Oriental motor

DC Axial Flow Fans

MD Series

DC Axial Flow Fans to Meet Your Every Need

ALARM

LONG-LIFE

VARIABLE FLOW

SPLASH PROOF

DC Axial Flow Fans to Meet Your Every Need

The **MD** Series 24 VDC axial flow fans have been designed to deliver the best in ventilation and cooling technology.
With five different models (basic, alarm, long-life, variable flow and splash proof) to choose from, we guarantee you will find the fan you are looking for.

DC Axial Flow Fans **MD Series**

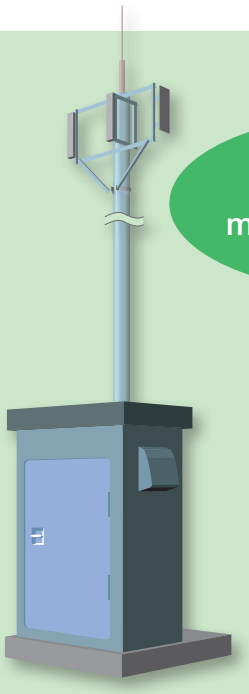
Alarms for potential problems

Use the alarm type fan that monitors rotation status **and issues an alarm signal** in the event of a malfunction.

A Type

Stall alarm (→ p4)
Low-speed alarm (→ p4)

Data center



Base station

Reduce your maintenance costs

Use the long-life type fan that can run continuously **for as many as 180,000 hours** (or approximately 20 years)

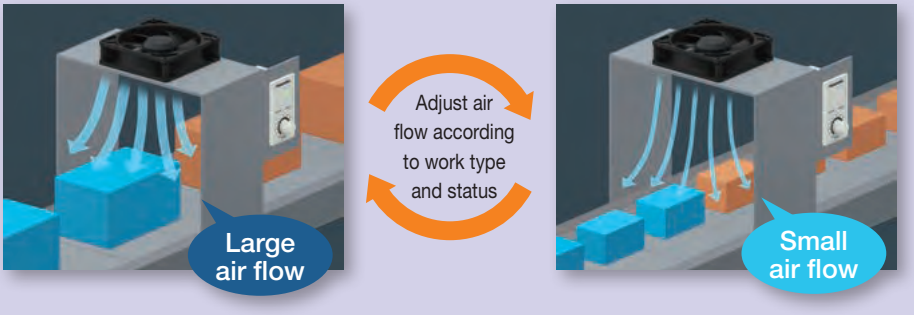
E Type (→ p5)

Adjustable air flow

Variable flow type fan

allows for adjustments in rotation speed and air flow.

V Type (→ p6)



Wet or dusty environment

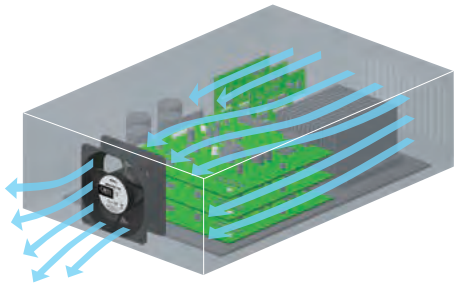
A resin coating has been applied to the active electrical parts. Use the

splash-proof type fan

that has been designed to withstand water and dust particles.

P Type (→ p7)

Equipment washing



For the ventilation and cooling of high-density equipment and devices with large pressure drops, use **large fans** with frame sizes of 140 mm and 172 mm.

Basic (no alarm) ▶ **S Type** (→ p7)
Alarm ▶ **A Type** (→ p4)
Long-life ▶ **E Type** (→ p5)

ALARM

Alarm ▶ A Type

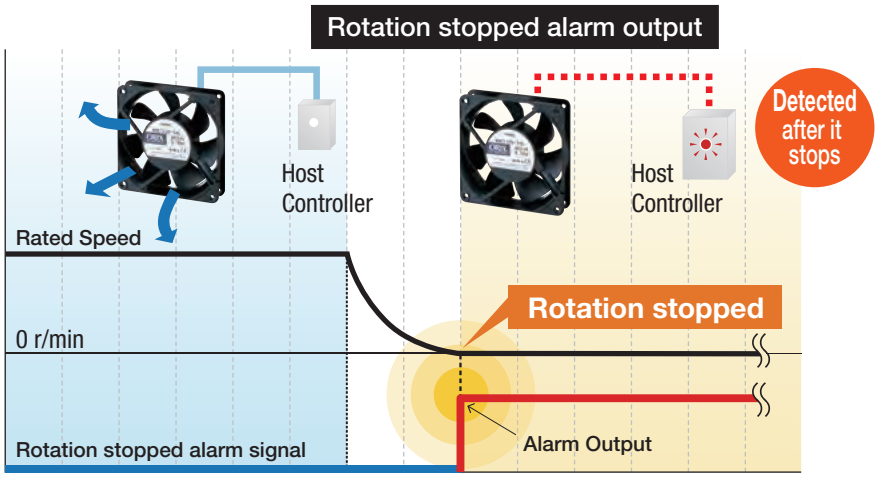
This fan has a built-in alarm that will help to prevent unexpected problems or malfunctions with your equipment. It offers a choice between two alarm outputs: Stall Alarm and low-speed alarm.

●Consider using a model with a pulse output signal for the constant monitoring of your fan's rotation speed.
→ V Type variable flow (p6)

Data center

●Stall Alarm

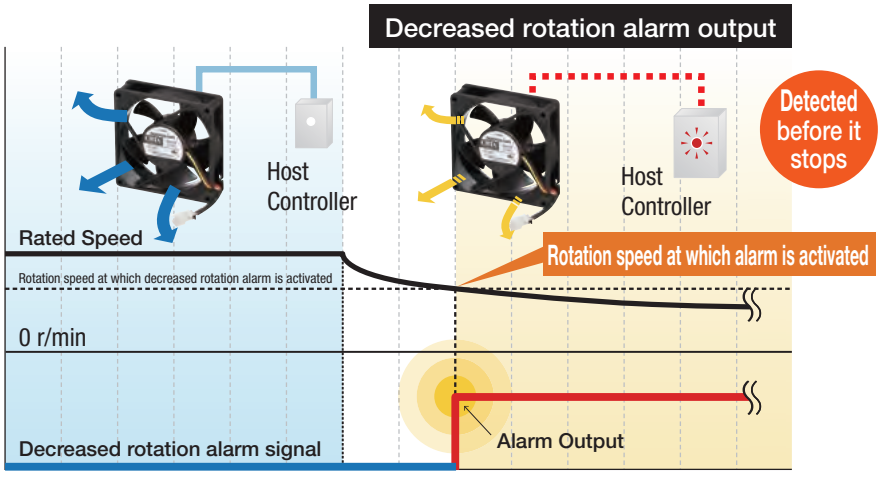
The fan will emit an alarm when the fan rotation has stopped.
This will alert you to interruptions immediately, so that you can replace your fan.



●Low-Speed Alarm Predictive Maintenance

The fan will emit an alarm when the fan rotation slows down due to the introduction of foreign particles or other problems. This helps with predictive maintenance, as you will be able to repair or replace your fan before your equipment suffers from heat damage. If you are running multiple fans, it will also allow you to replace only those fans experiencing a reduced cooling capacity, allowing you to minimize any negative impact to your equipment.

●For details on alarm information, check "■ Low-Speed Alarm Specifications" (p12).



LONG-LIFE

Long-Life ▶ E Type

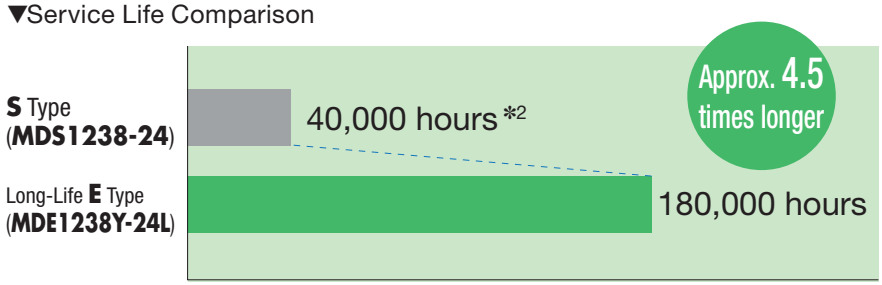
In addition to the cooling capacity, this fan promises a life-span of approximately 180,000 hours*1 giving you up to twenty years of continuous, durable long-life performance. This will contribute to less maintenance and a reduction in overall costs.

*1 The expected life may vary depending on the product. For details, check the specifications for each product.

●Up to 180,000 Hours*1 of Continues Use Lower Maintenance Costs and Overall Costs

Our long-life fans will help dramatically reduce replacements, making it cost-efficient.

▼Service Life Comparison

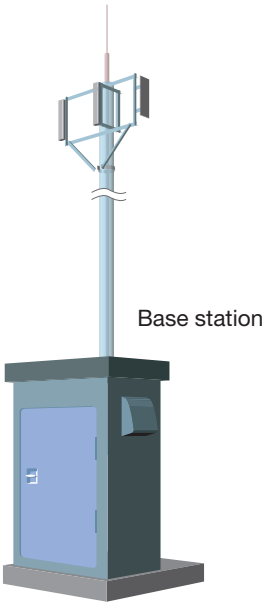


*2 Estimated life is 40,000 hours when the ambient temperature is 60˚C. The estimated life is an estimated value calculated using the formula for the life of the bearing grease. The estimated life may vary depending on the product.

●High Reliability

Long-life fans are less prone to malfunction, making them perfect for systems and equipment that require high reliability, as well as for continuous operation.
[Applications]

- Backup equipment during blackouts
- Data center equipment
- Factory equipment requiring continuous operation



●Stall Alarm

The fan will emit an alarm when its rotation has stopped.
▶ See section on Stall Alarm (p4).

<Expected Service Life>

The expected service life indicates that at least 90% of the fans will satisfy the following criteria when the acceleration test is performed at an ambient temperature of 60°C.

●Criteria

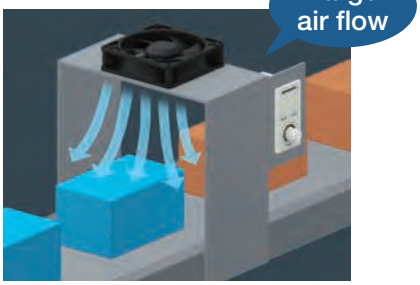
Speed (at rated voltage): 70% or more of rated value

Input current (at rated voltage): 130% or less of rated value

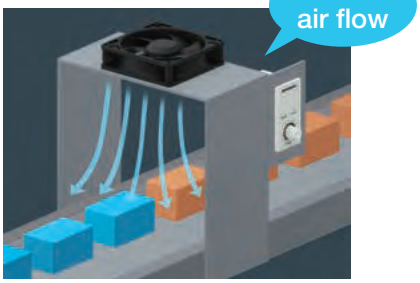
VARIABLE FLOW

Variable Flow ▶ V Type

The rotation speed for this fan can be adjusted via a PWM controller. This will allow you to adjust air flow and static pressure resulting in energy savings and noise reduction.

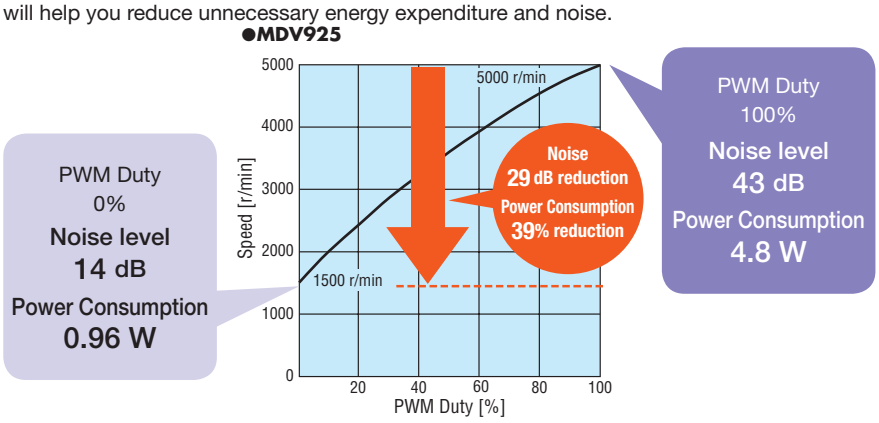


Adjust air flow according to work type and status



●Energy Savings and Noise Reduction

By allowing you to run your fan at the required air flow when necessary, variable flow fans will help you reduce unnecessary energy expenditure and noise.

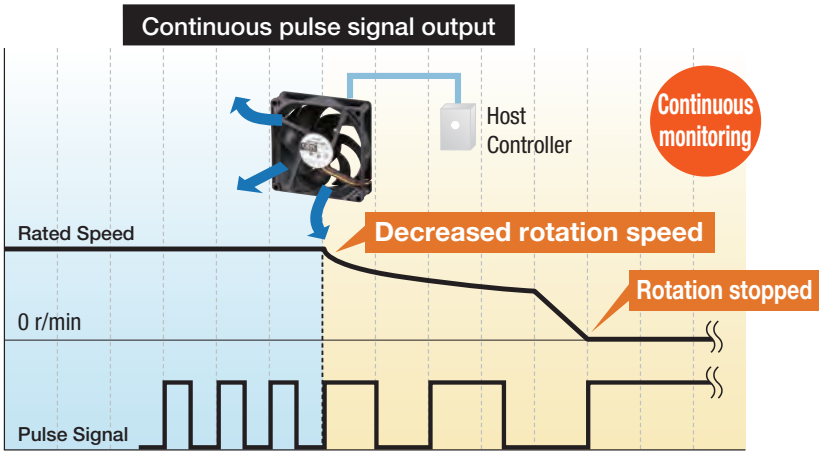


●Fan Speed Controller

The **FSC-24** Fan Speed Controller (sold separately) will allow you to control PWM at the simple turn of a dial. Control air flow with ease.

●Constant Pulse Sensor Monitoring

2 pulse signals are output for every rotation while the fan is in operation. By checking for changes in the pulse signal, you will be able to continuously monitor the status of your fan. This is perfectly suited for equipment requiring 24 hour operation.



SPLASH PROOF

Splash Proof ▶ P Type

This splash-proof type fan can be used in both wet and dusty environments. It conforms to the IP68 protection rating as descried by the IEC standard.

Equipment washing

●IP68 Protection

Provided that the fan is not submerged under water.

IP68

- 6: Completely dust-proof structure
- 8: We have observed no problems under the following splash proof test conditions.

<Test Condition>
The fan was submerged in 2 m of pressurized water for 60 minutes with the motor off. Afterward, it was allowed to run for 15 minutes, and no problems were observed in the dielectric strength test.

●The IP indication shows that the fan is splash proof and dust-resistant as described by IEC 60529 and IEC 60034-5.

●Stall Alarm

The fan will emit an alarm when its rotation has stopped.

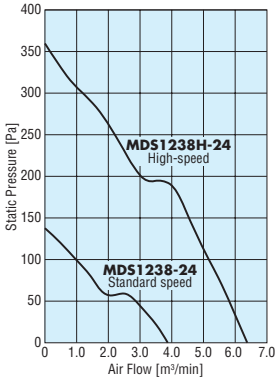
▶ See section on Stall Alarm (p4).

Basic (no alarm) ▶ S Type

This type of fan has a max. air flow of 9.9 m^3/min, and comes in 8 different sizes. In addition to the standard speed model, we also offer a high-speed model with 2 times the air flow.

For high-speed models, air flow and static pressure increase according to size.

Should an increase in devices to your control cabinet result in a significant pressure loss, you can switch to a high-speed model and greatly increase your air flow and static pressure.



A List of Fan Types and Their Functions

Various Functions	**S Type** Basic	**A Type** Alarm	**E Type** Long-Life	**V Type** Variable Flow	**P Type** Splash Proof
Key Features	High-speed Standard speed	Alarm output functions	Expected service life Max. 180,000 hours	Controls air flow with PWM controller	IP68 splash proof and dust-resistant
Output Functions	Blank	Stall Alarm Low-Speed Alarm	Stall Alarm	Pulse Sensor	Stall Alarm

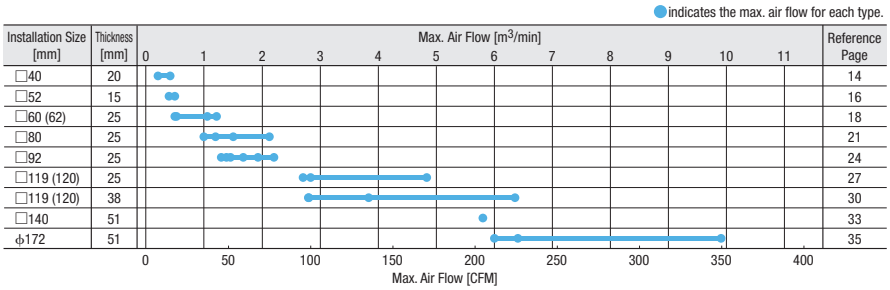
Product Line

Product line will vary depending on fan type.

	Installation Dimensions [mm]	□40	□52	□60 (62)	□80	□92	□119 (120)		□140	ϕ172
	Thickness [mm]	20	15	25	25	25	25	38	51	51
	Additional Functions/Speeds									
S Type Basic	High-Speed			●	●	●		●		●
	Standard Speed	●	●	●	●	●	●	●	●	●
A Type Alarm	Stall Alarm	●	●	●	●	●	●	●	●	
	Low-Speed Alarm			●	●	●	●	●	●	●
E Type Long-Life	Stall Alarm			●	●	●	●	●	●	●
V Type Variable Flow	Pulse Sensor	●	●	●	●	●	●	●		
P Type Splash Proof	Stall Alarm				●	●		●		

Maximum Air Flow

The following is a characteristics diagram showing max. air flow and its corresponding installation dimensions.



Thermostat

A thermostat (sold separately) will allow you to automatically control the operation of your fan in accordance with the internal temperature fluctuations of your equipment.

Thermostat
AM2-XA1 (p44)

"Choosing your Fan"

Our specialists will be more than happy to help you select a fan. Please contact our technical support team.

●Fan Peripheral Equipment Sets

These are sets of peripheral equipment such as panels, finger guards, filters and screws for use in combination with Oriental Motor axial flow fans (sold separately). Select the type that best suits the environment and application.

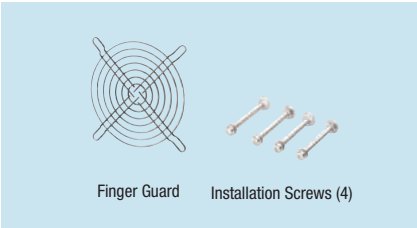
●Parts Set Features

- Simplifies ordering of parts
- Ready to be assembled and used

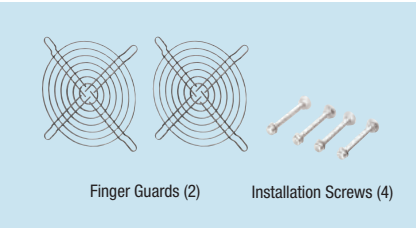
Finger Guard Sets

This is a parts set that includes a filter and the screws for installing the finger guard. Finger guards are available in iron or stainless steel.
Select the type that best suits the environment and application. Refer to page 41 for details on the sets.

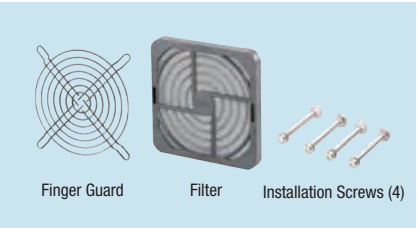
◇Finger Guard Set (Single)
- Iron Finger Guard Set
- Stainless Steel Finger Guard Set



◇Finger Guard Set (Double)
- Iron Finger Guard Set
- Stainless Steel Finger Guard Set



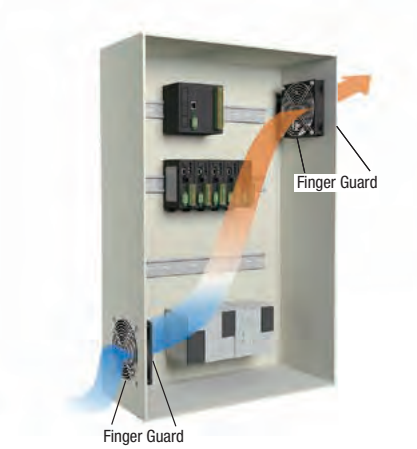
◇Finger Guard & Filter Set (1 each)
- Iron Finger Guard & Filter Set



●Application Example for Finger Guard Set (Single)

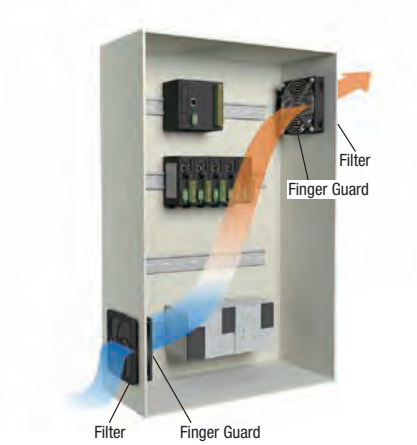
● Finger guard used on outside of control cabinet
External side → To prevent equipment damage

●Application Example for Finger Guard Set (Double)



● Finger guards are used on both the internal side and the external side of the control cabinet
Internal side → To protect worker
External side → To prevent equipment damage

●Application Example for Finger Guard & Filter Set (1 each)

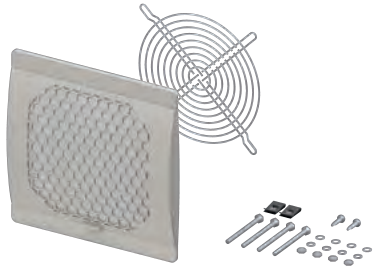


● Finger guard used on the internal side of the control cabinet and filter used on the external side
Internal side → To protect worker
External side → To protect from dust

Panel Sets for Control Cabinet Installation

These are parts sets that include a panel, finger guard, filter and screws that are optimized for the ventilation and cooling of control cabinets.
Panel sets for every degree of protection are available, and can be retrofitted to the fan.
Refer to page 43 for details on the sets.

◇**Finger Guard Panel Set**
IP2X Rating



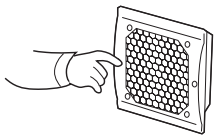
◇**Slit Metal Plate Panel Set**
IP4X Rating

◇**Dust and Water Resistant Panel Set**
IP43 & IP55 Rating*

*The difference in specifications is based on the filter type.

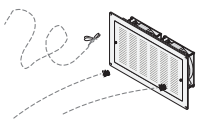
●Differentiating Features

Finger Guard Panel Set IP2X Rating



Can offer protection against finger contact.

Slit Metal Plate Panel Sets IP4X Rating

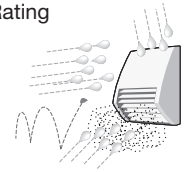


Protection against ingress of wires (diameter of 1 mm or larger), etc.

Dust and Water Resistant Panel Sets IP43 Rating

Can offer protection against wires (1 mm or larger) and water spray (within 60° of vertical)

Dust and Water Resistant Panel Sets IP55 Rating



Can offer protection against dust and water jets (all directions).

●About Degree of Protection

The IP indication that shows the watertight and dust-resistant performance levels are specified under EN 60529.

[Display examples]

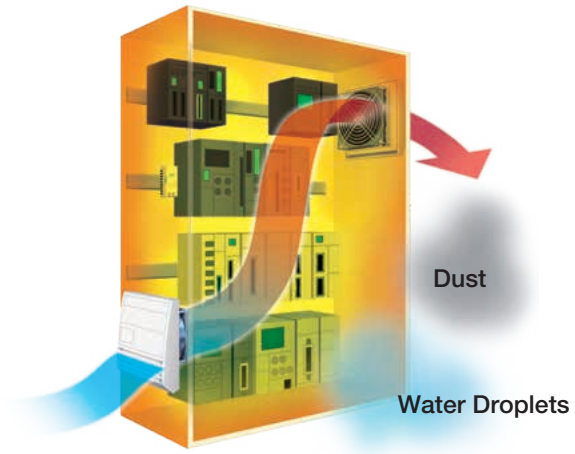
IP43

Second Number
First Number

IP Code	Type of Protection against Contact or Ingress of Human Body Parts and Solid Foreign Objects	
First Number	Protection Level	Test Condition
IP2X	Protection against approach by fingers	Solid foreign objects with a diameter of 12 mm or more do not enter
IP4X	Protection against ingress of wires, etc.	Solid foreign objects with a diameter of 1.0 mm or more do not enter
IP5X	Protection against powdery dust	Dust that may inhibit normal operation does not enter

IP Code	Type of Protection against Ingress of Water	
Second Number	Protection Level	Test Condition
IPX3	Protection against raindrops from directions within a range of 60° relative to the vertical plane	Sprayed water at a rate of 10 L/min for 10 minutes from directions within 60° from a height of 200 mm
IPX4	Protection against ingress of splashes from all directions	Sprayed water at a rate of 10 L/min for 10 minutes from all directions at a distance of 300 to 500 mm
IPX5	Protection against water jet from all directions	Sprayed water jet of 30 kPa at a rate of 12.5 L/min for 3 minutes from all directions at a distance of 3 m

●Example of Installation on Control Cabinet



Example) · When the Control Cabinet Contains Many Devices and Internal Temperature is High
· Environment with Dust and Water Droplets

Ventilation & Cooling of the Control Cabinet Interior

Can offer protection against water droplets, dust and foreign particles.
By selecting panels that are suitable for the environment in which the control cabinet is installed, the optimal ventilation and cooling can be provided to the interior of the cabinet.

System Configuration

A configuration example of axial flow fan **MD** Series **S** type is shown below.

✻Required to be purchased by customer.

MD Series

Accessories

Thermostat
➜ 55 Page

DC power supply*
(Main Power Supply)

Peripheral Product

This is a speed controller dedicated to **MD** series **V** type axial flow fan.

Fan Speed Controller
➜ 56 Page

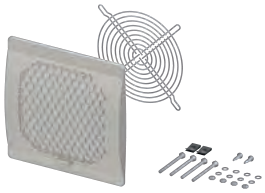
Accessories

Finger Guard Set
(1 pc.)
➜ 41 Page

Finger Guard Set
(2 pcs.)
➜ 41 Page

Finger Guard and Filter Set
(1 pc. each)
➜ 41 Page

Finger Guard
➜ 50 Page



Finger Guard Panel Set
IP2X Rating
➜ 43 Page

Slit Metal Plate Panel Set
IP4X Rating
➜ 43 Page

Dust and water resistant Panel Set
IP43 & IP55 Rating
➜ 43 Page

Filter
➜ 52 Page

Screen
➜ 54 Page

●Example of System Configuration Pricing

Fan	+	Finger Guard Set	+	Accessories
		Iron Finger Guard Set (Finger Guard: 2 pcs.)		Thermostat
MDS1238-24		A-1238-G2		AM2-XA1

● The system configuration shown above is an example. Other combinations are also available.

Product Number

DC Axial Flow Fan

MD S 17 51 F □ H - 24 □

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①	Series	**MD**: **MD** Series
②	Type	**S**: **S** Type (Without Alarm) **A**: **A** Type (With Alarm) **E**: **E** Type (Long-Life) **V**: **V** Type (Variable Flow) **P**: **P** Type (Splash Proof)
③	Frame Size	**4**: 40 mm **5**: 52 mm **6**: 60 mm or 62 mm **8**: 80 mm **9**: 92 mm **12**: 119 mm or 120 mm **14**: 140 mm **17**: ϕ172 mm
④	Frame Thickness	e.g. **51**: 51 mm
⑤	Frame Type	**F**: Side Cut
⑥	Identification Code	
⑦	Speed Type	**H**: High Speed Blank: Standard Speed
⑧	Rated Voltage	**24**: 24 VDC
⑨	Additional Function	**L**, **L2**: Stall Alarm, Electronic Alarm Type **S**: Pulse Sensor Type Blank: Low-Speed Alarm, Electronic Alarm Type (**A** Type Only)

Finger Guard Set

A - 625 D - G2

① ② ③ ④

①	Set Product	
②	Fan Frame Size, Frame Thickness	e.g. **625**: □62 mm - 25 mm Thick **1751F**: ϕ172 mm - 51 mm Thick, Side Cut
③	Identification Code	
④		**G**: Iron Finger Guard Set (Finger Guard: 1 pc.) **G2**: Iron Finger Guard Set (Finger Guard: 2 pcs.) **S**: Stainless Steel Finger Guard Set (Finger Guard: 1 pc.) **S2**: Stainless Steel Finger Guard Set (Finger Guard: 2 pcs.) **GF**: Iron Finger Guard and Filter Set (Finger Guard and Filter: 1 pc. each)

Panel Sets for Control Cabinet Installation

◇Finger Guard Panel Set

A - 1238 - G GF B 1

① ② ③ ④ ⑤ ⑧

◇Slit Metal Plate Panel Set

A - 1238 - G S B 1

① ② ③ ④ ⑤ ⑧

◇Dust and Water Resistant Panel Set

A - 1238 - G P L 43 R 1

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Set Product	Set Product
②	Fan Frame Size	e.g. **1238**: □119(120) mm-38 mm Thick
③	**G**: Iron Finger Guard	
④	Panel for Control Cabinet Installation Product Line	**G**: Finger Guard Panel IP2X Rating **GF**: Finger Guard Panel IP2X Rating with Filter **S**: Slit Metal Plate Panel IP4X Rating **P**: Dust and Water Resistant Panel IP43 Rating & IP55 Rating
⑤	Panel Color (Finger Guard Panel)	**B**: Beige **C**: Cream **L**: Light Grey
	Panel Paint Color (Slit Metal Plate Panel)	**B**: Beige **C**: Cream
	Panel Color (Dust and Water Resistant Panel)	**L**: Light Grey
⑥	Degree of Protection	**43**: IP43 Rating **55**: IP55 Rating
⑦	Panel Size (Dust and Water Resistant Panel Assembled) □119(120) mm Fan	Blank: Panel Dimension 157 mm×170 mm **R**: Panel Dimension 209 mm×226 mm (Panel Size Large)
⑧	Number of Assembled Fans	**1**: 1 Fan **2**: 2 Fans **3**: 3 Fans

General Specifications

Item	Specifications
Insulation Resistance	The value measured between the widings and the frame after continuous operation at normal temperature and humidity. (Details are described in separate table.)
Dielectric Strength	Sufficient to withstand 500 VAC at 50 Hz or 60 Hz applied between the windings and the frame for 1 minute after continuous operation under normal ambient temperature and humidity.
Overheat Protection Device	Equipped with a built-in burnout protection circuit.
Operating Ambient Temperature	Non-freezing, and non-condensing (Details are described in the separate table.)
Operating Ambient Humidity	Non-condensing (Details are described in the separate table.)
Thermal Class	UL/CSA Standards: 105 (A), EN Standards: 120 (E)
Degree of Protection	**P** Type: IP68

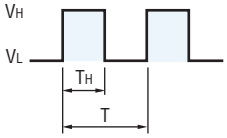
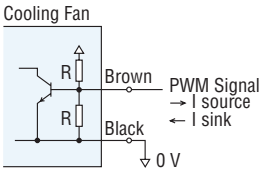
Insulation Resistance, Operating Environment

Type	Product Name	Insulation Resistance	Operating Ambient Temperature	Operating Ambient Humidity
S Type	**MDS625H-24**	10 MΩ min. measured with 500 VDC megger	−20 to +60˚C	85% Max.
	MDS825H-24			
	MDS925H-24		−20 to +70˚C	
	MDS1238H-24			
	MDS1751H-24			
	MDS1751FH-24			
	MDS420-24	10 MΩ min. measured with 500 VDC megger	−20 to +70˚C	20 to 85%
	MDS515-24			
	MDS625-24			
	MDS825-24			
	MDS925-24			
	MDS1225Y-24			
	MDS1238-24		−10 to +60˚C	85% Max.
	MDS1451-24			
	MDS1751-24	10 MΩ min. measured with 250 VDC megger		
A Type	**MDA420-24L**	10 MΩ min. measured with 500 VDC megger	−20 to +70˚C	20 to 85%
	MDA515-24L			
	MDA625-24L			
	MDA825-24L			
	MDA925-24L			
	MDA1225-24L			
	MDA1238-24L			
	MDA1451-24L		−10 to +60˚C	85% Max.
	MDA625-24	10 MΩ min. measured with 250 VDC megger	−10 to +60˚C	85% Max.
	MDA825-24			
	MDA925-24			
	MDA1225-24			
	MDA1238-24	10 MΩ min. measured with 500 VDC megger	−20 to +70˚C	
	MDA1451-24		−10 to +60˚C	
	MDA1751-24			
E Type	**MDE625-24L**	10 MΩ min. measured with 500 VDC megger	−20 to +70˚C	85% Max.
	MDE825Y-24L			20 to 85%
	MDE925Y-24L			
	MDE1225-24L	10 MΩ min. measured with 250 VDC megger	−10 to +60˚C	85% Max.
	MDE1238Y-24L	10 MΩ min. measured with 500 VDC megger	−20 to +70˚C	20 to 85%
	MDE1451-24L2		−10 to +60˚C	85% Max.
	MDE1751-24L		−20 to +70˚C	
	MDE1751F-24L			
V Type	**MDV420-24S**	10 MΩ min. measured with 500 VDC megger	−20 to +70˚C	20 to 85%
	MDV515-24S			
	MDV625-24S			85% Max.
	MDV825-24S			
	MDV925-24S			
	MDV1225-24S			20 to 85%
	MDV1238-24S			85% Max.
P Type	**MDP825-24L**	10 MΩ min. measured with 500 VDC megger	−20 to +70˚C	85% Max.
	MDP925-24L			
	MDP1238-24L			

Speed Control Specifications

Applicable Products

◇**V** Type

Input Signal	 PWM Duty (%) $= \frac{T_H}{T} \times 100$ PWM Frequency 25 (kHz) $= \frac{1}{T}$ V_H = 4.75 to 5.25 VDC V_L = 0 to 0.4 VDC
Setting	Max Speed – PWM Duty 100% or control lead wire open.*1 Minimum Speed – PWM Duty 0% or 20% *1 When the speed control lead wire is open, the fan speed is fixed to the maximum speed. At this time, the speed control lead wire outputs voltage of 5.25 V or less.
Speed Controller Wire Connection	 Duty-cycle adjustments of the PWM signal control the rotation speed of the fan. PWM signals transmit to the fan using TTL system, open collector, or open drain. Source Current (I source): 1 mA Max. (When PWM signal is 0 V input.) Sink Current (I sink)*2: 1 mA Max. (When PWM signal is 5.25 V input.) *2 **MDV1238** sink current (I sink): 3 mA Max.

Stall Alarm, Low-Speed Alarm, and Pulse Sensor Specifications

The specifications vary depending on the type of alarm or each product.
Check the alarm or sensor specifications according to the product name you use.

Stall Alarm, Electronic Alarm Type

The alarm signal is output when the fan motor stops rotating while the power is ON. The output mode is an electronic alarm type.

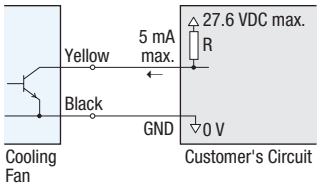
Alarm Specifications Number: ①

●Product Name ◇**A** Type: **MDA420**, **MDA515**, **MDA625**, **MDA825**, **MDA925**, **MDA1225**, **MDA1238**
◇**E** Type: **MDE625**, **MDE825**, **MDE925**, **MDE1751**
◇**P** Type: **MDP825**, **MDP925**, **MDP1238**

●Alarm Specifications

Alarm Activation Speed	When Locked
Output Mode	Open-collector output
Output Condition	Operation: L Level (Internal transistor ON) When Locked: H Level (Internal transistor OFF)
Maximum Rating	Maximum Applied Voltage: 27.6 VDC max. Maximum Inflow Current: 5 mA max.
Delay Function	None (External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be 1 second or more.)

●Example of Alarm Output Circuit Connection



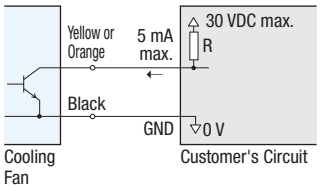
Alarm Specifications Number: ②

●Product Name ◇**A** Type: **MDA1451**
◇**E** Type: **MDE1225**, **MDE1238**, **MDE1451**

●Alarm Specifications

Alarm Activation Speed	When Locked
Output Mode	Open-collector output
Output Condition	Operation: L Level (Internal transistor ON) When Locked: H Level (Internal transistor OFF)
Maximum Rating	Maximum Applied Voltage: 30 VDC max. Maximum Inflow Current: 5 mA max.
Delay Function	None (External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be 1 second or more.)

●Example of Alarm Output Circuit Connection



●Low-Speed Alarm, Electronic Alarm Type

An alarm signal is output when the rotation speed of the fan falls the “alarm activation speed” or lower. The output mode is an electronic alarm type.

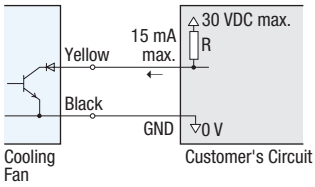
Alarm Specifications Number: ③

●Product Name ◇**A** Type: **MDA625**, **MDA825**, **MDA925**

●Alarm Specifications

Alarm Activation Speed	**MDA625**, **MDA825**: 2300±400 r/min max. **MDA925**: 1900±400 r/min max.
Output Mode	Open-collector output
Output Condition	Normal Operation: L level (Internal transistor ON) Alarm Output: H level (Internal transistor OFF)
Maximum Rating	Maximum Applied Voltage: 30 VDC max. Maximum Inflow Current: 15 mA max.
Delay Function	None (External delay circuit is required to prevent alarm detection when starting the fan.The delay time should be 10 seconds or more.)

●Example of Alarm Output Circuit Connection



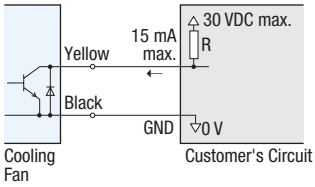
Alarm Specifications Number: ④

●Product Name ◇**A** Type: **MDA1225**

●Alarm Specifications

Alarm Activation Speed	2100±400 r/min max.
Output Mode	Open-collector output
Output Condition	Normal Operation: L level (Internal transistor ON) Alarm Output: H level (Internal transistor OFF)
Maximum Rating	Maximum Applied Voltage: 30 VDC max. Maximum Inflow Current: 15 mA max.
Delay Function	Built-in and Starting Delay Time: 10 sec. max. (The alarm function starts monitoring within 10 seconds after the power is turned on.)

●Example of Alarm Output Circuit Connection



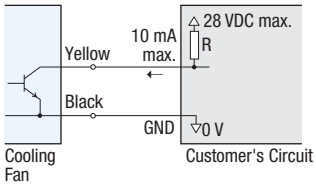
Alarm Specifications Number: ⑤

●Product Name ◇**A** Type: **MDA1238**

●Alarm Specifications

Alarm Activation Speed	2200±220 r/min max.
Output Mode	Open-collector output
Output Condition	Normal Operation: L level (Internal transistor ON) Alarm Output: H level (Internal transistor OFF)
Maximum Rating	Maximum Applied Voltage: 28 VDC max. Maximum Inflow Current: 10 mA max.
Delay Function	Built-in, Starting Delay Time: 10 sec. max. (The alarm function starts monitoring within 10 seconds after the power is turned on.)

●Example of Alarm Output Circuit Connection



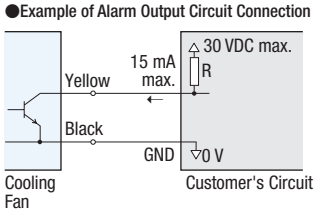
Alarm Specifications Number: ⑥

●Product Name ◇**A** Type: **MDA1451**, **MDA1751**

●Alarm Specifications

Alarm Activation Speed	1800±400 r/min max.
Output Mode	Open-collector output
Output Condition	Normal Operation: L level (Internal transistor ON) Alarm Output: H level (Internal transistor OFF)
Maximum Rating	Maximum Applied Voltage: 30 VDC max. Maximum Inflow Current: 15 mA max.
Delay Function	Built-in, Starting Delay Time: 10 sec. max. (The alarm function starts monitoring within 10 seconds after the power is turned on.)

●Example of Alarm Output Circuit Connection



●Pulse Sensor

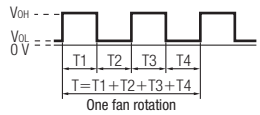
This sensor outputs two cycles of square wave per revolution. The rotation speed can be detected.

Sensor Specifications Number: ⑦

●Product Name ◇**V** Type

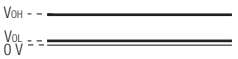
●Sensor Specifications

Output Pulse	Outputs 2-cycle pulses per fan rotation
Output Mode	Open-collector output
Output Condition	●Normal Operation ●When Locked
Maximum Rating	Maximum Applied Voltage: 30 VDC max.* Maximum Inflow Current: 10 mA max.*



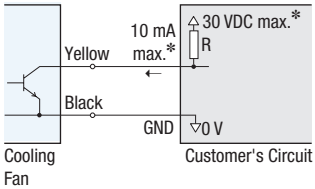
$\frac{T}{4}$ = T1 to T4 = $\frac{60}{4N}$ [s] N: Speed [r/min]

Pulse Width Duty = $\frac{T1}{T1+T2}$ = 50±10%



*MDV420 and MDV515 are 27.6 VDC max, 5 mA max.

●Example of Alarm Output Circuit Connection



MD Series

□40 mm – 20 mm Thick

Specifications

Type	Additional Function	Product Name	Voltage VDC	PWM Duty %	Current A	Speed r/min	Max. Air Flow m^3/min	Max. Static Pressure Pa	Noise Level dB (A)
S Type (Without Alarm)	Standard Speed	**MDS420-24**	24±15%	–	0.04	8000	0.21	79.5	28
A Type (With Alarm)	Stall Alarm <①>	**MDA420-24L**	24±15%	–	0.04	8000	0.21	79.5	28
V Type (Variable Flow)	PWM Control Pulse Sensor <⑦>	**MDV420-24S**	24±15%	100	0.13	16000	0.42	318	47
				20	0.02	3150	0.08	12.3	13✻

● Alarm specifications ➜ Page 14
● Values for maximum air flow and maximum static pressure are medians measured by the double chamber method.
● Noise level is a median measured in the A-weighted sound pressure level at a distance of 1 m from the intake side of fan.
✻Noise level at PWM duty 20% is measured at a distance of 5 cm from the intake side of the fan and converted to the value of 1 m while operating at the rated voltage.

Paint Colors, Materials, Standards

Type	Product Name	Color		Materials		Safety Standards	
		Frame	Blades	Frame	Blades	c UL us	
S Type (Without Alarm)	**MDS420-24**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-0)	○	○
A Type (With Alarm)	**MDA420-24L**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-0)	○	○
V Type (Variable Flow)	**MDV420-24S**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-0)	○	○

Product Line

Type	Product Name
S Type	**MDS420-24**
A Type	**MDA420-24L**
V Type	**MDV420-24S**

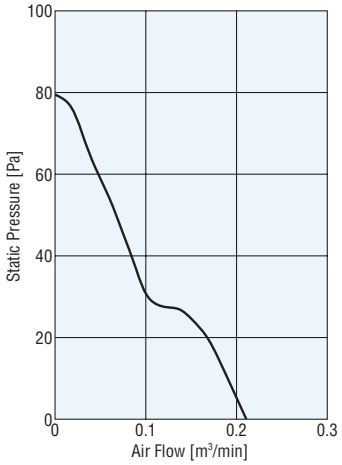
Included

· Operating Manual: 1 Copy

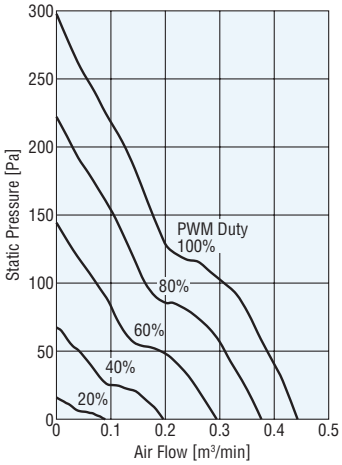
Air Flow – Static Pressure Characteristics

(The characteristics are applicable for the fan only.)

● **S** Type, **A** Type

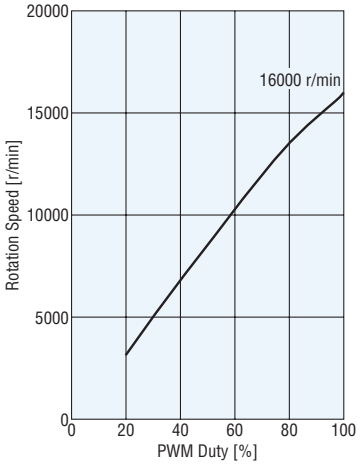


● **V** Type



PWM Duty – Rotation Speed Characteristics

● **V** Type



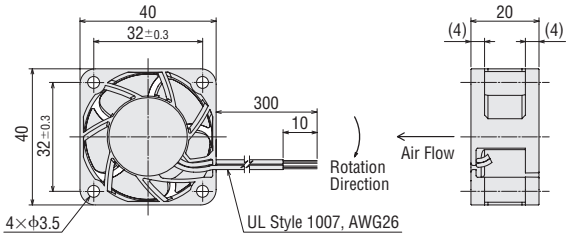
● The fan does not rotate when the PWM duty cycle falls to 0%.

Dimensions (Unit: mm)

S Type, A Type, V Type

2D & 3D CAD

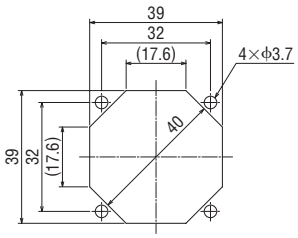
Product Name	Mass g	2D CAD
MDS420-24	35	E274
MDA420-24L	35	E279
MDV420-24S	35	E286



● Number of Lead Wires: **MDS420-24** 2 pcs.
MDA420-24L 3 pcs.
MDV420-24S 4 pcs.

Panel-Cutout (Unit: mm)

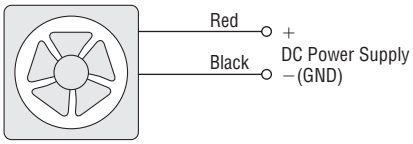
S Type, A Type, V Type



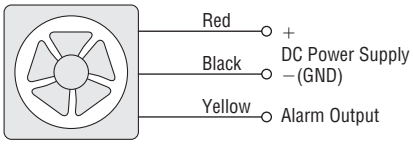
Outlet Side, Intake Side

Connection Diagrams

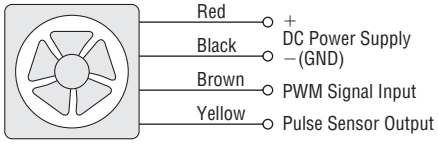
S Type



A Type



V Type



Accessories

Product	Product Name	Page
Iron Finger Guard Set (Finger Guard: 1 pc.)	**A-420-G**	41
Iron Finger Guard Set (Finger Guard: 2 pcs.)	**A-420-G2**	41

Fan Speed Controller

Using the fan speed controller in combination with the variable flow fan **V** type can adjust the air flow easily.
Adjusting the air flow of the fan also achieves energy saving and low noise.

Fan Speed Controller **FSC-24**

● Reference Page ➜ Page 56

MD Series

□52 mm – 15 mm Thick

Specifications

Type	Additional Function	Product Name	Voltage VDC	PWM Duty %	Current A	Speed r/min	Max. Air Flow m^3/min	Max. Static Pressure Pa	Noise Level dB (A)
S Type (Without Alarm)	Standard Speed	**MDS515-24**	24±15%	–	0.05	6300	0.4	59	32
A Type (With Alarm)	Stall Alarm <①>	**MDA515-24L**	24±15%	–	0.05	6300	0.4	59	32
V Type (Variable Flow)	PWM Control Pulse Sensor <⑦>	**MDV515-24S**	24±15%	100	0.07	7800	0.5	91.5	38
				20	0.02	1600	0.1	3.8	7*

● Alarm specifications ➜ Page 14
● Values for maximum air flow and maximum static pressure are medians measured by the double chamber method.
● Noise level is a median measured in the A-weighted sound pressure level at a distance of 1 m from the intake side of fan.
*Noise level at PWM duty 20% is measured at a distance of 5 cm from the intake side of the fan and converted to the value of 1 m while operating at the rated voltage.

Paint Colors, Materials, Standards

Type	Product Name	Color		Materials		Safety Standards	
		Frame	Blades	Frame	Blades	c UL us	
S Type (Without Alarm)	**MDS515-24**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-0)	○	○
A Type (With Alarm)	**MDA515-24L**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-0)	○	○
V Type (Variable Flow)	**MDV515-24S**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-0)	○	○

Product Line

Type	Product Name
S Type	**MDS515-24**
A Type	**MDA515-24L**
V Type	**MDV515-24S**

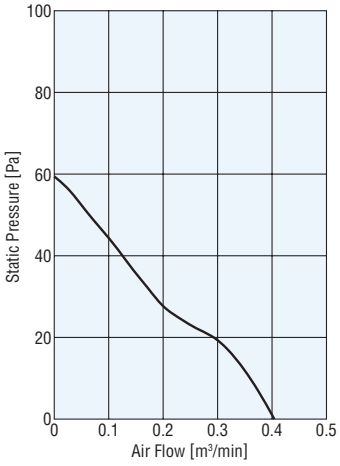
Included

· Operating Manual: 1 Copy

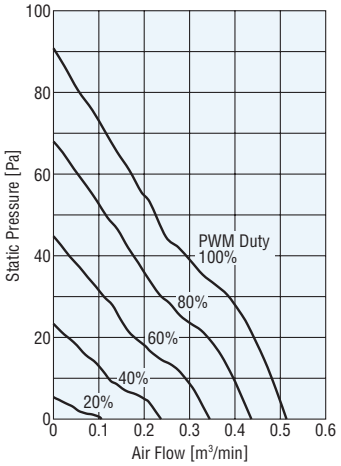
Air Flow – Static Pressure Characteristics

(The characteristics are applicable for the fan only.)

● **S** Type, **A** Type

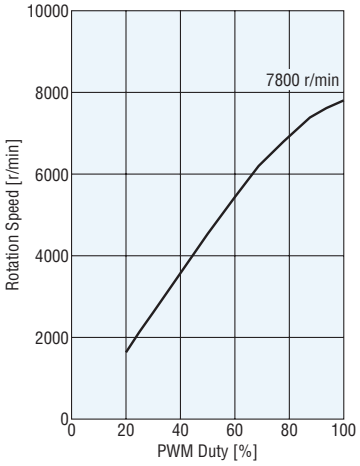


● **V** Type



PWM Duty – Rotation Speed Characteristics

● **V** Type



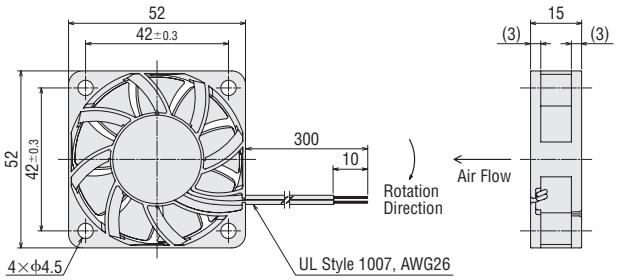
● The fan does not rotate when the PWM duty cycle falls to 0%.

Dimensions (Unit: mm)

S Type, A Type, V Type

2D & 3D CAD

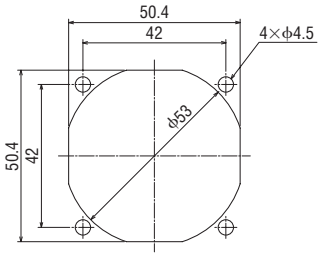
Product Name	Mass g	2D CAD
MDS515-24	40	E275
MDA515-24L	40	E280
MDV515-24S	40	E287



● No. of Lead Wires: **MDS515-24** 2 pcs.
MDA515-24L 3 pcs.
MDV515-24S 4 pcs.

Panel-Cutout (Unit: mm)

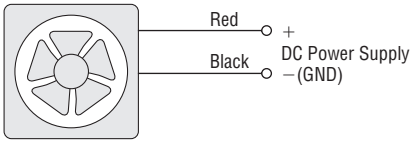
S Type, A Type, V Type



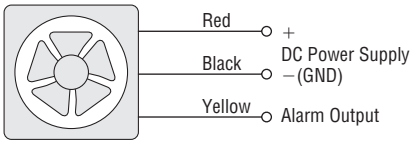
Outlet Side, Intake Side

Connection Diagrams

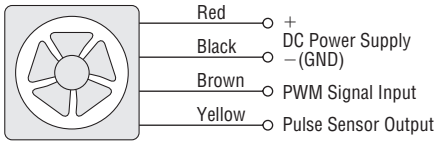
S Type



A Type



V Type



Accessories

Product	Product Name	Page
Iron Finger Guard Set (Finger Guard: 1 pc.)	**A-515-G**	41
Iron Finger Guard Set (Finger Guard: 2 pcs.)	**A-515-G2**	41

Fan Speed Controller

Using the fan speed controller in combination with the variable flow fan **V** type can adjust the air flow easily.
Adjusting the air flow of the fan also achieves energy saving and low noise.

Fan Speed Controller **FSC-24**

● Reference Page ➜ Page 56

MD Series

□60 (62) mm – 25 mm Thick

Specifications

Type	Additional Function	Product Name	Voltage VDC	PWM Duty %	Current A	Speed r/min	Max. Air Flow m^3/min	Max. Static Pressure Pa	Noise Level dB (A)	Expected Service Life* h
S Type (Without Alarm)	High Speed	**MDS625H-24**	24±10%	–	0.24	7600	1.06	155	44	–
	Standard Speed	**MDS625-24**	24 −50~+15%	–	0.06	3800	0.53	40.1	28	–
A Type (With Alarm)	Stall Alarm <①>	**MDA625-24L**	24 −50~+15%	–	0.06	3800	0.53	40.1	28	–
	Low-Speed Alarm <③>	**MDA625-24**	24±15%	–	0.10	4000	0.50	49	30	–
E Type (Long Life)	Stall Alarm <①>	**MDE625-24L**	24±15%	–	0.06	3800	0.53	40.2	28	100,000
V Type (Variable Flow)	PWM Control Pulse Sensor <⑦>	**MDV625-24S**	24±15%	100	0.25	9500	1.21	224	49	–
				0	0.04	2850	0.36	20.2	18	–

*Expected Service Life ➜ Page 5

- Alarm specifications, sensor specifications ➜ Page 14
- Values for maximum air flow and maximum static pressure are medians measured by the double chamber method.
- Noise level is a median measured in the A-weighted sound pressure level at a distance of 1 m from the intake side of fan.

Paint Colors, Materials, Standards

Type	Product Name	Color		Materials		Safety Standards				
		Frame	Blades	Frame	Blades	c UL us	UL	CSA	TÜV	CE
S Type (Without Alarm)	**MDS625H-24**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○	–
	MDS625-24	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○	–
A Type (With Alarm)	**MDA625-24L**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○	–
	MDA625-24	Black	Black	Polycarbonate (UL 94 V-0)	Polycarbonate (UL 94 V-0)	○	–	–	–	○
E Type (Long Life)	**MDE625-24L**	Unpainted (Aluminum)	Black	Die Cast Aluminum	PPE+PS (UL 94 V-1)	–	○	○	○	–
V Type (Variable Flow)	**MDV625-24S**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-0)	○	–	–	○	–

Product Line

Type	Product Name
S Type	**MDS625H-24**
	MDS625-24
A Type	**MDA625-24L**
	MDA625-24
E Type	**MDE625-24L**
V Type	**MDV625-24S**

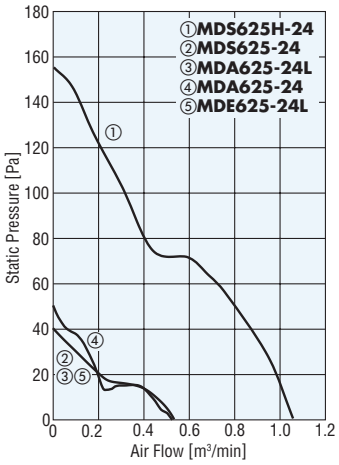
Included

· Operating Manual: 1 Copy

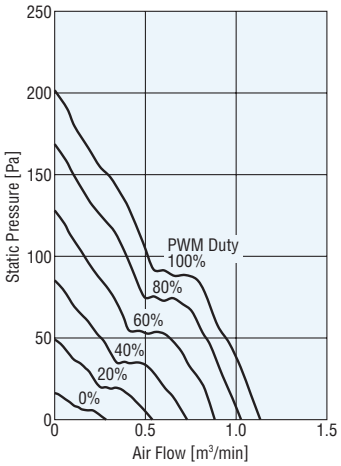
Air Flow – Static Pressure Characteristics

(The characteristics are applicable for the fan only.)

S Type, A Type, E Type

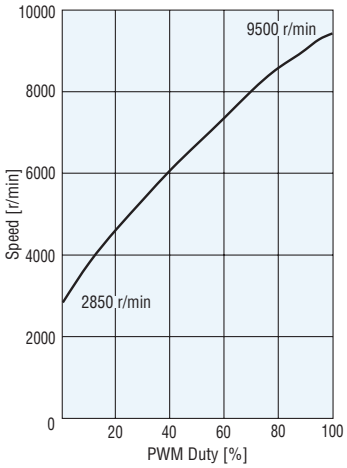


V Type



PWM Duty – Rotation Speed Characteristics

V Type

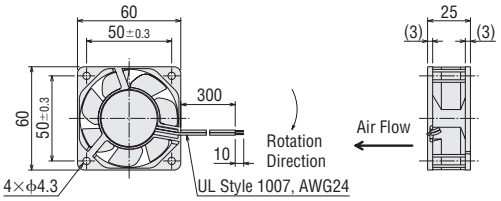


Dimensions (Unit: mm)

S Type, A Type

2D & 3D CAD

Product Name	Mass kg	2D CAD
MDS625H-24	0.09	E183
MDS625-24		
MDA625-24L	0.09	E281

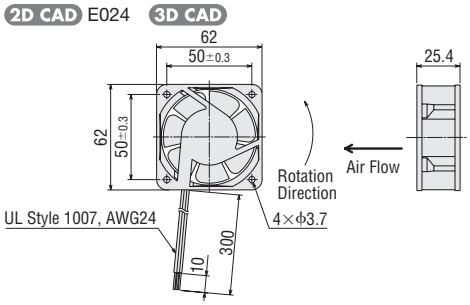


● Number of Lead Wires: **MDS625H-24**, **MDS625-24** 2 pcs.
MDA625-24L 3 pcs.

MDA625-24

Mass: 0.1 kg

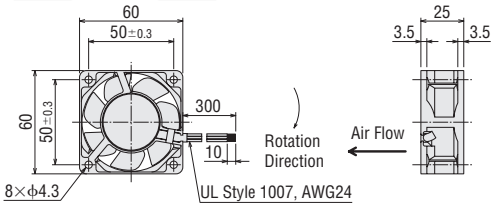
2D CAD E024 3D CAD



MDE625-24L

Mass: 0.1 kg

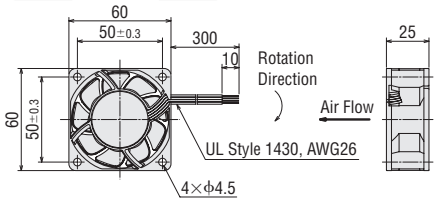
2D CAD E189 3D CAD



MDV625-24S

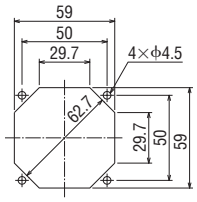
Mass: 0.09 kg

2D CAD E200 3D CAD



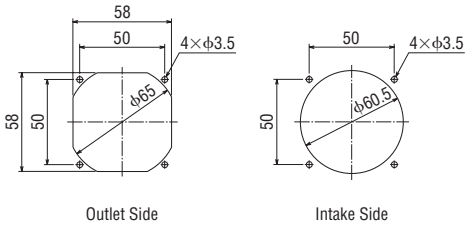
Panel Cut-Out (Unit: mm)

S Type, A Type (MDA625-24L), E Type, V Type



Outlet Side, Intake Side

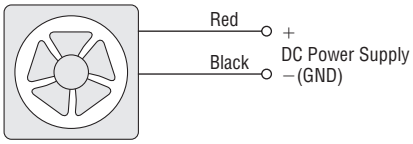
A Type (MDA625-24)



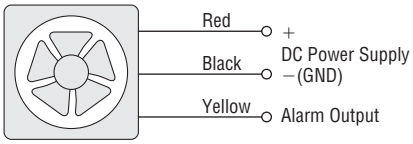
Outlet Side Intake Side

Connection Diagrams

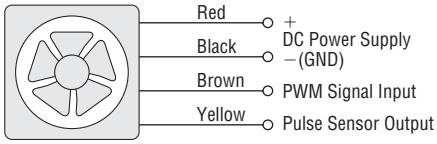
S Type



A Type, E Type



V Type



Accessories

Product	Product Name	Page
Iron Finger Guard Set (Finger Guard: 1 pc.)	**A-625-G**	41
Iron Finger Guard Set (Finger Guard: 2 pcs.)	**A-625-G2**	41
Iron Finger Guard and Filter Set (Finger Guard and Filter: 1 pc. each)	**A-625-GF**	41
Iron Finger Guard Set (Finger Guard: 1 pc.) (For **MDA625-24**)	**A-625D-G**	41
Iron Finger Guard Set (Finger Guard: 2 pcs.) (For **MDA625-24**)	**A-625D-G2**	41
Iron Finger Guard and Filter Set (Finger Guard and Filter: 1 pc. each) (For **MDA625-24**)	**A-625D-GF**	41
Filter	**FL6**	52
Replacement Filter Media (5 pcs.)	**FLM6**	53
Screen	**FS6S**	54

Thermostat

The fan thermostat **AM2-XA1** automatically controls the operation and stop of the fan in response to temperature changes in the equipment.
Using this thermostat achieves the performance enhancement of equipment related to the environment, such as energy saving and low noise.

Fan Thermostat **AM2-XA1**

● Reference Page ➜ Page 55

Fan Speed Controller

Using the fan speed controller in combination with the variable flow fan **V** type can adjust the air flow easily.
Adjusting the air flow of the fan also achieves energy saving and low noise.

Fan Speed Controller **FSC-24**

● Reference Page ➜ Page 56

MD Series

□80 mm – 25 mm Thick

Specifications

Type	Additional Function	Product Name	Voltage VDC	PWM Duty %	Current A	Speed r/min	Max. Air Flow m^3/min	Max. Static Pressure Pa	Noise Level dB (A)	Expected Service Life* h
S Type (Without Alarm)	High Speed	**MDS825H-24**	24±10%	–	0.20	4500	1.5	80.4	40	–
	Standard Speed	**MDS825-24**	24 −50 to +15%	–	0.10	3400	1.2	48	34	–
A Type (With Alarm)	Stall Alarm <①>	**MDA825-24L**	24 −50 to +15%	–	0.10	3400	1.2	48	34	–
	Low-Speed Alarm <③>	**MDA825-24**	24±15%	–	0.14	3800	1.00	49	35	–
E Type (Long Life)	Stall Alarm <①>	**MDE825Y-24L**	24±10%	–	0.05	3700	1.03	44	31	180,000
V Type (Variable Flow)	PWM Control Pulse Sensor <⑦>	**MDV825-24S**	24±15%	100	0.44	5600	2.12	173	52	–
				0	0.06	1400	0.50	10.3	18	
P Type (Splash Proof)	Stall Alarm <①>	**MDP825-24L**	24±15%	–	0.07	2900	1.03	35.3	29	–

*Expected Service Life ➜ Page 5

- Alarm specifications ➜ Page 14
- Values for maximum air flow and maximum static pressure are medians measured by the double chamber method.
- Noise level is a median measured in the A-weighted sound pressure level at a distance of 1 m from the intake side of fan.

Paint Colors, Materials, Standards

Type	Product Name	Color		Materials		Safety Standards				
		Frame	Blades	Frame	Blades	c UL us	UL	CSA	TÜV	CE
S Type (Without Alarm)	**MDS825H-24**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○	–
	MDS825-24	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○	–
A Type (With Alarm)	**MDA825-24L**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○	–
	MDA825-24	Black	Black	Polycarbonate (UL 94 V-0)	Polycarbonate (UL 94 V-0)	○	–	–	–	○
E Type (Long Life)	**MDE825Y-24L**	Unpainted (Aluminum)	Black	Die Cast Aluminum	PPE+PS (UL 94 V-1)	○	–	–	○	–
V Type (Variable Flow)	**MDV825-24S**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	○	–	–	○	–
P Type (Splash Proof)	**MDP825-24L**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○	–

Product Line

Type	Product Name
S Type	**MDS825H-24**
	MDS825-24
A Type	**MDA825-24L**
	MDA825-24
E Type	**MDE825Y-24L**
V Type	**MDV825-24S**
P Type	**MDP825-24L**

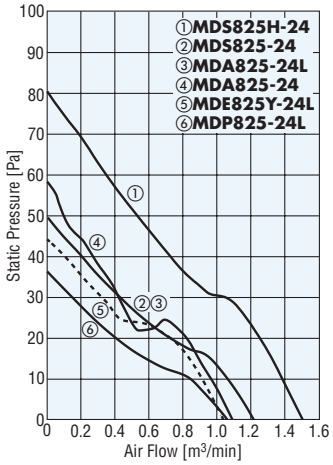
Included

· Operating Manual: 1 Copy

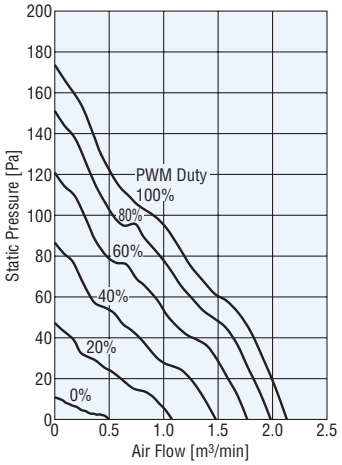
Air Flow – Static Pressure Characteristics

(The characteristics are applicable for the fan only.)

S Type, A Type, E Type, P Type

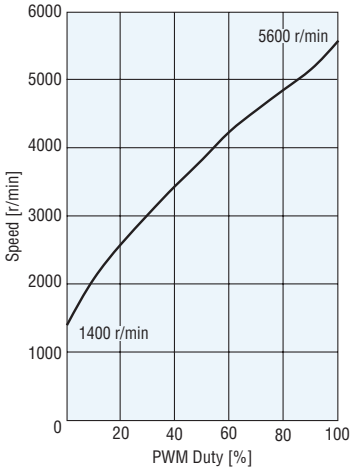


V Type



PWM Duty – Rotation Speed Characteristics

V Type

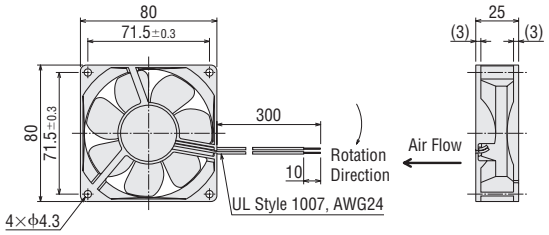


Dimensions (Unit: mm)

S Type, A Type, P Type

2D & 3D CAD

Product Name	Mass kg	2D CAD
MDS825H-24	0.11	E184
MDS825-24		
MDA825-24L	0.11	E282
MDP825-24L	0.13	

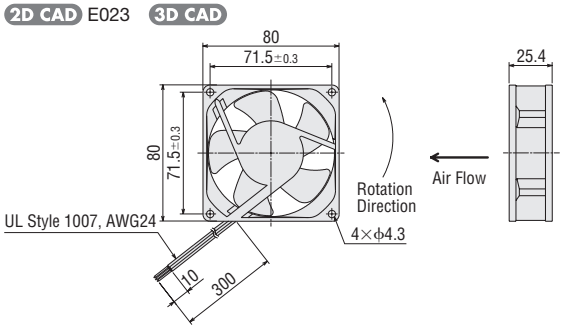


● Number of Lead Wires: **MDS825H-24** **MDS825-24** 2 pcs.
MDA825-24L **MDP825-24L** 3 pcs.

MDA825-24

Mass: 0.11 kg

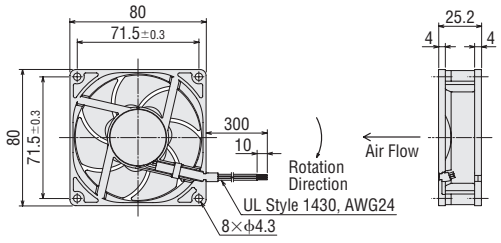
2D CAD E023 3D CAD



MDE825Y-24L

Mass: 0.13 kg

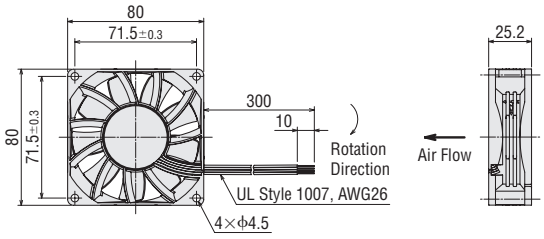
2D CAD E290 3D CAD



MDV825-24S

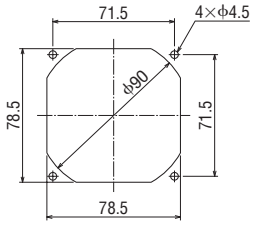
Mass: 0.125 kg

2D CAD E201 3D CAD



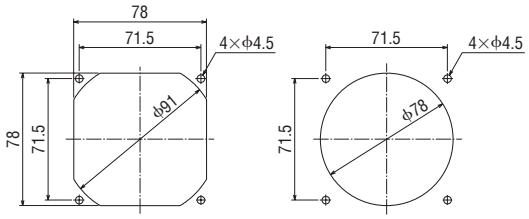
Panel Cut-Out (Unit: mm)

S Type, A Type (MDA825-24L), E Type, V Type, P Type



Outlet Side, Intake Side

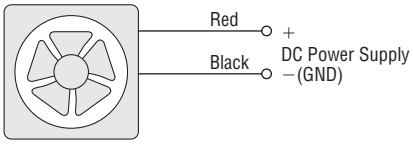
A Type (MDA825-24)



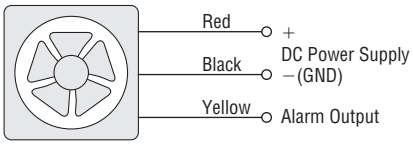
Outlet Side Intake Side

Connection Diagrams

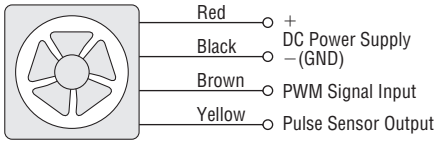
S Type



A Type, E Type, P Type

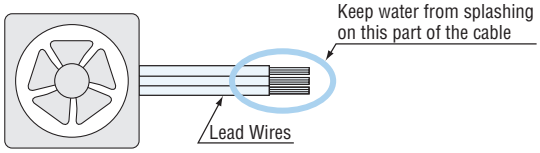


V Type



Notes on Wiring

As for **P** type, be sure not to splash water on the lead wire terminal, otherwise water could seep inside the fan through the lead wire and the fan motor may be damaged.



Accessories

Product	Product Name	Page
Iron Finger Guard Set (Finger Guard: 1 pc.)	**A-825-G**	41
Iron Finger Guard Set (Finger Guard: 2 pcs.)	**A-825-G2**	41
Stainless Steel Finger Guard Set (Finger Guard: 1 pc.)	**A-825-S**	41
Stainless Steel Finger Guard Set (Finger Guard: 2 pcs.)	**A-825-S2**	41
Iron Finger Guard and Filter Set (Finger Guard and Filter: 1 pc. each)	**A-825-GF**	41
Screen	**FS8S**	54

Thermostat

The fan thermostat **AM2-XA1** automatically controls the operation and stop of the fan in response to temperature changes in the equipment. Using this thermostat achieves the performance enhancement of equipment related to the environment, such as energy saving and low noise.

Fan Thermostat **AM2-XA1**

● Reference Page ➜ Page 55

Fan Speed Controller

Using the fan speed controller in combination with the variable flow fan **V** type can adjust the air flow easily.

Adjusting the air flow of the fan also achieves energy saving and low noise.

Fan Speed Controller **FSC-24**

● Reference Page ➜ Page 56

MD Series

□92 mm – 25 mm Thick

Specifications

Type	Additional Function	Product Name	Voltage VDC	PWM Duty %	Current A	Speed r/min	Max. Air Flow m^3/min	Max. Static Pressure Pa	Noise Level dB (A)	Expected Service Life* h
S Type (Without Alarm)	High Speed	**MDS925H-24**	24±15%	–	0.15	4400	1.93	81	39	–
	Standard Speed	**MDS925-24**	24±15%	–	0.12	3800	1.67	60.6	35	–
A Type (With Alarm)	Stall Alarm <①>	**MDA925-24L**	24±15%	–	0.12	3800	1.67	60.6	35	–
	Low-Speed Alarm <③>	**MDA925-24**	24±15%	–	0.12	3400	1.30	49	36	–
E Type (Long Life)	Stall Alarm <①>	**MDE925Y-24L**	24±10%	–	0.07	3150	1.38	41.6	32	180,000
V Type (Variable Flow)	PWM Control Pulse Sensor <⑦>	**MDV925-24S**	24±15%	100	0.20	5000	2.20	105	43	–
				0	0.04	1500	0.66	9.5	14	
P Type (Splash Proof)	Stall Alarm <①>	**MDP925-24L**	24 −50 to +15%	–	0.10	3150	1.45	44	33	–

*Expected Service Life ➜ Page 5

● Alarm specifications ➜ Page 14

● Values for maximum air flow and maximum static pressure are medians measured by the double chamber method.

● Noise level is a median measured in the A-weighted sound pressure level at a distance of 1 m from the intake side of fan.

Paint Colors, Materials, Standards

Type	Product Name	Color		Materials		Safety Standards				
		Frame	Blades	Frame	Blades	c UL us	UL	CSA	TÜV	CE
S Type (Without Alarm)	**MDS925H-24**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-0)	○	–	–	○	–
	MDS925-24	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-0)	○	–	–	○	–
A Type (With Alarm)	**MDA925-24L**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-0)	○	–	–	○	–
	MDA925-24	Black	Black	Polycarbonate (UL 94 V-0)	Polycarbonate (UL 94 V-0)	○	–	–	–	○
E Type (Long Life)	**MDE925Y-24L**	Unpainted (Aluminum)	Black	Die Cast Aluminum	PPE+PS (UL 94 V-0)	○	–	–	○	–
V Type (Variable Flow)	**MDV925-24S**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-0)	○	–	–	○	–
P Type (Splash Proof)	**MDP925-24L**	Black	Black	ABS+PBT (UL 94 V-0)	ABS+PBT (UL 94 V-0)	–	○	○	○	–

Product Line

Type	Product Name
S Type	**MDS925H-24**
	MDS925-24
A Type	**MDA925-24L**
	MDA925-24
E Type	**MDE925Y-24L**
V Type	**MDV925-24S**
P Type	**MDP925-24L**

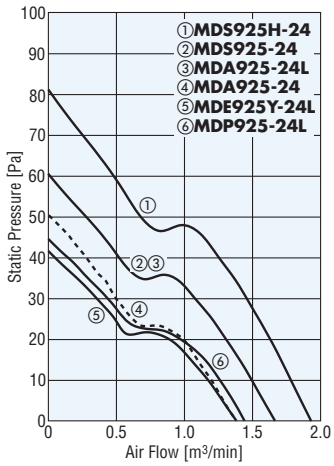
Included

· Operating Manual: 1 Copy

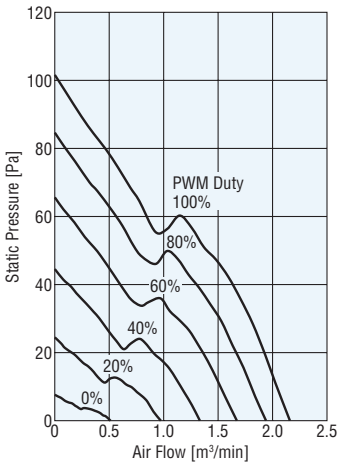
Air Flow – Static Pressure Characteristics

(The characteristics are applicable for the fan only.)

S Type, A Type, E Type, P Type

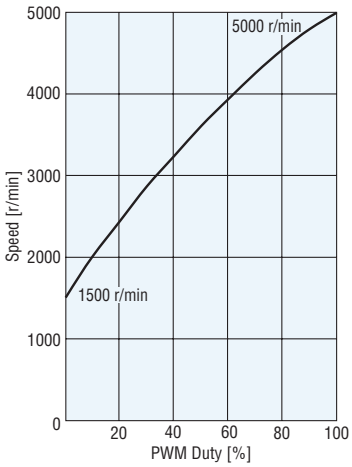


V Type



PWM Duty – Rotation Speed Characteristics

V Type

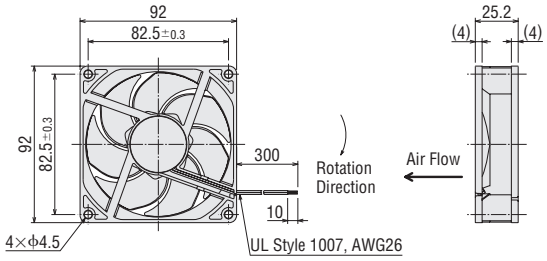


Dimensions (Unit: mm)

S Type, A Type, V Type

2D & 3D CAD

Product Name	Mass kg	2D CAD
MDS925H-24	0.125	E185
MDS925-24		
MDA925-24L	0.125	E283
MDV925-24S	0.125	E288

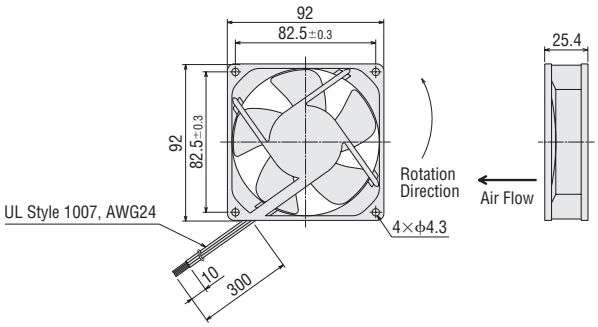


● Number of Lead Wires: **MDS925H-24**, **MDS925-24** 2 pcs.
MDA925-24L 3 pcs.
MDV925-24S 4 pcs.

MDA925-24

Mass: 0.12 kg

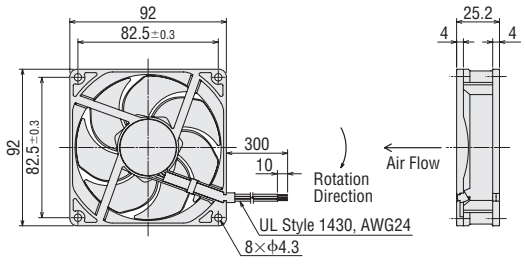
2D CAD E022 3D CAD



MDE925Y-24L

Mass: 0.15 kg

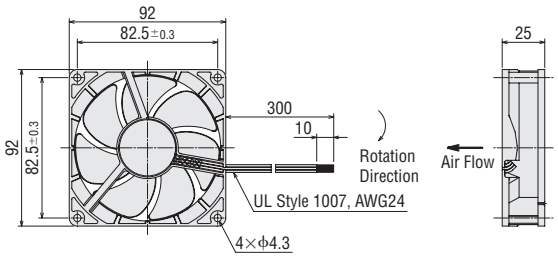
2D CAD E291 3D CAD



MDP925-24L

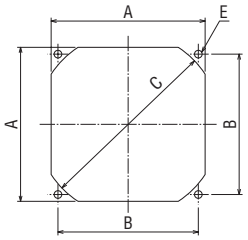
Mass: 0.12 kg

2D CAD E199 3D CAD

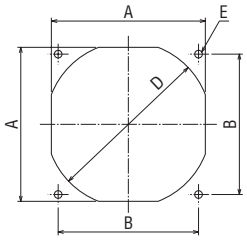


Panel Cut-Out (Unit: mm)

S Type, A Type (MDA925-24L), E Type, V Type, P Type

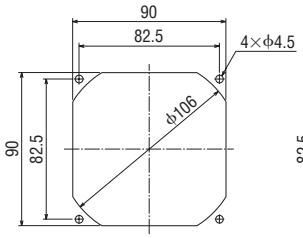


Outlet Side

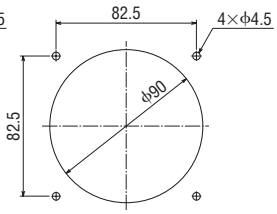


Intake Side

A Type (MDA925-24)



Outlet Side

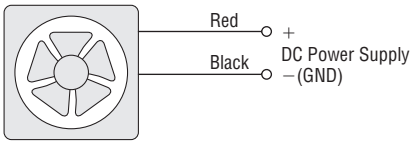


Intake Side

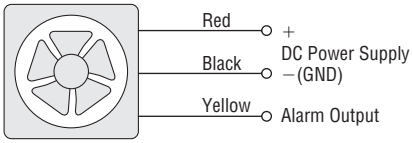
Type	Product Name	A	B	C	D	E
S Type	**MDS925H-24**	90.5	82.5	ϕ108	ϕ97	4×ϕ4.5
	MDS925-24	90.5	82.5	ϕ108	ϕ97	4×ϕ4.5
A Type	**MDA925-24L**	90.5	82.5	ϕ108	ϕ97	4×ϕ4.5
E Type	**MDE925Y-24L**	90.5	82.5	ϕ108	ϕ97	4×ϕ4.5
V Type	**MDV925-24S**	90.5	82.5	ϕ108	ϕ97	4×ϕ4.5
P Type	**MDP925-24L**	90.5	82.5	ϕ102	ϕ92	4×ϕ4.5

Connection Diagrams

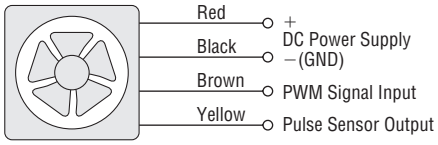
S Type



A Type, E Type, P Type

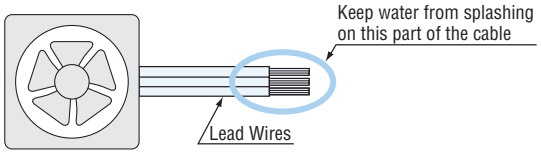


V Type



Notes on Wiring

Be sure not to splash water on the lead wire terminal, otherwise water could seep inside the fan through the lead wire and the fan motor may be damaged.



Accessories

Product	Product Name	Page
Iron Finger Guard Set (Finger Guard: 1 pc.)	**A-925-G**	41
Iron Finger Guard Set (Finger Guard: 2 pcs.)	**A-925-G2**	41
Stainless Steel Finger Guard Set (Finger Guard: 1 pc.)	**A-925-S**	41
Stainless Steel Finger Guard Set (Finger Guard: 2 pcs.)	**A-925-S2**	41
Iron Finger Guard and Filter Set (Finger Guard and Filter: 1 pc. each)	**A-925-GF**	41
Finger Guard Panel IP2X Rating	**A-925-GG□1**	43
Finger Guard Panel IP2X Rating with Filter	**A-925-GGF□1**	43
Slit Metal Plate Panel IP4X Rating	**A-925-GS□1**	43
Dust and Water Resistant Panel IP43 Rating	**A-925-GPL431**	43
Dust and Water Resistant Panel IP55 Rating	**A-925-GPL551**	43
Screen	**FS9S**	54

● Ether **B** (Beige), **C** (Cream), or **L** (Light Gray) indicating the panel color is entered where the box □ is located within the product name.
Ether **B** (Beige), or **C** (Cream) indicating the panel painting color is entered where the box □ is located within the product name.

Thermostat

The fan thermostat **AM2-XA1** automatically controls the operation and stop of the fan in response to temperature changes in the equipment. Using this thermostat achieves the performance enhancement of equipment related to the environment, such as energy saving and low noise.

Fan Thermostat **AM2-XA1**

● Reference Page → Page 55

Fan Speed Controller

Using the fan speed controller in combination with the variable flow fan **V** type can adjust the air flow easily. Adjusting the air flow of the fan also achieves energy saving and low noise.

Fan Speed Controller **FSC-24**

● Reference Page → Page 56

MD Series

□119 (120) mm – 25 mm Thick

Specifications

Type	Additional Function	Product Name	Voltage VDC	PWM Duty %	Current A	Speed r/min	Max. Air Flow m^3/min	Max. Static Pressure Pa	Noise Level dB (A)	Expected Service Life* h
S Type (Without Alarm)	Standard Speed	**MDS1225Y-24**	24±15%	–	0.21	3150	2.83	77	44	–
A Type (With Alarm)	Stall Alarm <①>	**MDA1225-24L**	24±15%	–	0.21	3150	2.83	77	44	–
	Low-Speed Alarm <④>	**MDA1225-24**	24±10%	–	0.34	3000	2.7	70	46	–
E Type (Long Life)	Stall Alarm <②>	**MDE1225-24L**	24±15%	–	0.30	3000	2.7	70	46	100,000
V Type (Variable Flow)	PWM Control Pulse Sensor <⑦>	**MDV1225-24S**	24±15%	100	0.84	5100	4.83	224	58	–
				0	0.13	1650	1.56	23.5	30	–

*Expected Service Life ➜ Page 5

● Alarm specifications ➜ Page 14

● Values for maximum air flow and maximum static pressure are medians measured by the double chamber method.

● Noise level is a median measured in the A-weighted sound pressure level at a distance of 1 m from the intake side of fan.

Paint Colors, Materials, Standards

Type	Product Name	Color		Materials		Safety Standards					
		Frame	Blades	Frame	Blades	c UL us	UL	CSA	TÜV	D	CE
S Type (Without Alarm)	**MDS1225Y-24**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○	–	–
A Type (With Alarm)	**MDA1225-24L**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○	–	–
	MDA1225-24	Unpainted (Aluminum)	Black	Die Cast Aluminum	Polycarbonate (UL 94 V-0)	○	–	–	–	–	○
E Type (Long Life)	**MDE1225-24L**	Dark Gray	Black	Die Cast Aluminum	Polycarbonate (UL 94 V-0)	○	–	–	–	○	○
V Type (Variable Flow)	**MDV1225-24S**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	○	–	–	○	–	–

Product Line

Type	Product Name
S Type	**MDS1225Y-24**
A Type	**MDA1225-24L**
	MDA1225-24
E Type	**MDE1225-24L**
V Type	**MDV1225-24S**

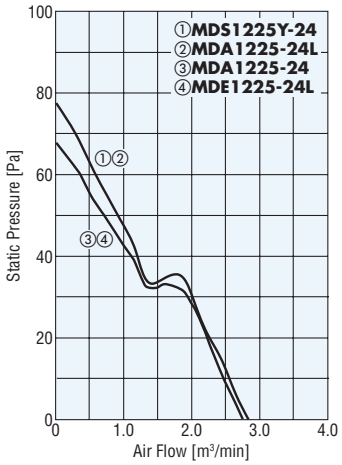
Included

· Operating Manual: 1 Copy

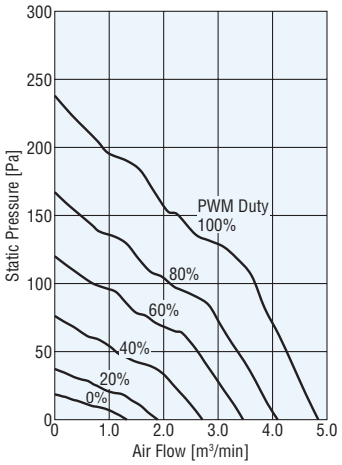
Air Flow – Static Pressure Characteristics

(The characteristics are applicable for the fan only.)

S Type, A Type, E Type

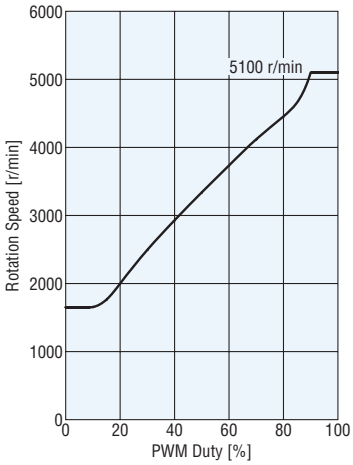


V Type



PWM Duty – Rotation Speed Characteristics

V Type

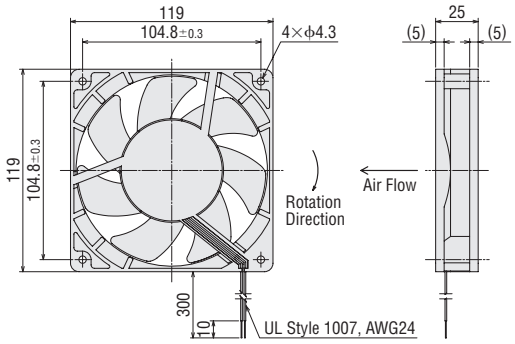


Dimensions (Unit: mm)

S Type, A Type

2D & 3D CAD

Product Name	Mass kg	2D CAD
MDS1225Y-24	0.24	E276
MDA1225-24L	0.24	E284

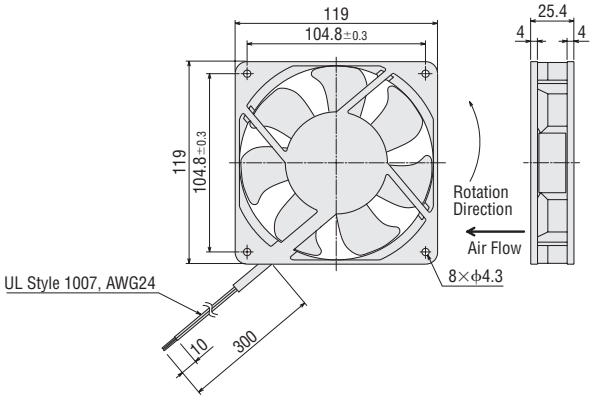


● Number of Lead Wires: **MDS1225Y-24** 2 pcs.
MDA1225-24L 3 pcs.

MDA1225-24, MDE1225-24L

Mass: 0.3 kg

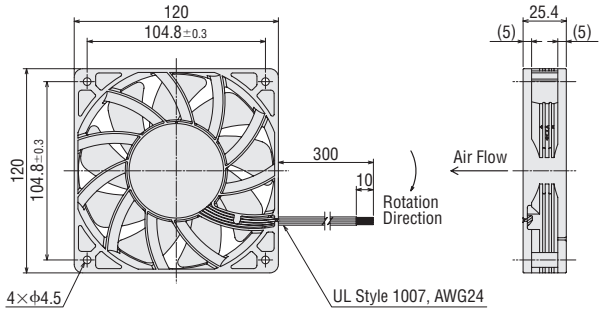
2D CAD E020 3D CAD



MDV1225-24S

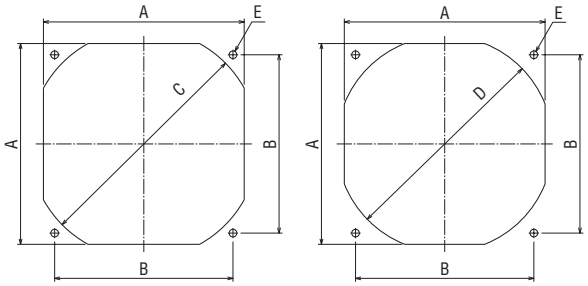
Mass: 0.26 kg

2D CAD E289 3D CAD



Panel Cut-Out (Unit: mm)

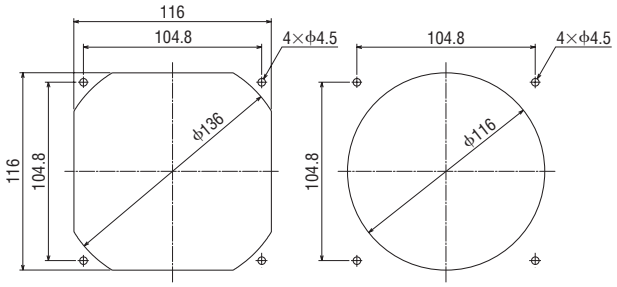
S Type, A Type (MDA1225-24L), V Type



Outlet Side　　Intake Side

Type	Product Name	A	B	C	D	E
S Type	**MDS1225Y-24**	117	104.8	ϕ134	ϕ126	4×ϕ4.5
A Type	**MDA1225-24L**	117	104.8	ϕ134	ϕ126	4×ϕ4.5
V Type	**MDV1225-24S**	118	104.8	ϕ135	ϕ127	4×ϕ4.5

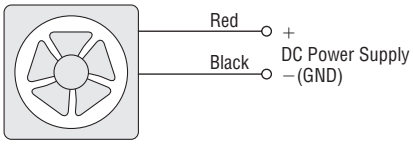
A Type (MDA1225-24), E Type



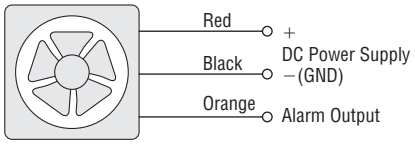
Outlet Side　　Intake Side

Connection Diagrams

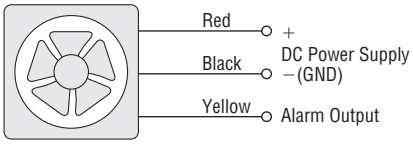
S Type



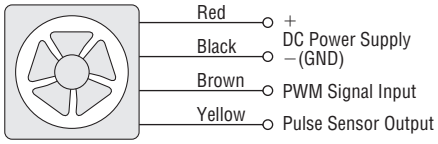
E Type



A Type



V Type



Accessories

Product	Product Name	Page
Iron Finger Guard Set (Finger Guard: 1 pc.)	**A-1225-G**	41
Iron Finger Guard Set (Finger Guard: 2 pcs.)	**A-1225-G2**	41
Stainless Steel Finger Guard Set (Finger Guard: 1 pc.)	**A-1225-S**	41
Stainless Steel Finger Guard Set (Finger Guard: 2 pcs.)	**A-1225-S2**	41
Iron Finger Guard and Filter Set (Finger Guard and Filter: 1 pc. each)	**A-1225-GF**	41
Finger Guard Panel IP2X Rating	**A-1225-GG□1**	43
Finger Guard Panel IP2X Rating with Filter	**A-1225-GGF□1**	43
Slit Metal Plate Panel IP4X Rating Number of Installed Fans 1 Fan	**A-1225-GS□1**	43
Slit Metal Plate Panel IP4X Rating Number of Installed Fans 2 Fans	**A-1225-GS□2**	43
Slit Metal Plate Panel IP4X Rating Number of Installed Fans 3 Fans	**A-1225-GS□3**	43
Dust and Water Resistant Panel IP43 Rating	**A-1225-GPL431**	43
	A-1225-GPL43R1	43
Dust and Water Resistant Panel IP55 Rating	**A-1225-GPL551**	43
	A-1225-GPL55R1	43
Metallic Filter	**FLW12**	52
Replacement Filter Media (1 pc.)	**FLWM12**	53
Screen	**FS12S**	54

● Ether **B** (Beige), **C** (Cream), or **L** (Light Gray) indicating the panel color is entered where the box □ is located within the product name.
Ether **B** (Beige), or **C** (Cream) indicating the panel painting color is entered where the box □ is located within the product name.

Thermostat

The fan thermostat **AM2-XA1** automatically controls the operation and stop of the fan in response to temperature changes in the equipment. Using this thermostat achieves the performance enhancement of equipment related to the environment, such as energy saving and low noise.

Fan Thermostat **AM2-XA1**

● Reference Page ➜ Page 55

Fan Speed Controller

Using the fan speed controller in combination with the variable flow fan **V** type can adjust the air flow easily. Adjusting the air flow of the fan also achieves energy saving and low noise.

Fan Speed Controller **FSC-24**

● Reference Page ➜ Page 56

MD Series

□119 (120) mm – 38 mm Thick

Specifications

Type	Additional Function	Product Name	Voltage VDC	PWM Duty %	Current A	Speed r/min	Max. Air Flow m^3/min	Max. Static Pressure Pa	Noise Level dB (A)	Expected Service Life* h
S Type (Without Alarm)	High Speed	**MDS1238H-24**	24±15%	–	1.5	6400	6.35	360	64	–
	Standard Speed	**MDS1238-24**	24±15%	–	0.5	3600	3.88	135	49	–
A Type (With Alarm)	Stall Alarm <①>	**MDA1238-24L**	24±15%	–	0.5	3600	3.88	135	49	–
	Low-Speed Alarm <⑤>	**MDA1238-24**	24±15%	–	0.5	3600	3.88	135	49	–
E Type (Long Life)	Stall Alarm <②>	**MDE1238Y-24L**	24 15 to 30 V	–	0.37	3700	3.9	117.8	48	180,000
V Type (Variable Flow)	PWM Control Pulse Sensor <⑦>	**MDV1238-24S**	24±15%	100	1.5	6400	6.35	360	64	–
				20	0.1	1450	1.43	18	33	
P Type (Splash Proof)	Stall Alarm <①>	**MDP1238-24L**	24 14 to 27.6 V	–	0.22	2600	2.8	70.4	39	–

*Expected Service Life ➜ Page 5

● Alarm specifications ➜ Page 14

● Values for maximum air flow and maximum static pressure are medians measured by the double chamber method.

● Noise level is a median measured in the A-weighted sound pressure level at a distance of 1 m from the intake side of fan.

Paint Colors, Materials, Standards

Type	Product Name	Color		Materials		Safety Standards			
		Frame	Blades	Frame	Blades	cULus	UL	SP	TÜV
S Type (Without Alarm)	**MDS1238H-24**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	○	–	–	○
	MDS1238-24	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○
A Type (With Alarm)	**MDA1238-24L**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○
	MDA1238-24	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○
E Type (Long Life)	**MDE1238Y-24L**	Unpainted (Aluminum)	Black	Die Cast Aluminum	PPE+PS (UL 94 V-1)	○	–	–	○
V Type (Variable Flow)	**MDV1238-24S**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	○	–	–	○
P Type (Splash Proof)	**MDP1238-24L**	Black	Black	ABS+PBT (UL 94 V-0)	PPE+PS (UL 94 V-1)	–	○	○	○

Product Line

Type	Product Name
S Type	**MDS1238H-24**
	MDS1238-24
A Type	**MDA1238-24L**
	MDA1238-24
E Type	**MDE1238Y-24L**
V Type	**MDV1238-24S**
P Type	**MDP1238-24L**

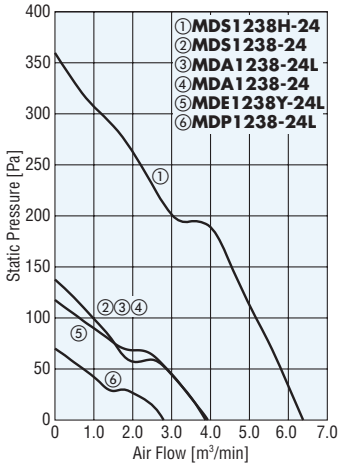
Included

· Operating Manual: 1 Copy

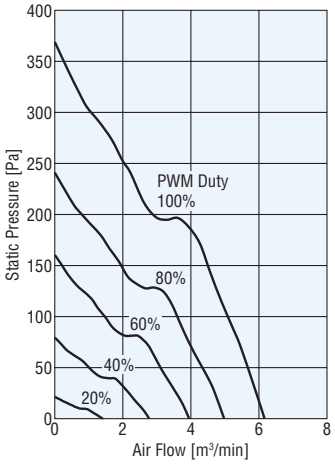
Air Flow – Static Pressure Characteristics

(The characteristics are applicable for the fan only.)

S Type, A Type, E Type, P Type

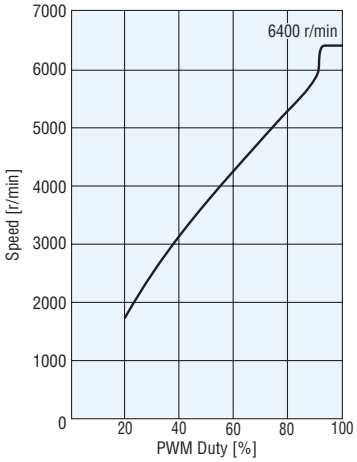


V Type



PWM Duty – Rotation Speed Characteristics

V Type



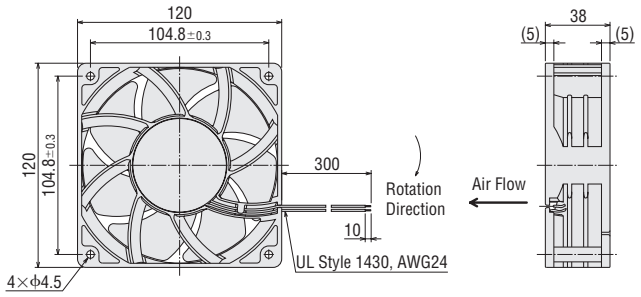
- The fan does not rotate when the PWM duty cycle falls to 0%.

Dimensions (Unit: mm)

S Type (High Speed), V Type

2D & 3D CAD

Product Name	Mass kg	2D CAD
MDS1238H-24	0.36	E186
MDV1238-24S	0.36	E202

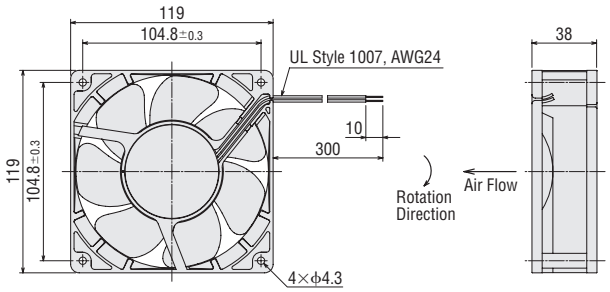


- Number of Lead Wires: **MDS1238H-24** 2 pcs.
  MDV1238-24S 4 pcs.

S Type (Standard Speed), A Type, P Type

2D & 3D CAD

Product Name	Mass kg	2D CAD
MDS1238-24	0.33	E277
MDA1238-24L	0.33	E198
MDA1238-24		
MDP1238-24L	0.36	

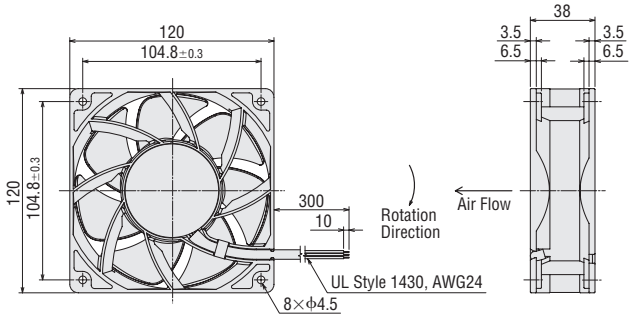


- Number of Lead Wires: **MDS1238-24** 2 pcs.
  MDA1238-24L, **MDA1238-24**, **MDP1238-24L** 3 pcs.

MDE1238Y-24L

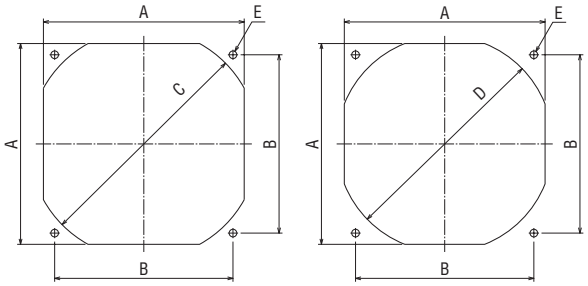
Mass: 0.42 kg

2D CAD E292 3D CAD



Panel Cut-Out (Unit: mm)

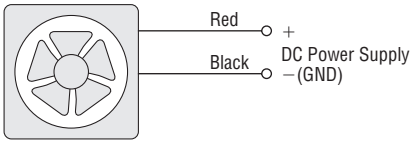
S Type, A Type, E Type, V Type, P Type



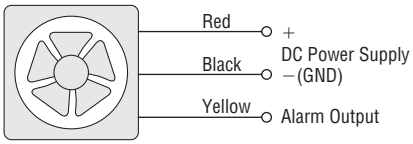
Type	Product Name	A	B	C	D	E
S Type	**MDS1238H-24**	118	104.8	ϕ135	ϕ127	4×ϕ4.5
	MDS1238-24	117	104.8	ϕ134	ϕ126	4×ϕ4.5
A Type	**MDA1238-24L**	117	104.8	ϕ134	ϕ126	4×ϕ4.5
	MDA1238-24	117	104.8	ϕ134	ϕ126	4×ϕ4.5
E Type	**MDE1238Y-24L**	117	104.8	ϕ130	ϕ130	4×ϕ4.5
V Type	**MDV1238-24S**	118	104.8	ϕ135	ϕ127	4×ϕ4.5
P Type	**MDP1238-24L**	117	104.8	ϕ134	ϕ126	4×ϕ4.5

Connection Diagrams

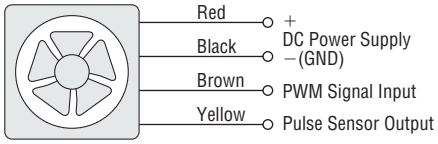
S Type



A Type, E Type, P Type

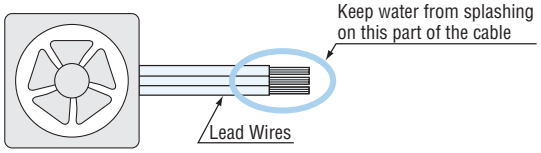


V Type



Notes on Wiring

As for **P** type, be sure not to splash water on the lead wire terminal, otherwise water could seep inside the fan through the lead wire and the fan motor may be damaged.



Accessories

Product	Product Name	Page
Iron Finger Guard Set (Finger Guard: 1 pc.)	**A-1238-G**	41
Iron Finger Guard Set (Finger Guard: 2 pcs.)	**A-1238-G2**	41
Stainless Steel Finger Guard Set (Finger Guard: 1 pc.)	**A-1238-S**	41
Stainless Steel Finger Guard Set (Finger Guard: 2 pcs.)	**A-1238-S2**	41
Iron Finger Guard and Filter Set (Finger Guard and Filter: 1 pc. each)	**A-1238-GF**	41
Finger Guard Panel IP2X Rating	**A-1238-GG□1**	43
Finger Guard Panel IP2X Rating	**A-1238-GGF□1**	43
Slit Metal Plate Panel IP4X Rating Number of Installed Fans 1 Fan	**A-1238-GS□1**	43
Slit Metal Plate Panel IP4X Rating Number of Installed Fans 2 Fans	**A-1238-GS□2**	43
Slit Metal Plate Panel IP4X Rating Number of Installed Fans 3 Fans	**A-1238-GS□3**	43
Dust and Water Resistant Panel IP43 Rating	**A-1238-GPL431**	43
	A-1238-GPL43R1	43
Dust and Water Resistant Panel IP55 Rating	**A-1238-GPL551**	43
	A-1238-GPL55R1	43
Metallic Filter	**FLW12**	52
Replacement Filter Media (1 pc.)	**FLWM12**	53
Screen	**FS12S**	54

● Ether **B** (Beige), **C** (Cream), or **L** (Light Gray) indicating the panel color is entered where the box □ is located within the product name.
Ether **B** (Beige), or **C** (Cream) indicating the panel painting color is entered where the box □ is located within the product name.

Thermostat

The fan thermostat **AM2-XA1** automatically controls the operation and stop of the fan in response to temperature changes in the equipment. Using this thermostat achieves the performance enhancement of equipment related to the environment, such as energy saving and low noise.

Fan Thermostat **AM2-XA1**

● Reference Page ➜ Page 55

Fan Speed Controller

Using the fan speed controller in combination with the variable flow fan **V** type can adjust the air flow easily. Adjusting the air flow of the fan also achieves energy saving and low noise.

Fan Speed Controller **FSC-24**

● Reference Page ➜ Page 56

MD Series

□140 mm – 51 mm Thick

Specifications

Type	Additional Function	Product Name	Voltage VDC	Current A	Speed r/min	Max. Air Flow m^3/min	Max. Static Pressure Pa	Noise Level dB (A)	Expected Service Life* h
S Type (Without Alarm)	Standard Speed	**MDS1451-24**	24±15%	0.7	3150	5.8	130	49	–
A Type (With Alarm)	Stall Alarm <②>	**MDA1451-24L**	24±15%	0.7	3150	5.8	130	49	–
	Low-Speed Alarm <⑥>	**MDA1451-24**	24±15%	0.7	3150	5.8	130	49	–
E Type (Long Life)	Stall Alarm <②>	**MDE1451-24L2**	24±15%	0.7	3150	5.8	130	49	100,000

*Expected Service Life ➜ Page 5

- Alarm specifications ➜ Page 14
- Values for maximum air flow and maximum static pressure are medians measured by the double chamber method.
- Noise level is a median measured in the A-weighted sound pressure level at a distance of 1 m from the intake side of fan.

Paint Colors, Materials, Standards

Type	Product Name	Color		Materials		Safety Standards	
		Frame	Blades	Frame	Blades	c UL us	CE
S Type (Without Alarm)	**MDS1451-24**	Unpainted (Aluminum)	Black	Die Cast Aluminum	Polycarbonate (UL 94 V-0)	○	○
A Type (With Alarm)	**MDA1451-24L**	Unpainted (Aluminum)	Black	Die Cast Aluminum	Polycarbonate (UL 94 V-0)	○	○
	MDA1451-24	Unpainted (Aluminum)	Black	Die Cast Aluminum	Polycarbonate (UL 94 V-0)	○	○
E Type (Long Life)	**MDE1451-24L2**	Dark Gray	Black	Die Cast Aluminum	Polycarbonate (UL 94 V-0)	○	○

Product Line

Type	Product Name
S Type	**MDS1451-24**
A Type	**MDA1451-24L**
	MDA1451-24
E Type	**MDE1451-24L2**

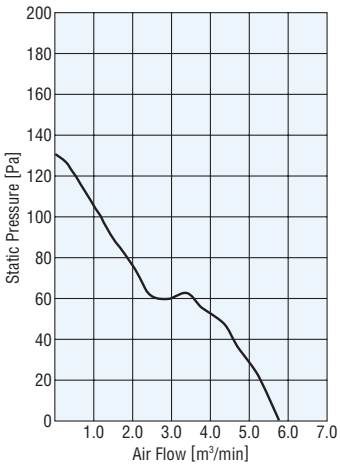
Included

· Operating Manual: 1 Copy

Air Flow – Static Pressure Characteristics

(The characteristics are applicable for the fan only.)

● S Type, A Type, E Type

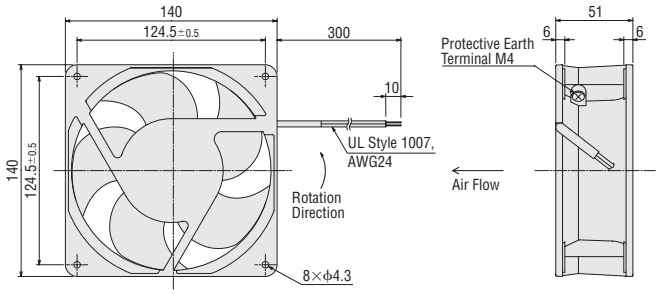


Dimensions (Unit: mm)

S Type, A Type, E Type

2D & 3D CAD

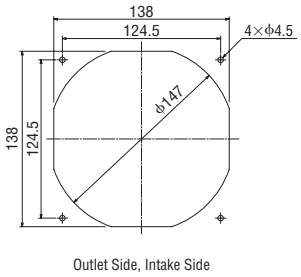
Product Name	Mass kg	2D CAD
MDS1451-24	0.65	E278
MDA1451-24L	0.65	E109
MDA1451-24		
MDE1451-24L2		



● Number of Lead Wires: **MDS1451-24** 2 pcs.
MDA1451-24L, **MDA1451-24**, **MDE1451-24L2** 3 pcs.

Panel Cut-Out (Unit: mm)

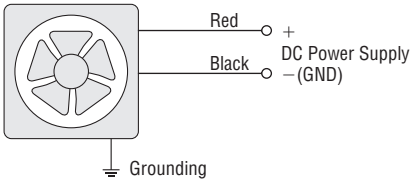
S Type, A Type, E Type



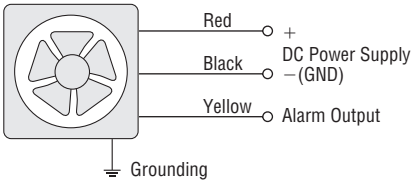
Outlet Side, Intake Side

Connection Diagrams

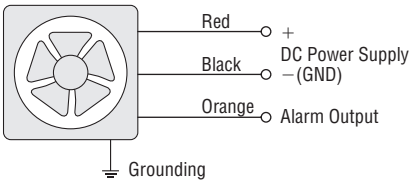
S Type



A Type (MDA1451-24)



A Type (MDA1451-24L), E Type



Accessories

Product	Product Name	Page
Iron Finger Guard Set (Finger Guard: 1 pc.)	**A-1451-G**	41
Iron Finger Guard Set (Finger Guard: 2 pcs.)	**A-1451-G2**	41
Iron Finger Guard and Filter Set (Finger Guard and Filter: 1 pc. each)	**A-1451-GF**	41
Metallic Filter	**FLW14**	52
Replacement Filter Media (1 pc.)	**FLWM14**	53

Thermostat

The fan thermostat **AM2-XA1** automatically controls the operation and stop of the fan in response to temperature changes in the equipment. Using this thermostat achieves the performance enhancement of equipment related to the environment, such as energy saving and low noise.

Fan Thermostat **AM2-XA1**

● Reference Page ➜ Page 55

MD Series

ϕ172 mm – 51 mm Thick

Side Cut Type

Specifications

Type	Additional Function	Product Name	Voltage VDC	Current A	Speed r/min	Max. Air Flow m^3/min	Max. Static Pressure Pa	Noise Level dB (A)	Expected Service Life* h
S Type (Without Alarm)	High Speed	**MDS1751H-24**	24±15%	2.3	4800	9.9	308	60	–
	High Speed (Side Cut)	**MDS1751FH-24**	24±15%	2.3	4800	9.9	308	66	–
	Standard Speed	**MDS1751-24**	24±15%	0.7	3200	6	137	47	–
A Type (With Alarm)	Low-Speed Alarm <⑥>	**MDA1751-24**	24±15%	0.7	3200	6	137	47	–
E Type (Long Life)	Stall Alarm <①>	**MDE1751-24L**	24±15%	0.58	3050	6.4	137.2	47	100,000
	Stall Alarm <①> (Side Cut)	**MDE1751F-24L**	24±15%	0.58	3050	6.4	137.2	52	100,000

*Expected Service Life ➜ Page 5

- Alarm specifications ➜ Page 14
- Values for maximum air flow and maximum static pressure are medians measured by the double chamber method.
- Noise level is a median measured in the A-weighted sound pressure level at a distance of 1 m from the intake side of fan.

Paint Colors, Materials, Standards

Type	Product Name	Color		Materials		Safety Standards					
		Frame	Blades	Frame	Blades	c UL us	UL	CSA	EAC	D	CE
S Type (Without Alarm)	**MDS1751H-24**	Unpainted (Aluminum)	Black	Die Cast Aluminum	PPE+PS (UL 94 V-1)	–	○	○	○	–	–
	MDS1751FH-24	Unpainted (Aluminum)	Black	Die Cast Aluminum	PPE+PS (UL 94 V-1)	–	○	○	○	–	–
	MDS1751-24	Unpainted (Aluminum)	Black	Die Cast Aluminum	Polycarbonate (UL 94 V-0)	○	–	–	–	○	○
A Type (With Alarm)	**MDA1751-24**	Unpainted (Aluminum)	Black	Die Cast Aluminum	Polycarbonate (UL 94 V-0)	○	–	–	–	–	○
E Type (Long Life)	**MDE1751-24L**	Unpainted (Aluminum)	Black	Die Cast Aluminum	PPE+PS (UL 94 V-1)	–	○	○	○	–	–
	MDE1751F-24L	Unpainted (Aluminum)	Black	Die Cast Aluminum	PPE+PS (UL 94 V-1)	–	○	○	○	–	–

Product Line

Type	Product Name
S Type	**MDS1751H-24**
	MDS1751FH-24
	MDS1751-24
A Type	**MDA1751-24**
E Type	**MDE1751-24L**
	MDE1751F-24L

Included

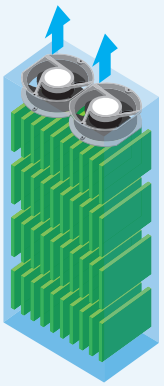
· Operating Manual: 1 Copy

Useful Tips for **MDS1751FH-24**

The **MDS1751FH-24** side cut type is recommended when considering ventilation and cooling in the control panel with a large air volume and high static pressure fan. Since the side cut width is 150 mm, you can effectively use the mounting space.

Fan Selection with a Max. Air Flow of approximately 20 m^3/min

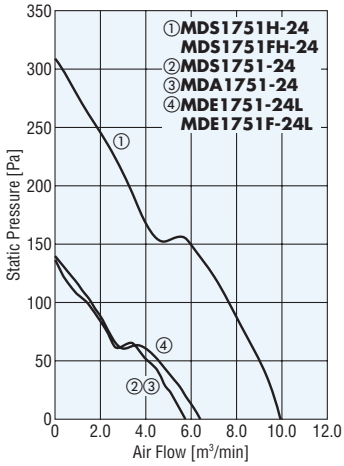
	MDS1751FH-24	MDS1238H-24
Installation Method	2 fans installed in parallel	3 fans installed in parallel
Max. Air Flow	19.8 m^3/min	19.05 m^3/min
Frame Size	Width: 300 mm Height: 172 mm	Width: 360 mm Height: 120 mm



Air Flow – Static Pressure Characteristics

(The characteristics are applicable for the fan only.)

S Type, A Type, E Type

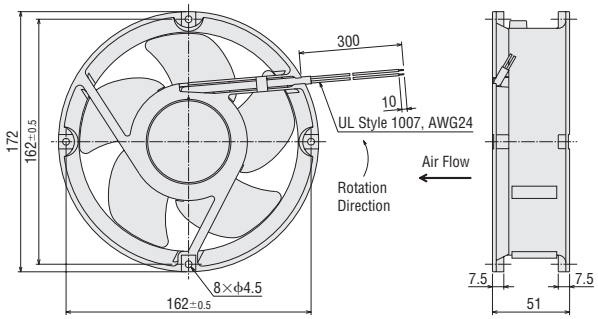


Dimensions (Unit: mm)

MDS1751H-24, MDE1751-24L

2D & 3D CAD

Product Name	Mass kg	2D CAD
MDS1751H-24	0.78	E187
MDE1751-24L	0.78	E193

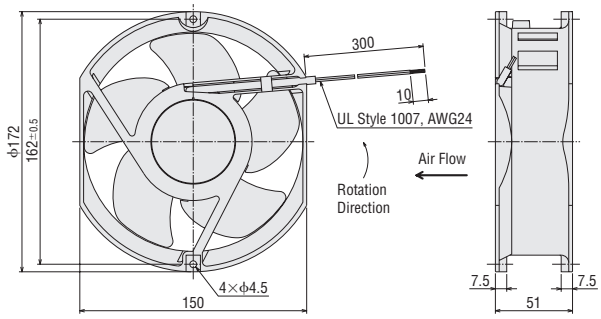


● Number of Lead Wires: **MDS1751H-24** 2 pcs.
MDE1751-24L 3 pcs.

MDS1751FH-24, MDE1751F-24L

2D & 3D CAD

Product Name	Mass kg	2D CAD
MDS1751FH-24	0.76	E188
MDE1751F-24L	0.76	E194

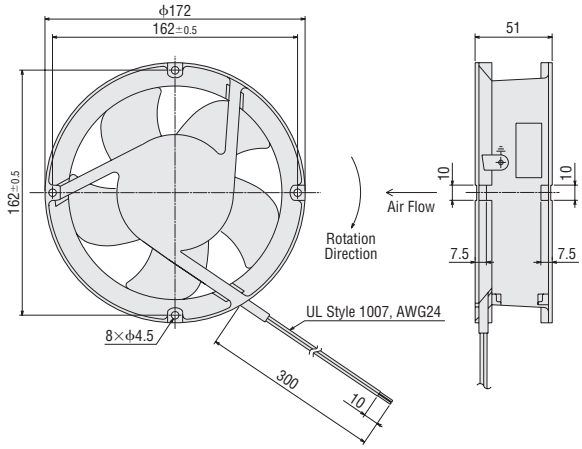


● Number of Lead Wires: **MDS1751FH-24** 2 pcs.
MDE1751F-24L 3 pcs.

MDS1751-24, MDA1751-24

2D & 3D CAD

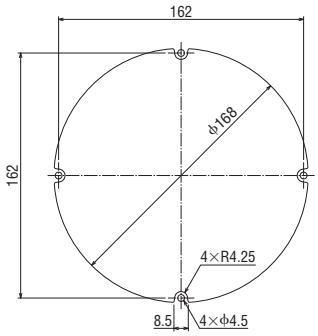
Product Name	Mass kg	2D CAD
MDS1751-24	0.9	E016
MDA1751-24	0.9	E285



● Number of Lead Wires: **MDS1751-24** 2 pcs.
MDA1751-24 3 pcs.

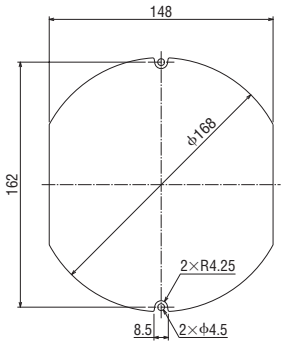
Panel Cut-Out (Unit: mm)

MDS1751H-24, MDE1751-24L



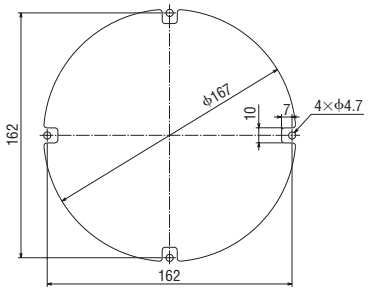
Outlet Side, Intake Side

MDS1751FH-24, MDE1751F-24L



Outlet Side, Intake Side

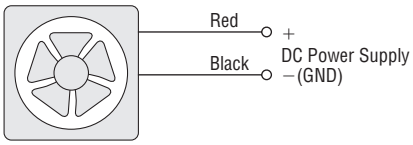
MDS1751-24, MDA1751-24



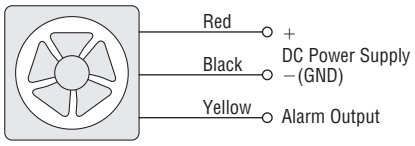
Outlet Side, Intake Side

Connection Diagrams

S Type



A Type, E Type



Accessories

Product	Product Name	Page
Iron Finger Guard Set (Finger Guard: 1 pc.)	**A-1751-G**	41
Iron Finger Guard Set (Finger Guard: 2 pcs.)	**A-1751-G2**	41
Iron Finger Guard Set (Finger Guard: 1 pc.) (For side cut type)	**A-1751F-G**	41
Iron Finger Guard Set (Finger Guard: 2 pcs.) (For side cut type)	**A-1751F-G2**	41

Fan Peripheral Equipment Sets

These are sets of peripheral equipment such as panels, finger guards, filters and screws for use in combination with Oriental Motor axial flow fans (sold separately).
Select the type that best suits the environment and application.

Parts Set Features

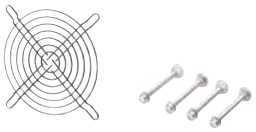
- Simplifies ordering of parts
- Ready to be assembled and used

Parts Set Product Line

Finger Guard Set → Page 41

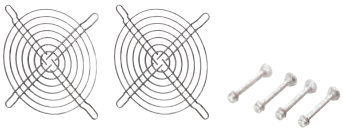
The finger guard set is a set of finger guard, screw, and filter.

◇**Finger Guard Set (Single)**
- Iron Finger Guard Set
- Stainless Steel Finger Guard Set



Finger Guard　Mounting Screws (4)

◇**Finger Guard Set (Double)**
- Iron Finger Guard Set
- Stainless Steel Finger Guard Set



Finger Guards (2)　Mounting Screws (4)

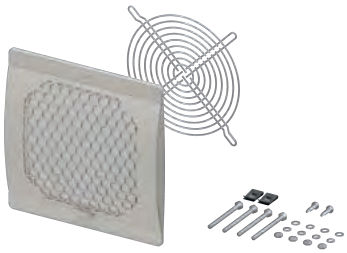
◇**Finger Guard & Filter Set (1 each)**
- Iron Finger Guard & Filter Set

Finger Guard　Filter　Mounting Screws (4)

Panel Sets for Control Cabinet Installation → Page 43

The Panel Sets for Control Cabinet Installation is a set of panel, finger guard, filter, and screw.

◇**Finger Guard Panel Set**
IP2X Rating



◇**Slit Metal Plate Panel Set**
IP4X Rating

◇**Dust and Water Resistant Panel Set**
IP43 & IP55 Rating*

*The difference in specifications is based on the filter type.

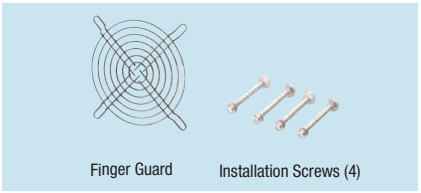
Finger Guard Set

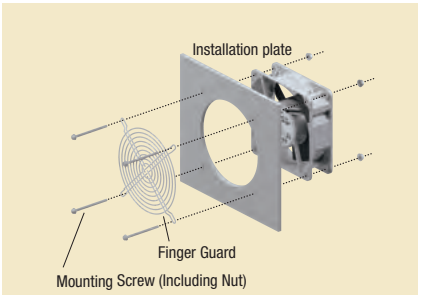
The finger guard set is a set of finger guard, mounting screw, and filter. Choose a suitable set according to the installation environment and application.

Set Contents

◇Finger Guard Set (Single)

- Iron Finger Guard Set
- Stainless Steel Finger Guard Set

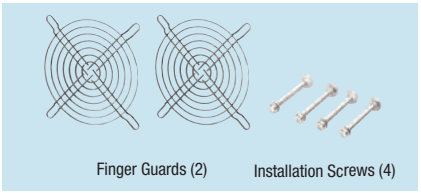


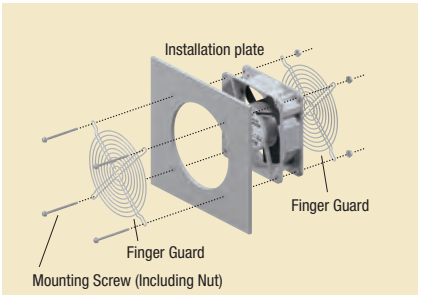


●Finger guards are used on the outside of the control cabinet
- Outside → Prevention of damage

◇Finger Guard Set (Double)

- Iron Finger Guard Set
- Stainless Steel Finger Guard Set

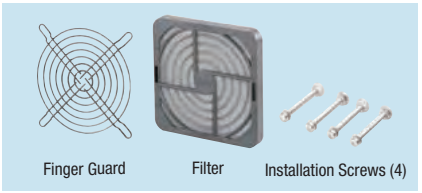


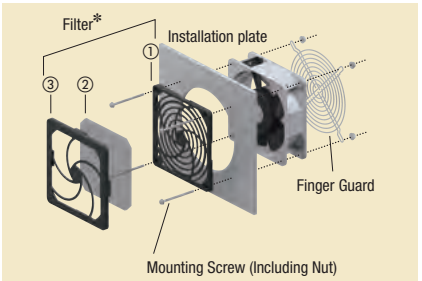


●Finger guards are used on both the inside and outside of the control cabinet
- Inside → Protection for workers
- Outside → Prevention of damage

◇Finger Guard & Filter Set (1 each)

- Iron Finger Guard & Filter Set





*Configuration of Filter
①Guard ②Filter Media ③Retainer

●Finger guards are used on the inside of the control cabinet and filters on the outside
- Inside → Protection for workers
- Outside → Protection against powdery dust

●The mounting screw length assumes an installation plate thickness of 2.3 mm or less.

●Iron Finger Guard Set

Frame Size, Thickness	Finger Guard Set Product Name	Set Contents		
		Iron Finger Guard	Quantity	Mounting Screw mm
□40 mm – 20 mm Thick	**A-420-G**	**FG4D**	1	M3×30
	A-420-G2	**FG4D**	2	M3×30
□52 mm – 15 mm Thick	**A-515-G**	**FG5D**	1	M3×30
	A-515-G2	**FG5D**	2	M3×30
□60 mm – 25 mm Thick	**A-625-G**	**FG6E**	1	M4×40
	A-625-G2	**FG6E**	2	M4×40
□62 mm – 25 mm Thick (**MDA625-24**)	**A-625D-G**	**FG6D**	1	M3×40
	A-625D-G2	**FG6D**	2	M3×40
□80 mm – 25 mm Thick	**A-825-G**	**FG8D**	1	M4×40
	A-825-G2	**FG8D**	2	M4×40
□92 mm – 25 mm Thick	**A-925-G**	**FG9D**	1	M4×40
	A-925-G2	**FG9D**	2	M4×40
□119 mm (120 mm) – 25 mm Thick	**A-1225-G**	**FG12D**	1	M4×40
	A-1225-G2	**FG12D**	2	M4×40
□119 mm (120 mm) – 38 mm Thick	**A-1238-G**	**FG12D**	1	M4×55
	A-1238-G2	**FG12D**	2	M4×55
□140 mm – 51 mm Thick	**A-1451-G**	**FG14D**	1	M4×70
	A-1451-G2	**FG14D**	2	M4×70
ϕ172 mm – 51 mm Thick	**A-1751-G**	**FG17D**	1	M4×70
	A-1751-G2	**FG17D**	2	M4×70
ϕ172 mm – 51 mm Thick (Side Cut)	**A-1751F-G**	**FG17DF**	1	M4×70
	A-1751F-G2	**FG17DF**	2	M4×70

●Mounting screws: Includes 4 pieces each of screws with washer and nuts. Mounting screws are made of iron.
●Iron Finger Guard: Dimensions ➜ Page 50

Stainless Steel Finger Guard Set

Frame Size, Thickness	Finger Guard Set Product Name	Set Contents		
		Stainless Steel Finger Guard	Quantity	Mounting Screw mm
□80 mm – 25 mm Thick	**A-825-S**	**FG8S**	1	M4×40
	A-825-S2	**FG8S**	2	M4×40
□92 mm – 25 mm Thick	**A-925-S**	**FG9S**	1	M4×40
	A-925-S2	**FG9S**	2	M4×40
□119 mm (120 mm) – 25 mm Thick	**A-1225-S**	**FG12S**	1	M4×40
	A-1225-S2	**FG12S**	2	M4×40
□119 mm (120 mm) – 38 mm Thick	**A-1238-S**	**FG12S**	1	M4×55
	A-1238-S2	**FG12S**	2	M4×55

● Mounting screws: Includes 4 pieces each of screws with washer and nuts. Mounting screws are made of stainless steel.
● Stainless Steel Finger Guard: Dimensions ➜ Page 51

Iron Finger Guard and Filter Set

Frame Size, Thickness	Finger Guard Set Product Name	Set Contents				
		Iron Finger Guard	Quantity	Filter	Quantity	Mounting Screw mm
□60 mm – 25 mm Thick	**A-625-GF**	**FG6E**	1	**FL6**	1	M4×45 Flat Countersunk Head Screw
□60 mm – 25 mm Thick (**MDA625-24**)	**A-625D-GF**	**FG6D**	1	**FL6**	1	M3×45 Flat Countersunk Head Screw
□80 mm – 25 mm Thick	**A-825-GF**	**FG8D**	1	**FL8**	1	M4×45 Flat Countersunk Head Screw
□92 mm – 25 mm Thick	**A-925-GF**	**FG9D**	1	**FL9**	1	M3×45 Flat Countersunk Head Screw
□119 mm (120 mm) – 25 mm Thick	**A-1225-GF**	**FG12D**	1	**FL12**	1	M4×45 Flat Countersunk Head Screw
□119 mm (120 mm) – 38 mm Thick	**A-1238-GF**	**FG12D**	1	**FL12**	1	M4×55 Flat Countersunk Head Screw
□140 mm – 51 mm Thick	**A-1451-GF**	**FG14D**	1	**FL14**	1	M4×70✻

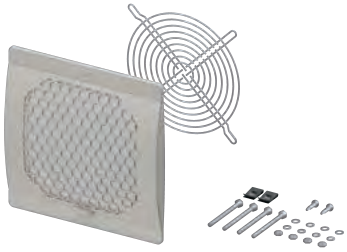
● Mounting Screws: 4 pieces each of flat countersunk head screws and nuts are included. Mounting screws are made of iron.
● Iron Finger Guard: Dimensions ➜ Page 50
Filter: Dimensions ➜ Page 52, 53
✻Only the **A-1451-GF** comes with 4 pieces each of screws with washer and nuts. Mounting screws are made of iron.

Panel Sets for Control Cabinet Installation

These are parts sets that include a panel, finger guard, filter and screws that are optimized for the ventilation and cooling of control cabinets.
Panel sets for every degree of protection are available, and can be retrofitted to the fan.
Refer to page 43 for details on the sets.

Panel Sets Product Line

◇Finger Guard Panel Set
IP2X Rating



◇Slit Metal Plate Panel Set
IP4X Rating

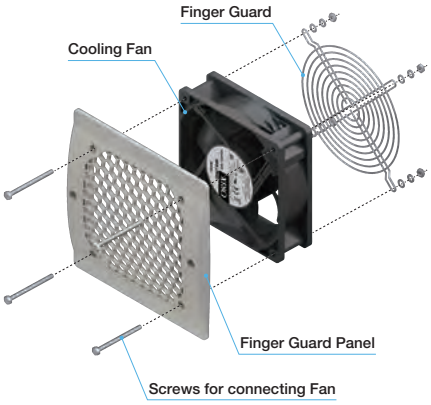
◇Dust and Water Resistant Panel Set
IP43 & IP55 Rating*

*The difference in specifications is based on the filter type.

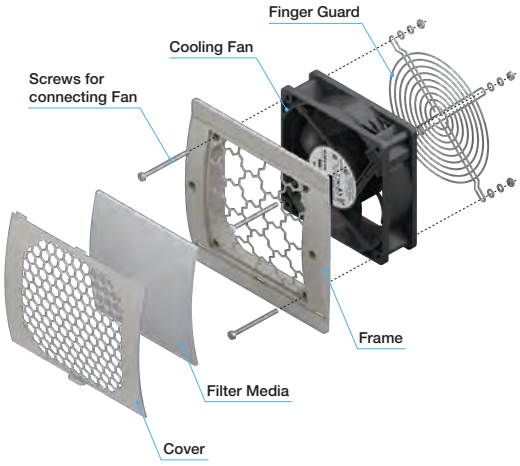
Assembly diagram

This is an illustration showing the installation of an axial flow fan (sold separately) to the control cabinet panel set.

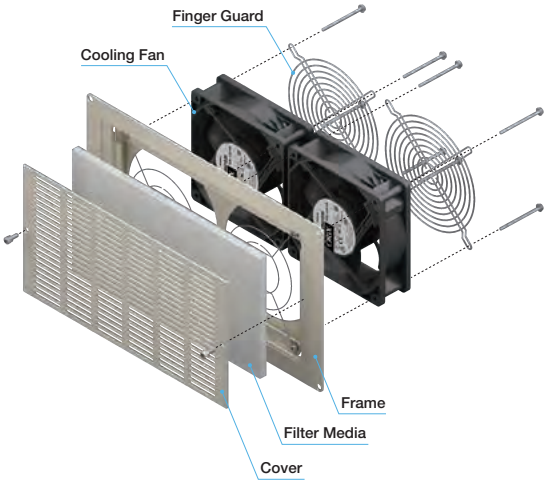
Finger Guard Panel Set IP2X Rating without Filter



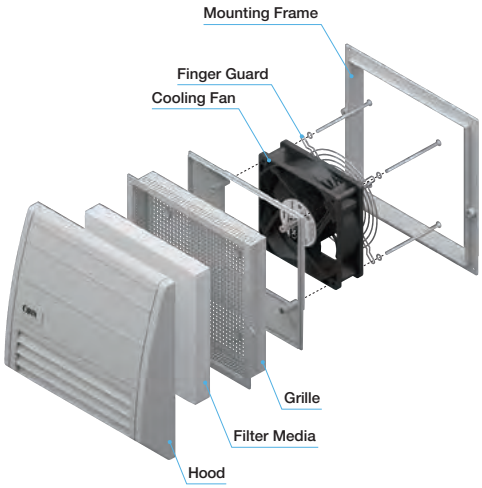
Finger Guard Panel Set IP2X Rating with Filter



Slit Metal Plate Panel Set IP4X Rating



Dust and Water Resistant Panel Set IP43 & IP55 Rating



Product Line, Set contents

Finger Guard Panel Set IP2X Rating

Applicable Axial Flow Fan		Panel Sets for Control Cabinet Installation								
Size	Product Name	Filter	Product Name			Set Contents				Mass kg
			Beige*1	Cream*1	Light Gray*1	Panel	Iron Finger Guard	Screws for connecting Fan*2	Panel mounting screw*3	
□92 mm—25 mm Thick	MD■925	blank	A-925-GGB1	A-925-GGC1	A-925-GGL1	1 pc.	1 pc.	4 pcs. each	2 pcs. each	0.12
		With	A-925-GGFB1	A-925-GGFC1	A-925-GGFL1					0.14
□119 mm (120 mm) —25 mm Thick	MD■1225	blank	A-1225-GGB1	A-1225-GGC1	A-1225-GGL1					0.16
		With	A-1225-GGFB1	A-1225-GGFC1	A-1225-GGFL1					0.19
□119 mm (120 mm) —38 mm Thick	MD■1238	blank	A-1238-GGB1	A-1238-GGC1	A-1238-GGL1					0.16
		With	A-1238-GGFB1	A-1238-GGFC1	A-1238-GGFL1					0.19

*1 Indicates the panel color.
*2 Includes Hexagonal Socket Head Screws, Flat Washer and Nuts.
*3 Includes Self-Tapping Screws and Speed-Nuts.

Slit metal Plate Panel Set IP4X Rating

Applicable Axial Flow Fan		Panel Sets for Control Cabinet Installation							
Size	Product Name	Number of Assembled Fans	Product Name		Set Contents				Mass kg
			Beige*1	Cream*1	Panel	Iron Finger Guard	Screws for connecting Fan	Panel mounting screw*2	
□92 mm—25 mm Thick	MD■925	1 Fan	A-925-GSB1	A-925-GSC1	1 pc.	1 pc.	4 pcs.	2 pcs. each	0.56
□119 mm (120 mm) —25 mm Thick	MD■1225	1 Fan	A-1225-GSB1	A-1225-GSC1		1 pc.	4 pcs.	2 pcs. each	0.73
		2 Fans	A-1225-GSB2	A-1225-GSC2		2 pcs.	8 pcs.	4 pcs. each	1.2
		3 Fans	A-1225-GSB3	A-1225-GSC3		3 pcs.	12 pcs.	4 pcs. each	1.8
□119 mm (120 mm) —38 mm Thick	MD■1238	1 Fan	A-1238-GSB1	A-1238-GSC1		1 pc.	4 pcs.	2 pcs. each	0.73
		2 Fans	A-1238-GSB2	A-1238-GSC2		2 pcs.	8 pcs.	4 pcs. each	1.2
		3 Fans	A-1238-GSB3	A-1238-GSC3		3 pcs.	12 pcs.	4 pcs. each	1.8

*1 Indicates the panel paint color.
*2 Includes Screws and Nuts.

Dust and Water Resistant Panel Set IP43 & IP55 Rating

Applicable Axial Flow Fan		Panel Sets for Control Cabinet Installation							
Size	Product Name	Degree of Protection Panel Size	Product Name	Set Contents					Mass kg
			Light Gray*1	Panel	Iron Finger Guard	Screws for connecting Fan*2	Part mounting screw	Panel mounting screw*3	
□92 mm—25 mm Thick	MD■925	IP43	A-925-GPL431	1 pc.	1 pc.	4 pcs. each	2 pcs.	4 pcs.*4	0.27
		IP55	A-925-GPL551						
□119 mm (120 mm) —25 mm Thick	MD■1225	IP43	A-1225-GPL431					8 pcs.	0.37
		IP43 Panel Size Large	A-1225-GPL43R1						0.63
		IP55	A-1225-GPL551						0.37
		IP55 Panel Size Large	A-1225-GPL55R1						0.63
□119 mm (120 mm) —38 mm Thick	MD■1238	IP43	A-1238-GPL431						0.37
		IP43 Panel Size Large	A-1238-GPL43R1						0.63
		IP55	A-1238-GPL551						0.37
		IP55 Panel Size Large	A-1238-GPL55R1						0.63

*1 Indicates the panel color.
*2 Includes Hexalobular Socket Head Screws and Flat washers.
Panel Set Product Name **A-1225-GPL43R1**, **A-1225-GPL55R1** Includes Hexalobular cross-recessed pan head screws and Flat washers.
*3 Includes Self-Tapping Screws.
*4 8 screws are included, but only 4 are used.

● Ether **S**, **A**, **E**, **V** or **P** indicating the type is entered where the box ■ is located within the Applicable Axial Flow Fan Product Name.
● Iron Finger Guard Product Name are as follow. Dimensions → Page 50
A-925-■ : **FG9D**
A-1225-■, **A-1238-■** : **FG12D**
A letter indicating the control cabinet panel type is specified where the box ■ is located in the product name.

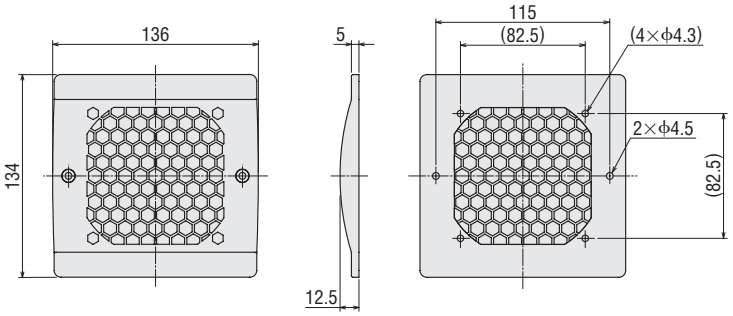
Dimensions (Unit: mm)

Finger Guard Panel

◇Without Filter

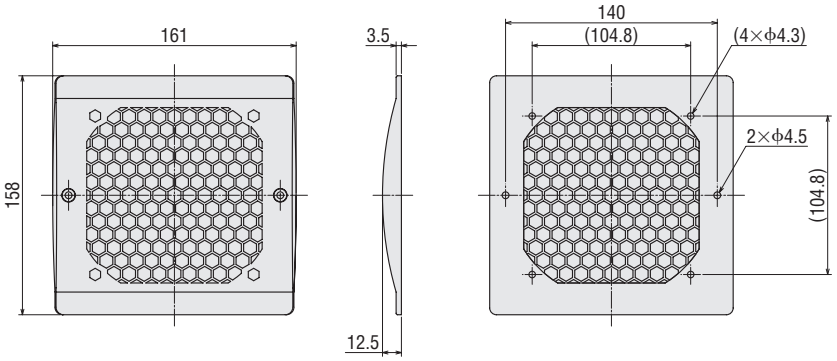
Panel Sets Product Name: **A-925-GG□1**

2D CAD E306 3D CAD



Panel Sets Product Name: **A-1225-GG□1**, **A-1238-GG□1**

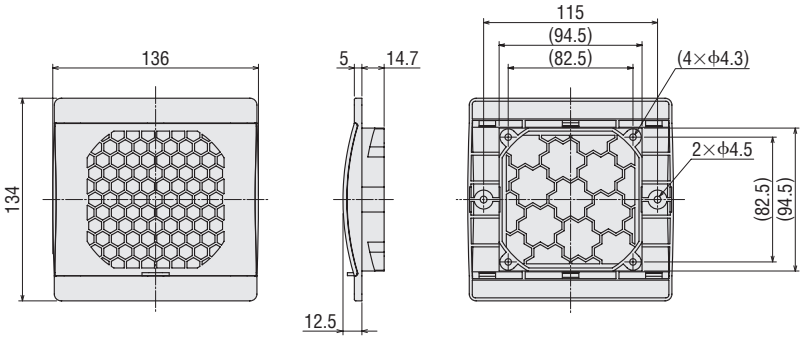
2D CAD E307 3D CAD



◇With Filter

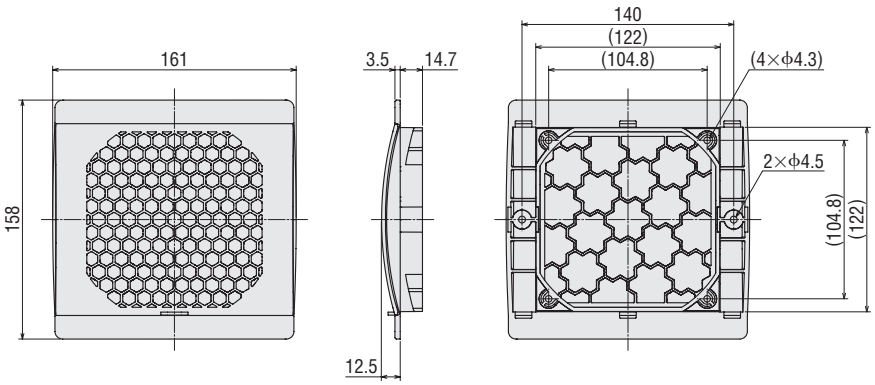
Panel Sets Product Name: **A-925-GGF□1**

2D CAD E308 3D CAD



Panel Sets Product Name: **A-1225-GGF□1**, **A-1238-GGF□1**

2D CAD E309 3D CAD

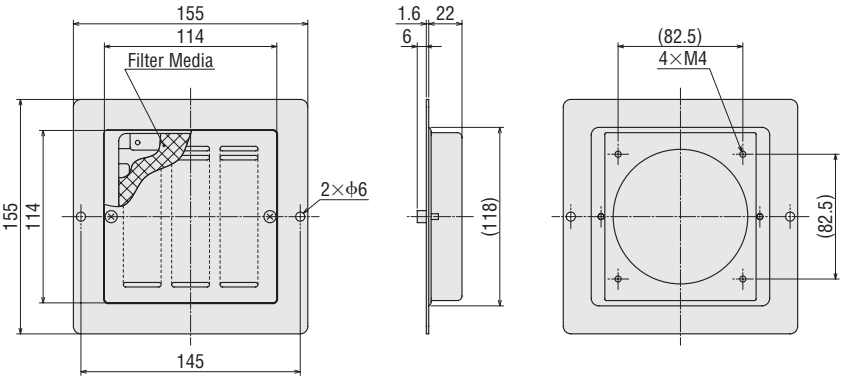


● Ether **B** (Beige), **C** (Cream), or **L** (Light Gray) indicating the panel color is entered where the box □ is located within the product name.

Slit Metal Plate Panel

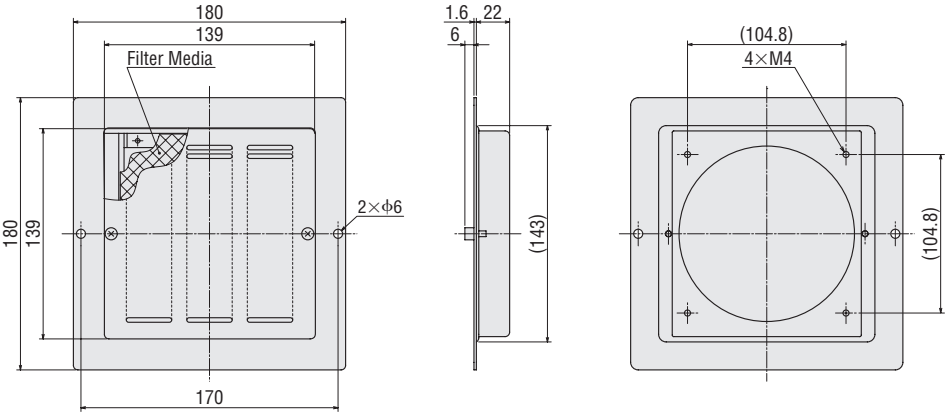
Panel Sets Product Name: **A-925-GS□1**

2D CAD E299 3D CAD



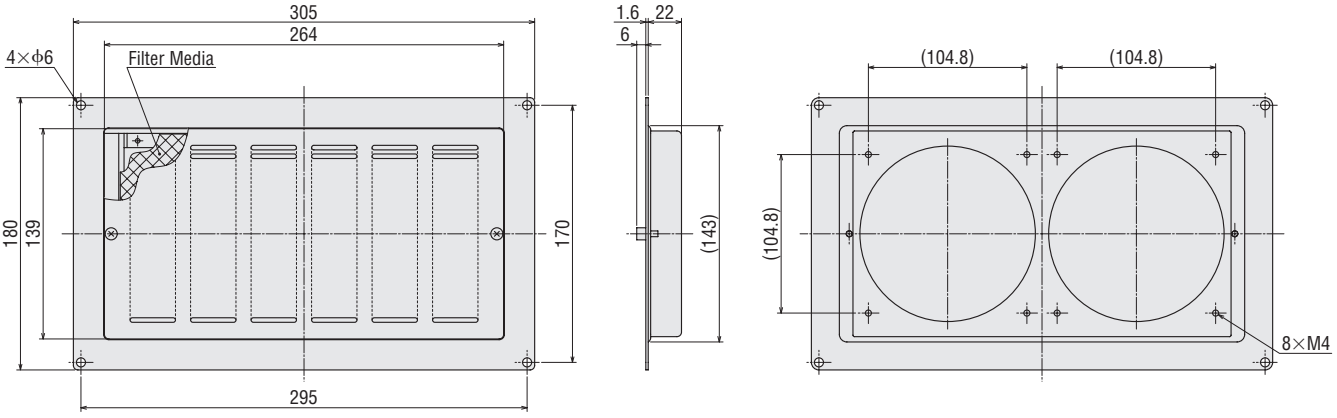
Panel Sets Product Name: **A-1225-GS□1**, **A-1238-GS□1**

2D CAD E300 3D CAD



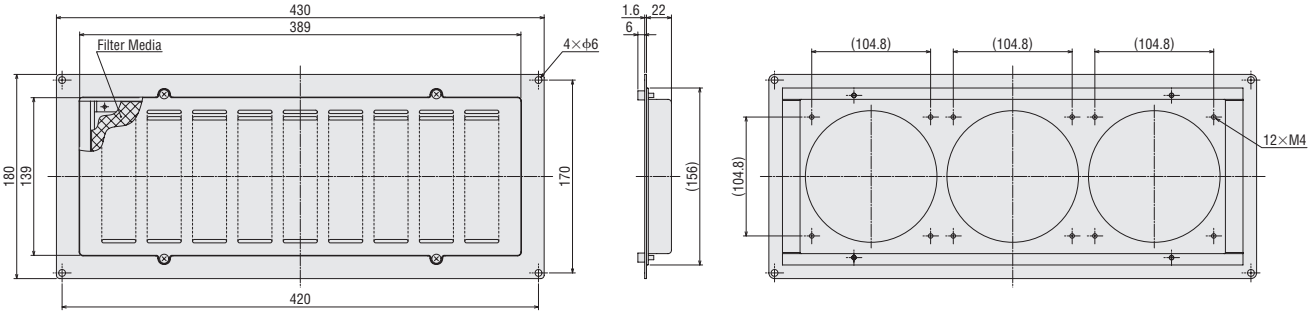
Panel Sets Product Name: **A-1225-GS□2**, **A-1238-GS□2**

2D CAD E301 3D CAD



Panel Sets Product Name: **A-1225-GS□3**, **A-1238-GS□3**

2D CAD E302 3D CAD

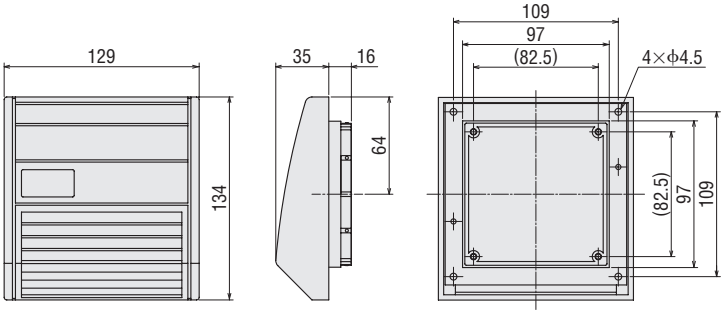


● Ether **B** (Beige), or **C** (Cream) indicating the panel painting color is entered where the box □ is located within the product name.

●Dust and Water Resistant Panel

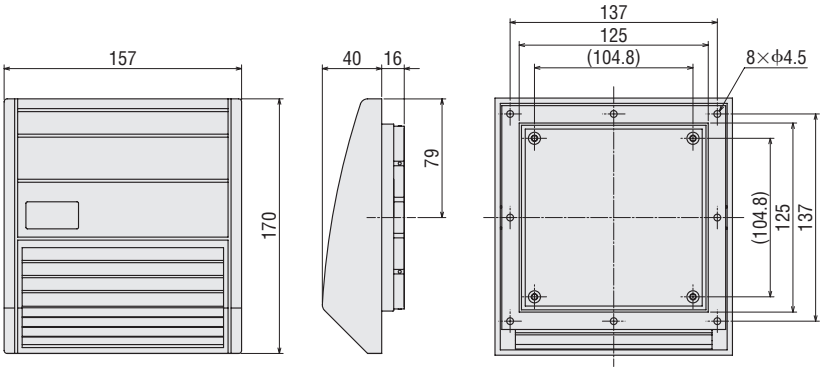
Panel Sets Product Name: **A-925-GPL◇1**

2D CAD E310 3D CAD



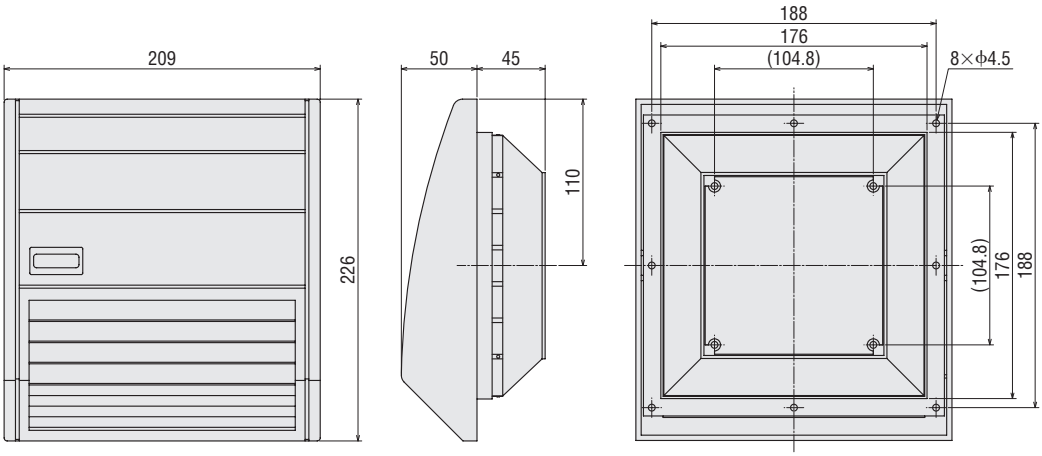
Panel Sets Product Name: **A-1225-GPL◇1**, **A-1238-GPL◇1**

2D CAD E311 3D CAD



Panel Sets Product Name: **A-1225-GPL◇R1**, **A-1238-GPL◇R1**

2D CAD E303 3D CAD



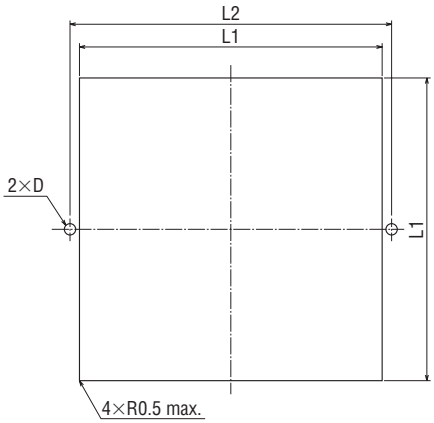
● Ether **43** (IP43 Rating), or **55** (IP 55 Rating) indicating the degree of protection is entered where the box ◇ is located within the product name.

Panel Cut-Out

Applicable Product

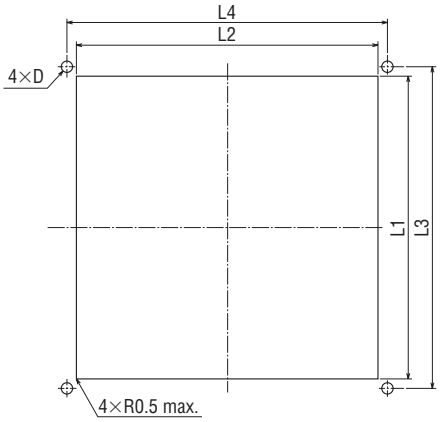
Type	Product Name	Dimensions	L1	L2	D
Finger Guard Panel*	**A-925-GG□1**	Page 45	104	115	ϕ7
	A-925-GGF□1				
	A-1225-GG□1, A-1238-GG□1		129	140	
	A-1225-GGF□1, A-1238-GGF□1				
Slit Metal Plate Panel	**A-925-GS□1**	Page 46	135	145	M4 or ϕ6
	A-1225-GS□1, A-1238-GS□1		160	170	

*Applicable Board Thickness: 1.0 to 1.6 mm (When the included speed nuts are used)



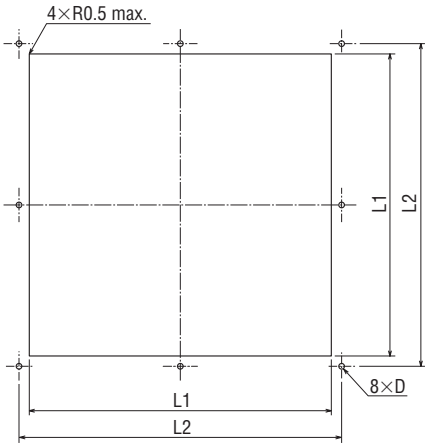
Applicable Product

Type	Product Name	Dimensions	L1	L2	L3	L4	D
Slit Metal Plate Panel	**A-1225-GS□2, A-1238-GS□2**	Page 46	160	285	170	295	M4 or ϕ6
	A-1225-GS□3, A-1238-GS□3		160	410	170	420	
Dust and Water Resistant Panel	**A-925-GPL◇1**	Page 47	97	97	109	109	ϕ3



Applicable Product

Type	Product Name	Dimensions	L1	L2	D
Dust and Water Resistant Panel	**A-1225-GPL◇1, A-1238-GPL◇1**	Page 47	125	137	ϕ3
	A-1225-GPL◇R1, A-1238-GPL◇R1		176	188	

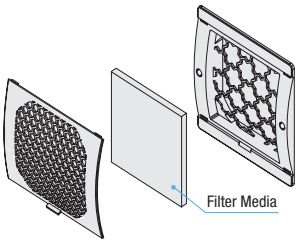


- Ether **B** (Beige), **C** (Cream), or **L** (Light Gray) indicating the panel color is entered where the box □ is located within the product name.
- Ether **B** (Beige), or **C** (Cream) indicating the panel painting color is entered where the box ■ is located within the product name.
- Ether **43** (IP43 Rating), or **55** (IP 55 Rating) indicating the degree of protection is entered where the box ◇ is located within the product name.

Replacement Filter Media (For Panel Sets for Control Cabinet Installation)

This is filter media for maintenance of the control cabinet panel set.
This is the same filter media that was included with the product.
Cooling capability is reduced by clogging of the media, so periodic replacement is recommended.

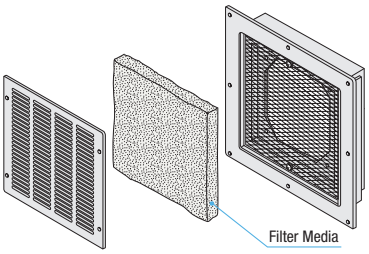
●For Finger Guard Panel with Filter



Product Name	Applicable Model	Quantity
C-MGS	**A-925-GGF□1**	5 pcs.
C-MGM	**A-1225-GGF□1**, **A-1238-GGF□1**	5 pcs.

● Ether **B** (Beige), **C** (Cream), or **L** (Light Gray) indicating the panel color is entered where the box □ is located within the product name.

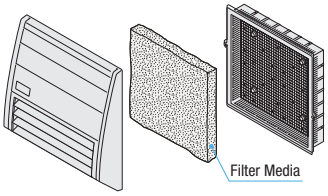
●For Slit Metal Plate Panel



Product Name	Applicable Model	Quantity
C-MSS	**A-925GS□1**	5 pcs.
C-MSM18	**A-1225GS□1**, **A-1238GS□1**	5 pcs.
C-MSM30	**A-1225GS□2**, **A-1238GS□2**	5 pcs.
C-MSM43	**A-1225GS□3**, **A-1238GS□3**	5 pcs.

● Ether **B** (Beige), or **C** (Cream) indicating the panel painting color is entered where the box □ is located within the product name.

●For Dust and Water Resistant Panel



◇For IP43 Rating

Product Name	Applicable Model	Quantity
C-MPS	**A-925-GPL431**	5 pcs.
C-MPM	**A-1225-GPL431**, **A-1238-GPL431**	5 pcs.
C-MPL	**A-1225-GPL43R1**, **A-1238-GPL43R1**	5 pcs.

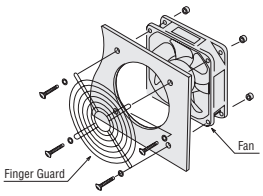
◇For IP55 Rating

Product Name	Applicable Model	Quantity
C-MPWS	**A-925-GPL551**	5 pcs.
C-MPWM	**A-1225-GPL551**, **A-1238-GPL551**	5 pcs.
C-MPWL	**A-1225-GPL55R1**, **A-1238-GPL55R1**	5 pcs.

Finger Guards
Stainless Steel Finger Guards

It is very dangerous to touch fan blades when the fan is operating.
Finger guards prevent fingers or foreign objects from entering the device.
Finger guards are mounted to the fan frame using bolts.

[Installation Example]



●Finger Guards
Material: Iron
Finish: Chrome Plating

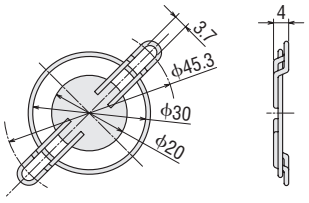
●Stainless Steel Finger Guard
Material: Stainless Steel Finish: Electropolish

Conformity to Standards, Regulations: DC fans also conform to the following standards when a finger guard is installed.
UL Standards, CSA Standards
(DC fans are not subjected to the Electrical Appliance and Material Safety Law.)

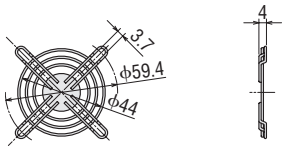
Dimensions (Unit: mm)

●Finger Guard

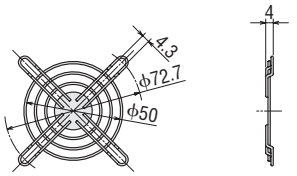
FG4D ····· for **MD■420**
List Price: XXX Mass: 4.2 g
2D CAD E085 3D CAD



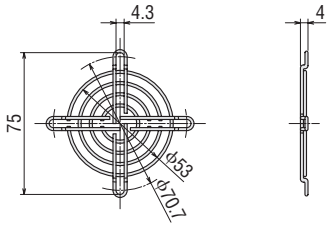
FG5D ····· for **MD■515**
List Price: XXX Mass: 7.7 g
2D CAD E086 3D CAD



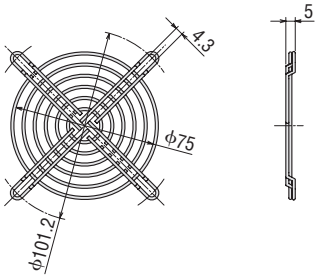
FG6D ····· for **MDA625-24**
List Price: XXX Mass: 8.3 g
2D CAD E087 3D CAD



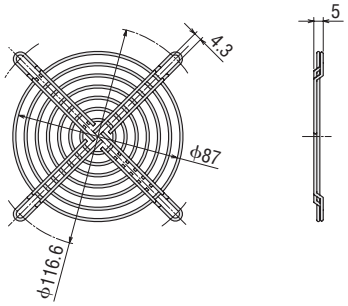
FG6E ····· for **MD■625**, **MDA625-24L**
List Price: XXX Mass: 13 g
2D CAD E196 3D CAD



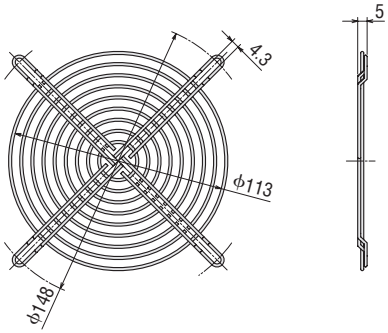
FG8D ····· for **MD■825**
List Price: XXX Mass: 23 g
2D CAD E048 3D CAD



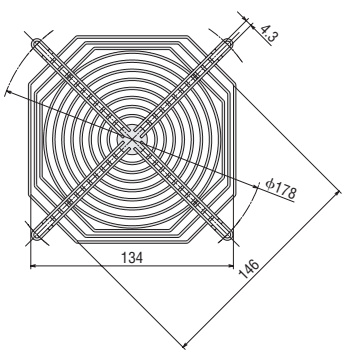
FG9D ····· for **MD■925**
List Price: XXX Mass: 28 g
2D CAD E049 3D CAD



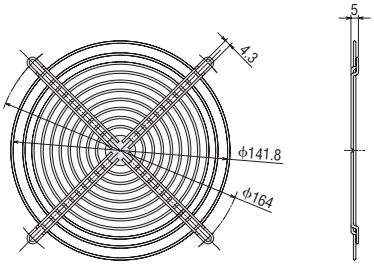
FG12D ····· for **MD■1225**, **MD■1238**
List Price: XXX Mass: 42 g
2D CAD E051 3D CAD



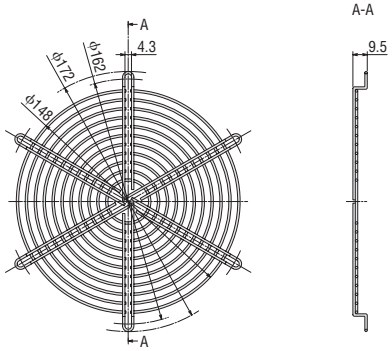
FG14D ····· for **MD■1451**
List Price XXX Mass: 64 g
2D CAD E052 3D CAD



FG17D ····· for **MD■1751**
List Price: XXX Mass: 57 g
2D CAD E054 3D CAD



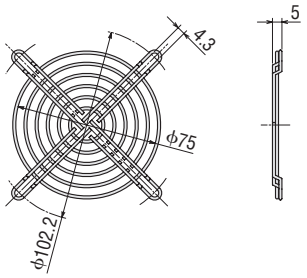
FG17DF ····· for **MD■1751F**
List Price: XXX Mass: 65 g
2D CAD E195 3D CAD



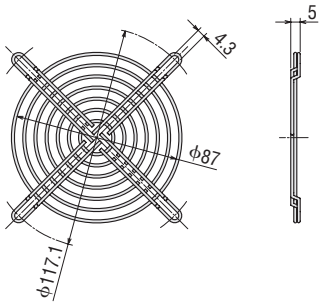
● Either **S**, **A**, **E**, or **V** indicating the type is entered where the box ■ is located within the product name.

●Stainless Steel Finger Guard

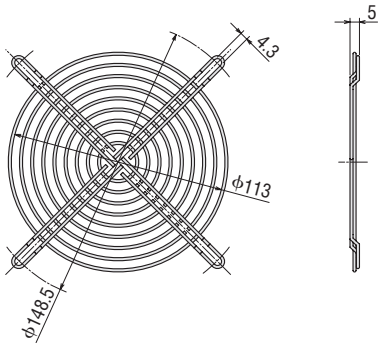
FG8S ····· for **MD■825**
List Price: XXX Mass: 22 g
2D CAD E223 3D CAD



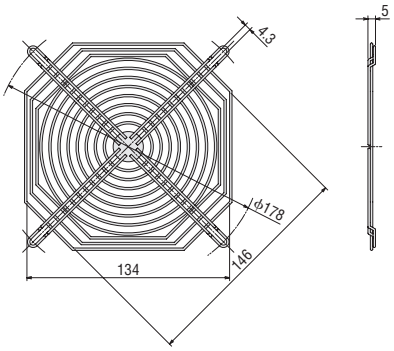
FG9S ····· for **MD■925**
List Price: XXX Mass: 27 g
2D CAD E224 3D CAD



FG12S ····· for **MD■1225**, **MD■1238**
List Price: XXX Mass: 41 g
2D CAD E225 3D CAD



FG14S ····· for **MD■1451**
List Price: XXX Mass: 64 g
2D CAD E230 3D CAD



● Please Contact Us for List Prices.

● Either **S**, **A**, **E**, **V**, or **P** indicating the type is entered where the box ■ is located within the product name.

Filter
Metallic Filters

When using a fan to cool machinery, dust may accumulate inside the machinery after long periods of operation. Depending on the parts involved, this could cause a malfunction.
These filters prevent dust from entering the device, keeping the air inside the machinery dust free. Additionally, because the material of the metallic filter is stainless metal, there is no worry of rust or corrosion and it is possible to remove deposits by washing or vacuuming with a vacuum cleaner.

The filter and metal filter consist of the following three parts:

●Filter

①Guard : Plastic finger guard
Flammability grade: V-0
②Filter Media : Polyurethane air-cleaning filter media 20 to 45 PPI (PPI: The number of air bubbles per inch)
③Retainer : Plastic retainer for filtering material
Flammability grade: V-0

●Metallic Filter

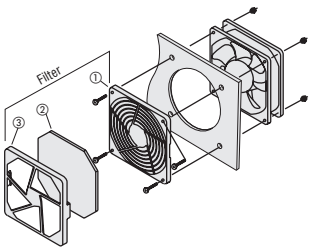
①Guard : Nylon resin finger guard
Flammability grade: V-0
②Filter Media : Stainless media 30 mesh (mesh: Number of square holes per 1 inch)
③Retainer : Nylon resin retainer for filtering material
Flammability grade: V-0

● The filter media and the retainer of the filter and metallic filter can be attached and detached very easily for washing or other kinds of maintenance.

Filter

Metallic Filter

[Installation Example]



● Install the filter on the intake side.

How to Install the Filter
1. Fasten the guard to the fan.

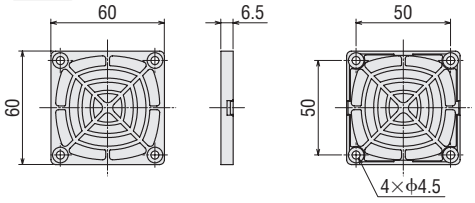
Screw Type	Applicable Filter
Flat Countersunk Head Screw	**FL6**, **FL8**, **FL9**, **FL12**
Round Head Screw	**FL14**, **FLW12**, **FLW14**

2. Insert the filter media and attach the retainer to the guard.

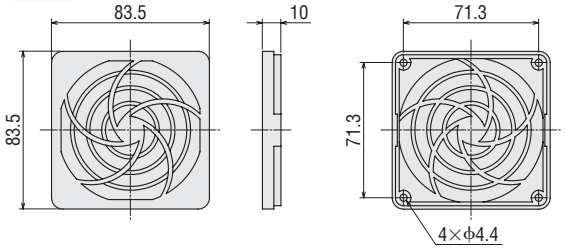
Dimensions (Unit: mm)

●Filter

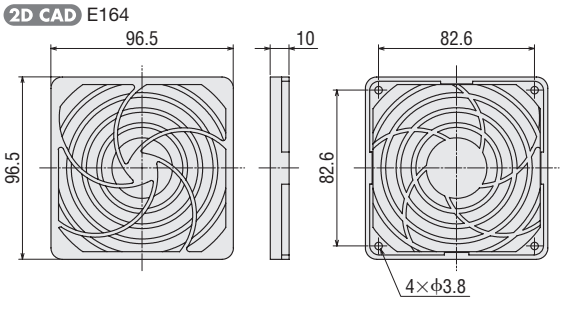
FL6 ····· for **MD□625**
List Price XXX Mass: 11 g (Filter Media: 45 PPI)
2D CAD E162



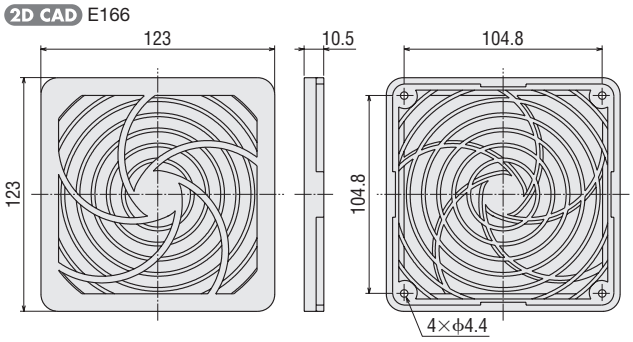
FL8 ····· for **MD□825**
List Price: XXX Mass: 19 g (Filter Media: 20 PPI)
2D CAD E163



FL9 ····· for **MD□925**
List Price Mass: 26 g (Filter Media: 20 PPI)
2D CAD E164



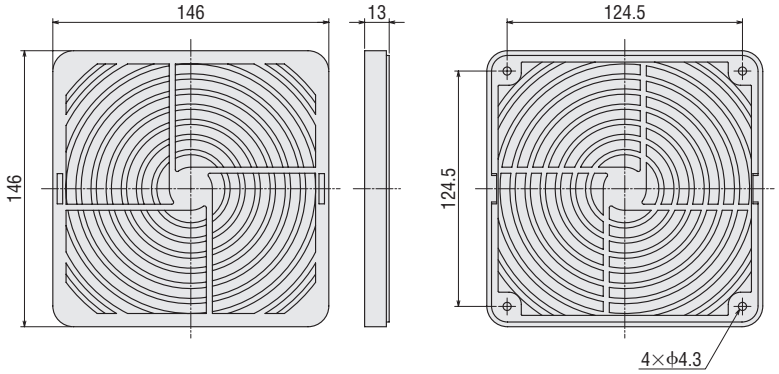
FL12 ····· for **MD□1225**, **MD□1238**
List Price: XXX Mass: 46 g (Filter Media: 20 PPI)
2D CAD E166



● Please Contact Us for List Prices.

● Either **S**, **A**, **E**, or **V** indicating the type is entered where the box □ is located within the product name.

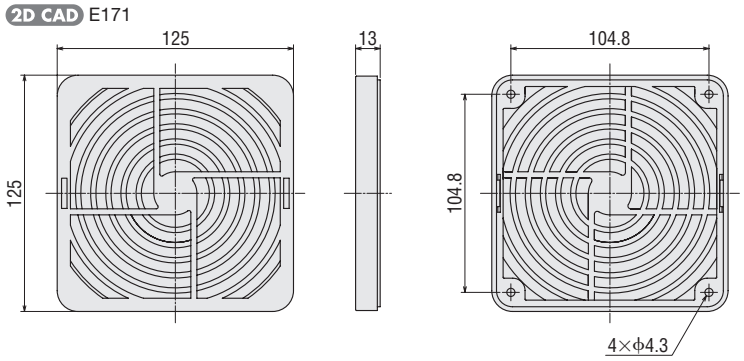
FL14 ····· for **MD■1451**
List Price: XXX Mass: 92 g (Filter Media: 30 PPI)
2D CAD E167



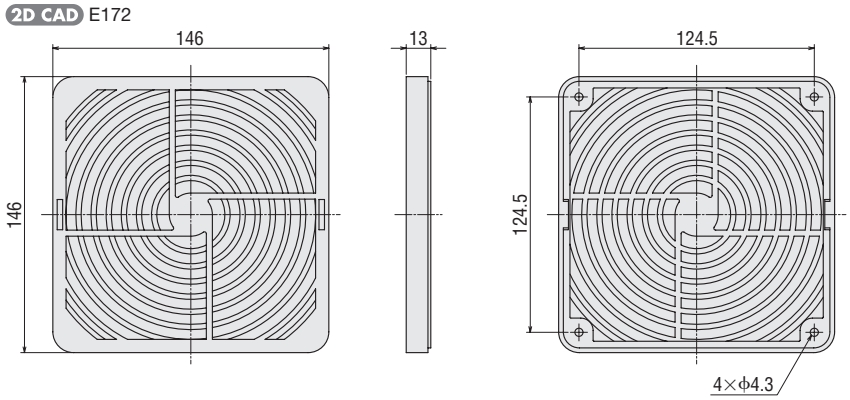
● Either **S**, **A**, or **E** indicating the type is entered where the box ■ is located within the product name.

●Metallic Filter

FLW12 ····· for **MD■1225**, **MD■1238**
List Price: XXX Mass: 104 g (Filter Media: 30 mesh)
2D CAD E171



FLW14 ····· for **MD■1451**
List Price: XXX Mass: 130 g (Filter Media: 30 mesh)
2D CAD E172



● Either **S**, **A**, **E**, **V**, or **P** indicating the type is entered where the box ■ is located within the product name.

● Please Contact Us for List Prices.

■Replacement Filter Media

Periodic maintenance is recommended since clogging of the filter reduces the cooling effect.

●Filter Medias for Filters

Product Name	Applicable Filter
FLM6	**FL6**
FLM8	**FL8**
FLM9	**FL9**
FLM12	**FL12**
FLM14	**FL14**

●Filter Medias for Metallic Filters

Product Name	Applicable Filter
FLWM12	**FLW12**
FLWM14	**FLW14**

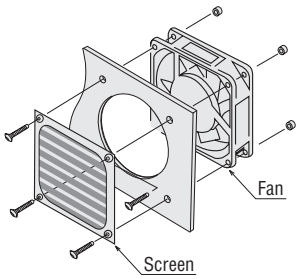
Note

● One package contains five filter media for filters.
One package contains one filter media for metallic filters.
● When ordering, please specify the quantity by the number of packages.
● List price indicates the price with one package.

Screens

Fans are used to cool or ventilate electronic devices that may generate electromagnetic waves. These waves can escape from the fan cooling holes, causing interference to computers and measuring instruments.
The screens allow the passage of air, but block electromagnetic waves.
The screen is a durable magnetic shield using a stainless mesh fixed to an aluminum frame. Screens are easily attached to the fan using screws.

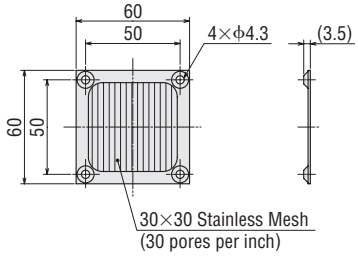
[Installation Example]



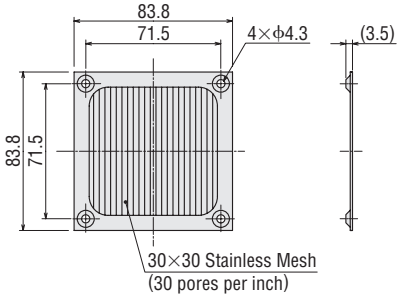
- Install from the flat side of the fan.
- To shut out electromagnetic waves, it is necessary to install such that there is no gap between the screen edges and the enclosure.

Dimensions (Unit: mm)

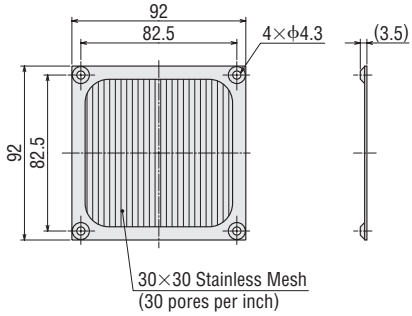
FS6S ····· for **MD■625**
List Price XXX Mass: 7 g
2D CAD E173



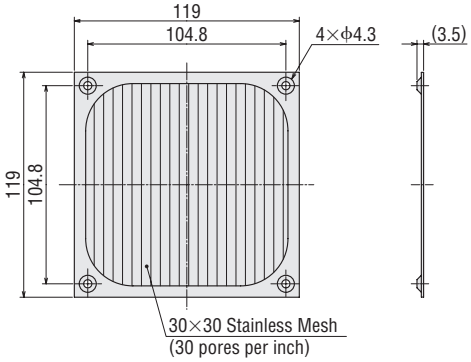
FS8S ····· for **MD■825**
List Price: XXX Mass: 15 g
2D CAD E174



FS9S ····· for **MD■925**
List Price: XXX Mass: 16 g
2D CAD E175



FS12S ····· for **MD■1225**, **MD■1238**
List Price: XXX Mass: 24 g
2D CAD E176



- Please Contact Us for List Prices.
- Either **S**, **A**, **E**, **V**, or **P** indicating the type is entered where the box ■ is located within the product name.

Fan Thermostat

AM2-XA1

The fan thermostat **AM2-XA1** automatically controls the operation and stop of the fan in response to temperature changes in the equipment. Using this thermostat achieves the performance enhancement of equipment related to the environment, such as energy saving and low noise.

- Increased Operating Temperature Accuracy and Reset Temperature Accuracy

Product Line

Product Name
AM2-XA1

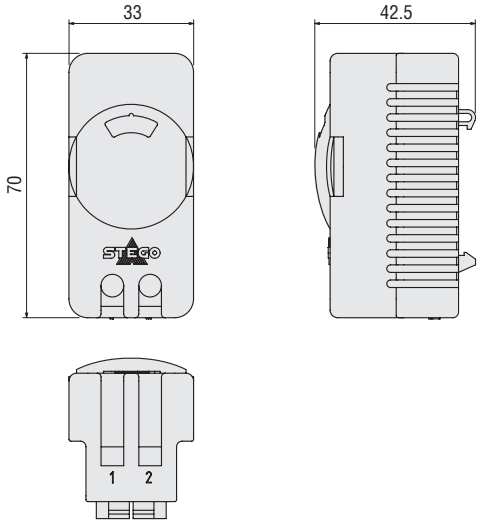
Specifications

Item		Specifications
Electrical Rating	Inductive Load	The inductive load is determined depending on the types and number of fans used with the thermostat. For more information on applicable fan types and number of fans, please see "■Applicable Products and Number of Fans Possible to Use."
	Resistance Load	120 VAC, 15 A / 250 VAC, 10 A
Contact Type		Bimetal Normally Open
Temperature Setting Range		0 to 60˚C
Switch Temperature Difference		±5˚C
Reset Temperature (Differential)		Operating Temperature −4˚C±3˚C
Applicable Lead Wire		0.75 to 2.5 mm^2 (AWG18 to 13)

Dimensions (Unit: mm)

Mass: 50 g

2D CAD E222 3D CAD



Applicable Products and Number of Fans Possible to Use

The applicable products possible to use with the thermostat and the number of fans that a single thermostat can control is as follows:

MD Series

Type	Product	Number of Fans (units)
S Type Hight-Speed	**MDS625H**	2
	MDS825H	4
	MDS925H	3
S Type Standard Speed	**MDS1238** **MDS1451**	1
A Type Stall Alarm	**MDA1238-24L** **MDA1451-24L**	1
A Type Low-Speed Alarm	**MDA625-24**	7
	MDA825-24	5
	MDA925-24	6
	MDA1225-24	3
	MDA1238-24 **MDA1451-24**	1
E Type	**MDE1225**	3
	MDE1451	1
P Type	**MDP925**	6
	MDP1238	1

Fan Speed Controller

FSC-24

- Set rotation speed by PWM control of fan motor
- Air flow and alarm is indicated
- Using this fan controller in combination with the variable flow fan **MD** Series **V** type is possible.
- Possible to control two speeds
- Parallel operation is possible
- Alarm Function: Stall Alarm, Overvoltage Protection, Undervoltage Protection, Overheat Protection

Product Line

Product Name
FSC-24

Included

Wiring Cover	Operating Manual
1 Pc.	1 Copy

Specifications

CE

Items	Specifications
Control Power Supply	24 VDC −10 to +15% 0.04 A Max.
Input Current	The power supply capacity is determined depending on the types and number of fans connected.
Applicable Fan Motor	**MD** Series **V** Type
Input Signal	C-MOS Input Speed Swithching Input
Output Signal	Open Collector Output Operating Condition 27.6 VDC Max. 30 mA Max. Alarm Signal Output
Alarm Function	If an error occurs in the fan, the ALARM LED (Red) and the indicator blink. Stall Alarm, Overvoltage, Undervoltage, Overheating
Maximum Extension Distance	Between the fan and the speed controller: 2 m
Connectable Number of Fan Motors*	・When connecting the power supply and the PWM signal output and operating in parallel **MDV420**, **MDV515**, **MDV625**, **MDV825**, **MDV925**: 4 **MDV1225**, **MDV1238**: 2 ・When connecting the PWM signal output and operating in parallel, number of fan motors: 8 max.

*Please connect to the same type of fan motor.

General Specifications

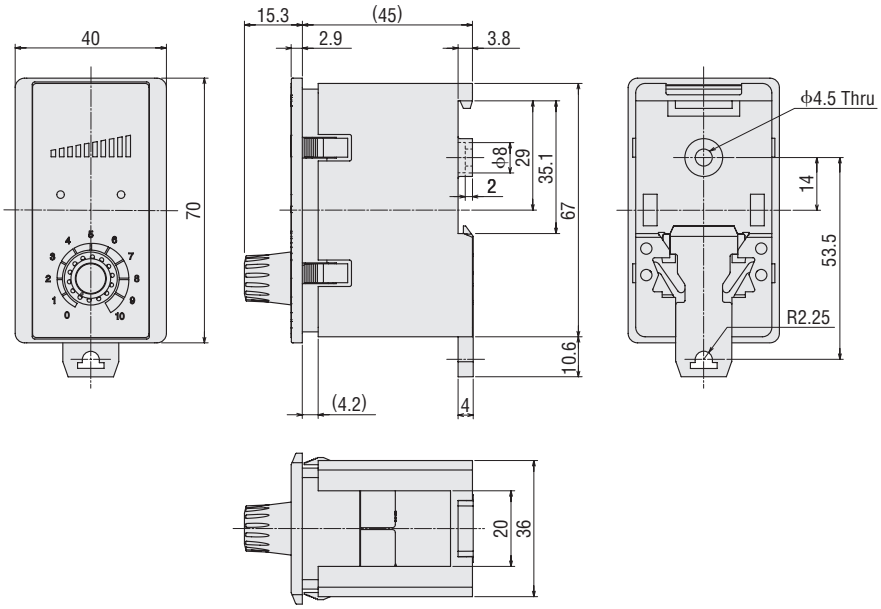
Item		Specifications
Insulation Resistance		10 MΩ or more when 500 VDC megger is applied between the terminal block and the case after continuous operation under normal ambient temperature and humidity.
Dielectric Strength		Sufficient to withstand 0.5 kVAC at 50 Hz applied between the terminal block and the case for 1 minute after continuous operation under normal ambient temperature and humidity.
Temperature Rise		Temperature rise of the case is 10°C or below measured by thermocouple method after continuous operation under normal ambient temperature and humidity.
Operating Environment	Ambient Temperature	−10 to +60°C (Non-Freezing)
	Ambient Humidity	85% Max. (Non-Condensing)
	Altitude	Up to 1000 m above sea level
	Surrounding Atmosphere	No corrosive gas or dust. No water or oil. These products can not be used in radioactive material, magnetic field, vacuum, or other special environment.
	Vibration	Not subject to continuous vibrations or excessive impact. In conformance with JIS C 60068-2-6 "Sine-Wave Vibration Test Method". Frequency Range: 10 to 55 Hz, Pulsating Amplitude: 0.15 mm, Sweep Direction: 3 Directions (X, Y, Z), Number of Sweeps: 20 Times
Storage Condition*	Ambient Temperature	−20 to +70°C (Non-Freezing)
	Ambient Humidity	85% Max. (Non-Condensing)
	Altitude	Up to 3000 m above sea level
	Surrounding Atmosphere	No corrosive gas or dust. No water or oil. These products can not be used in radioactive material, magnetic field, vacuum, or other special environment.
Degree of Protection		IP00

*The storage condition applies to a short period including a transporting period.

Dimensions (Unit: mm)

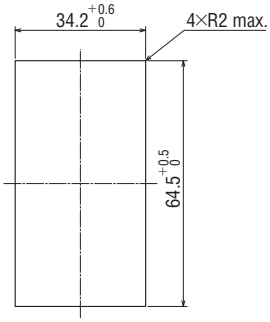
Mass: 65 g

2D CAD E263 3D CAD



Panel Cut-Out (Unit mm)

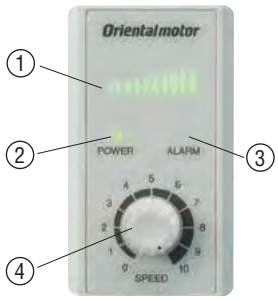
Applicable Plate Thickness: 2.0 mm to 3.0 mm



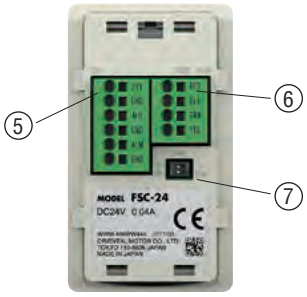
Connection and Operation

Names and Functions of Parts

Front

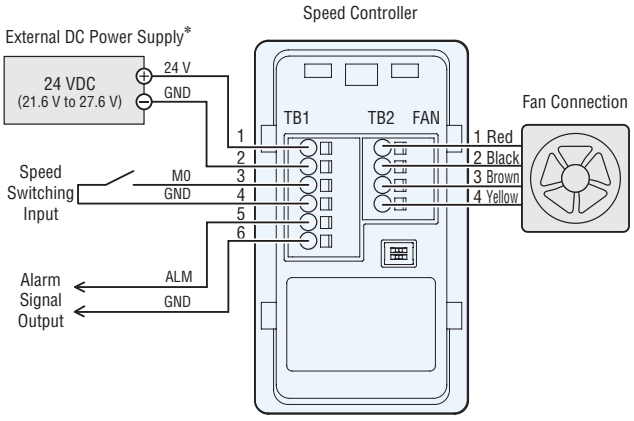


Back



No.	Name	Indication	Function
①	Indicator (Green)	–	This indicator shows the PWM output (rotation speed) in linking with the setting dial, as well as an alarm.
②	POWER LED (Green)	POWER	This LED is lit while the power supply is input.
③	ALARM LED (Red)	ALARM	This LED blinks if an alarm (protective function) is generated.
④	Setting Dial	SPEED	This Setting Dial is used to set the PWM ouput (rotation speed).
⑤	I/O Connection Terminal	TB1	This terminal is used to connect the main power supply, speed switching input, and the alarm output.
⑥	Fan Connection Terminal	TB2 FAN	This is terminal is used to connect a fan.
⑦	Function Select Switches	SW1	These switches are used to switch the settings.

Connection Method



* The power supply capacity varies depending on the type and number of fans connected.

◇I/O Connection Terminal (TB1)

Pin No.	Terminal Name	Function	Description
1	24 V	Power Supply Input	Connects 24 VDC Power Supply.
2	GND		
3	M0	Speed Switching Input	The fan speed can be switched between the rotation speed being set and the maximum speed. ON: Maximum Speed OFF: Setting Speed
4	GND		
5	ALM	Alarm Signal Output	This signal is output if an alarm is generated. (Normally Closed)
6	GND		

◇Fan Connection Terminal (TB2)

Pin No.	Terminal Name	Function	Color of Fan Lead Wire
1	RED	Fan Power Supply Terminal (+)	Red
2	BLK	Fan Power Supply Terminal (GND)	Black
3	BRN	PWM Signal Output	Brown
4	YEL	Pulse Sensor Input	Yellow

•Applicable Lead Wire Size

Lead Wire Size: Stranded Wire AWG24 to 16 (0.2 to 1.5 mm^2)

Operating Method

◇Operation

When the power is turned on, the fan rotates.

◇Variable Flow

Adjust the rotation speed using the setting dial. Factory Setting is "5." For the relations of the scale of setting dial and the rotation speed, refer to "PWM Duty-Rotation Speed Characteristics."

• Setting of the Scale of **FSC-24** and PWM Duty

Scale of Setting Dial	0	1	2	3	4	5	6	7	8	9	10
PWM Duty [%]	0	10	20	30	40	50	60	70	80	90	100

◇Stop

When the power is turned off the fan stops.

• Fan Operation when Setting Dial is "0"

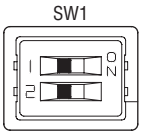
MDV420, **MDV515**, **MDV1238**	Stop (Stall Alarm*)
MDV625, **MDV825**, **MDV925**, **MDV1225**	Rotation*

*It can be changed with the function select switches.

◇Function Select Switch

The new settings of the function select switches will be applied after the power is turned on again.
Factory Setting: OFF

No.	Description
SW1-1	Selection of stall alarm OFF: Enabled ON: Disabled Set the switch to ON when connecting two or more fans.
SW1-2	Selection of the operation for when the setting dial is "0" OFF: Fan rotates PWM Duty 0%*1 ON: Fan stops The power supply for fan is turned off*2

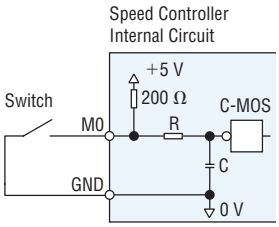


*1 The **MDV420**, **MDV515** and **MDV1238** fans stop when PWM Duty is 0%.
*2 The stall alarm is not output.

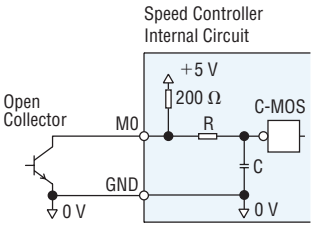
Internal Configurations of Circuit for Speed Switching Input

All input signals of the speed controller are C-MOS inputs.

● When Connecting with a Switch



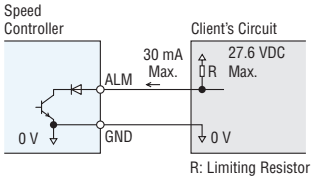
● Open Collector Output



• Status of Signal
ON: 0 to 1 V (L Level) PWM Output 100% Fixed
OFF: 4 to 5 V (H Level) PWM Output Variable
• Open Circuit Voltage 5 Vtyp
• Outflow Current 20 to 30 mA

Internal Configurations of Circuit for Alarm Signal Output

An output signal of the speed controller is an open-collector output. If a current significantly exceeding the specification is generated, the internal transistor is turned OFF.



• Status of Signal
When a fan rotates:
Internal Transistor ON
When an alarm is generated (when a fan stops):
Internal Transistor OFF
• Maximum Applied Voltage 27.6 VDC Max.
• Maximum Inflow Current 30 mA Max.
• ON Voltage 1.5 V Max.

Oriental Motor's AC Input Axial Flow Fan

Frame Size [mm]	Feature	□80	□92	□104	□119 □120	□140	□160	□180	□200	□250
Low Power Consumption Axial Flow Fan **EMU Series**	Energy Savings Low-Speed Alarm Output		●		● (□120)					
Compact/Moisture-proof Axial Flow Fan **MU Series**	Moisture-proof	●	●	●	● (□119)	●				
Large Axial Flow Fan **MRS Series**	Speed Control (Inverter Drive Compatible) Low-Speed Alarm Output					●	●	●	●	●
Long Life Axial Flow Fan **MRE Series**	Long Life Speed Control (Inverter Drive Compatible) Low-Speed Alarm Output*			●	● (□119)		●	●	●	
Low Power Consumption and Speed Control Axial Flow Fan **EMR Series**	Speed Control Energy Savings Low-Speed Alarm Output							●		

*Excluding **MRE10**, **MRE12**

Oriental motor

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