

Long Life Fan

Cooling fan with Max. 180,000 hours of expected life.

Related product: Splash Proof Fan pp. 250, 255, 260, 268, 272

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

9L	04	12	J	3	01
Type name	Frame size	Voltage	Speed code	Frame thickness	Sensor specifications

Fans with PWM control function

9LG	06	12	P	4	S	001
Type name	Frame size	Voltage	PWM control function	Frame thickness	Speed code	Individual customer's spec (2 to 3 digits)

Type name	9CRL 9L 9LG etc.							
Frame size (mm)	04	06	08	09	12	14	17	57
	40×40	60×60	80×80	92×92	120×120	140×140	∅172	∅172×150 (sidecut)
Voltage (V)	12	24	48					
	12	24	48	etc.				
Speed code	E	F	G	H	J	L	M	S etc.
Frame thickness (mm)	0	1	3	4	5	8		
	76	38	28	25	51	80		
Sensor specifications	01, 001				02, 002			D01, D001
	With a pulse sensor				Without a sensor			With a lock sensor

How to Read Specifications (DC fan) The following is a sample. See respective product pages for detailed information.

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9GA0412G7001	12	7 to 13.8	0.17	2.04	13100	0.36 12.7	192 0.77	42	-20 to +70	40000/60°C (70000/40°C)

Rated voltage This is the necessary voltage to drive the fan. E.g.) 12 VDC, 24 VDC, 48 VDC

Operating voltage range The voltage range over which fan operation is guaranteed.

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 m³/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.

40×40×28 mm

San Ace 40L 9L type



General Specifications

- Material Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-0)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 ⊕Red ⊖Black Sensor Yellow
- Mass 55 g

Specifications

The models listed below **have pulse sensors**.

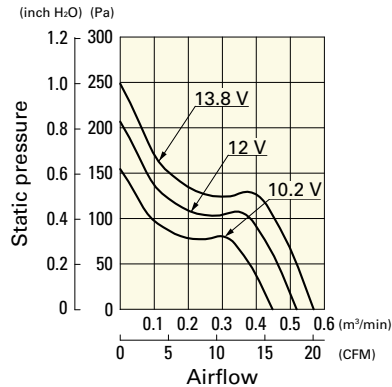
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9L0412J301	12	10.2 to 13.8	0.31	3.72	11700	0.52 18.4	206 0.827	48	-20 to +70	100000/60°C (135000/40°C)
9L0412H301			0.15	1.8	8400	0.37 13.1	106 0.426	40		
9L0412M301			0.045	0.54	4000	0.16 5.65	24 0.096	19		

Note: Sensor and control options are available for selection. Refer to the table on p. 612.

Airflow - Static Pressure Characteristics

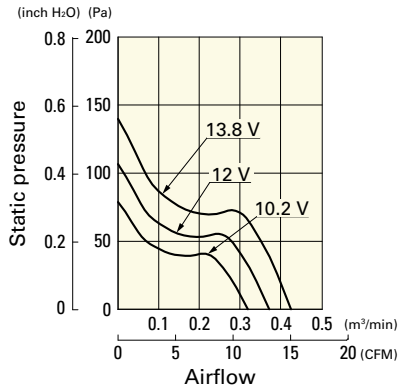
9L0412J301 With pulse sensor

Operating voltage range



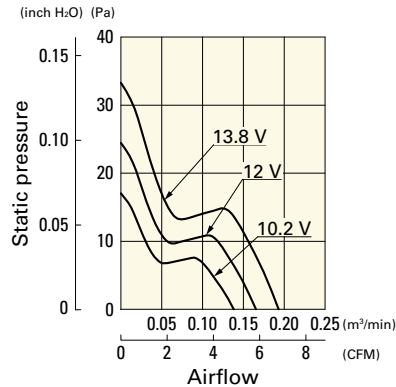
9L0412H301 With pulse sensor

Operating voltage range

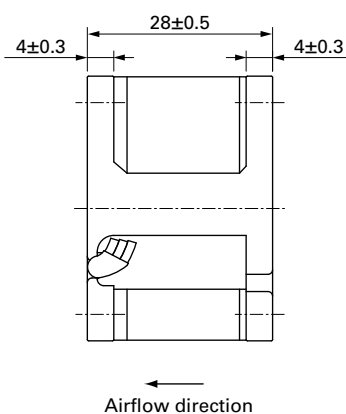
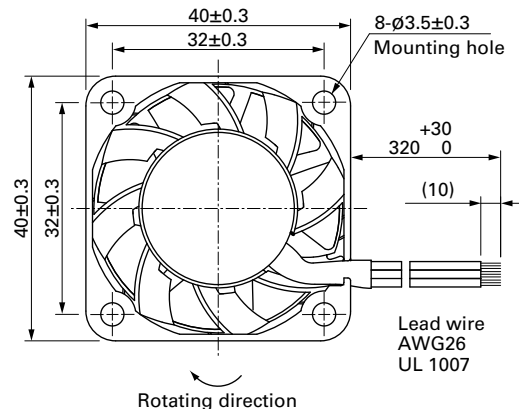


9L0412M301 With pulse sensor

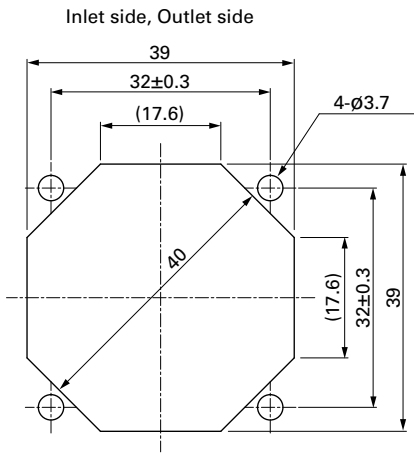
Operating voltage range



Dimensions (unit: mm)



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



Options

Finger guards

page: p. 564

Model no.: 109-059, 109-059H

60×60×25 mm

San Ace 60L 9LG type



General Specifications

- Material Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 ⊕Red ⊖Black Sensor Yellow Control Brown
- Mass 100 g

Specifications

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 ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
» 9LG0612P4S001	12	10.8 to 13.2	100	0.67	8.04	11000	1.4 49.4	300 1.204	53	-20 to +70	180000/60°C (215000/40°C)
» 9LG0612P4J001			20	0.06	0.72	2900	0.36 12.7	20.8 0.083	20		
» 9LG0612P4H001			100	0.39	4.68	8650	1.1 38.8	182 0.73	47		
» 9LG0612P4M001			20	0.03	0.36	1150	0.13 4.8	3.3 0.013	14		
» 9LG0612P4S001			100	0.17	2.04	6150	0.78 27.5	97 0.389	35		
» 9LG0612P4J001			20	0.03	0.36	1350	0.17 6.0	4.7 0.018	14		
» 9LG0612P4H001			100	0.09	1.08	4200	0.53 18.7	45 0.18	24		
» 9LG0612P4M001			20	0.03	0.36	900	0.11 3.8	2.0 0.008	14		
» 9LG0624P4S001	24	21.6 to 26.4	100	0.34	8.16	11000	1.4 49.4	300 1.204	53		
» 9LG0624P4J001			20	0.03	0.72	2900	0.36 12.7	20.8 0.083	20		
» 9LG0624P4H001			100	0.19	4.56	8650	1.1 38.8	182 0.73	47		
» 9LG0624P4M001			20	0.02	0.48	2200	0.28 9.8	12.0 0.048	17		
» 9LG0624P4S001			100	0.08	1.92	6150	0.78 27.5	97 0.389	35		
» 9LG0624P4J001			20	0.02	0.48	1300	0.16 5.6	4.3 0.017	14		
» 9LG0624P4H001			100	0.04	0.96	4200	0.53 18.7	45 0.18	24		
» 9LG0624P4M001			20	0.01	0.24	800	0.1 3.5	1.6 0.006	14		
» 9LG0648P4S001	48	36 to 72	100	0.18	8.64	11000	1.4 49.4	305 1.224	53		
» 9LG0648P4J001			20	0.02	0.96	2900	0.36 12.7	20.8 0.083	20		
» 9LG0648P4H001			100	0.1	4.8	8650	1.1 38.8	182 0.73	47		
» 9LG0648P4M001			20	0.02	0.96	2100	0.26 9.1	10.7 0.042	17		
» 9LG0648P4S001			100	0.06	2.88	6150	0.78 27.5	97 0.389	35		
» 9LG0648P4J001			20	0.02	0.96	1000	0.12 4.2	2.5 0.01	14		
» 9LG0648P4H001			100	0.04	1.92	4200	0.53 18.7	45 0.18	24		
» 9LG0648P4M001			20	0.02	0.96	650	0.08 2.8	1.0 0.004	14		

* 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 100% duty cycle.

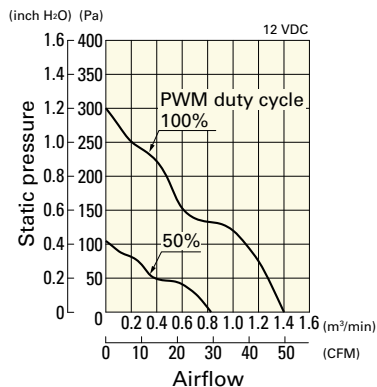
Note 1: Sensor and control options are available for selection. Refer to the table on pp. 612 to 613.

Note 2: The » mark indicates Short Lead Time Service applicable models. See p. 630 for details.

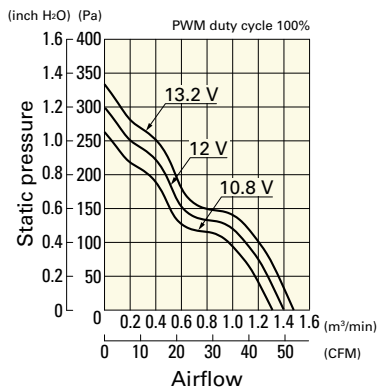
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG0612P4S001 With pulse sensor with PWM control function

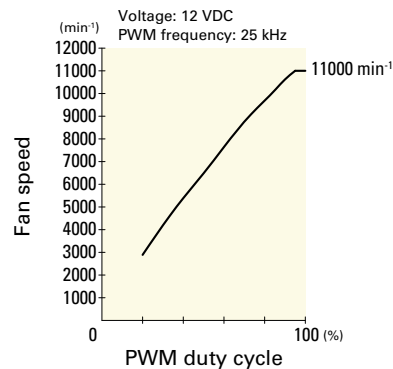
PWM duty cycle



Operating voltage range

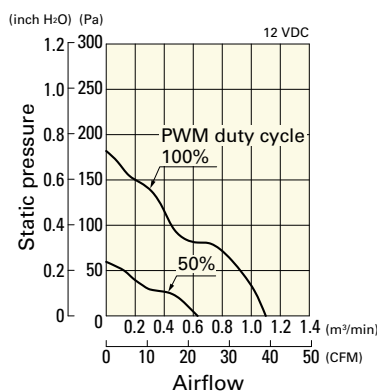


PWM duty - Speed characteristics example

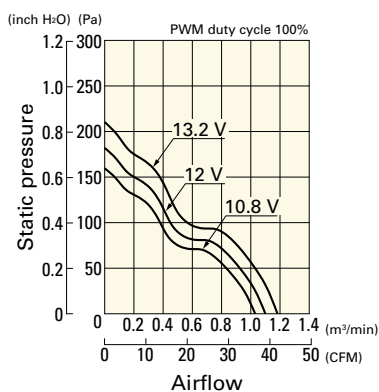


9LG0612P4J001 With pulse sensor with PWM control function

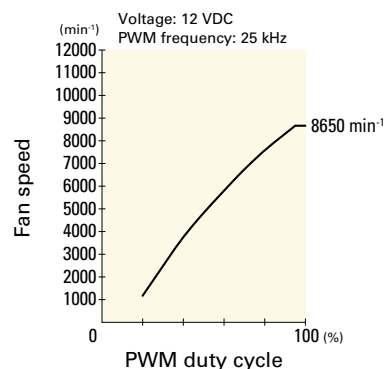
PWM duty cycle



Operating voltage range

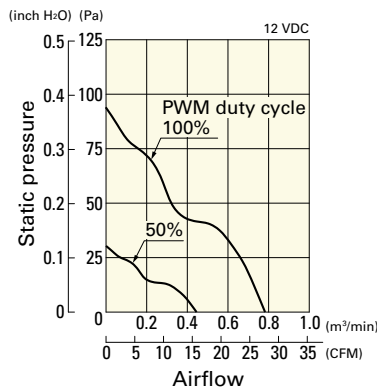


PWM duty - Speed characteristics example

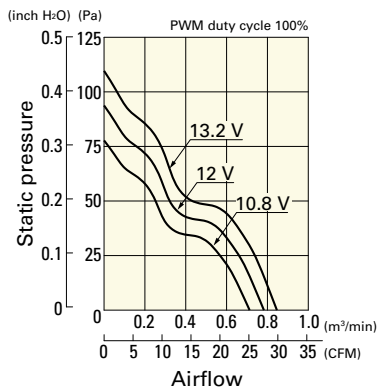


9LG0612P4H001 With pulse sensor with PWM control function

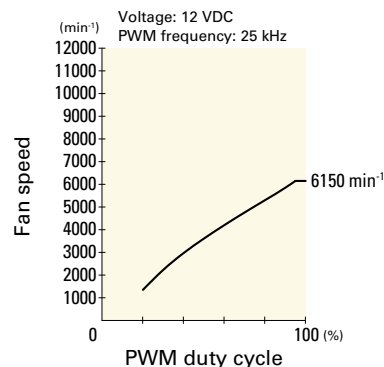
PWM duty cycle



Operating voltage range

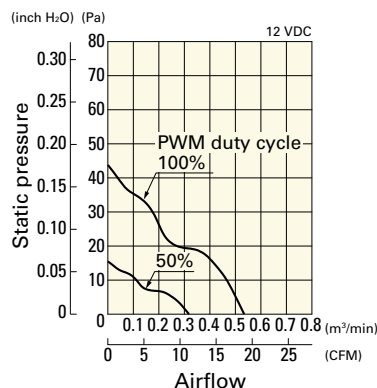


PWM duty - Speed characteristics example

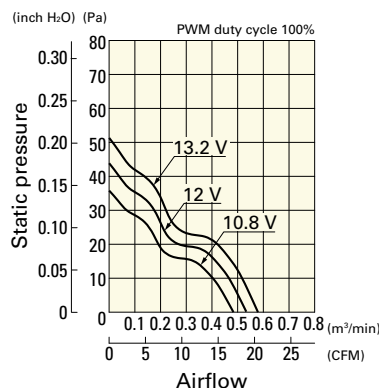


9LG0612P4M001 With pulse sensor with PWM control function

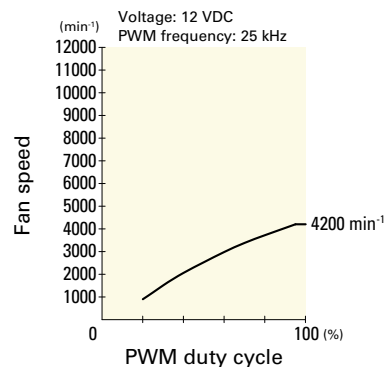
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example



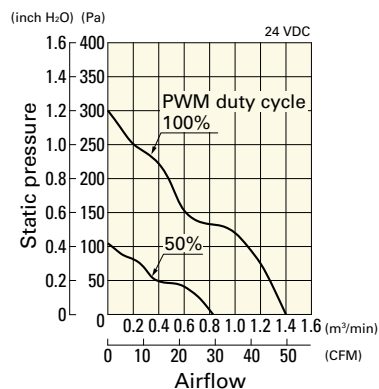
DC

Long Life Fan 60 mm sq.

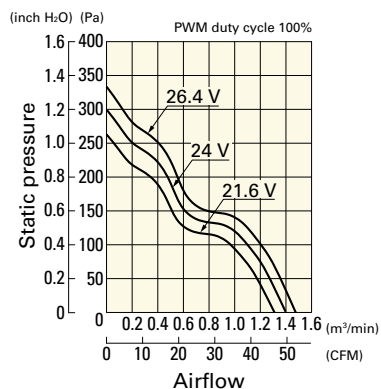
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG0624P4S001 With pulse sensor with PWM control function

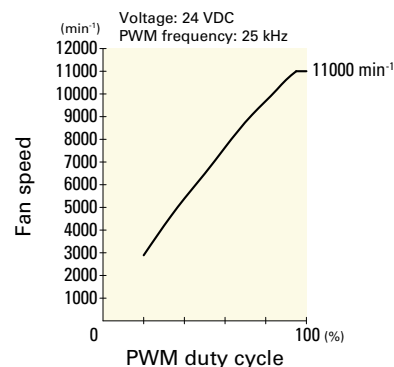
PWM duty cycle



Operating voltage range

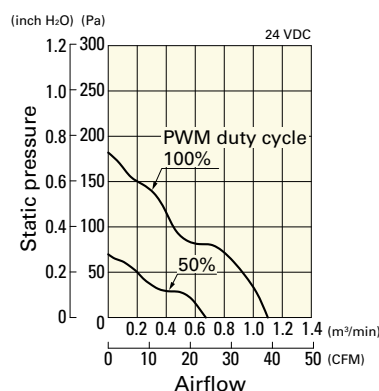


PWM duty - Speed characteristics example

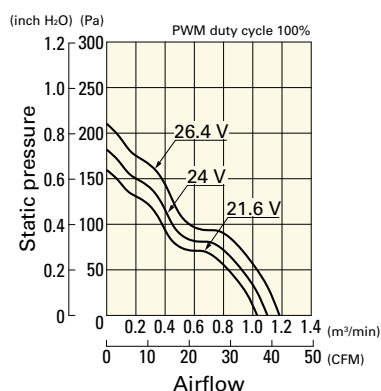


9LG0624P4J001 With pulse sensor with PWM control function

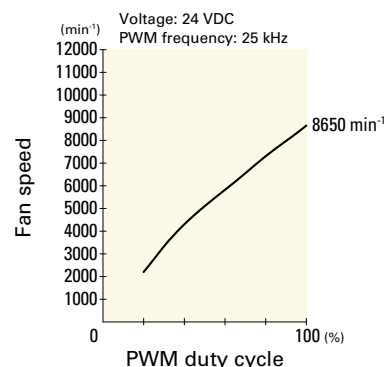
PWM duty cycle



Operating voltage range

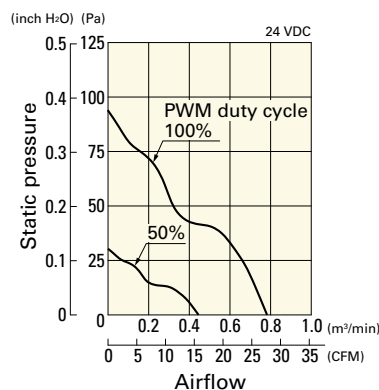


PWM duty - Speed characteristics example

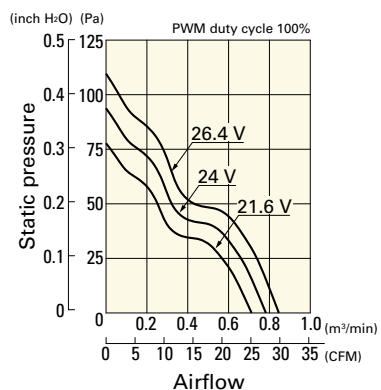


9LG0624P4H001 With pulse sensor with PWM control function

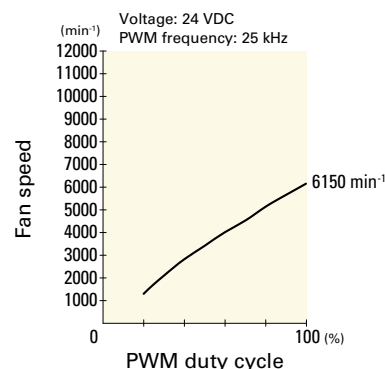
PWM duty cycle



Operating voltage range

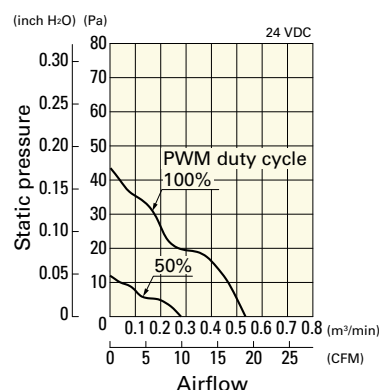


PWM duty - Speed characteristics example

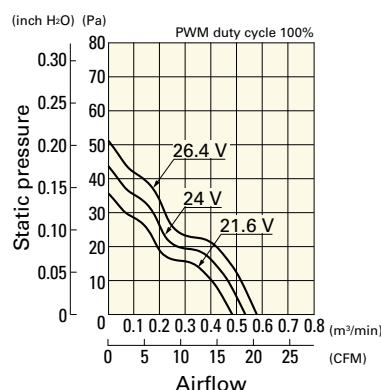


9LG0624P4M001 With pulse sensor with PWM control function

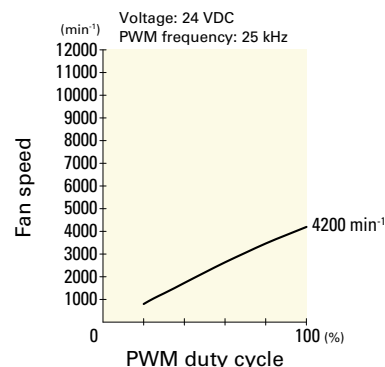
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

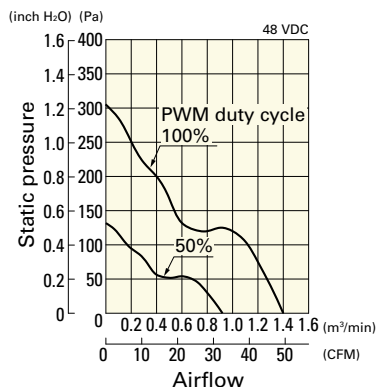


DC
Long Life Fan 60 mm sq.

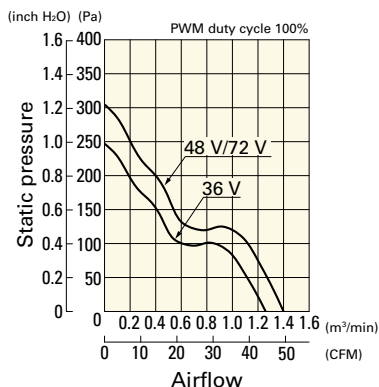
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG0648P4S001 With pulse sensor with PWM control function

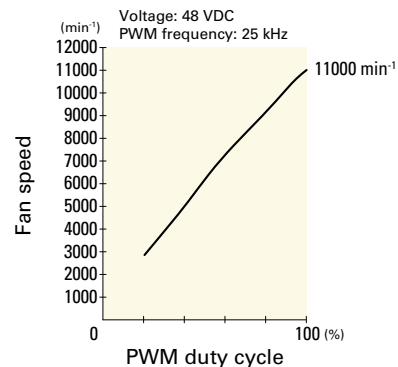
PWM duty cycle



Operating voltage range

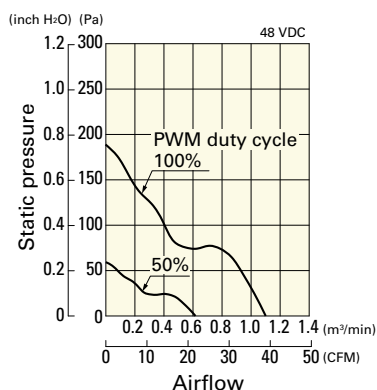


PWM duty - Speed characteristics example

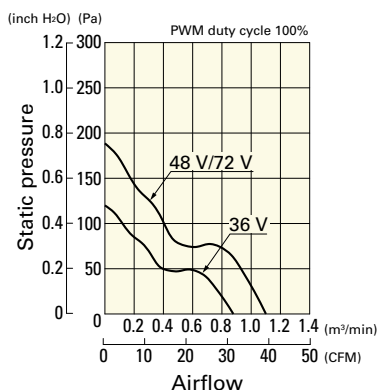


9LG0648P4J001 With pulse sensor with PWM control function

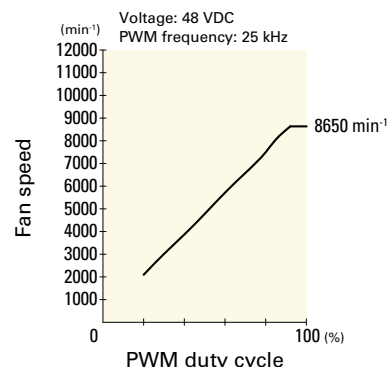
PWM duty cycle



Operating voltage range

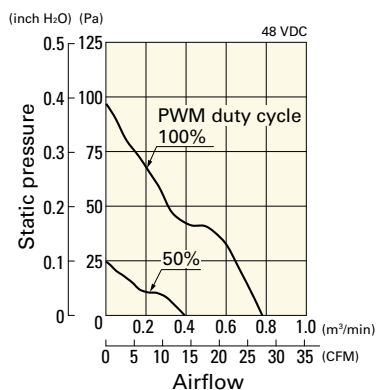


PWM duty - Speed characteristics example

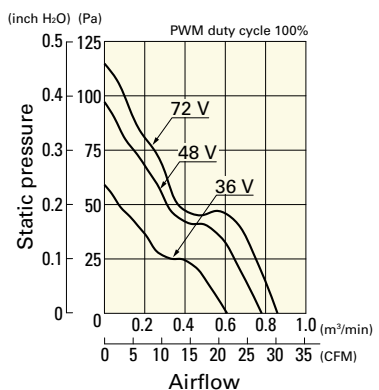


9LG0648P4H001 With pulse sensor with PWM control function

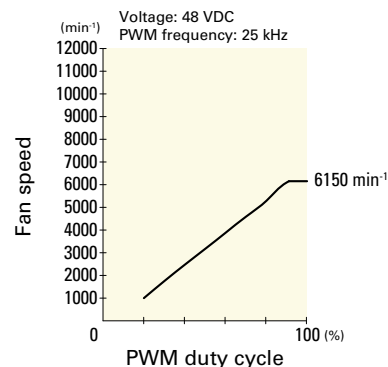
PWM duty cycle



Operating voltage range

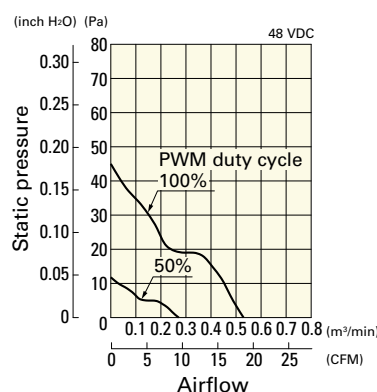


PWM duty - Speed characteristics example

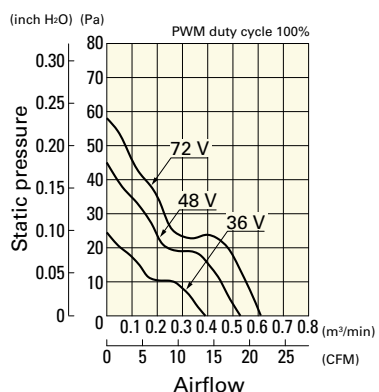


9LG0648P4M001 With pulse sensor with PWM control function

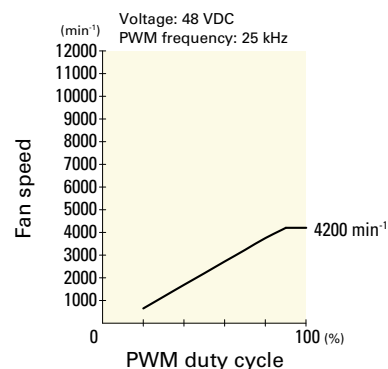
PWM duty cycle



Operating voltage range



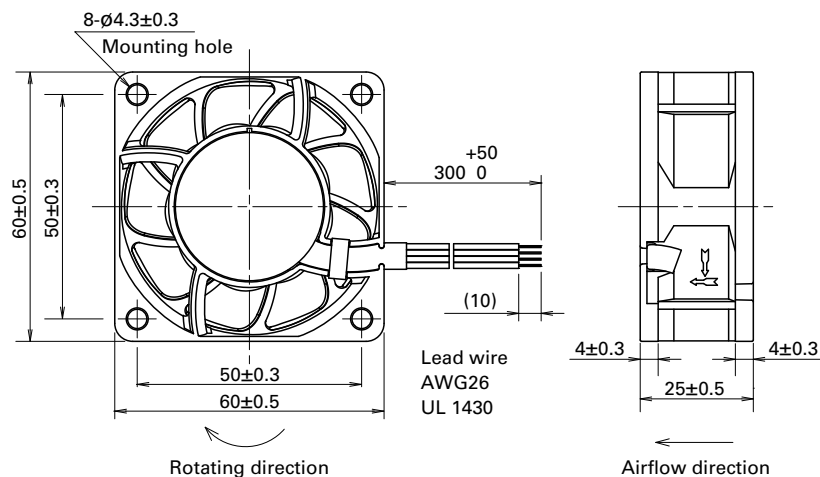
PWM duty - Speed characteristics example



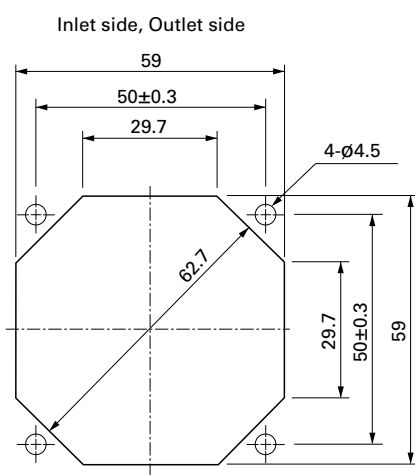
DC

Long Life Fan 60 mm sq.

Dimensions (unit: mm)



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



Options

Finger guards

page: p. 564

Model no.: 109-139E, 109-139H

Resin finger guards

page: p. 571

Model no.: 109-1003G

Resin filter kits

page: p. 572

Model no.: 109-1003F13 (13PPI), 109-1003F20 (20PPI),
109-1003F30 (30PPI), 109-1003F40 (40PPI)

60×60×76 mm

San Ace 60L 9CRLA type US



General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 Inlet ⊕Red ⊖Black (Sensor) Yellow (Control) Brown
Outlet ⊕Orange ⊖Gray (Sensor) Purple (Control) White
- Mass 310 g

Specifications

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 ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9CRLA0612P0G001	12	10.8 to 13.2	100	3.0	36.0	16500 17800	2.1 74.1	1400 5.62	70	-20 to +70	100000/60°C (135000/40°C)
			20	0.4	4.8	5000 5400	0.64 22.6	128 0.51	43		

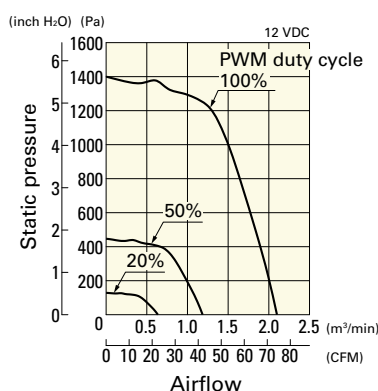
* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

Note: The  mark indicates Short Lead Time Service applicable models. See p. 630 for details.

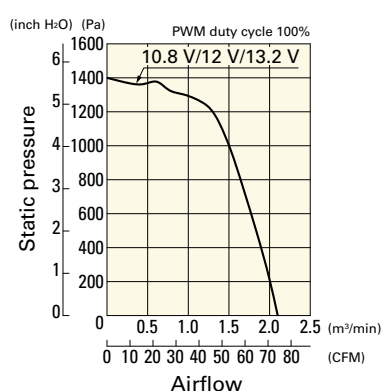
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9CRLA0612P0G001 With pulse sensor with PWM control function

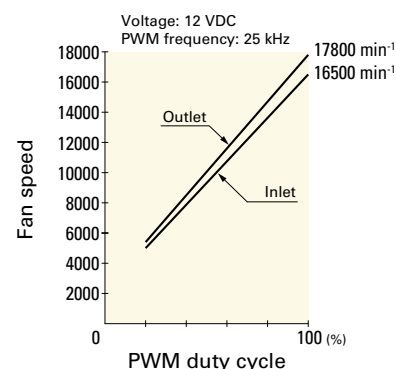
PWM duty cycle



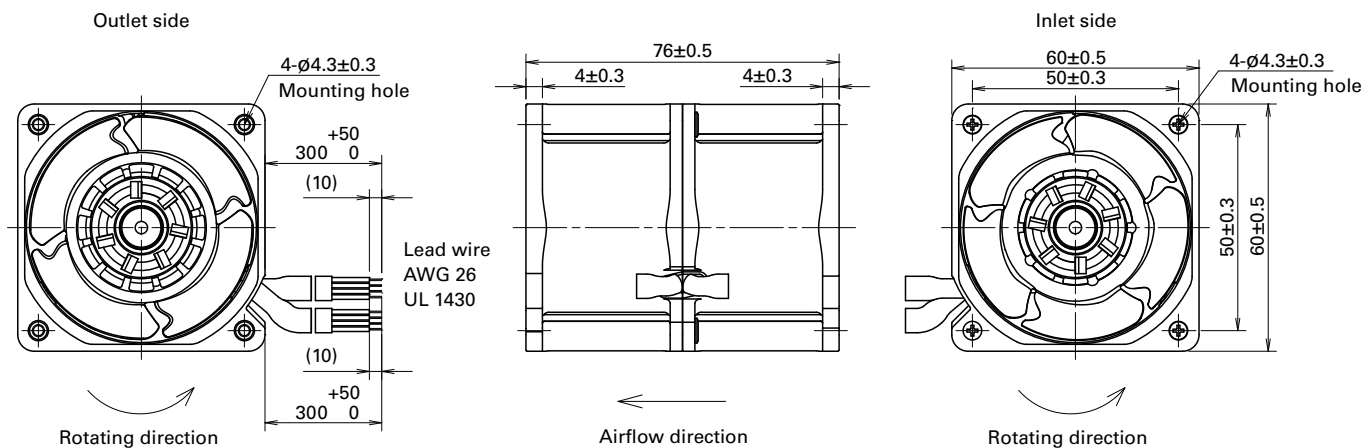
Operating voltage range



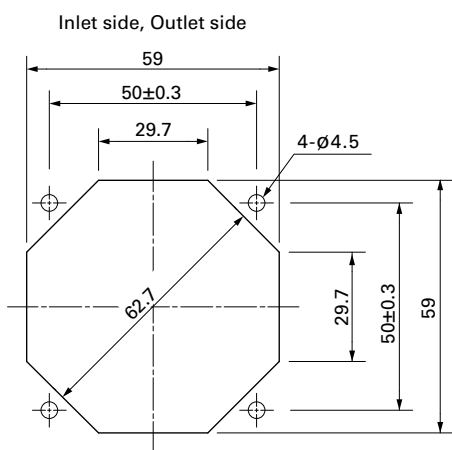
PWM duty - Speed characteristics example



Dimensions (unit: mm)



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



Options

Finger guards

page: p. 564

Model no.: 109-139E, 109-139H

Resin finger guards

page: p. 571

Model no.: 109-1003G

Resin filter kits

page: p. 572

Model no.: 109-1003F13 (13PPI), 109-1003F20 (20PPI),
109-1003F30 (30PPI), 109-1003F40 (40PPI)



80×80×25 mm

San Ace 80L 9LG type

General Specifications

- Material Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 ⊕Red ⊖Black Sensor Yellow Control Brown
(For models without PWM control function, there is no speed control wiring.)
- Mass 130 g

Specifications

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 ⁻¹]	Max. airflow [m³/min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
» 9LG0812P4J001	12	10.8 to 13.2	100	0.6	7.2	7400	2.07 73.0	177 0.71	49	-20 to +70	180000/60°C (215000/40°C)
			20	0.06	0.72	1800	0.5 17.6	10.4 0.04	16		
» 9LG0812P4G001			100	0.3	3.6	5500	1.54 54.3	98 0.39	43		
			25	0.05	0.6	1400	0.39 13.7	6.3 0.02	14		
» 9LG0812P4H001	24	21.6 to 26.4	100	0.12	1.44	3700	1.03 36.3	44 0.17	31		
			25	0.04	0.48	1100	0.3 10.5	3.9 0.01	13		
» 9LG0824P4J001			100	0.28	6.72	7400	2.07 73.0	177 0.71	49		
			20	0.05	1.2	2400	0.67 23.6	18.6 0.07	22		
» 9LG0824P4G001			100	0.14	3.36	5500	1.54 54.3	98 0.39	43		
			20	0.02	0.48	1200	0.33 11.6	4.6 0.01	13		
» 9LG0824P4H001			100	0.05	1.2	3700	1.03 36.3	44 0.17	31		
			30	0.02	0.48	1100	0.3 10.5	3.9 0.01	13		

* 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 100% duty cycle.

The models listed below **have pulse sensors.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m³/min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
» 9LG0812S4001	12	6 to 13.2	0.17	2.04	4200	1.17 41.3	56 0.22	35	-20 to +70	180000/60°C (215000/40°C)
» 9LG0812F4001			0.1	1.2	3300	0.92 32.5	35 0.14	29		
» 9LG0812M4001			0.08	0.96	2900	0.8 28.3	27 0.11	25		
» 9LG0812L4001	24	8 to 13.2	0.06	0.72	2300	0.64 22.6	17 0.068	22		
» 9LG0824S4001		12 to 26.4	0.07	1.68	4200	1.17 41.3	56 0.22	35		
» 9LG0824F4001			0.045	1.08	3300	0.92 32.5	35 0.14	29		
» 9LG0824M4001			0.04	0.96	2900	0.8 28.3	27 0.11	25		
» 9LG0824L4001		14 to 26.4	0.03	0.72	2300	0.64 22.6	17 0.068	22		

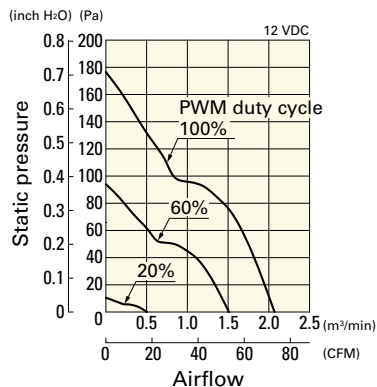
Note 1: Sensor and control options are available for selection. Refer to the table on p. 613.

Note 2: The » mark indicates Short LeadTime Service applicable models. See p. 630 for details.

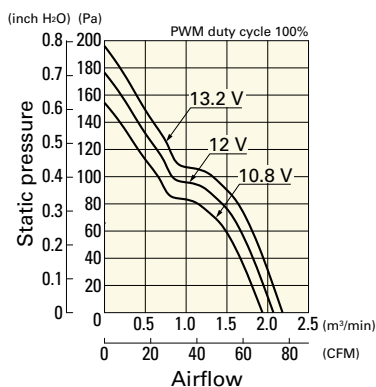
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG0812P4J001 With pulse sensor with PWM control function

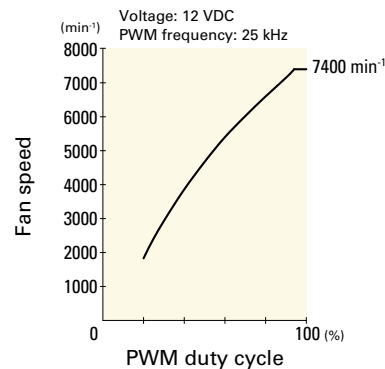
PWM duty cycle



Operating voltage range

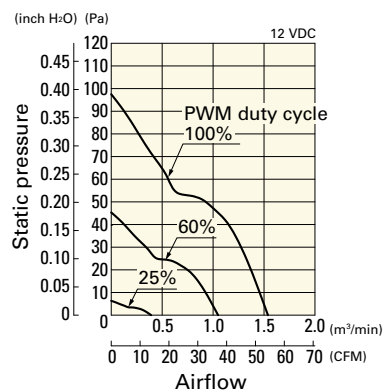


PWM duty - Speed characteristics example

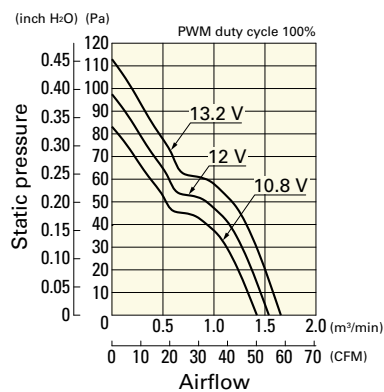


9LG0812P4G001 With pulse sensor with PWM control function

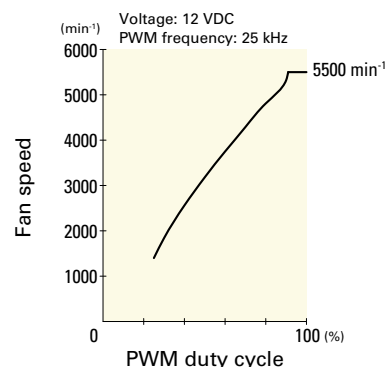
PWM duty cycle



Operating voltage range

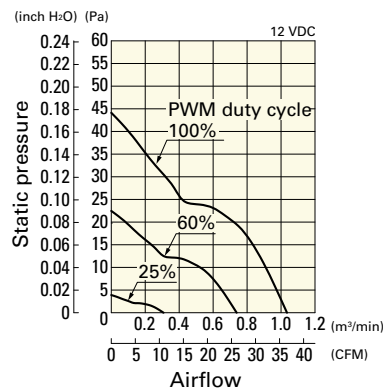


PWM duty - Speed characteristics example

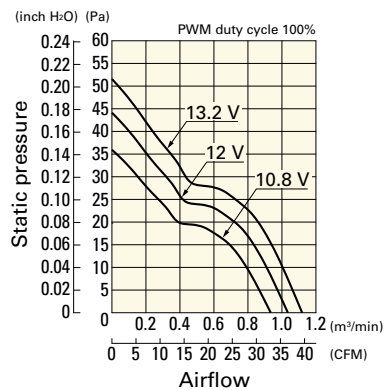


9LG0812P4H001 With pulse sensor with PWM control function

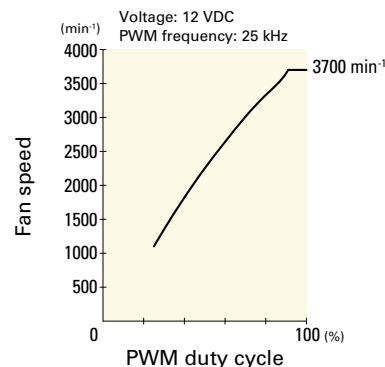
PWM duty cycle



Operating voltage range

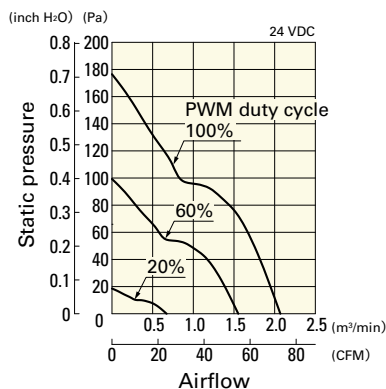


PWM duty - Speed characteristics example

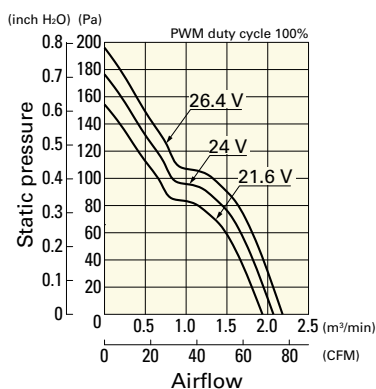


9LG0824P4J001 With pulse sensor with PWM control function

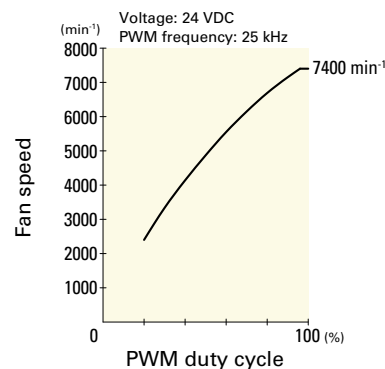
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example



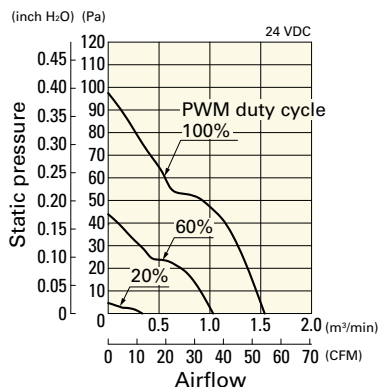
DC

Long Life Fan 80 mm sq.

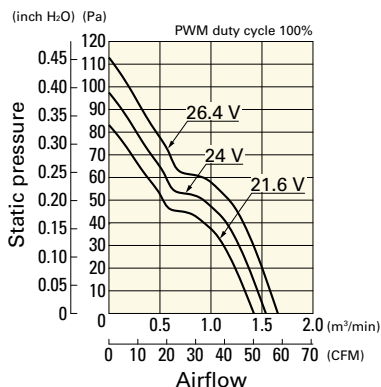
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG0824P4G001 With pulse sensor with PWM control function

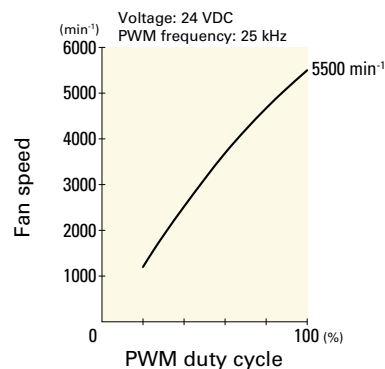
PWM duty cycle



Operating voltage range

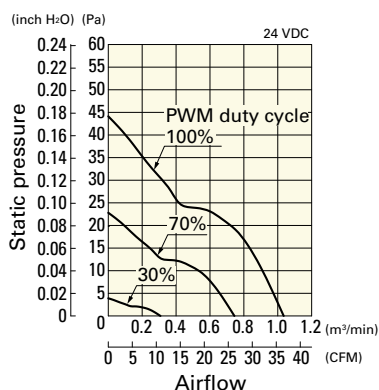


PWM duty - Speed characteristics example

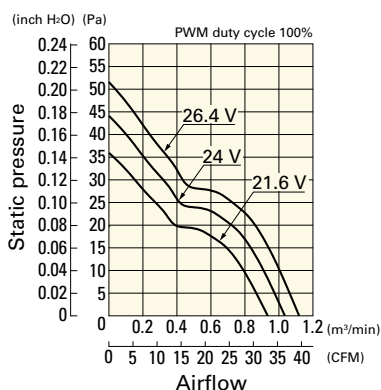


9LG0824P4H001 With pulse sensor with PWM control function

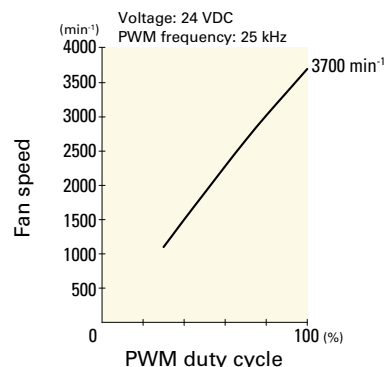
PWM duty cycle



Operating voltage range



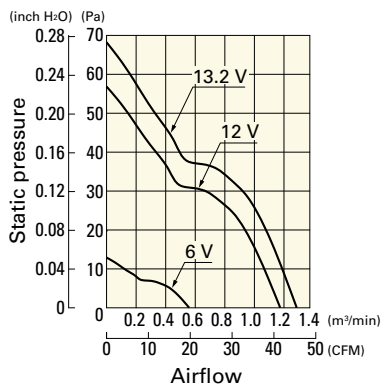
PWM duty - Speed characteristics example



Airflow - Static Pressure Characteristics

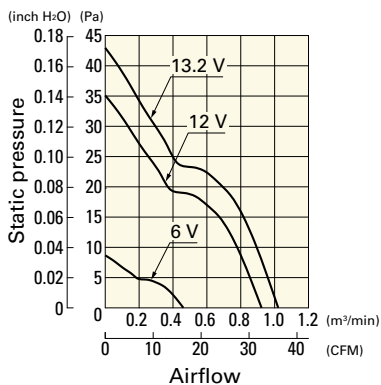
9LG0812S4001 With pulse sensor

Operating voltage range



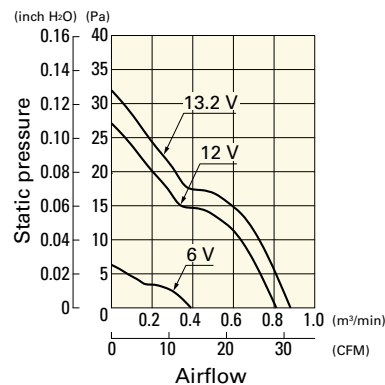
9LG0812F4001 With pulse sensor

Operating voltage range



9LG0812M4001 With pulse sensor

Operating voltage range



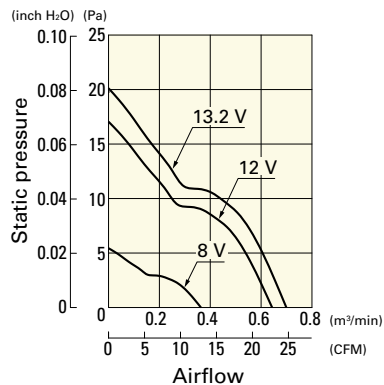
DC

Long Life Fan 80 mm sq.

Airflow - Static Pressure Characteristics

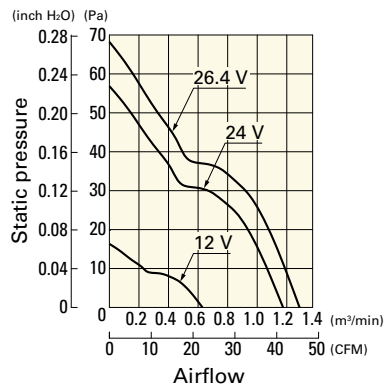
9LG0812L4001 With pulse sensor

Operating voltage range



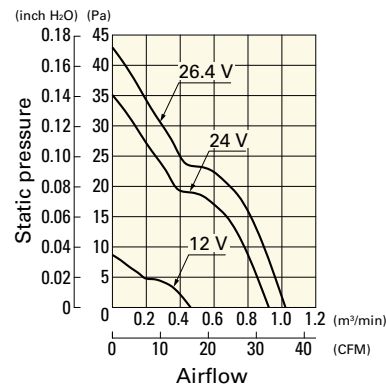
9LG0824S4001 With pulse sensor

Operating voltage range



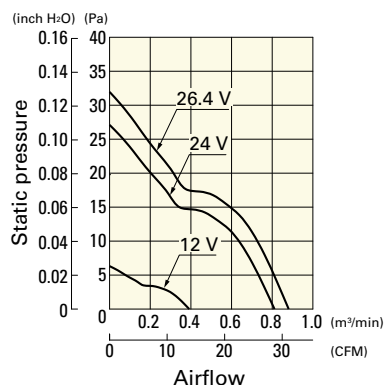
9LG0824F4001 With pulse sensor

Operating voltage range



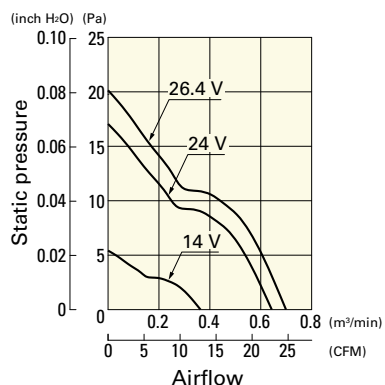
9LG0824M4001 With pulse sensor

Operating voltage range

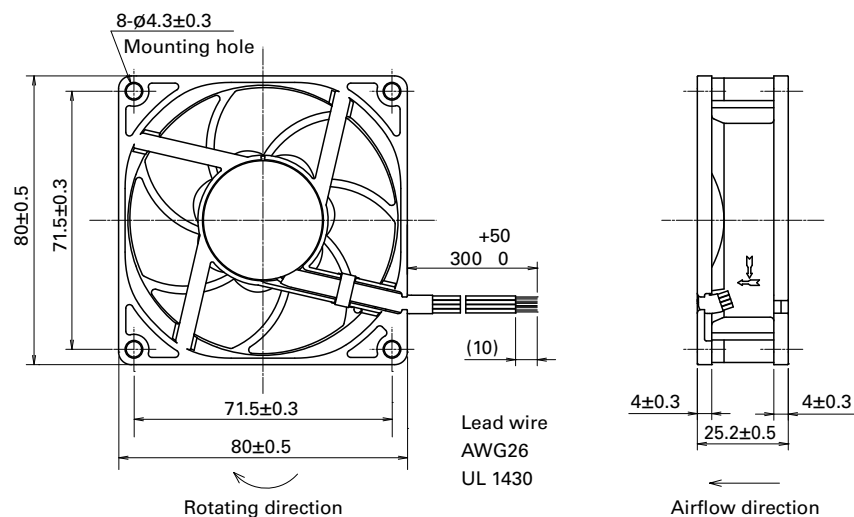


9LG0824L4001 With pulse sensor

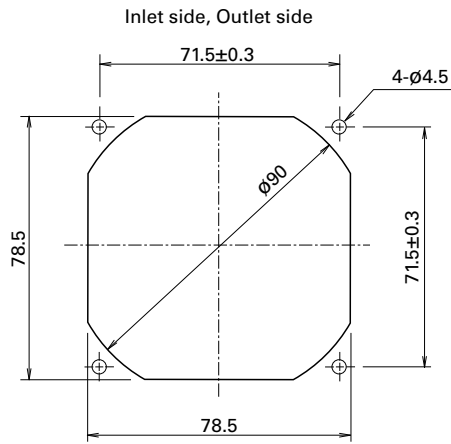
Operating voltage range



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



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



Options

Finger guards

page: p. 564

Model no.: 109-049E, 109-049H, 109-049C

Resin finger guards

page: p. 571

Model no.: 109-1002G

Resin filter kits

page: p. 572

Model no.: 109-1002F13 (13PPI), 109-1002F20 (20PPI),
109-1002F30 (30PPI), 109-1002F40 (40PPI)

80×80×80 mm

San Ace 80L 9CRL type   US



General Specifications

- Material Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 Inlet ⊕Red ⊖Black (Sensor) Yellow (Control) Brown
Outlet ⊕Orange ⊖Gray (Sensor) Purple (Control) White
- Mass 490 g

Specifications

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 ⁻¹]		Max. airflow [m ³ /min] [CFM]		Max. static pressure [Pa] [inchH ₂ O]		SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
						Inlet	Outlet							
9CRL0812P8G001	12	10.8 to 13.2	100	5.3	63.6	12000	11300	4.5	158.9	1150	4.62	76	-20 to +70	130000/60°C (165000/40°C)
			0	0.2	2.4	2000	1900	0.74	26.1	31.9	0.13	30		

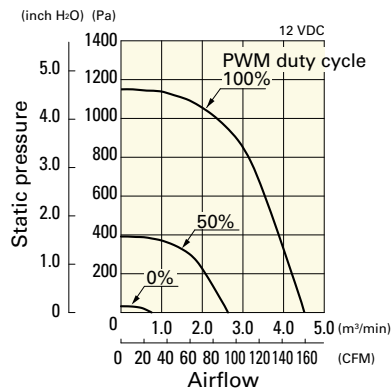
* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

Note: The  mark indicates Short Lead Time Service applicable models. See p. 630 for details.

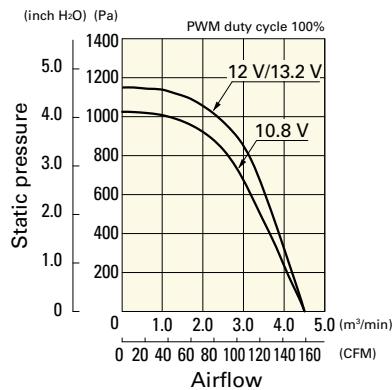
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9CRL0812P8G001 With pulse sensor with PWM control function

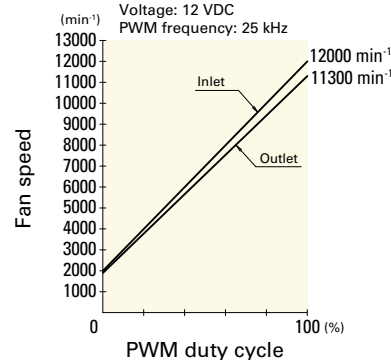
PWM duty cycle



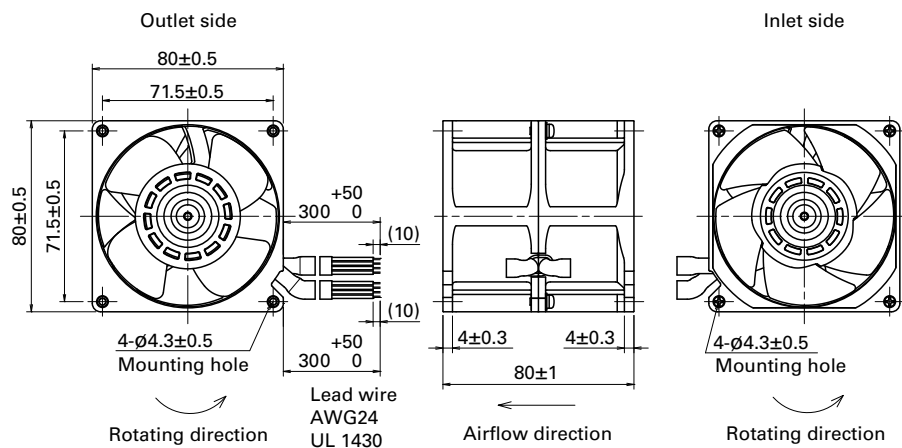
Operating voltage range



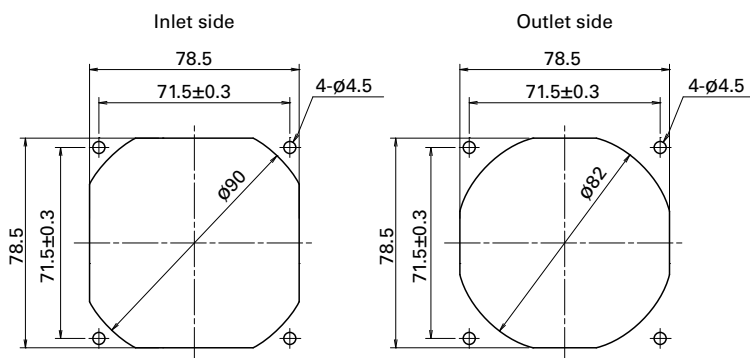
PWM duty - Speed characteristics example



■ Dimensions (unit: mm)



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



■ Options

Finger guards

page: p. 564

Model no.: 109-049E, 109-049H

Resin finger guards

page: p. 571

Model no.: 109-1002G

Resin filter kits

page: p. 572

Model no.: 109-1002F13 (13PPI), 109-1002F20 (20PPI),
109-1002F30 (30PPI), 109-1002F40 (40PPI)

DC

Long Life Fan 80 mm sq.

92×92×25 mm

San Ace 92L 9LG type



General Specifications

- Material Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 ⊕Red ⊖Black (Sensor) Yellow (Control) Brown
(For models without PWM control function, there is no speed control wiring.)
- Mass 150 g

Specifications

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 ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9LG0912P4J001	12	10.8 to 13.2	100	0.42	5.04	5000	2.2 77.7	105 0.42	44	-20 to +70	180000/60°C (215000/40°C)
9LG0912P4G001			100	0.3	3.6	4400	1.93 68.2	81 0.33	40		
9LG0912P4S001			100	0.22	2.64	3850	1.69 59.7	62.1 0.25	37		
9LG0912P4H001			100	0.15	1.8	3150	1.38 48.7	41.6 0.17	32		
9LG0924P4J001	24	21.6 to 26.4	100	0.21	5.04	5000	2.2 77.7	105 0.42	44		
9LG0924P4G001			100	0.15	3.6	4400	1.93 68.2	81 0.33	40		
9LG0924P4S001			100	0.11	2.64	3850	1.69 59.7	62.1 0.25	37		
9LG0924P4H001			100	0.07	1.68	3150	1.38 48.7	41.6 0.17	32		

* 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 100% duty cycle.

The models listed below **have pulse sensors.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9LG0912F4001	12	10.2 to 13.8	0.1	1.2	2800	1.22 43.1	32.8 0.13	29	-20 to +70	180000/60°C (215000/40°C)
9LG0912M4001			0.08	0.96	2400	1.05 37.1	24.1 0.097	24		
9LG0912L4001			0.07	0.84	2000	0.87 30.7	16.7 0.067	19		
9LG0924F4001	24	20.4 to 27.6	0.05	1.2	2800	1.22 43.1	32.8 0.13	29		
9LG0924M4001			0.04	0.96	2400	1.05 37.1	24.1 0.097	24		
9LG0924L4001			0.03	0.72	2000	0.87 30.7	16.7 0.067	19		

Note 1: Sensor and control options are available for selection. Refer to the table on p. 613.

Note 2: The  mark indicates Short Lead Time Service applicable models. See p. 630 for details.

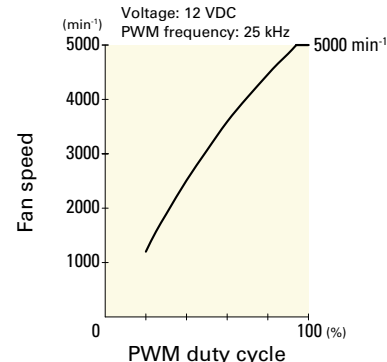
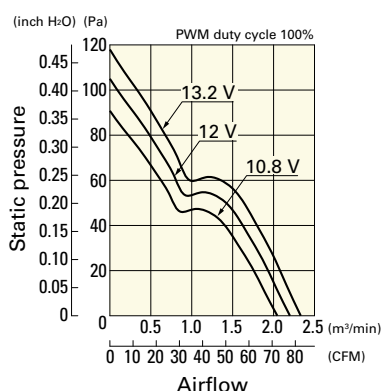
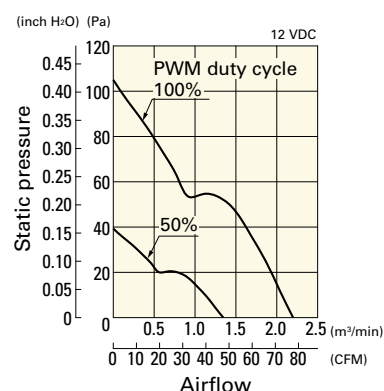
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG0912P4J001 With pulse sensor with PWM control function

PWM duty cycle

Operating voltage range

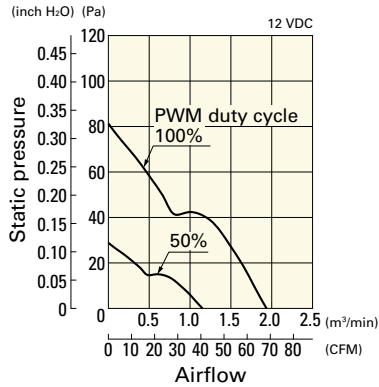
PWM duty - Speed characteristics example



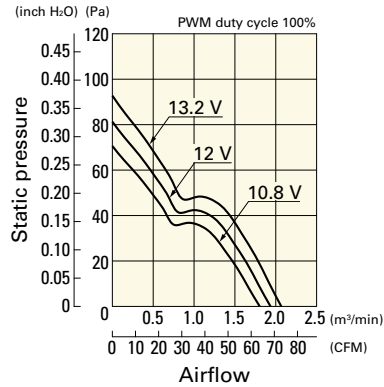
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG0912P4G001 With pulse sensor with PWM control function

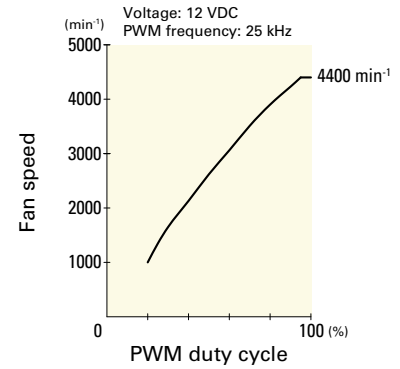
PWM duty cycle



Operating voltage range

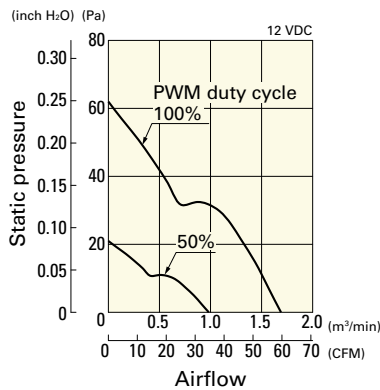


PWM duty - Speed characteristics example

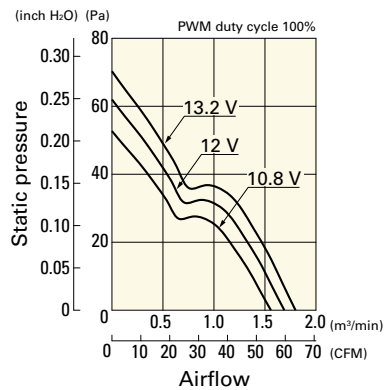


9LG0912P4S001 With pulse sensor with PWM control function

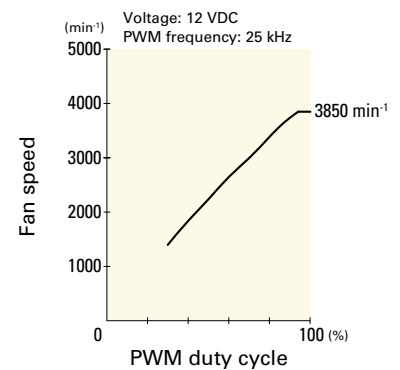
PWM duty cycle



Operating voltage range

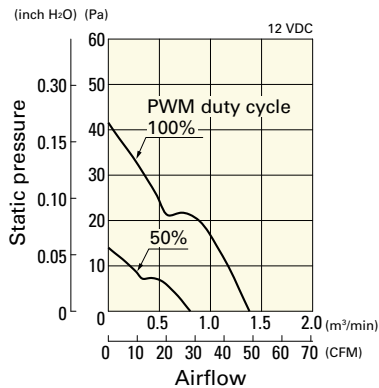


PWM duty - Speed characteristics example

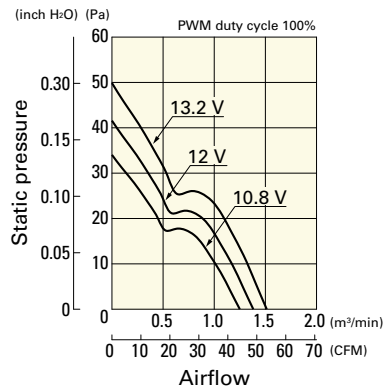


9LG0912P4H001 With pulse sensor with PWM control function

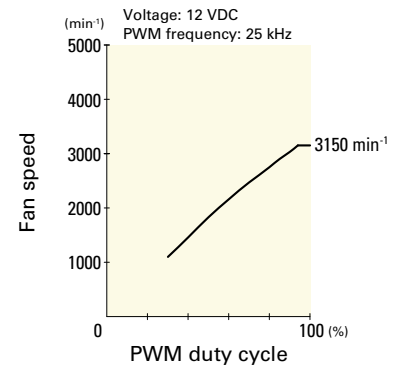
PWM duty cycle



Operating voltage range

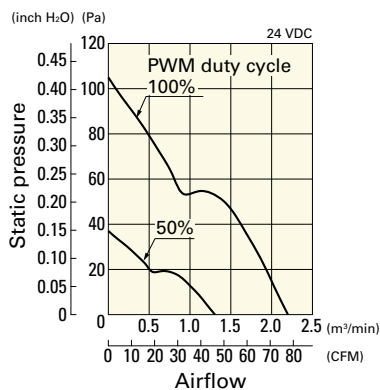


PWM duty - Speed characteristics example

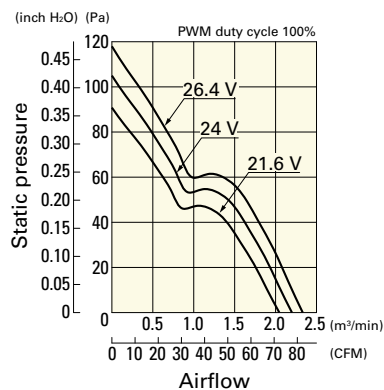


9LG0924P4J001 With pulse sensor with PWM control function

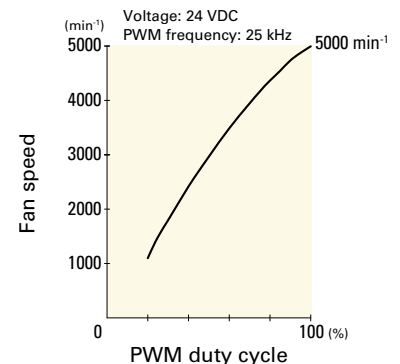
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example



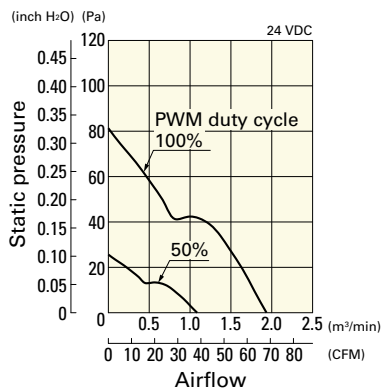
DC

Long Life Fan 92 mm sq.

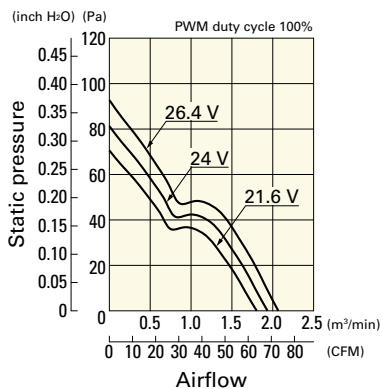
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG0924P4G001 With pulse sensor with PWM control function

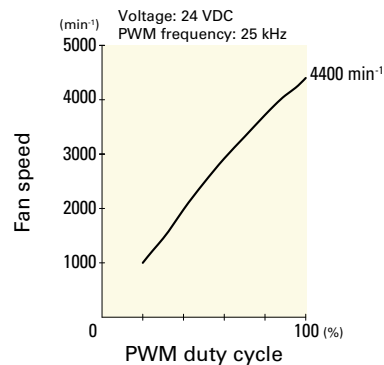
PWM duty cycle



Operating voltage range

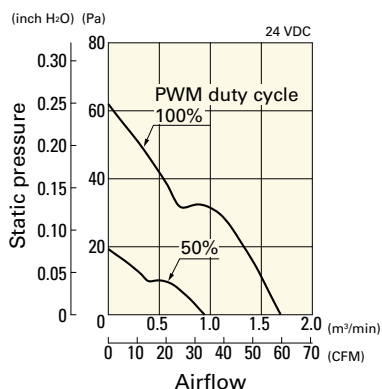


PWM duty - Speed characteristics example

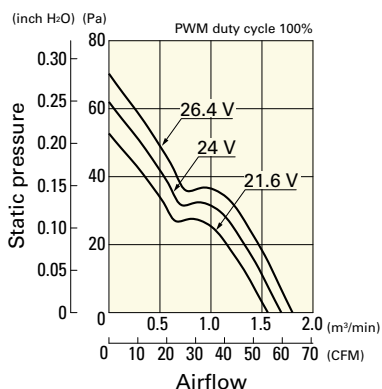


9LG0924P4S001 With pulse sensor with PWM control function

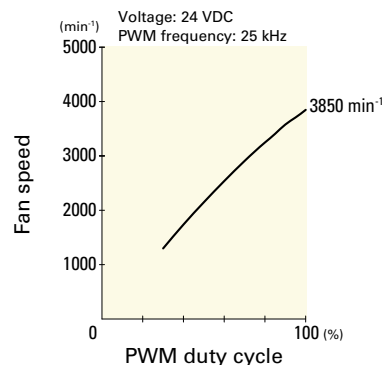
PWM duty cycle



Operating voltage range

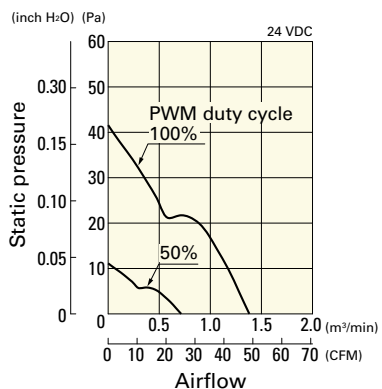


PWM duty - Speed characteristics example

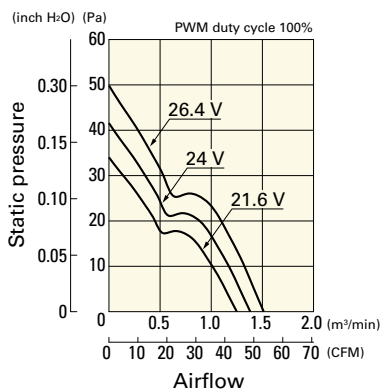


9LG0924P4H001 With pulse sensor with PWM control function

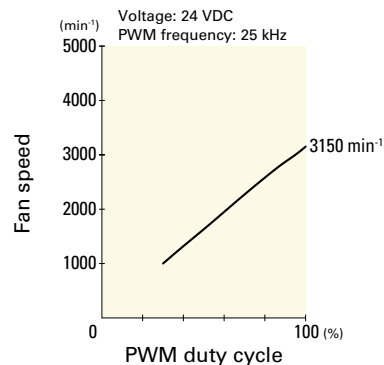
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

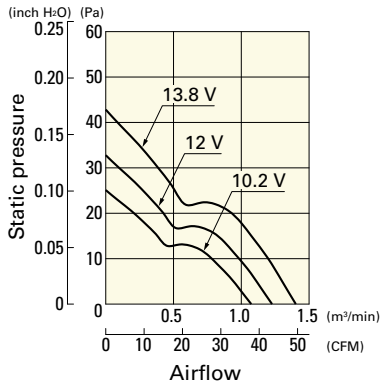


DC
Long Life Fan 92 mm sq.

Airflow - Static Pressure Characteristics

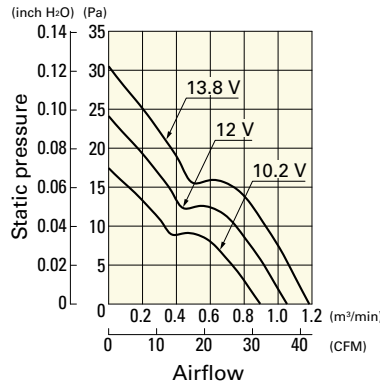
9LG0912F4001 With pulse sensor

Operating voltage range



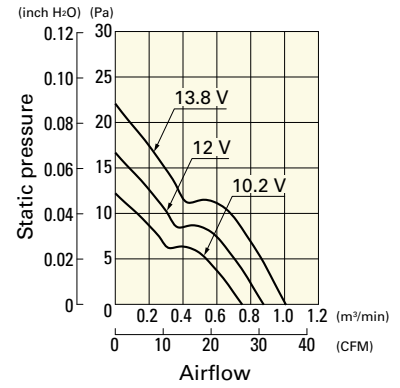
9LG0912M4001 With pulse sensor

Operating voltage range



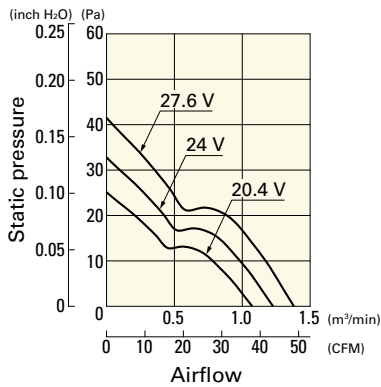
9LG0912L4001 With pulse sensor

Operating voltage range



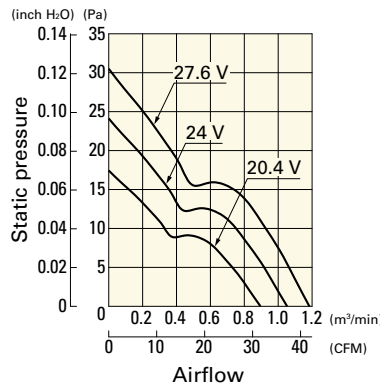
9LG0924F4001 With pulse sensor

Operating voltage range



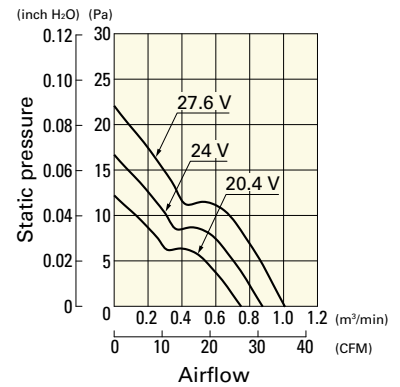
9LG0924M4001 With pulse sensor

Operating voltage range

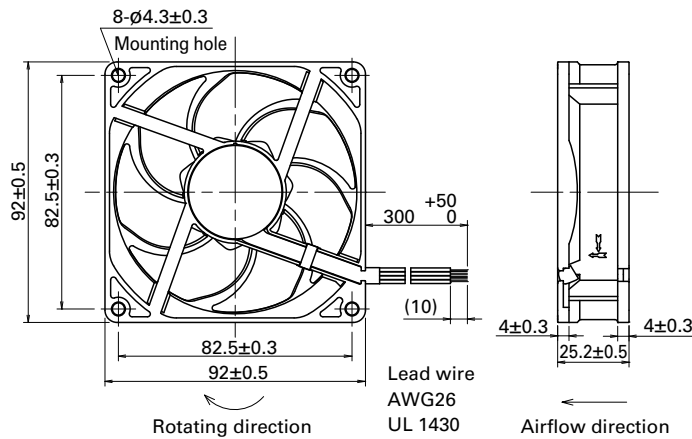


9LG0924L4001 With pulse sensor

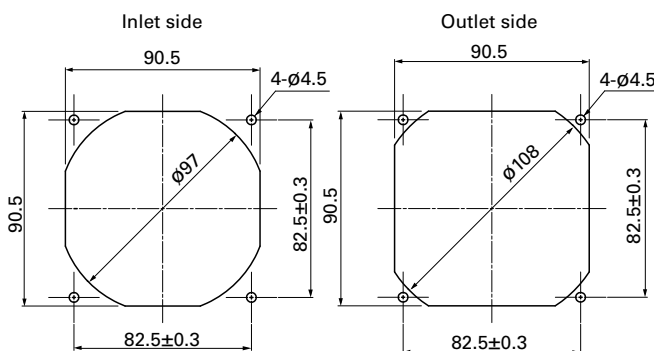
Operating voltage range



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



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



Options

Finger guards page: p. 564

Model no.: 109-099E, 109-099H, 109-099C

Resin finger guards page: p. 571

Model no.: 109-1001G

Resin filter kits page: p. 572

Model no.: 109-1001F13 (13PPI), 109-1001F20 (20PPI),
109-1001F30 (30PPI), 109-1001F40 (40PPI)

92×92×38 mm

San Ace 92L 9LG type



General Specifications

- Material Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 ⊕Red ⊖Black ☐ Sensor ☐ Yellow ☐ Control ☐ Brown
- Mass 270 g

Specifications

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 ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
▶▶ 9LG0912P1H001	12	10.2 to 13.8	100	2.0	24.0	9000	3.7 130.6	430 1.72	61	-20 to +70	180000/60°C (215000/40°C)
			20	0.18	2.16	2700	1.11 39.1	38.7 0.15	30		
▶▶ 9LG0912P1F001	12	10.2 to 13.8	100	1.0	12.0	7000	2.9 102.4	263 1.05	55		
			20	0.11	1.32	2000	0.83 29.3	21.5 0.08	22		
▶▶ 9LG0924P1H001	24	20.4 to 27.6	100	0.9	21.6	9000	3.7 130.6	430 1.72	61		
			20	0.08	1.92	2700	1.11 39.1	38.7 0.15	30		
▶▶ 9LG0924P1F001	24	20.4 to 27.6	100	0.5	12.0	7000	2.9 102.4	263 1.05	55		
			20	0.06	1.44	2000	0.83 29.3	21.5 0.08	22		

* 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 100% duty cycle.

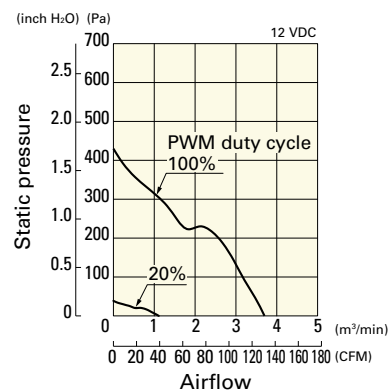
Note 1: Sensor and control options are available for selection. Refer to the table on p. 613.

Note 2: The ▶▶ mark indicates Short LeadTime Service applicable models. See p. 630 for details.

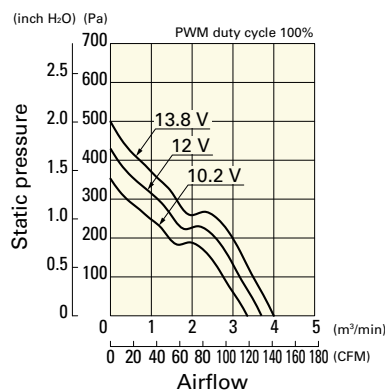
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG0912P1H001 With pulse sensor with PWM control function

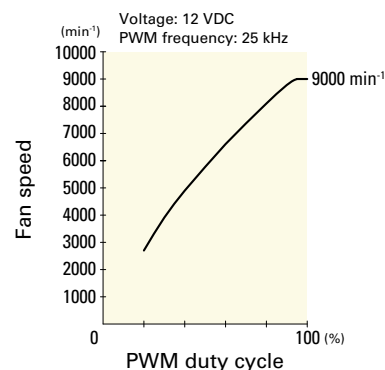
PWM duty cycle



Operating voltage range



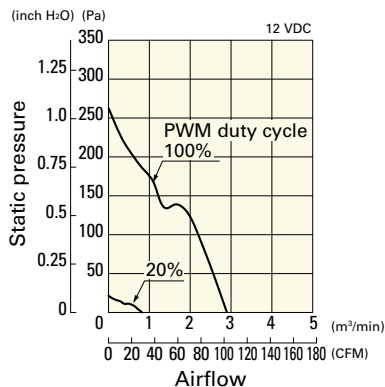
PWM duty - Speed characteristics example



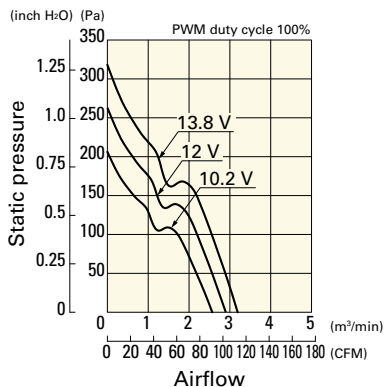
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG0912P1F001 With pulse sensor with PWM control function

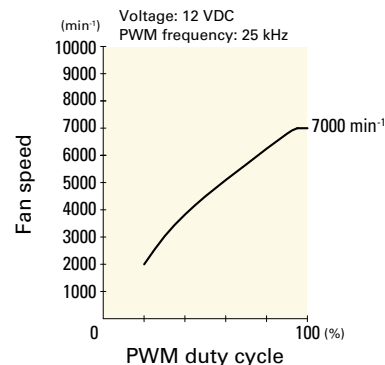
PWM duty cycle



Operating voltage range

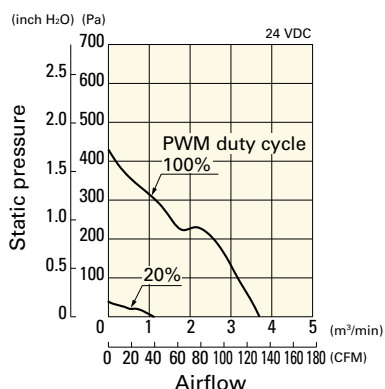


PWM duty - Speed characteristics example

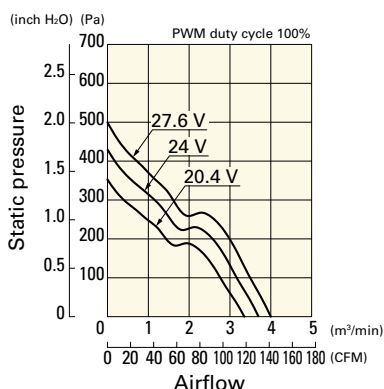


9LG0924P1H001 With pulse sensor with PWM control function

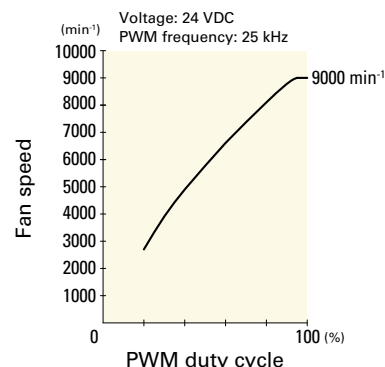
PWM duty cycle



Operating voltage range

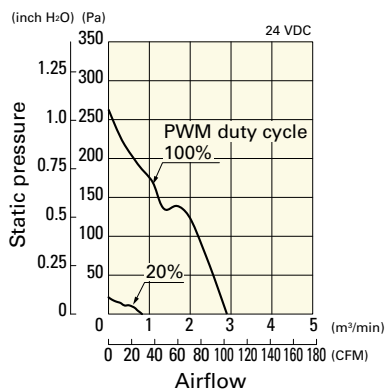


PWM duty - Speed characteristics example

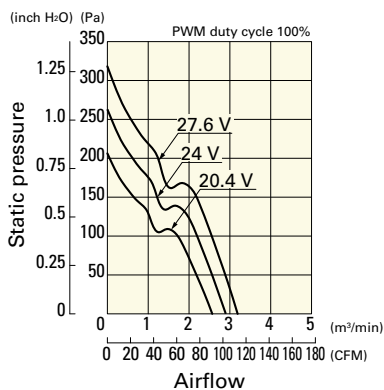


9LG0924P1F001 With pulse sensor with PWM control function

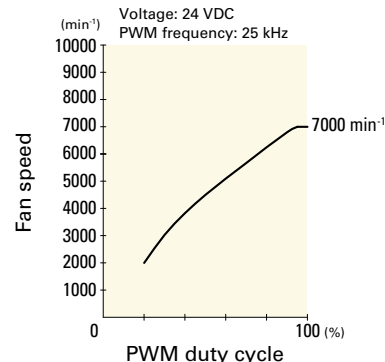
PWM duty cycle



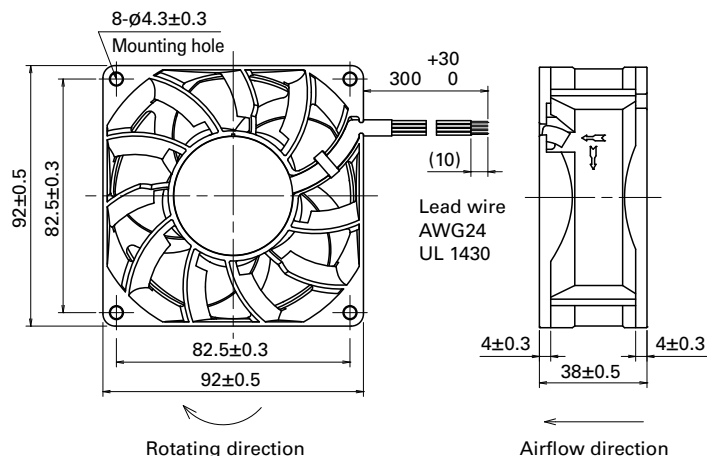
Operating voltage range



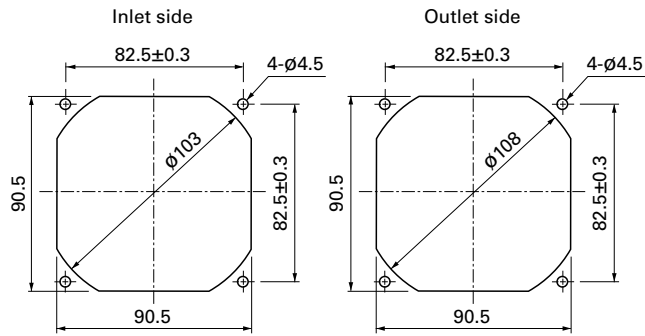
PWM duty - Speed characteristics example



Dimensions (unit: mm)



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



■ Options

Finger guards

page: p. 564

Model no.: 109-099E, 109-099H, 109-099C

Resin finger guards

page: p. 571

Model no.: 109-1001G

Resin filter kits

page: p. 572

Model no.: 109-1001F13 (13PPI), 109-1001F20 (20PPI),
109-1001F30 (30PPI), 109-1001F40 (40PPI)



120×120×38 mm

San Ace 120L 9LG type

General Specifications

- Material Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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  Red  Black  Sensor Yellow  Control Brown
(For models without PWM control function, there is no speed control wiring.)
- Mass 420 g

Specifications

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 ⁻¹]	Max. airflow [m³/min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9LG1212P1G001	12	8.0 to 13.8	100	3.2	38.4	6550	7.0 247.1	370 1.48	62	-20 to +70	180000/60°C (215000/40°C)
			20	0.24	2.88	2000	2.13 75.2	34.4 0.13	36		
9LG1212P1S001			100	2.2	26.4	5600	6.0 211.8	270 1.08	58		
			20	0.24	2.88	2000	2.13 75.2	34.4 0.13	36		
9LG1212P1H001	24	15 to 30	100	1.4	16.8	4700	5.0 176.5	190 0.76	54		
			20	0.24	2.88	2000	2.13 75.2	34.4 0.13	36		
9LG1224P1G001			100	1.6	38.4	6550	7.0 247.1	370 1.48	62		
			20	0.12	2.88	2000	2.13 75.2	34.4 0.13	36		
9LG1224P1S001			100	1.1	26.4	5600	6.0 211.8	270 1.08	58		
			20	0.12	2.88	2000	2.13 75.2	34.4 0.13	36		
9LG1224P1H001			100	0.7	16.8	4700	5.0 176.5	190 0.76	54		
			20	0.12	2.88	2000	2.13 75.2	34.4 0.13	36		
9LG1248P1G001	48	36 to 60	100	0.8	38.4	6550	7.0 247.1	370 1.48	62		
			20	0.08	3.84	2000	2.13 75.2	34.4 0.13	36		
9LG1248P1S001			100	0.55	26.4	5600	6.0 211.8	270 1.08	58		
			20	0.08	3.84	2000	2.13 75.2	34.4 0.13	36		
9LG1248P1H001			100	0.35	16.8	4700	5.0 176.5	190 0.76	54		
			20	0.08	3.84	2000	2.13 75.2	34.4 0.13	36		

* 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 100% duty cycle.

The models listed below **have pulse sensors.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m³/min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9LG1212F1001	12	8 to 13.8	0.39	4.68	2800	3 106	67.6 0.27	39	-20 to +70	180000/60°C (215000/40°C)
9LG1212M1001			0.22	2.64	2100	2.2 77.7	37.9 0.15	33		
9LG1224A1001	24	15 to 30	0.37	8.88	3700	3.9 137.8	117.8 0.47	48		
9LG1224F1001			0.19	4.56	2800	3 106	67.6 0.27	39		
9LG1224M1001			0.11	2.64	2100	2.2 77.7	37.9 0.15	33		
9LG1248F1001	48	36 to 60	0.11	5.28	2800	3 106	67.6 0.27	39		
9LG1248M1001			0.07	3.36	2100	2.2 77.7	37.9 0.15	33		

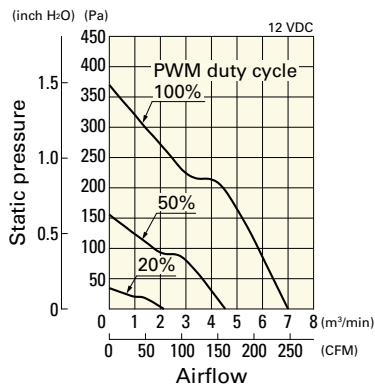
Note 1: Sensor and control options are available for selection. Refer to the table on pp. 613 to 614.

Note 2: The  mark indicates Short LeadTime Service applicable models. See p. 630 for details.

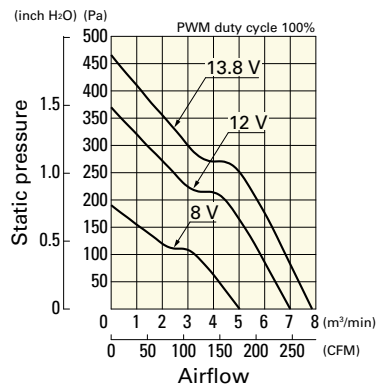
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG1212P1G001 With pulse sensor with PWM control function

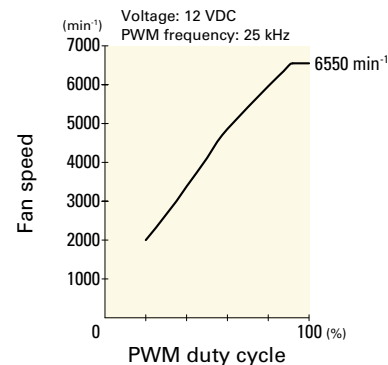
PWM duty cycle



Operating voltage range

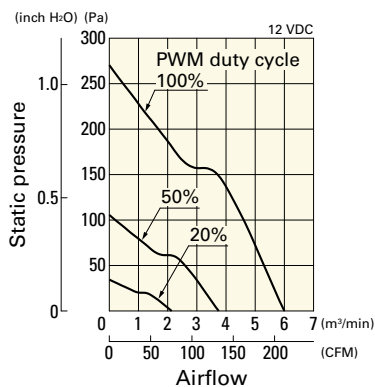


PWM duty - Speed characteristics example

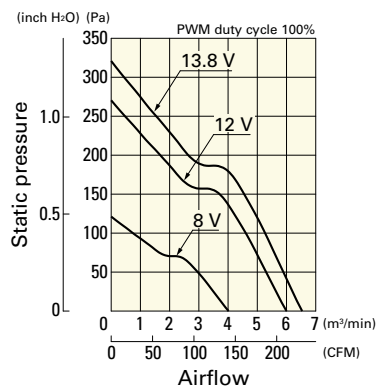


9LG1212P1S001 With pulse sensor with PWM control function

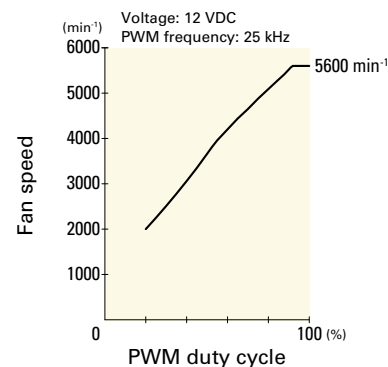
PWM duty cycle



Operating voltage range

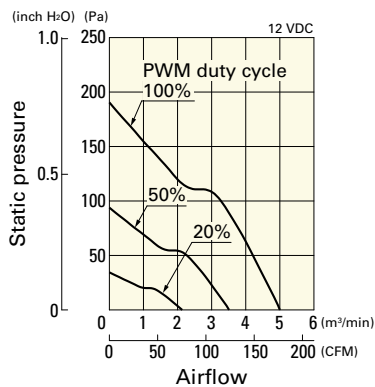


PWM duty - Speed characteristics example

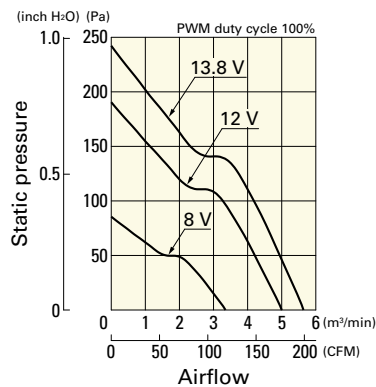


9LG1212P1H001 With pulse sensor with PWM control function

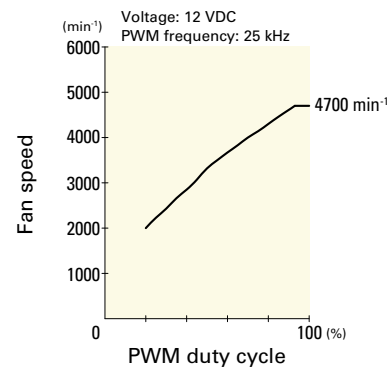
PWM duty cycle



Operating voltage range

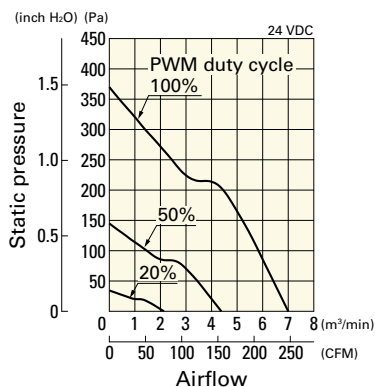


PWM duty - Speed characteristics example

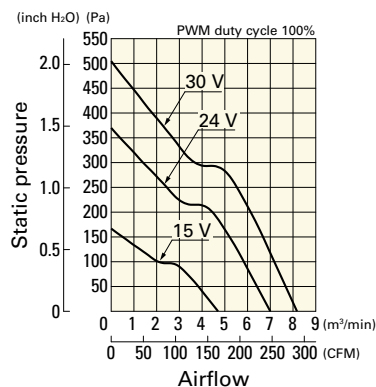


9LG1224P1G001 With pulse sensor with PWM control function

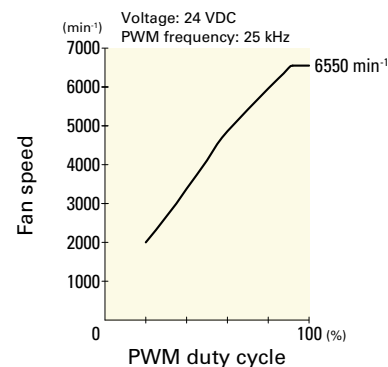
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example



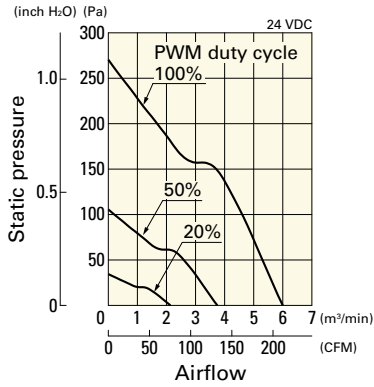
DC

Long Life Fan 120 mm sq.

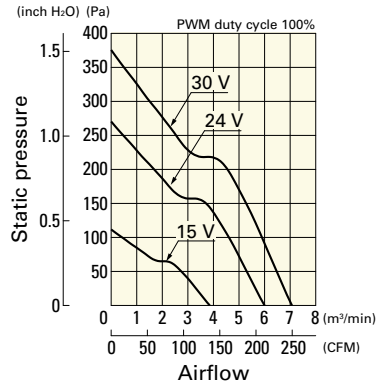
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG1224P1S001 With pulse sensor with PWM control function

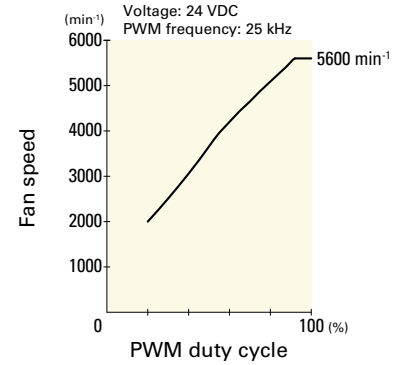
PWM duty cycle



Operating voltage range

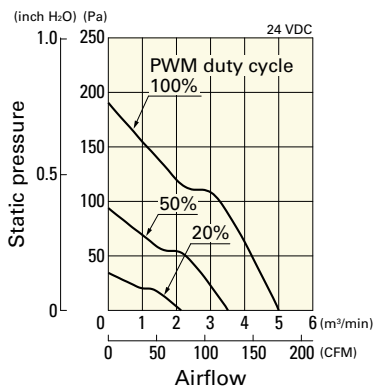


PWM duty - Speed characteristics example

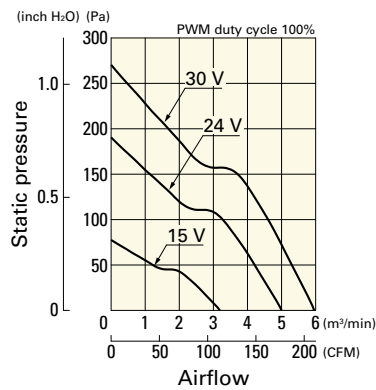


9LG1224P1H001 With pulse sensor with PWM control function

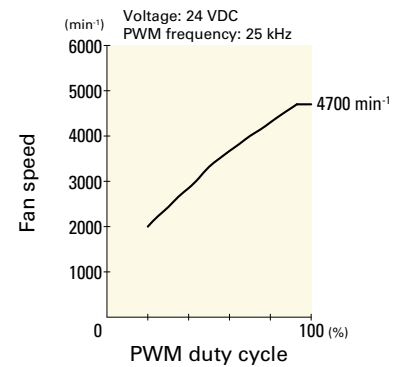
PWM duty cycle



Operating voltage range

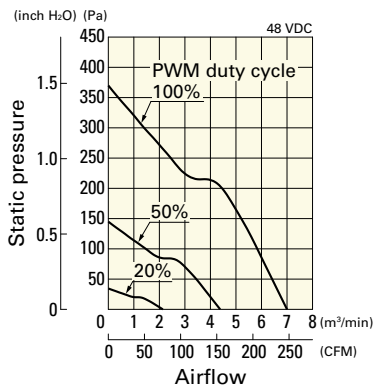


PWM duty - Speed characteristics example

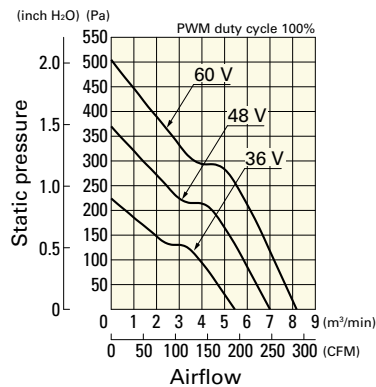


9LG1248P1G001 With pulse sensor with PWM control function

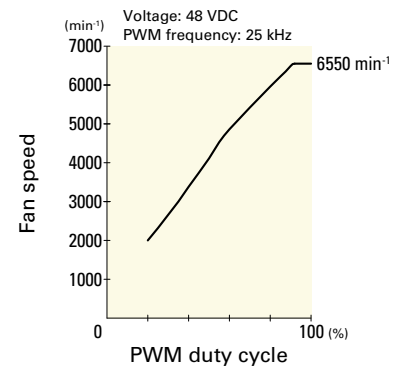
PWM duty cycle



Operating voltage range

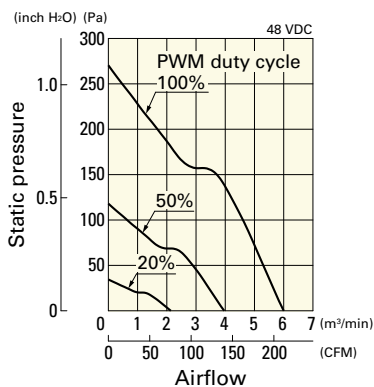


PWM duty - Speed characteristics example

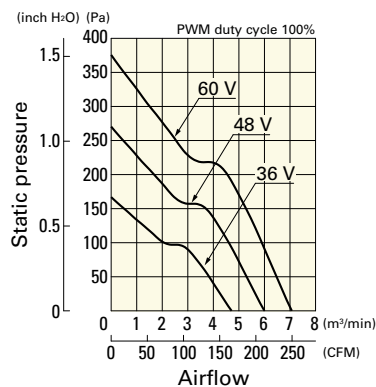


9LG1248P1S001 With pulse sensor with PWM control function

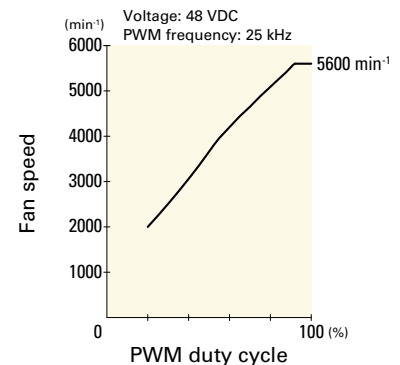
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

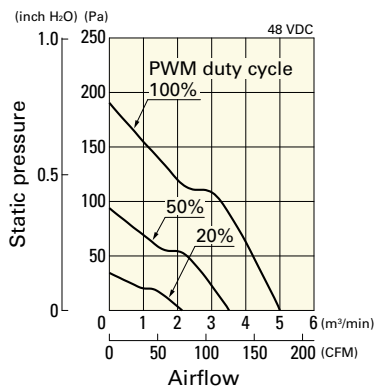


DC
Long Life Fan 120 mm sq.

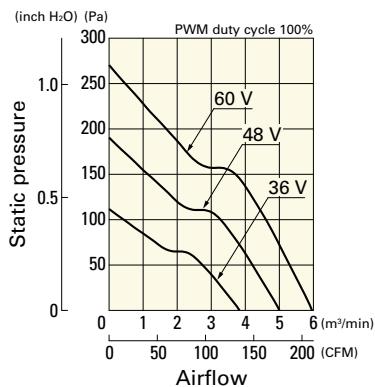
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG1248P1H001 With pulse sensor with PWM control function

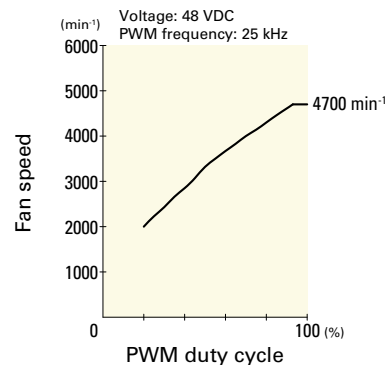
PWM duty cycle



Operating voltage range



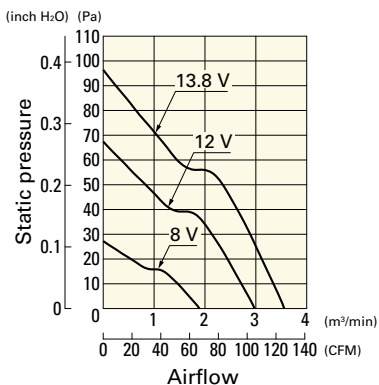
PWM duty - Speed characteristics example



Airflow - Static Pressure Characteristics

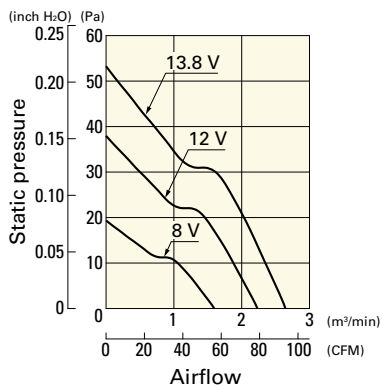
9LG1212F1001 With pulse sensor

Operating voltage range



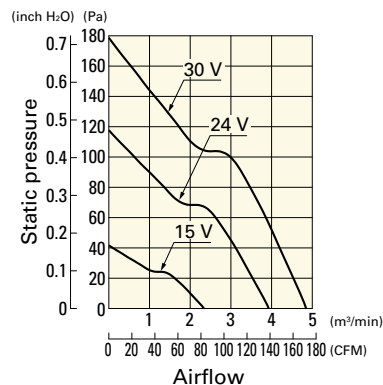
9LG1212M1001 With pulse sensor

Operating voltage range



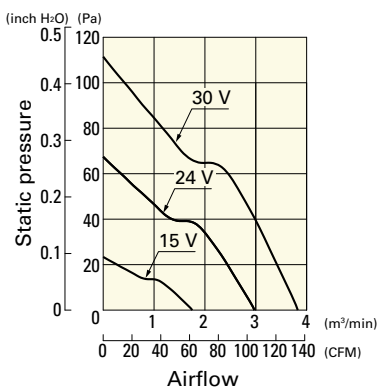
9LG1224A1001 With pulse sensor

Operating voltage range



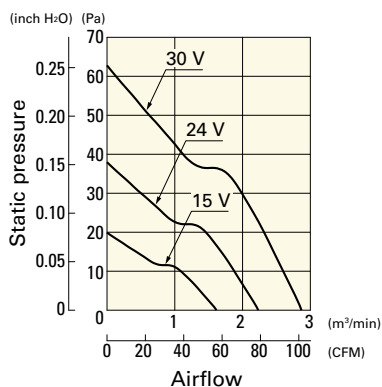
9LG1224F1001 With pulse sensor

Operating voltage range



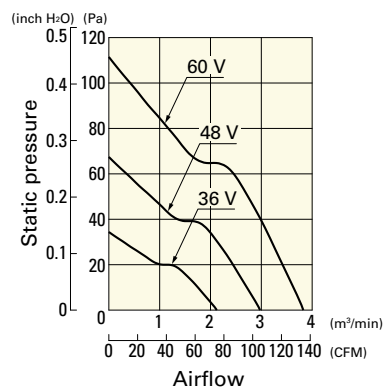
9LG1224M1001 With pulse sensor

Operating voltage range



9LG1248F1001 With pulse sensor

Operating voltage range



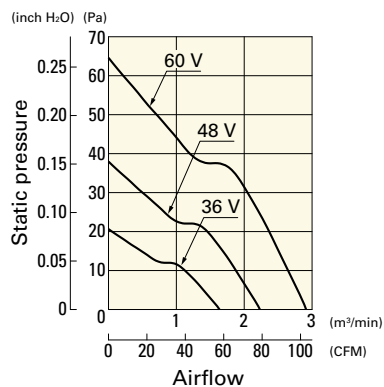
DC

Long Life Fan 120 mm sq.

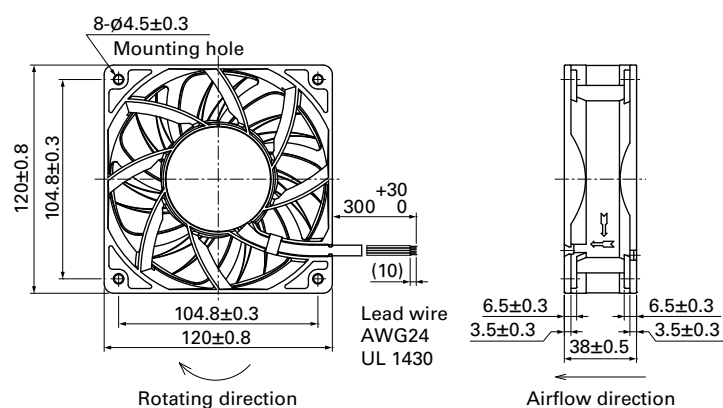
Airflow - Static Pressure Characteristics

9LG1248M1001 With pulse sensor

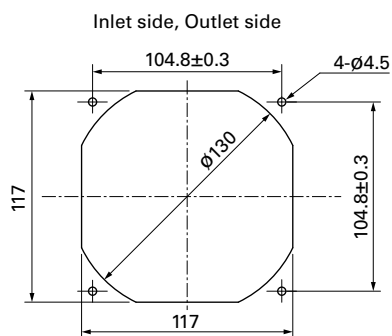
Operating voltage range



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



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



Options

Finger guards

page: p. 565

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

Resin finger guards

page: p. 571

Model no.: 109-1000G

Resin filter kits

page: p. 572

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

120×120×38 mm

San Ace 120L 9GL type


General Specifications

- Material Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 ⊕Red ⊖Black or Blue Sensor Yellow
- Mass 370 g

Specifications

The models listed below **have pulse sensors**.

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
9GL1212G101	12	10.2 to 13.8	0.98	11.8	3600	3.88 137	135 0.542	49	-20 to +70	80000/60°C (115000/40°C)
9GL1212E101			0.61	7.32	3100	3.34 118	100 0.402	46		
9GL1212H101		7 to 13.8	0.38	4.56	2600	2.8 99	70.4 0.283	39		100000/60°C (135000/40°C)
9GL1212F101			0.28	3.36	2280	2.45 87	54.2 0.218	36		
9GL1212M101			0.21	2.52	1950	2.1 74	39.6 0.159	32		
9GL1224G101	24	20.4 to 27.6	0.5	12.0	3600	3.88 137	135 0.542	49		80000/60°C (115000/40°C)
9GL1224E101			0.34	8.16	3100	3.34 118	100 0.402	46		
9GL1224H101		14 to 27.6	0.22	5.28	2600	2.8 99	70.4 0.283	39		100000/60°C (135000/40°C)
9GL1224F101			0.16	3.84	2280	2.45 87	54.2 0.218	36		
9GL1224M101			0.11	2.64	1950	2.1 74	39.6 0.159	32		
9GL1248G101	48	40.8 to 55.2	0.25	12.0	3600	3.88 137	135 0.542	49		80000/60°C (115000/40°C)
9GL1248E101			0.17	8.16	3100	3.34 118	100 0.402	46		
9GL1248H101			0.11	5.28	2600	2.8 99	70.4 0.283	39		100000/60°C (135000/40°C)
9GL1248F101			0.09	4.32	2280	2.45 87	54.2 0.218	36		
9GL1248M101			0.07	3.36	1950	2.1 74	39.6 0.159	32		

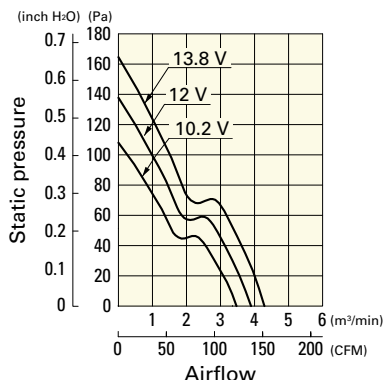
Note 1: Sensor and control options are available for selection. Refer to the table on p. 610.

Note 2: The  mark indicates Short LeadTime Service applicable models. See p. 630 for details.

Airflow - Static Pressure Characteristics

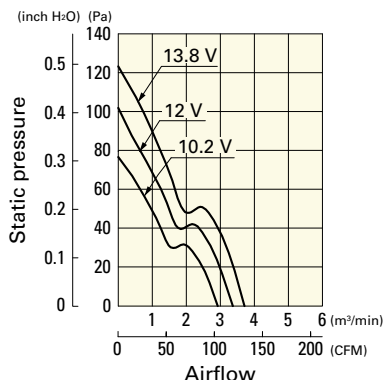
9GL1212G101 With pulse sensor

Operating voltage range



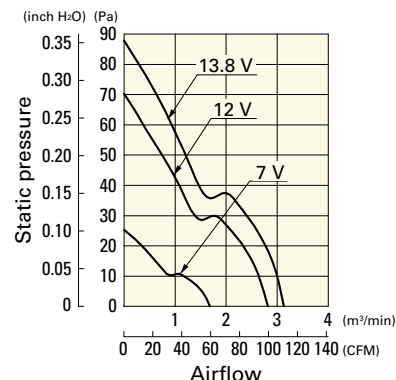
9GL1212E101 With pulse sensor

Operating voltage range

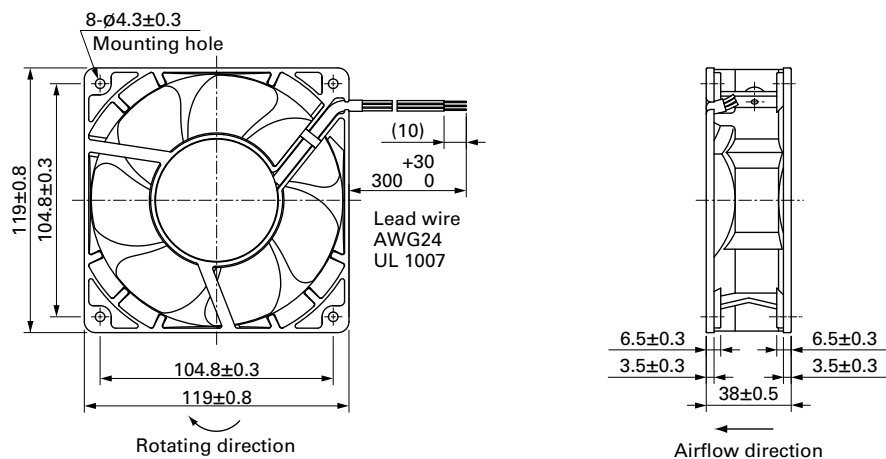


9GL1212H101 With pulse sensor

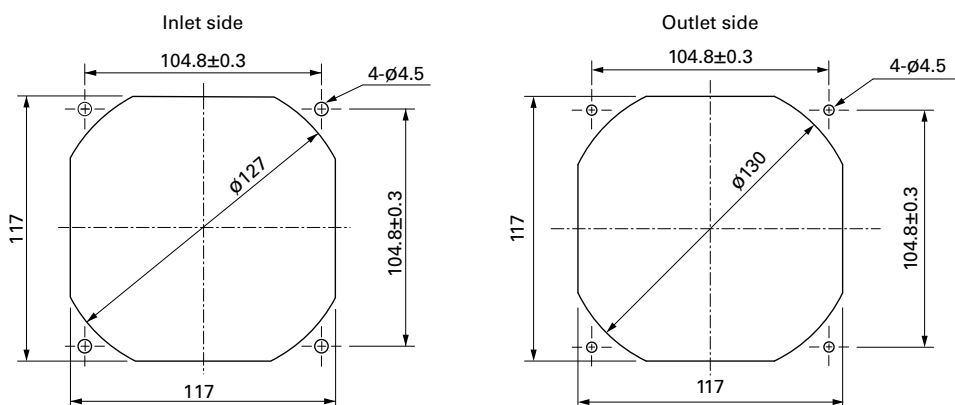
Operating voltage range



Dimensions (unit: mm)



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



Options

Finger guards

page: p. 565

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

Resin finger guards

page: p. 571

Model no.: 109-1000G

Resin filter kits

page: p. 572

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

DC

Long Life Fan 120 mm sq.

140×140×38 mm

San Ace 140L 9LG type US



General Specifications

- Material Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 ⊕Red ⊖Black Sensor Yellow Control Brown
(For models without PWM control function, there is no speed control wiring.)
- Mass 640 g

Specifications

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 ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
» 9LG1412P1A001	12	10.2 to 13.8	100	3.72	44.64	6900	8.0 282	516 2.07	68	-20 to +70	180000/60°C (215000/40°C)
			20	0.27	3.24	2300	2.66 93	80 0.32	39		
» 9LG1412P1H001			100	1.7	20.4	5200	6.0 212	300 1.2	62		
			20	0.27	3.24	2300	2.66 93	80 0.32	39		
» 9LG1412P1M001	24	20.4 to 27.6	100	0.6	7.2	3300	3.7 130	170 0.68	46		
			20	0.16	1.92	1300	1.45 51	26 0.1	29		
» 9LG1424P1A001			100	1.86	44.64	6900	8.0 282	516 2.07	68		
			20	0.17	4.08	2300	2.66 93	80 0.32	39		
» 9LG1424P1H001			100	0.85	20.4	5200	6.0 212	300 1.2	62		
			20	0.16	3.84	2300	2.66 93	80 0.32	39		
» 9LG1424P1M001	48	40.8 to 55.2	100	0.3	7.2	3300	3.7 130	170 0.68	46		
			20	0.11	2.64	1300	1.45 51	26 0.1	29		
» 9LG1448P1A001			100	0.92	44.16	6900	8.0 282	516 2.07	68		
			20	0.11	5.28	2300	2.66 93	80 0.32	39		
» 9LG1448P1H001			100	0.42	20.16	5200	6.0 212	300 1.2	62		
			20	0.11	5.28	2300	2.66 93	80 0.32	39		
» 9LG1448P1M001			100	0.15	7.2	3300	3.7 130	170 0.68	46		
			20	0.09	4.32	1300	1.45 51	26 0.1	29		

* 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 100% duty cycle.

The models listed below **have pulse sensors.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
» 9LG1412L1001	12	10.2 to 13.8	0.27	3.3	2300	2.6 91.9	80 0.32	39	-20 to +70	180000/60°C (215000/40°C)
» 9LG1424L1001	24	20.4 to 27.6	0.17	4.1	2300	2.6 91.9	80 0.32	39		
» 9LG1448L1001	48	40.8 to 55.2	0.11	5.3	2300	2.6 91.9	80 0.32	39		

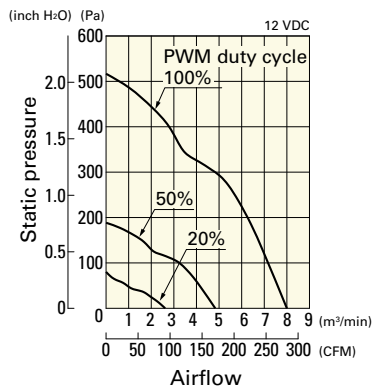
Note 1: Sensor and control options are available for selection. Refer to the table on p. 614.

Note 2: The » mark indicates Short Lead Time Service applicable models. See p. 630 for details.

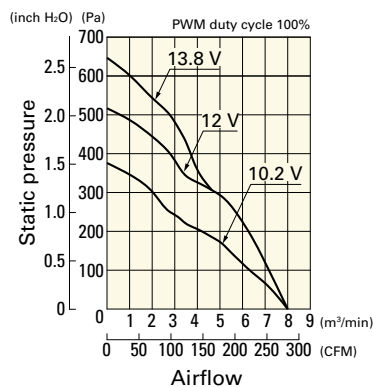
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG1412P1A001 With pulse sensor with PWM control function

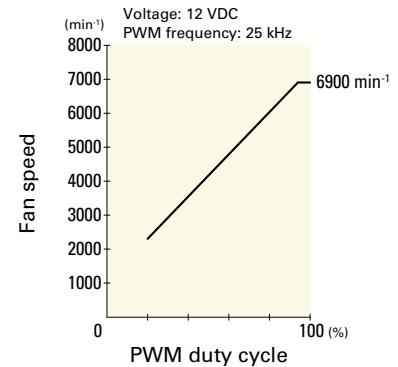
PWM duty cycle



Operating voltage range

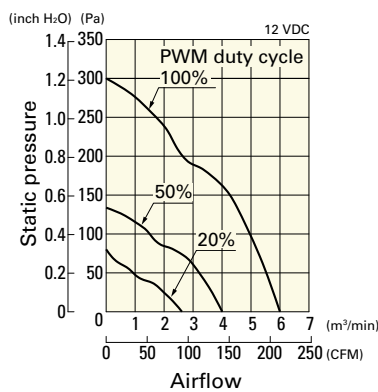


PWM duty - Speed characteristics example

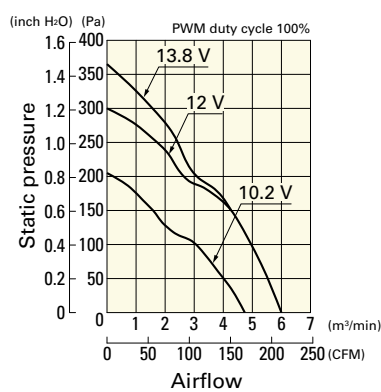


9LG1412P1H001 With pulse sensor with PWM control function

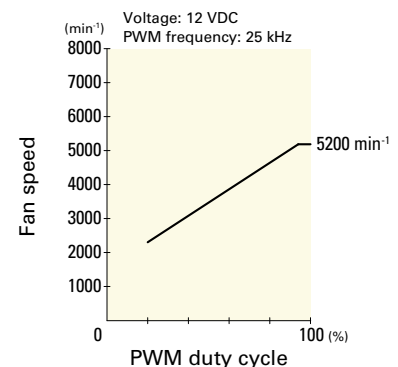
PWM duty cycle



Operating voltage range

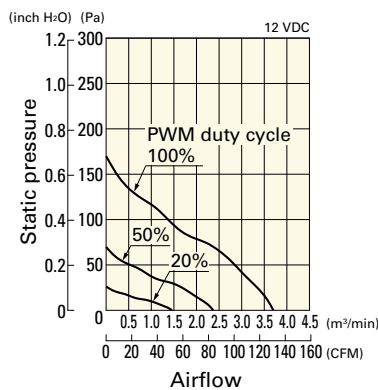


PWM duty - Speed characteristics example

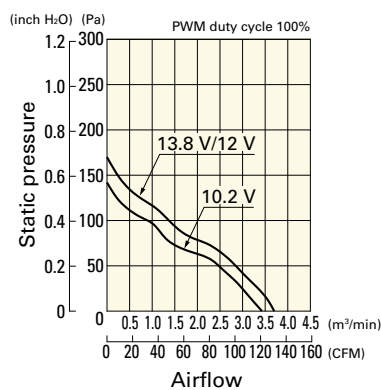


9LG1412P1M001 With pulse sensor with PWM control function

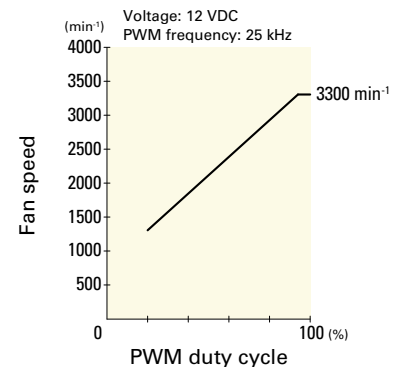
PWM duty cycle



Operating voltage range

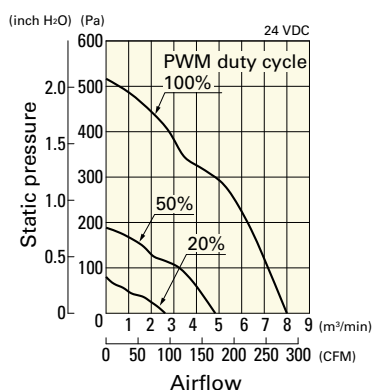


PWM duty - Speed characteristics example

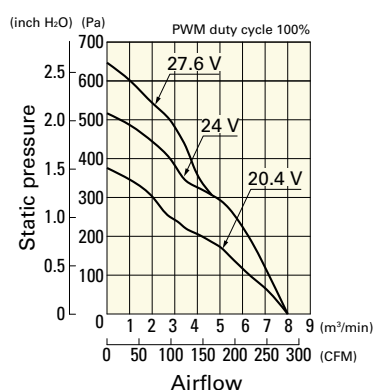


9LG1424P1A001 With pulse sensor with PWM control function

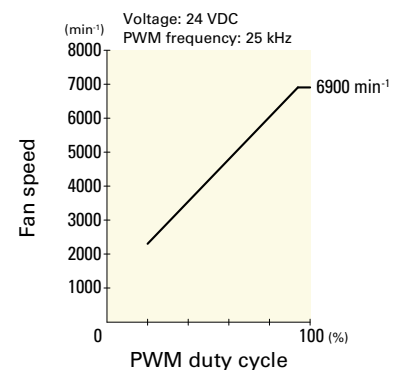
PWM duty cycle



Operating voltage range



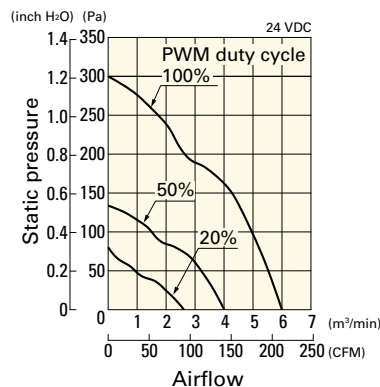
PWM duty - Speed characteristics example



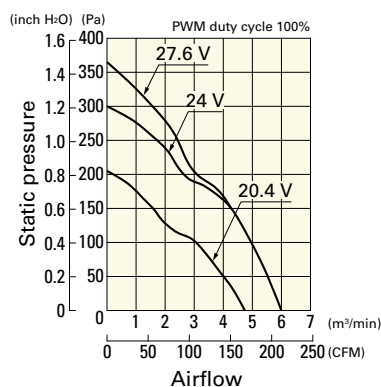
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG1424P1H001 With pulse sensor with PWM control function

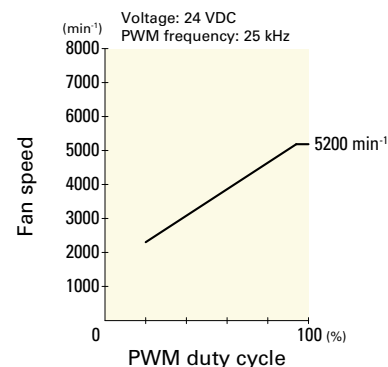
PWM duty cycle



Operating voltage range

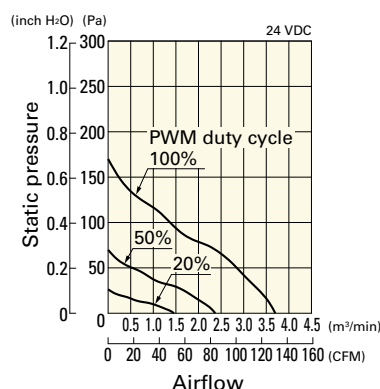


PWM duty - Speed characteristics example

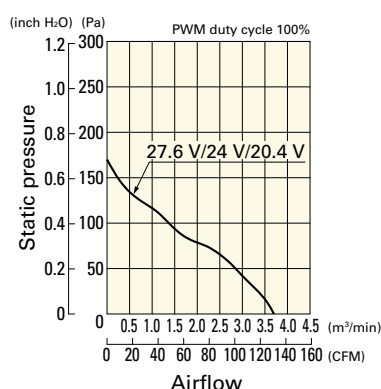


9LG1424P1M001 With pulse sensor with PWM control function

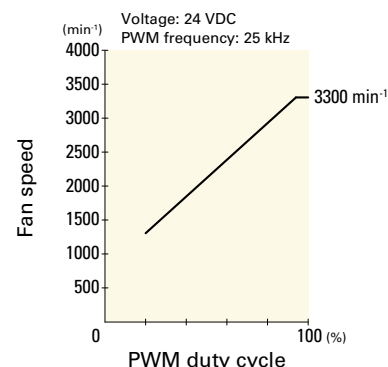
PWM duty cycle



Operating voltage range

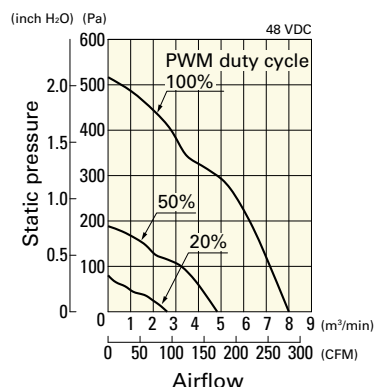


PWM duty - Speed characteristics example

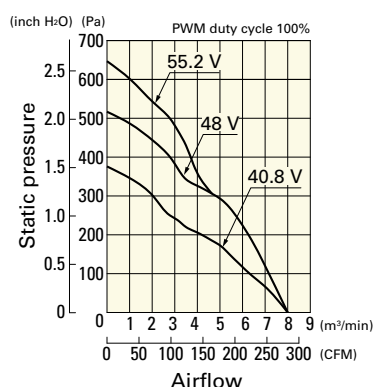


9LG1448P1A001 With pulse sensor with PWM control function

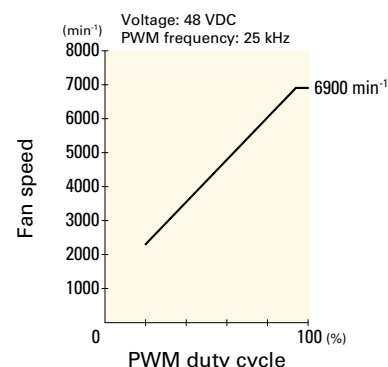
PWM duty cycle



Operating voltage range

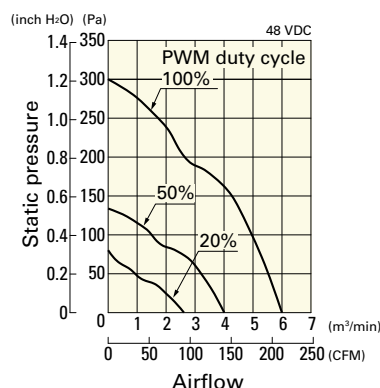


PWM duty - Speed characteristics example

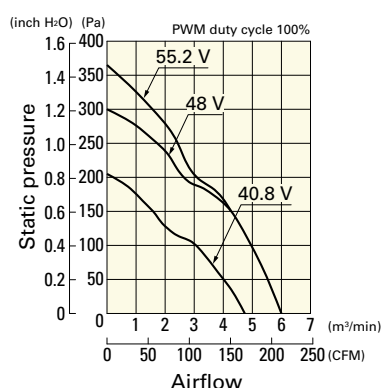


9LG1448P1H001 With pulse sensor with PWM control function

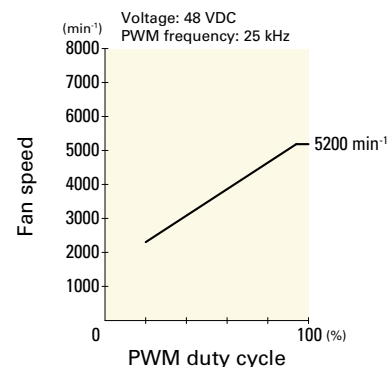
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

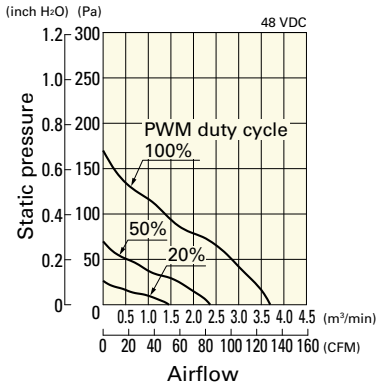


DC
Long Life Fan 140 mm sq.

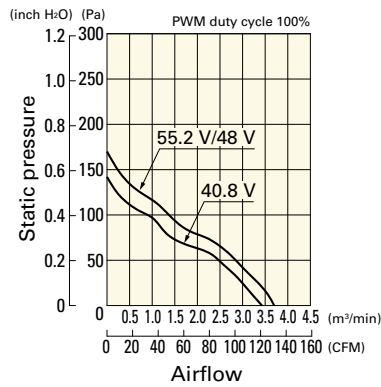
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG1448P1M001 With pulse sensor with PWM control function

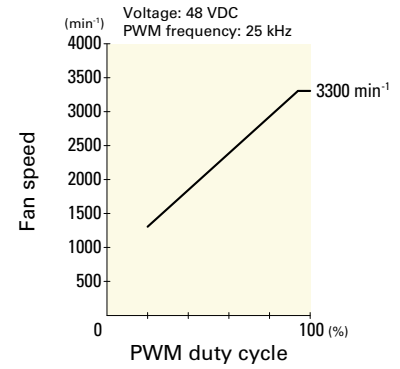
PWM duty cycle



Operating voltage range



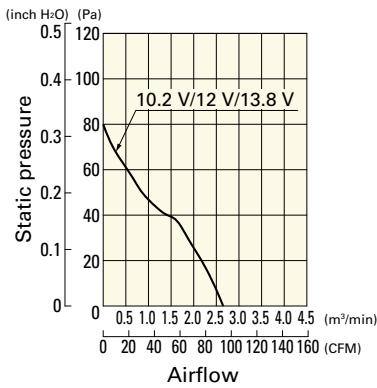
PWM duty - Speed characteristics example



Airflow - Static Pressure Characteristics

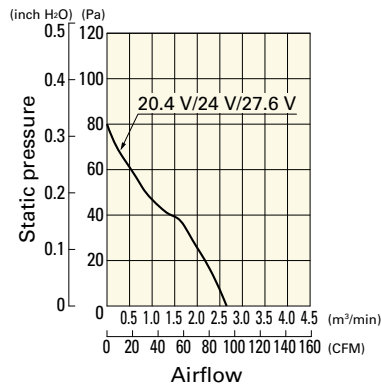
9LG1412L1001 With pulse sensor

Operating voltage range



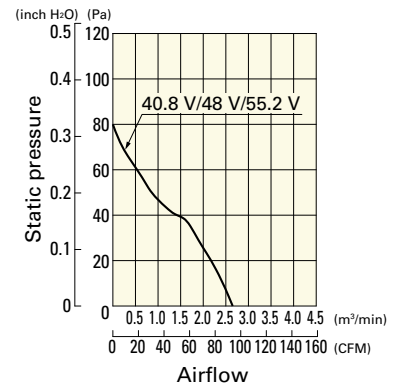
9LG1424L1001 With pulse sensor

Operating voltage range

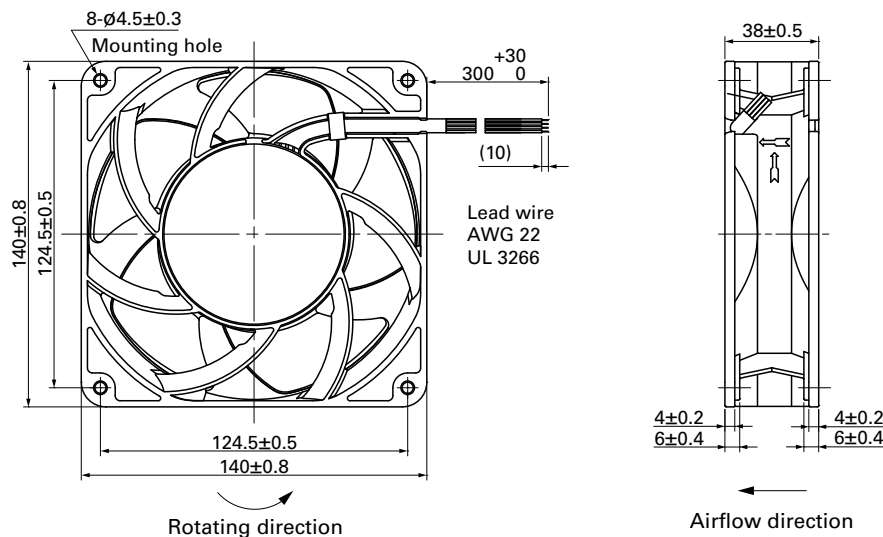


9LG1448L1001 With pulse sensor

Operating voltage range



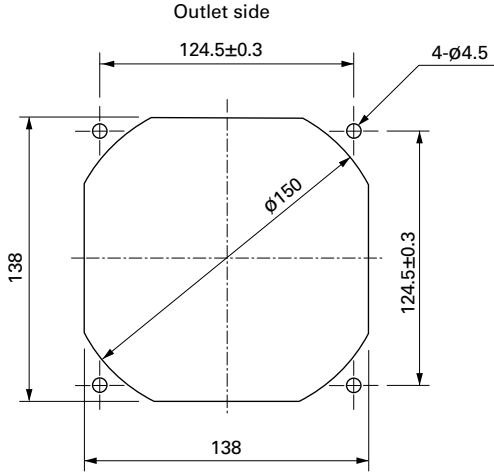
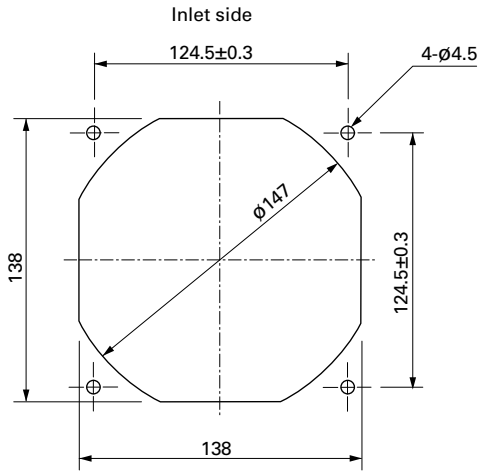
Dimensions (unit: mm) (With pulse sensor with PWM control function)



DC

Long Life Fan 140 mm sq.

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



■ Options

Finger guards page: p. 565

Model no.: 109-719, 109-719H



140×140×51 mm

San Ace 140L 9LG type US

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 free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection function Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 ⊕Red ⊖Black Sensor Yellow Control Brown
(For models without PWM control function, there is no speed control wiring.)
- Mass 790 g

Specifications

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 ⁻¹]	Max. airflow [m³/min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
» 9LG1412P5G001	12	10.2 to 13.8	100	5.16	62	7500	9.0 318	655 2.63	69	-20 to +70	180000/60°C (215000/40°C)
			20	0.31	3.72	2300	2.75 97	80 0.32	38		
» 9LG1412P5S001			100	1.83	22	5000	6.0 212	295 1.18	57		
			20	0.31	3.72	2300	2.75 97	80 0.32	38		
» 9LG1424P5G001	24	20.4 to 27.6	100	2.58	62	7500	9.0 318	655 2.63	69		
			20	0.16	3.84	2300	2.75 97	80 0.32	38		
» 9LG1424P5S001			100	0.91	22	5000	6.0 212	295 1.18	57		
			20	0.16	3.84	2300	2.75 97	80 0.32	38		
» 9LG1448P5G001	48	40.8 to 55.2	100	1.29	62	7500	9.0 318	655 2.63	69		
			20	0.12	5.76	2300	2.75 97	80 0.32	38		
» 9LG1448P5S001			100	0.45	22	5000	6.0 212	295 1.18	57		
			20	0.12	5.76	2300	2.75 97	80 0.32	38		

* 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 100% duty cycle.

The models listed below **have pulse sensors.**

Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m³/min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
» 9LG1412A5001	12	10.2 to 13.8	2.61	31.4	5700	6.9 243.8	500 2	61	-20 to +70	180000/60°C (215000/40°C)
» 9LG1412H5001			1	12	4100	4.9 173.1	260 1.04	52		
» 9LG1412M5001			0.43	5.16	2600	3.1 109.5	100 0.4	40		
» 9LG1424A5001	24	20.4 to 27.6	1.21	29.1	5700	6.9 243.8	540 2.17	61		
» 9LG1424H5001			0.55	13.2	4100	4.9 173.1	260 1.04	52		
» 9LG1424M5001			0.23	5.52	2600	3.1 109.5	100 0.4	40		
» 9LG1448A5001	48	40.8 to 55.2	0.66	31.7	5700	6.9 243.8	540 2.17	61		
» 9LG1448H5001			0.31	14.9	4100	4.9 173.1	260 1.04	52		
» 9LG1448M5001			0.15	7.2	2600	3.1 109.5	100 0.4	40		

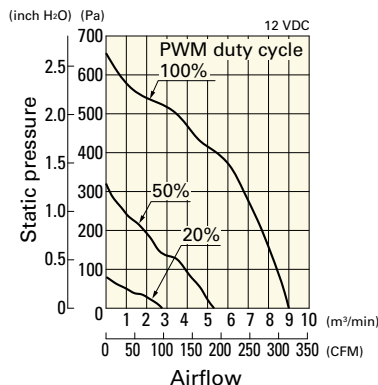
Note 1: Sensor and control options are available for selection. Refer to the table on p. 614.

Note 2: The » mark indicates Short Lead Time Service applicable models. See p. 630 for details.

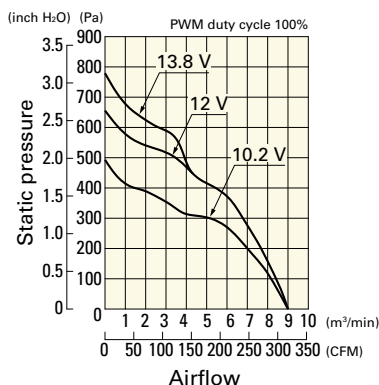
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG1412P5G001 With pulse sensor with PWM control function

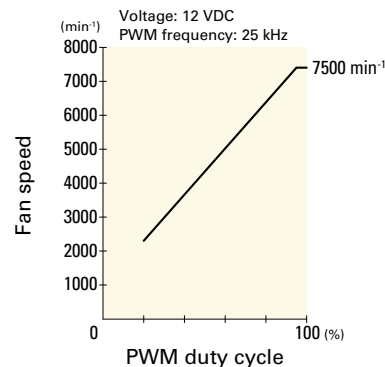
PWM duty cycle



Operating voltage range

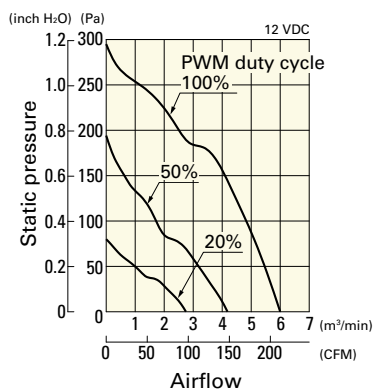


PWM duty - Speed characteristics example

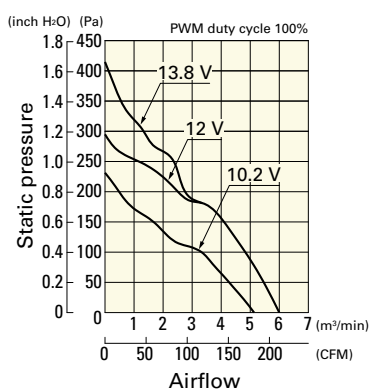


9LG1412P5S001 With pulse sensor with PWM control function

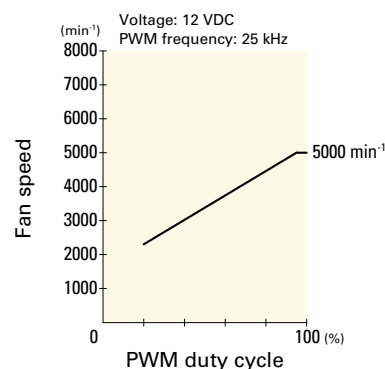
PWM duty cycle



Operating voltage range

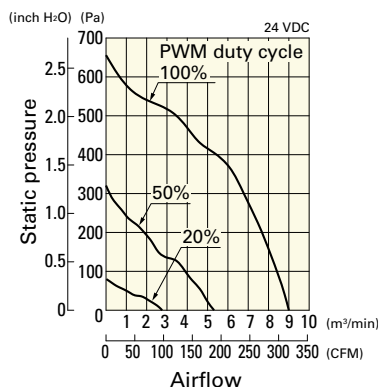


PWM duty - Speed characteristics example

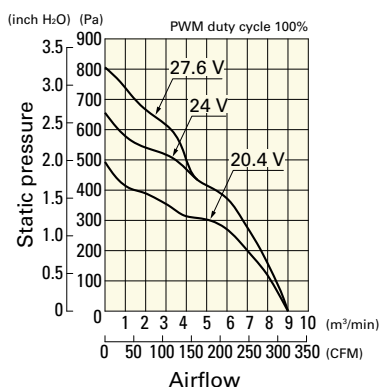


9LG1424P5G001 With pulse sensor with PWM control function

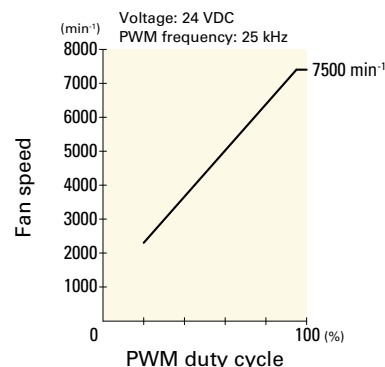
PWM duty cycle



Operating voltage range

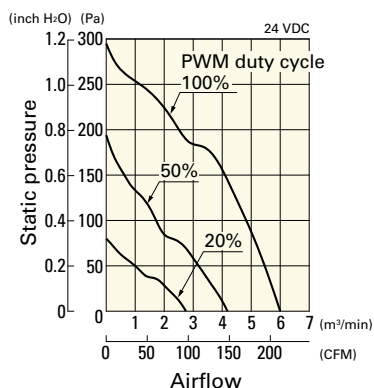


PWM duty - Speed characteristics example

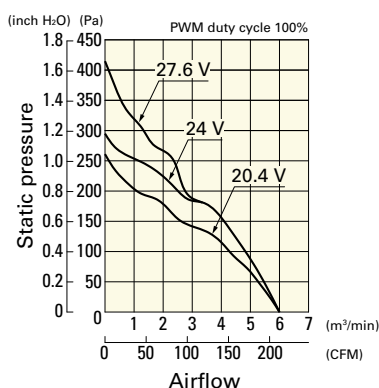


9LG1424P5S001 With pulse sensor with PWM control function

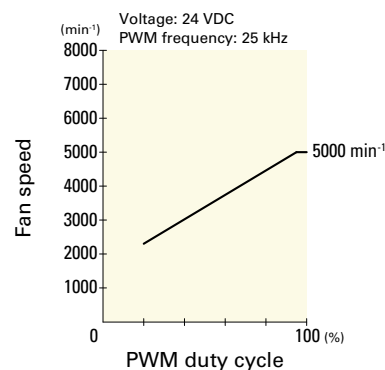
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example



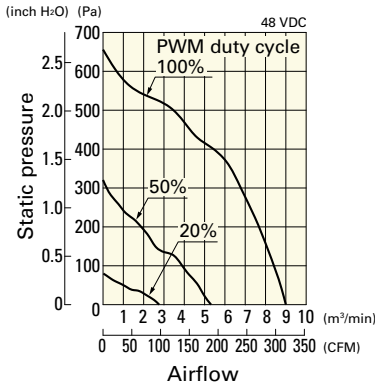
DC

Long Life Fan 140 mm sq.

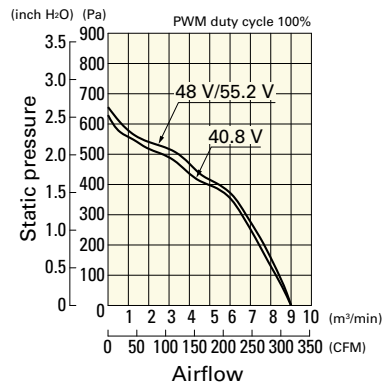
Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9LG1448P5G001 With pulse sensor with PWM control function

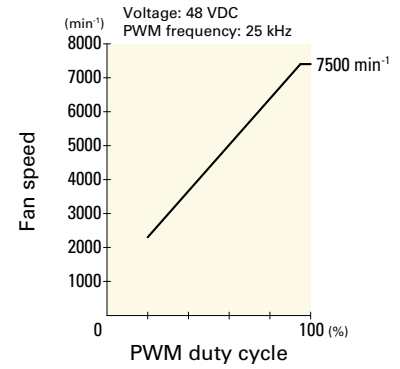
PWM duty cycle



Operating voltage range

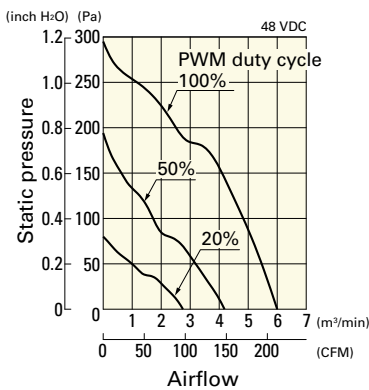


PWM duty - Speed characteristics example

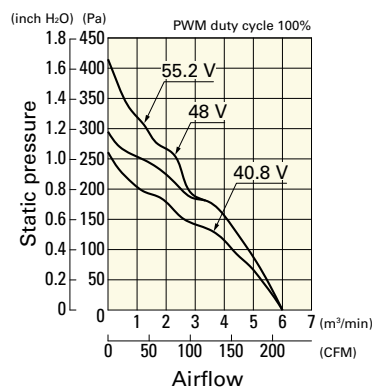


9LG1448P5S001 With pulse sensor with PWM control function

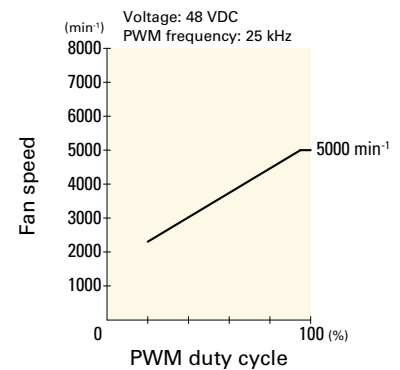
PWM duty cycle



Operating voltage range



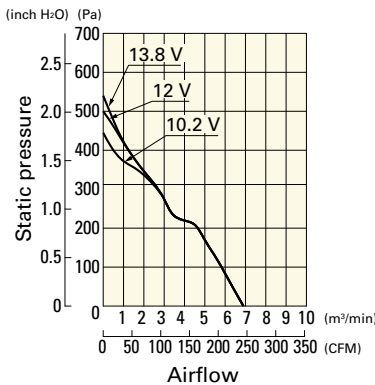
PWM duty - Speed characteristics example



Airflow - Static Pressure Characteristics

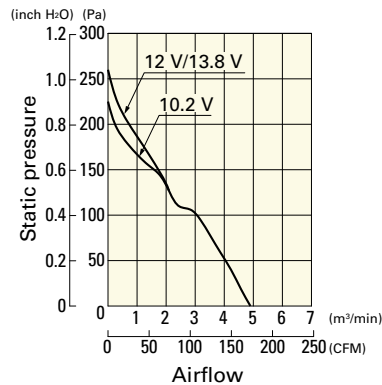
9LG1412A5001 With pulse sensor

Operating voltage range



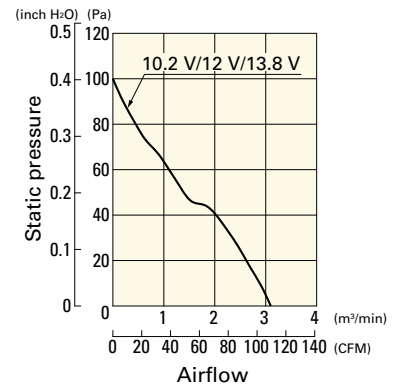
9LG1412H5001 With pulse sensor

Operating voltage range



9LG1412M5001 With pulse sensor

Operating voltage range

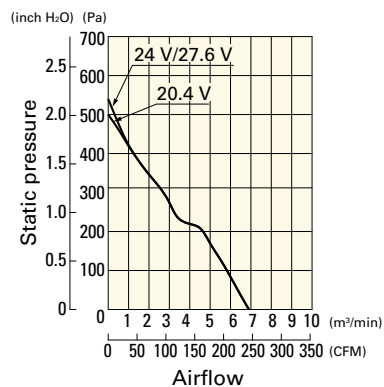


DC
Long Life Fan 140 mm sq.

Airflow - Static Pressure Characteristics

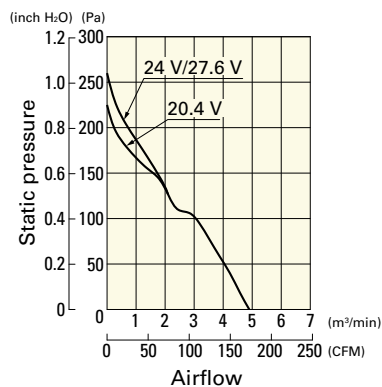
9LG1424A5001 With pulse sensor

Operating voltage range



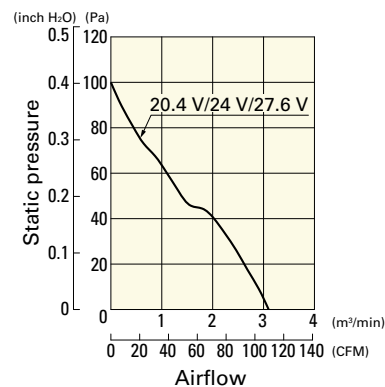
9LG1424H5001 With pulse sensor

Operating voltage range



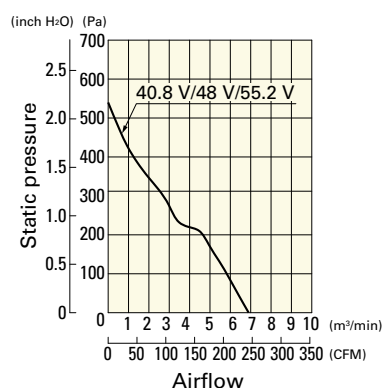
9LG1424M5001 With pulse sensor

Operating voltage range



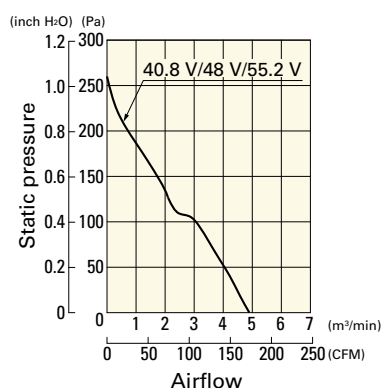
9LG1448A5001 With pulse sensor

Operating voltage range



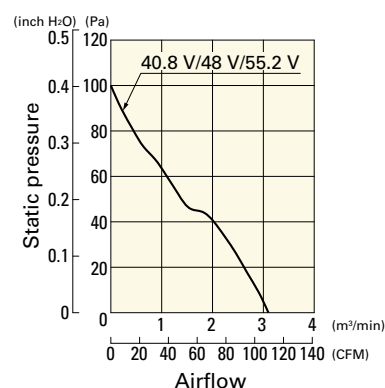
9LG1448H5001 With pulse sensor

Operating voltage range

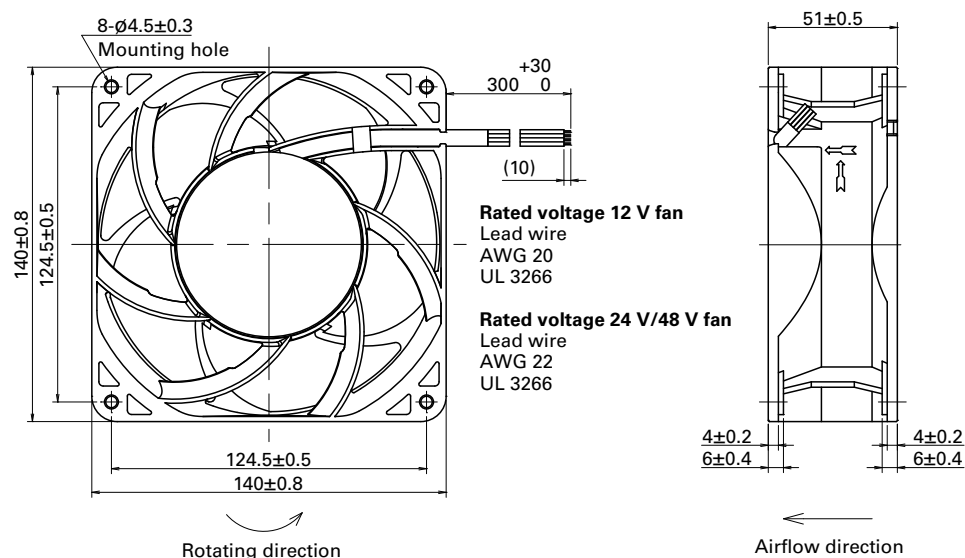


9LG1448M5001 With pulse sensor

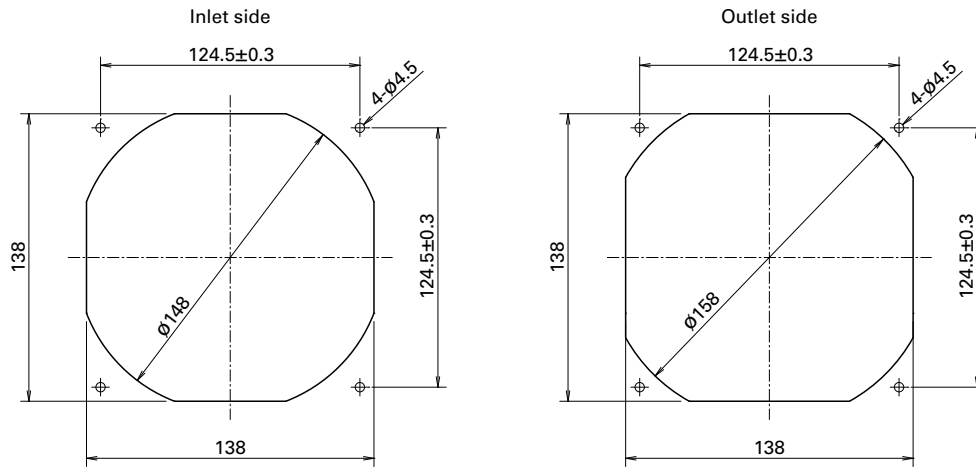
Operating voltage range



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



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



Options

Finger guards

page: p. 565

Model no.: 109-719, 109-719H

Ø172×150×51 mm

San Ace 172L 9L type

Sidecut type



General Specifications

- Material Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 ⊕Red ⊖Black or Blue ☐Sensor Yellow
- Mass 760 g

Specifications

The models listed below **have pulse sensors**.

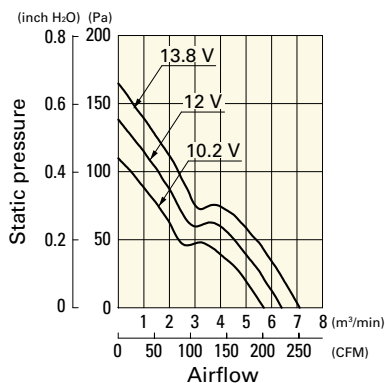
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
109L5712H501	12	10.2 to 13.8	1.2	14.4	3050	6.4 226	137.2 0.551	52	-20 to +70	100000/60°C (135000/40°C)
109L5712M501			0.48	5.76	2000	4.2 148	67.6 0.271	41		
109L5724H501	24	20.4 to 27.6	0.58	13.92	3050	6.4 226	137.2 0.551	52		
109L5724M501			0.2	4.8	2000	4.2 148	67.6 0.271	41		
109L5748H501	48	40.8 to 55.2	0.28	13.44	3050	6.4 226	137.2 0.551	52		
109L5748M501			0.11	5.28	2000	4.2 148	67.6 0.271	41		

Note: Sensor and control options are available for selection. Refer to the table on p. 603.

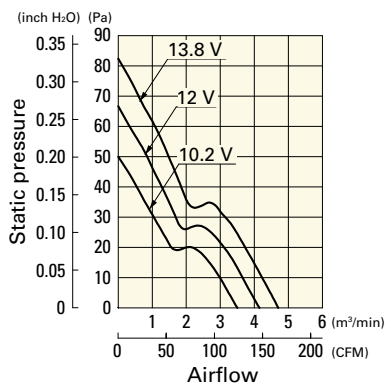
Airflow - Static Pressure Characteristics

109L5712H501 With pulse sensor

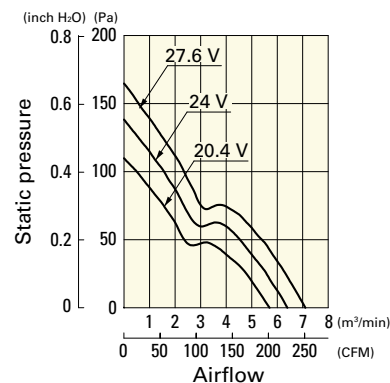
Operating voltage range


109L5712M501 With pulse sensor

Operating voltage range


109L5724H501 With pulse sensor

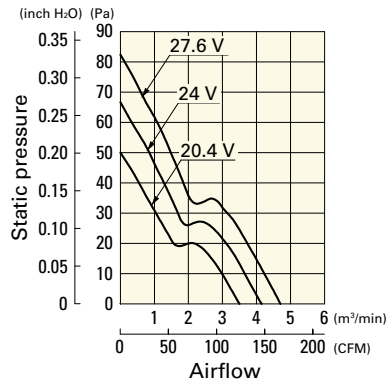
Operating voltage range



Airflow - Static Pressure Characteristics

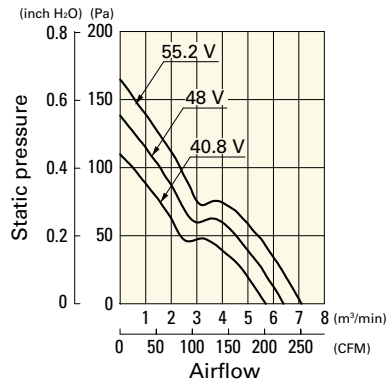
109L5724M501 With pulse sensor

Operating voltage range



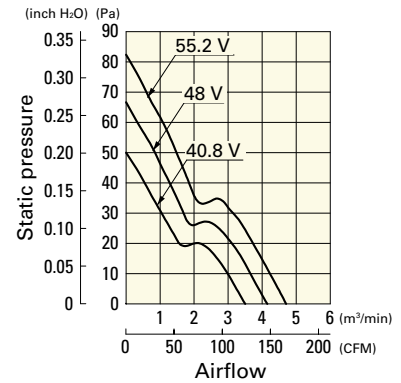
109L5748H501 With pulse sensor

Operating voltage range

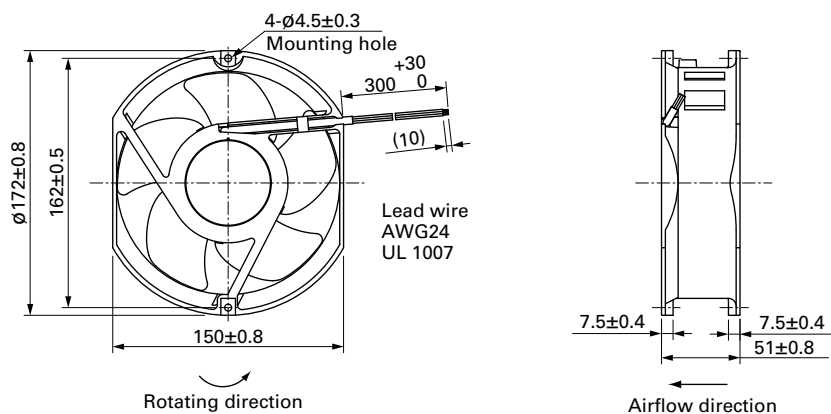


109L5748M501 With pulse sensor

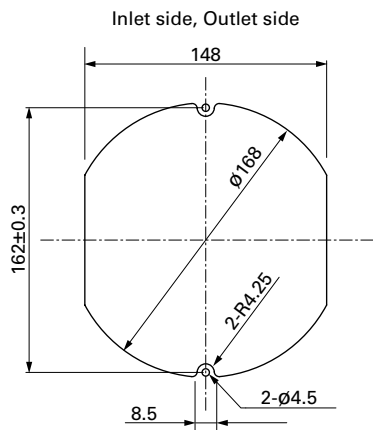
Operating voltage range



Dimensions (unit: mm)



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



Options

Finger guards

page: p. 566

Model no.: 109-319E, 109-319H, 109-320

DC
Long Life Fan $\phi 172$ mm

Ø172x51 mm

San Ace 172L 9L type


Round type



General Specifications

- Material Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life See the table below. (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, Reverse polarity protection
For details, please refer to p. 580.
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- 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 ⊕Red ⊖Black or Blue Sensor Yellow
- Mass 780 g

Specifications

The models listed below **have pulse sensors**.

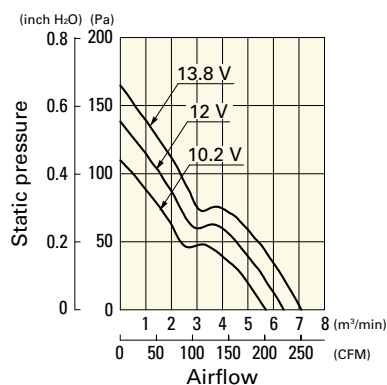
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
109L1712H501	12	10.2 to 13.8	1.2	14.4	3050	6.4 226	137.2 0.551	47	-20 to +70	100000/60°C (135000/40°C)
109L1712M501			0.48	5.76	2000	4.2 148	67.6 0.271	36		
109L1724H501	24	20.4 to 27.6	0.58	13.92	3050	6.4 226	137.2 0.551	47		
109L1724M501			0.2	4.8	2000	4.2 148	67.6 0.271	36		
109L1748H501	48	40.8 to 55.2	0.28	13.44	3050	6.4 226	137.2 0.551	47		
109L1748M501			0.11	5.28	2000	4.2 148	67.6 0.271	36		

Note: Sensor and control options are available for selection. Refer to the table on p. 603.

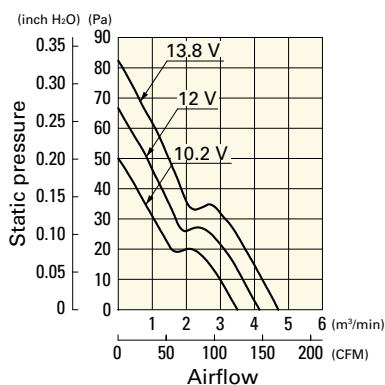
Airflow - Static Pressure Characteristics

109L1712H501 With pulse sensor

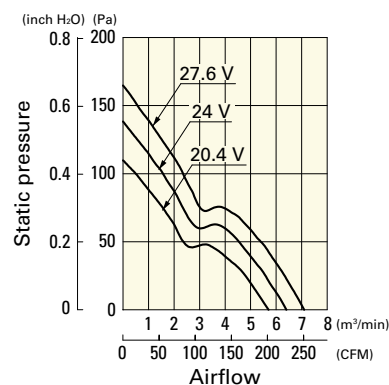
Operating voltage range


109L1712M501 With pulse sensor

Operating voltage range


109L1724H501 With pulse sensor

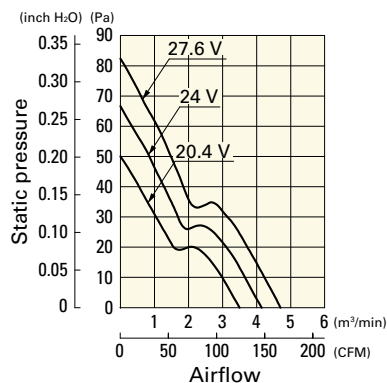
Operating voltage range



Airflow - Static Pressure Characteristics

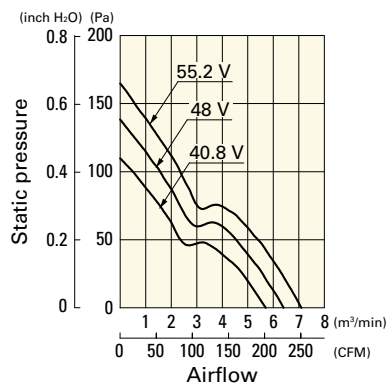
109L1724M501 With pulse sensor

Operating voltage range



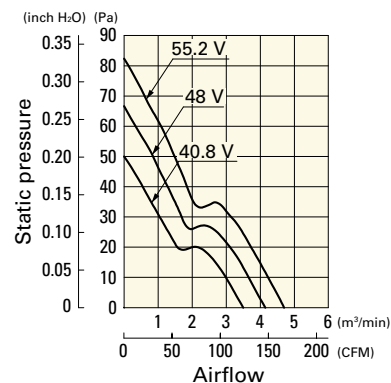
109L1748H501 With pulse sensor

Operating voltage range

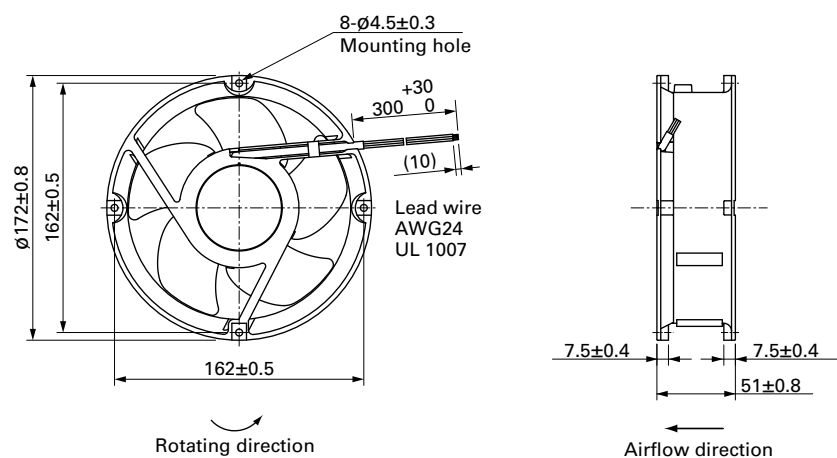


109L1748M501 With pulse sensor

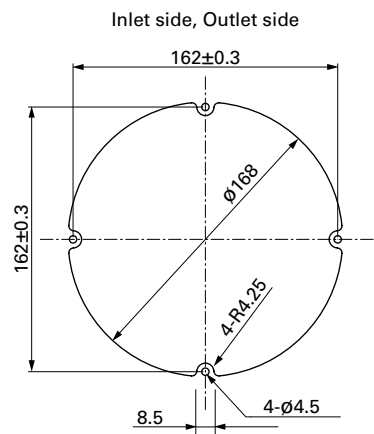
Operating voltage range



Dimensions (unit: mm)



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



Options

Finger guards

page: p. 566

Model no.: 109-319E, 109-319H, 109-320, 109-1066, 109-1068

DC

Long Life Fan $\phi 172$ mm

