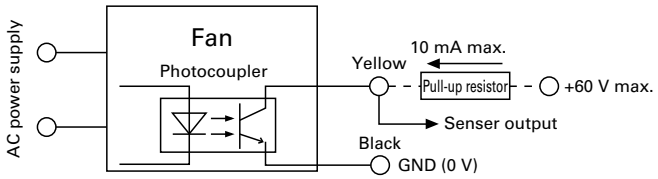


Connection Schematic

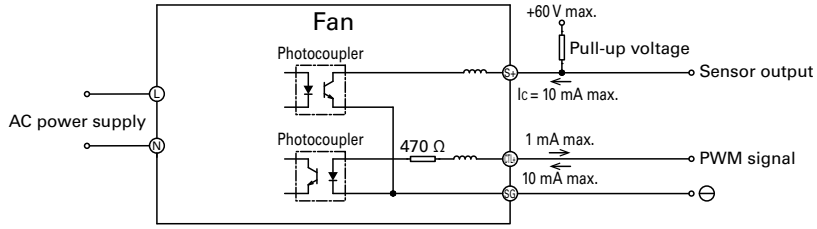
without Sensor



with Low-speed sensor

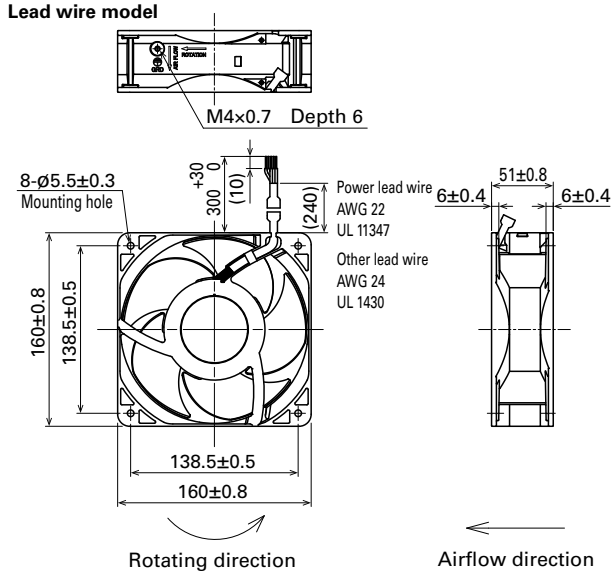


with PWM control and pulse sensor

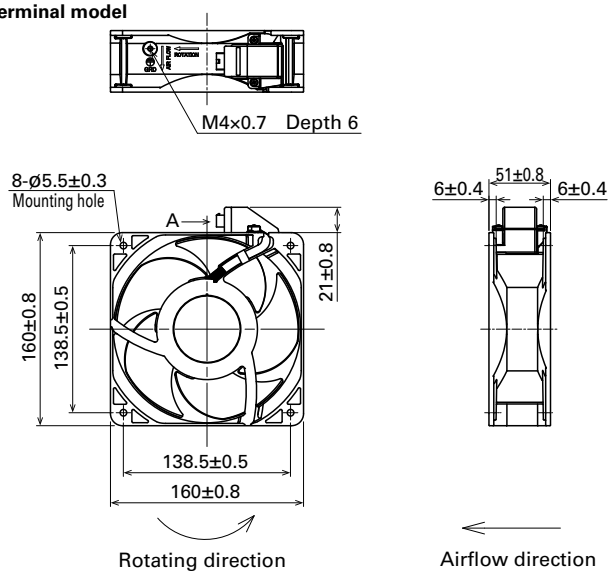


Dimensions (unit: mm) (With pulse sensor with PWM control)

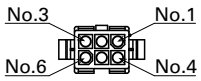
Lead wire model



Terminal model



A Connector contact

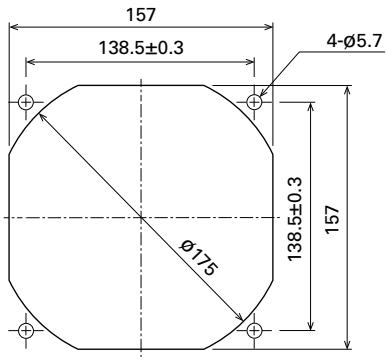


Pin assignment
Connector (Model no.: TE Connectivity: 1-172160-9)

Pin No.	Function	Type
1	L	AC
2	No connection	-
3	N	AC
4	PWM	DC
5	GND	DC
6	Sensor	DC

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

Inlet side, Outlet side



Options

Finger guards page: p. 599

Model no.: 109-619E, 109-619H

Terminal model wiring harness page: p. 611

Compatible with a fan without sensor.
Model no.: 489-1648, 489-1651

Compatible with a fan with low-speed sensor, and a fan with pulse sensor and PWM control.
Model no.: 489-1647, 489-1650

ø172×150×51 mm

IP56

San Ace 172AD 9ADW type

Sidecut type

General Specifications

- Material ..... Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life ..... See the table below. (L10 life: 90% survival rate for continuous operation in indoor free air at 60˚C, rated voltage) Expected life at 40°C is for reference only.
- Motor protection function ..... Locked rotor burnout protection For details, please refer to p. 616.
- Dielectric strength ..... 50/60 Hz, 1500 VAC, for 1 minute (Lead wire model: between lead wire conductors and frame, terminal model: between terminals and frame)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (Lead wire model: between lead wire conductors and frame, terminal model: between terminals and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -30 to +70˚C (Non-condensing)
- Lead wire ..... AC power input L: Orange N: Gray Sensor Yellow Control Brown GND Black
- Mass ..... 810 g
- Ingress protection ..... IP56 (Excluding the connectors of terminal models) For more information on IP rating, refer to p. 625.

To display CE mark/UKCA mark on system, refer to p. 621.

Specifications

The models listed below **have no sensor.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	Rated current[3] [A]	Rated input [W]	Rated speed [min⁻¹]	Max. airflow [m³/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH₂O]	SPL [dB (A)]	Operating temperature [˚C]	Expected life [h]
9ADW5701H5002(1)	100 to 240	90 to 264	50/60	0.3	17	3800	6.7	236	195	0.78	54	-20 to +70	40000/60˚C (70000/40˚C)
9ADW5701H5T02(2)				0.3	17	3800	6.7	236	195	0.78	54		

(1) Lead wire model (2) Terminal model (3) Rated current ratings are the values at 100 V.

The models listed below **have a low-speed sensor.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	Rated current[3] [A]	Rated input [W]	Rated speed [min⁻¹]	Max. airflow [m³/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH₂O]	SPL [dB (A)]	Operating temperature [˚C]	Expected life [h]
9ADW5701H5H001(1)	100 to 240	90 to 264	50/60	0.3	17	3800	6.7	236	195	0.78	54	-20 to +70	40000/60˚C (70000/40˚C)
9ADW5701H5HT01(2)				0.3	17	3800	6.7	236	195	0.78	54		

(1) Lead wire model (2) Terminal model (3) Rated current ratings are the values at 100 V.

The models listed below **have a pulse sensor with PWM control.**

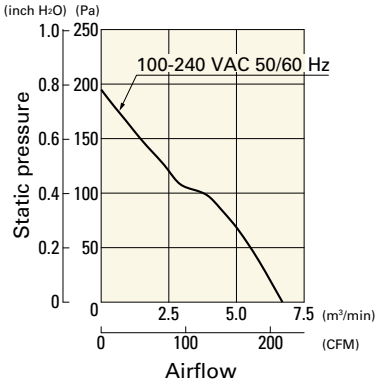
Model no.	Rated voltage [V]	Operating voltage range [V]	Frequency [Hz]	PWM duty cycle[3] [%]	Rated current[4] [A]	Rated input [W]	Rated speed [min⁻¹]	Max. airflow [m³/min]	Max. airflow [CFM]	Max. static pressure [Pa]	Max. static pressure [inchH₂O]	SPL [dB (A)]	Operating temperature [˚C]	Expected life [h]
9ADW5701P5H003(1)	100 to 240	90 to 264	50/60	100	0.3	17	3800	6.7	236	195	0.78	54	-20 to +70	40000/60˚C (70000/40˚C)
				0	0.08	3.2	1500	2.64	93	40	0.16	31		
9ADW5701P5HT03(2)				100	0.3	17	3800	6.7	236	195	0.78	54		
				0	0.08	3.2	1500	2.64	93	40	0.16	31		

(1) Lead wire model (2) Terminal model
(3) PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 0% duty cycle.
(4) Rated current ratings are the values at 100 V.

Airflow - Static Pressure Characteristics

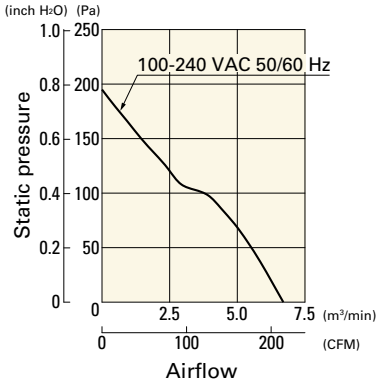
9ADW5701H5002, 9ADW5701H5T02
No sensor

Operating voltage range



9ADW5701H5H001, 9ADW5701H5HT01
With low-speed sensor

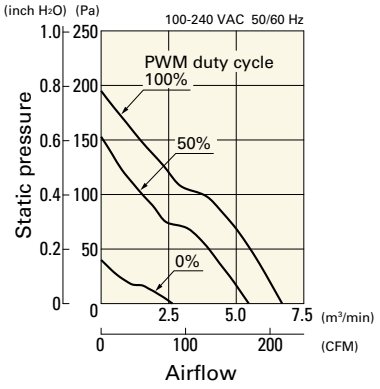
Operating voltage range



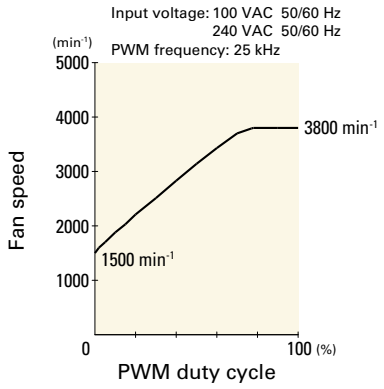
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9ADW5701P5H003, 9ADW5701P5HT03 With pulse sensor with PWM control

PWM duty cycle

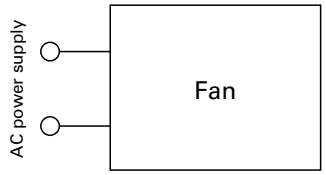


PWM duty - Speed characteristics example

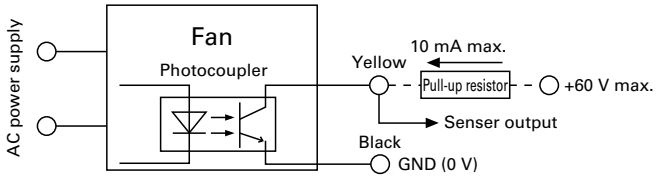


Connection Schematic

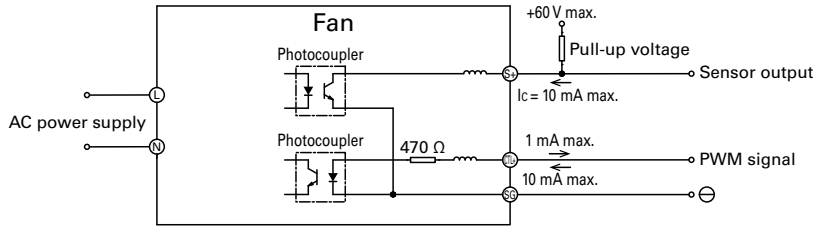
without Sensor



with Low-speed sensor

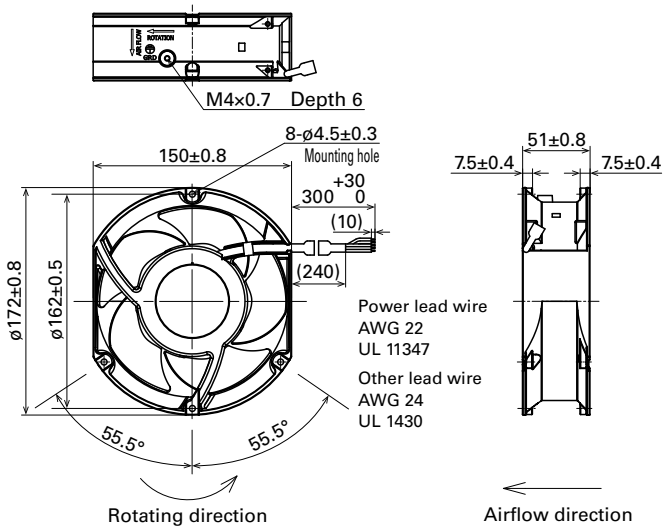


with PWM control and pulse sensor

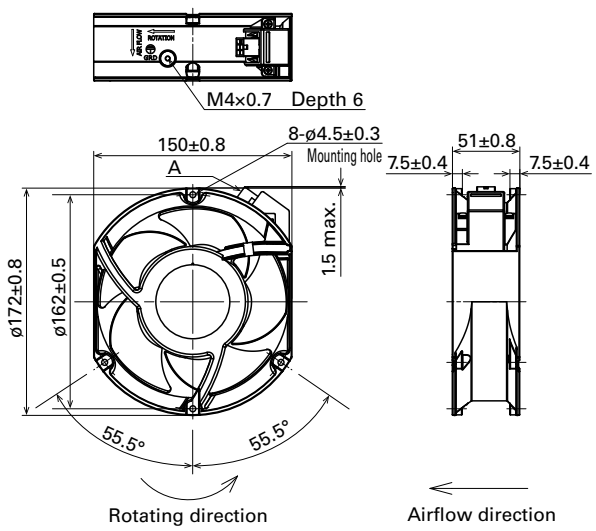


Dimensions (unit: mm) (With pulse sensor with PWM control)

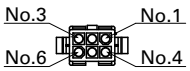
Lead wire model



Terminal model



A Connector contact

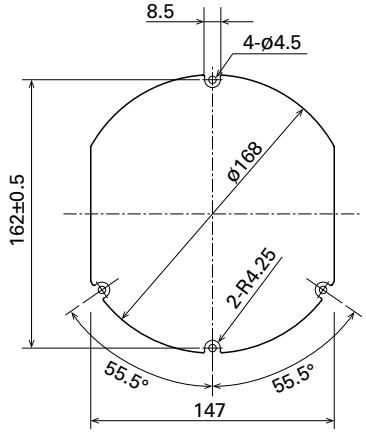


Pin assignment
Connector (Model no.:TE Connectivity: 1-172160-9)

Pin No.	Function	Type
1	L	AC
2	No connection	-
3	N	AC
4	PWM	DC
5	GND	DC
6	Sensor	DC

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

Inlet side, Outlet side



Options

Finger guards page: p. 600

Model no.: 109-1155, 109-1155H

Terminal model wiring harness page: p. 611

Compatible with a fan without sensor.
Model no.: 489-1648, 489-1651

Compatible with a fan with low-speed sensor, and a fan with pulse sensor and PWM control.
Model no.: 489-1647, 489-1650