Oriental motor

DC Axial Flow Fans with Low-Speed Alarm

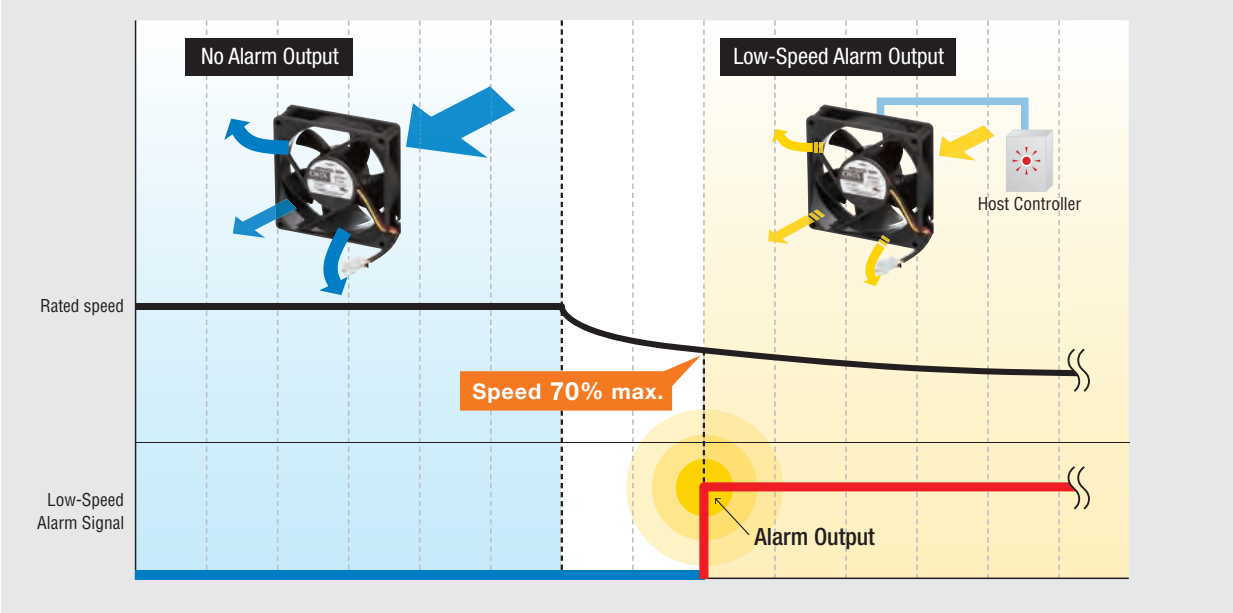
MDA Series

This series features a built-in alarm circuit that the host controller can recognize if the fan speed drops. This is important for noticing quick drops in the cooling capacity of the fan caused by a service life of the fan or by the ingress of a foreign objects.

Features

The Low-Speed Alarm:

An alarm is output when the fan speed drops to 70% or less.

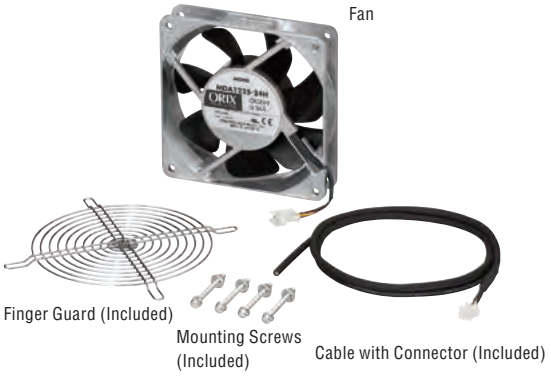


Easy-to-Connect Fan Types are also Available.

We have a cable with a connector for easy connection in addition to the standard lead wire type.
The connector type fan can reduce wiring.
Maintenance is also very easy because the fans can be replaced just by disconnecting the connector.

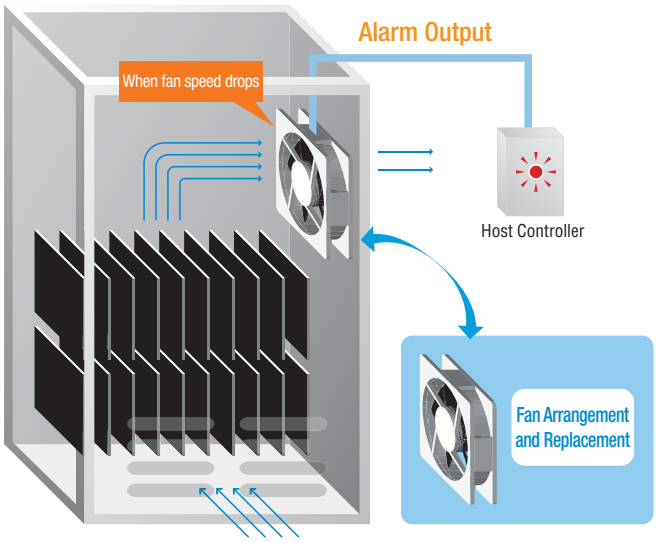
All Necessary Items for Installation are Included.

The finger guard, cable with connector (connector type only) and mounting screws are included, so they can be used immediately.



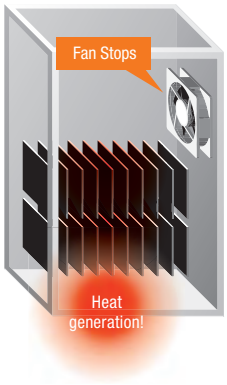
●Contributes to Increased Reliability of Equipment.

If you use the **MDA** Series:
An alarm is output when the fan speed drops due to the service life of the fan or the ingress of foreign objects.
This makes it possible to order and replace the fan before it stops.
Even if the cooling capacity of the fan decreases, the effect of that on the equipment can be minimized.



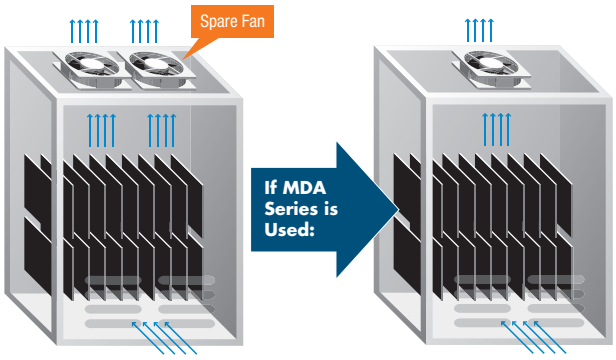
If a fan with low-speed alarm is not used:

If the drop in fan speed is left unaddressed, it will lead to a rise in the temperature inside the equipment. This will then affect the equipment.



Use the **MDA** Series in the Following Scenario.

●When a Spare Fan is Installed

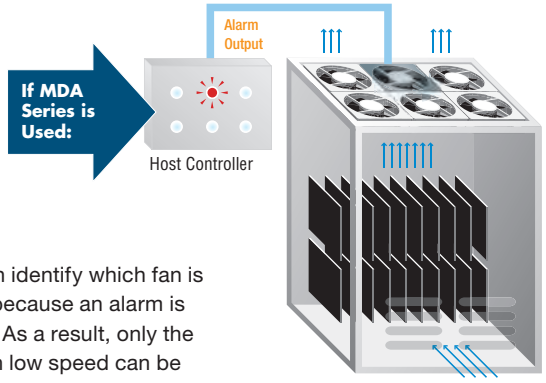


A spare fan is installed in case the cooling capacity decreases.

An alarm is output when the fan speed drops. As a result, no spare fan needs to be installed.

●When Multiple Fans are Installed

Since multiple fans are installed, you cannot identify which fan is failing when the cooling capacity decreases.
This leads to the replacement of all fans.



You can identify which fan is failing because an alarm is output. As a result, only the fan with low speed can be replaced.

Lineup

MDA Series	Power Supply Voltage	Frame Size [mm (in.)]				
		□140 (□5.51)	□119 (□4.69)	□92 (□3.62)	□80 (□3.15)	□62 (□2.44)
Lead wire Connector	12 VDC		●	●	●	●
	24 VDC	●	●	●	●	●
	48 VDC	●				

General Specifications

Item	Specifications
Insulation Resistance	10 MΩ or more when 250 VDC megger (**MDA1451**: 500 VDC megger) is applied between the windings and the frame after continuous operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 500 V at 50 Hz applied between the windings and the frame for 1 minute after continuous operation under normal ambient temperature and humidity.
Temperature Rise	10ºC (18°F) or less measured by the thermometer method after the temperature of the case has stabilized after continuous operation under normal ambient temperature and humidity. (**MDA1451**: 15˚C [27°F] or less)
Operating Voltage Range	±15% of the rated voltage **MDA1225**: ±10% of the rated voltage
Thermal Class	UL/CSA standards: 105 (A), EN standards: 120 (E)
Overheat Protection	Built-in overheat protection circuit
Ambient Temperature	−10～+60˚C (+14～+140°F)
Ambient Humidity	85% or less (non-condensing)
Color	Frame: Black: **MDA925**, **MDA825**, **MDA625** Unpainted (Aluminum): **MDA1451**, **MDA1225** Blades: Black
Materials	Fan Frame: Die cast aluminum: **MDA1451**, **MDA1225** Polycarbonate (Flammability grade V-0): **MDA925**, **MDA825**, **MDA625** Blades: Polycarbonate (Flammability grade V-0)

Product Number Code

MDA 12 25 - 24 H G

① ② ③ ④ ⑤ ⑥

①	Series	**MDA**: **MDA** Series
②	Frame Size	**6**: 62 mm (2.44 in.) **8**: 80 mm (3.15 in.) **9**: 92 mm (3.62 in.) **12**: 119 mm (4.69 in.) **14**: 140 mm (5.51 in.)
③	Frame Thickness	**25**: 25.4 mm (1.00 in.) **51**: 51 mm (2.01 in.)
④	Power Supply Voltage	**12**: 12 VDC **24**: 24 VDC **48**: 48 VDC
⑤	Connection Type	Blank: Lead wire type **H**: Connector Type
⑥	Accessory	**G**: Finger Guard

Low-Speed Alarm Specifications

The alarm specifications vary depending on the type of alarm.
Check the alarm specifications according to the model name you use.
Specifications can also be referred to by the alarm specifications number shown on the specifications for each product.

An alarm is output when the fan speed drops to a specific level. Output mode is electronic output.

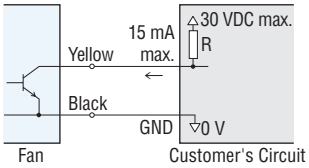
Alarm Specifications Number: ①

●Models ◇**MDA** Series: **MDA1451-□(H)G**

●Alarm Specifications

Alarm Activation Speed	1800±400 r/min
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 sec. after the power is turned on.)

●Example of Alarm Circuit Connection



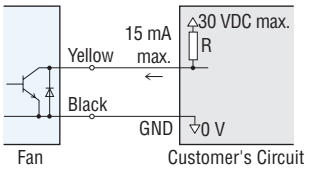
Alarm Specifications Number: ②

●Models ◇**MDA** Series: **MDA1225-□(H)G**

●Alarm Specifications

Alarm Activation Speed	2100±400 r/min
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 sec. after the power is turned on.)

●Example of Alarm Circuit Connection



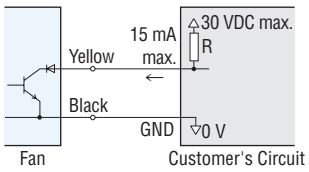
Alarm Specifications Number: ③

●Models ◇**MDA** Series: **MDA925-□(H)G**, **MDA825-□(H)G**, **MDA625-□(H)G**

●Alarm Specifications

Alarm Activation Speed	**MDA925-□(H)G**: 1900±400 r/min **MDA825-□(H)G**, **MDA625-□(H)G**: 2300±400 r/min
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 sec. min.)

●Example of Alarm Circuit Connection



MDA Series

□140 mm – 51 mm Thick (□5.51 in. – 2.01 in. Thick)

With Alarm

Operating Voltage Range: ±15% (Applies to each voltage)
Materials
Frame: Die cast aluminum
Blades: Polycarbonate (Flammability grade V-0)
Overheat Protection: Built-in overheat protection circuit
Bearings: Ball bearings

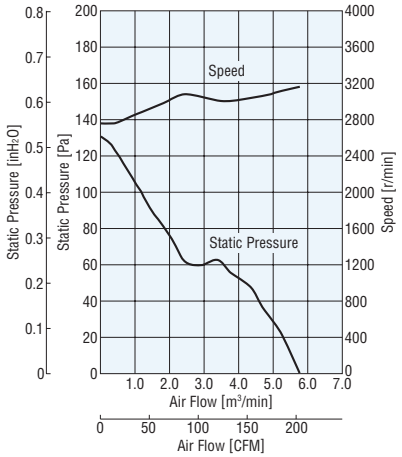
Specifications RoHS

Function	Model		Voltage VDC	Current A	Speed r/min	Max. Air Flow		Max. Static Pressure		Noise Level dB (A)
	Lead Wire Type	Connector Type				m^3/min	CFM	Pa	inH_2O	
Low-Speed Alarm, Electronic Alarm Type <Alarm Specifications: ①>	**MDA1451-24G**	**MDA1451-24HG**	24	0.7	3150	5.8	205	130	0.521	49
	MDA1451-48G	**MDA1451-48HG**	48	0.35						

● Alarm Specifications ① ➜ Page 4

The following items are included in each product.
Fan, Finger Guard, Cable with Connector*, Mounting Screws (M4×70 mm (2.76 in)), Operating Manual
*Connector Type only

Air Flow – Static Pressure Characteristics (Characteristics when a finger guard is not installed)

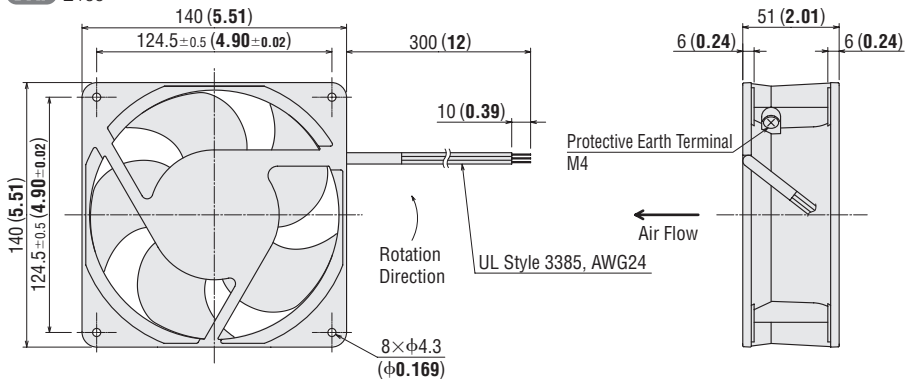


Dimensions Unit = mm (in.)

Lead Wire Type

Mass: 0.65 kg (1.43 lb.)

DXF E109

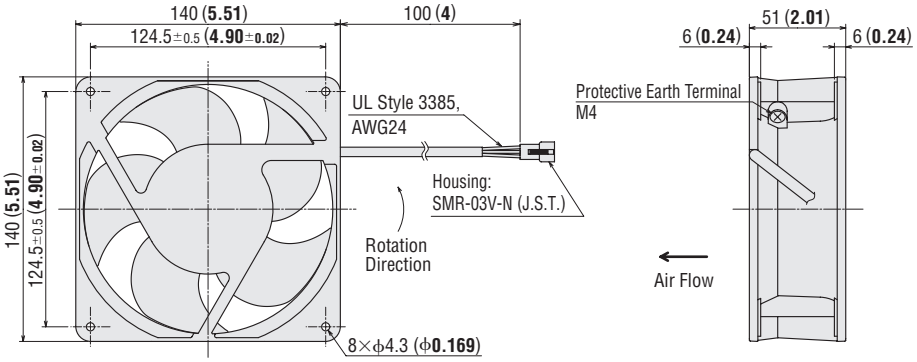


●Connector Type

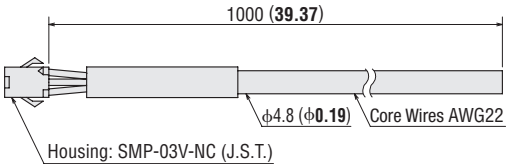
◇Fan

Mass: 0.65 kg (1.43 lb.)

DXF E117



◇Cable with Connector (Included)

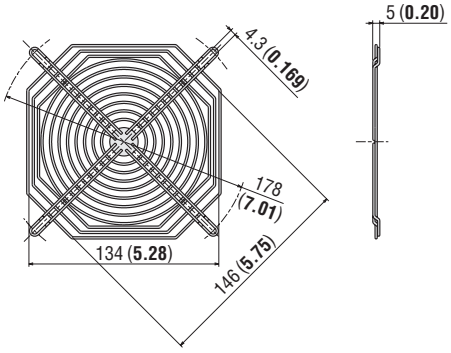


●Finger Guard (Included, common to lead wire type and connector type)

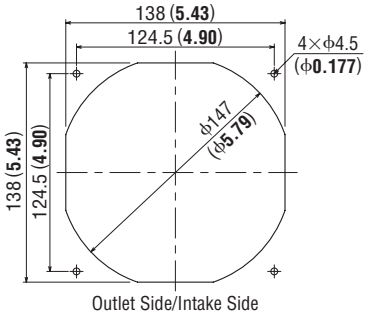
Conformed Component for Safety Standards

Mass: 64 g (2.3 oz.)

DXF E052

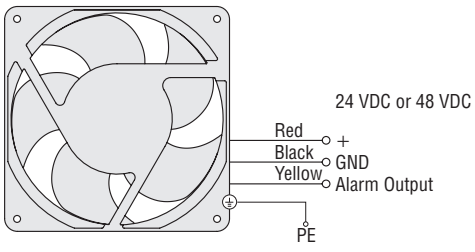


■Panel Cut-Out Unit = mm (in.)

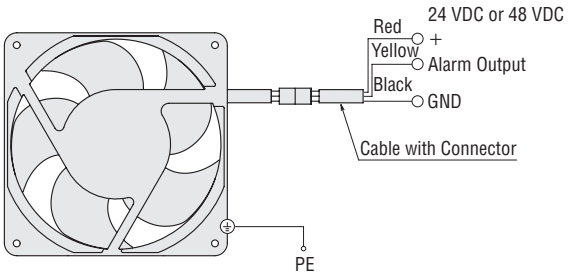


■Connection Diagrams

●Lead Wire Type



●Connector Type



■Accessories

Product	Model
Finger Guard	**FG14D**
Filter	**FL14**

- When installing a finger guard on both sides, please purchase one additional accessory finger guard.
- For detailed accessories information see Oriental Motor General Catalog or visit www.orientalmotor.com.

MDA Series

□119 mm – 25 mm Thick (□4.69 in. – 1.00 in. Thick)

With Alarm

Operating Voltage Range: ±10% (Applies to each voltage)
Materials
Frame: Die cast aluminum
Blades: Polycarbonate (Flammability grade V-0)
Overheat Protection: Built-in overheat protection circuit
Bearings: Ball bearings

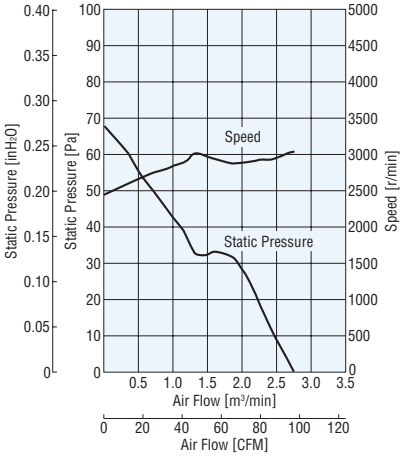
Specifications RoHS

Function	Model		Voltage VDC	Current A	Speed r/min	Max. Air Flow		Max. Static Pressure		Noise Level dB (A)
	Lead Wire Type	Connector Type				m^3/min	CFM	Pa	inH_2O	
Low-Speed Alarm, Electronic Alarm Type <Alarm Specifications: ②>	**MDA1225-12G**	**MDA1225-12HG**	12	0.63	3000	2.7	95.3	70	0.281	46
	MDA1225-24G	**MDA1225-24HG**	24	0.34						

● Alarm Specifications ② ➜ Page 4

The following items are included in each product.
Fan, Finger Guard, Cable with Connector*, Mounting Screws (M4×40 mm (1.57 in)), Operating Manual
*Connector Type only

Air Flow – Static Pressure Characteristics (Characteristics when a finger guard is not installed)

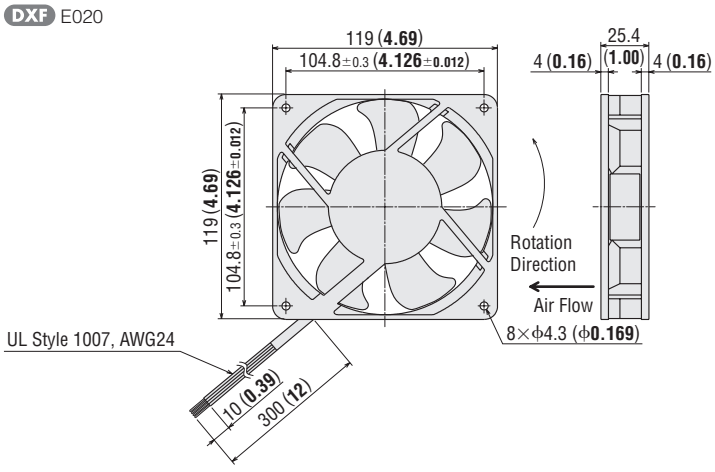


Dimensions Unit = mm (in.)

Lead Wire Type

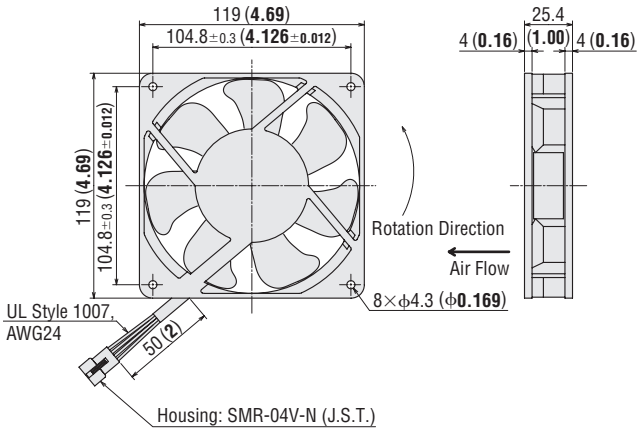
Mass: : 0.3 kg (0.66 lb.)

DXF E020

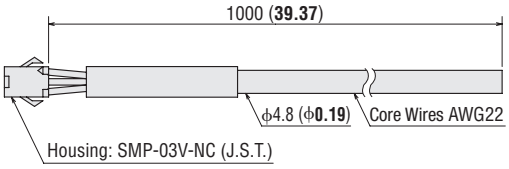


●Connector Type

◇Fan



◇Cable with Connector (Included)

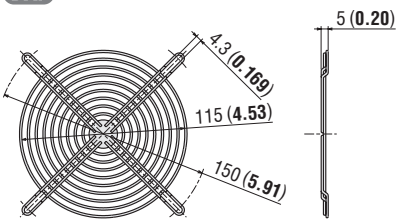


●Finger Guard (Included, common to lead wire type and connector type)

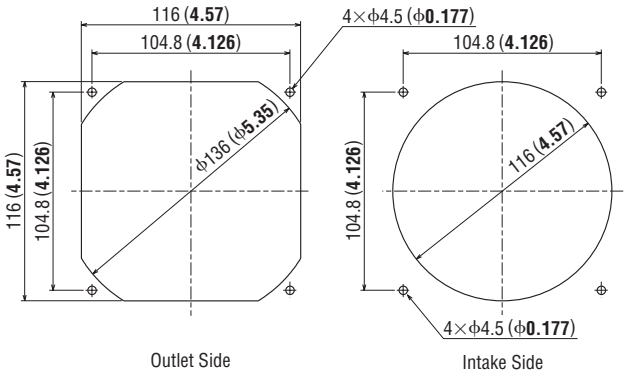
Conformed Component for Safety Standards

Mass: 45 g (1.59 oz.)

DXF E051

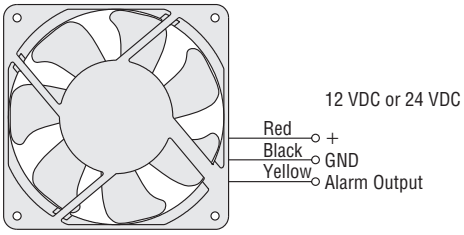


■Panel Cut-Out Unit = mm (in.)

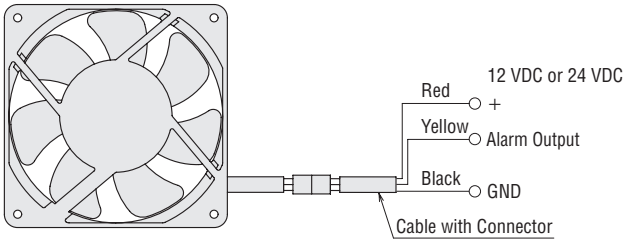


■Connection Diagrams

●Lead Wire Type



●Connector Type



■Accessories

Product	Model
Finger Guard	**FG12D**
Filter	**FL12**
Screen	**FS12S**

- When installing a finger guard on both sides, please purchase one additional accessory finger guard.
- For detailed accessories information see Oriental Motor General Catalog or visit www.orientalmotor.com.

MDA Series

□92 mm – 25 mm Thick (□3.62 in. – 1.00 in. Thick)

With Alarm

Operating Voltage Range: ±15% (Applies to each voltage)
Materials
Frame: Polycarbonate (Flammability grade V-0)
Blades: Polycarbonate (Flammability grade V-0)
Overheat Protection: Built-in overheat protection circuit
Bearings: Ball bearings

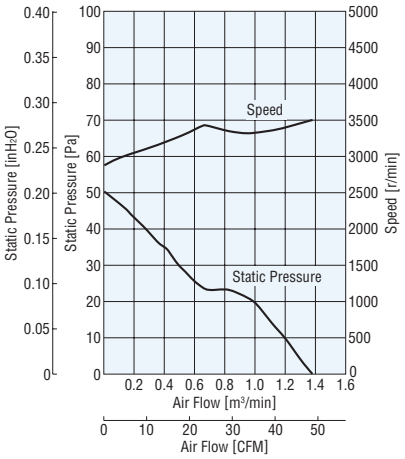
Specifications RoHS

Function	Model		Voltage VDC	Current A	Speed r/min	Max. Air Flow		Max. Static Pressure		Noise Level dB (A)
	Lead Wire Type	Connector Type				m^3/min	CFM	Pa	inH_2O	
Low-Speed Alarm, Electronic Alarm Type <Alarm Specifications: ③>	**MDA925-12G**	**MDA925-12HG**	12	0.24	3400	1.30	45.9	49	0.196	36
	MDA925-24G	**MDA925-24HG**	24	0.12						

● Alarm Specifications ③ ➜ Page 4

The following items are included in each product.
Fan, Finger Guard, Cable with Connector*, Mounting Screws (M4×40 mm (1.57 in)), Operating Manual
*Connector Type only

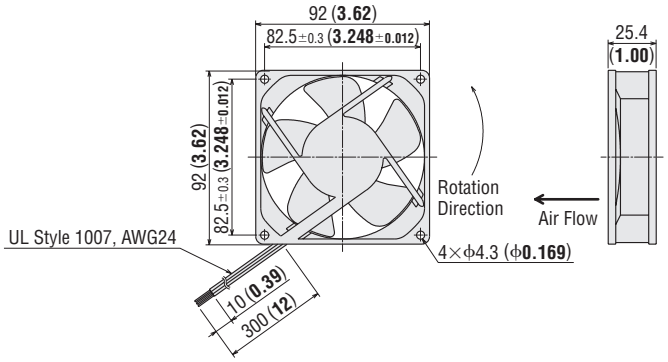
Air Flow – Static Pressure Characteristics (Characteristics when a finger guard is not installed)



Dimensions Unit = mm (in.)

● Lead Wire Type

Mass: 0.12 kg (0.26 lb.)
DXF E022

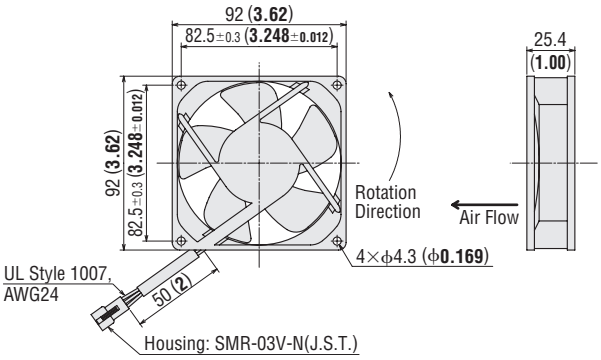


●Connector Type

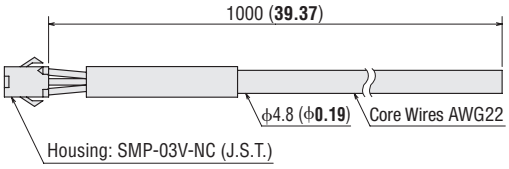
◇Fan

Mass: 0.12 kg (0.26 lb.)

DXF E121



◇Cable with Connector (Included)

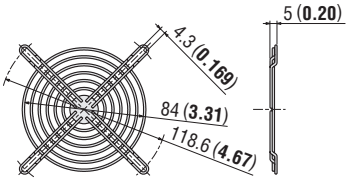


●Finger Guard (Included, common to lead wire type and connector type)

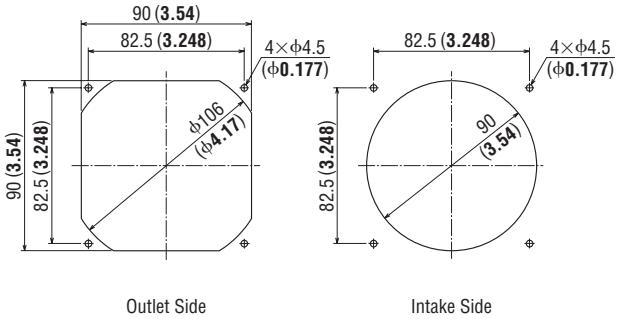
Conformed Component for Safety Standards

Mass: 28 g (0.99 oz.)

DXF E049

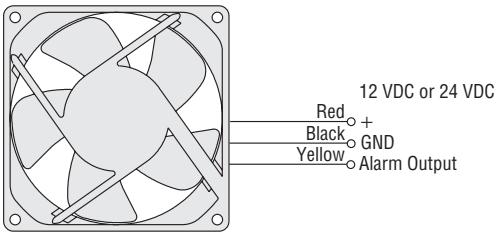


■Panel Cut-Out Unit = mm (in.)

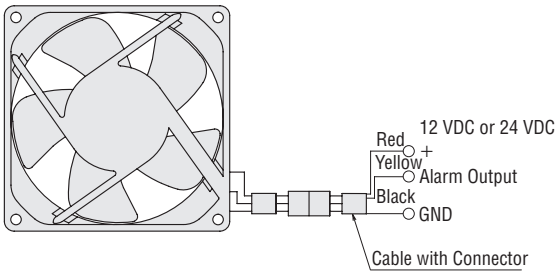


■Connection Diagrams

●Lead Wire Type



●Connector Type



■Accessories

Product	Model
Finger Guard	**FG9D**
Filter	**FL9**
Screen	**FS9S**

- Use M3 screws to install the **FL9** filter to the fan frame.
- When installing a finger guard on both sides, please purchase one additional accessory finger guard.
- For detailed accessories information see Oriental Motor General Catalog or visit www.orientalmotor.com.

MDA Series

□80 mm – 25 mm Thick (□3.15 in. – 1.00 in. Thick)

With Alarm

Operating Voltage Range: ±15% (Applies to each voltage)
Materials
Frame: Polycarbonate (Flammability grade V-0)
Blades: Polycarbonate (Flammability grade V-0)
Overheat Protection: Built-in overheat protection circuit
Bearings: Ball bearings

Specifications RoHS

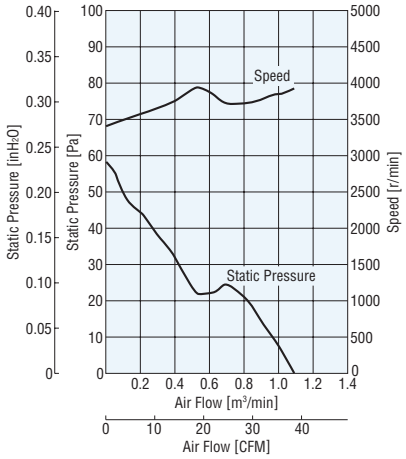
cULus CE

Function	Model		Voltage VDC	Current A	Speed r/min	Max. Air Flow		Max. Static Pressure		Noise Level dB (A)
	Lead Wire Type	Connector Type				m^3/min	CFM	Pa	inH_2O	
Low-Speed Alarm, Electronic Alarm Type <Alarm Specifications: ③>	**MDA825-12G**	**MDA825-12HG**	12	0.25	3800	1.00	35.3	49	0.196	35
	MDA825-24G	**MDA825-24HG**	24	0.14						

● Alarm Specifications ③ ➜ Page 4

The following items are included in each product.
Fan, Finger Guard, Cable with Connector*, Mounting Screws (M4×40 mm (1.57 in)), Operating Manual
*Connector Type only

Air Flow – Static Pressure Characteristics (Characteristics when a finger guard is not installed)

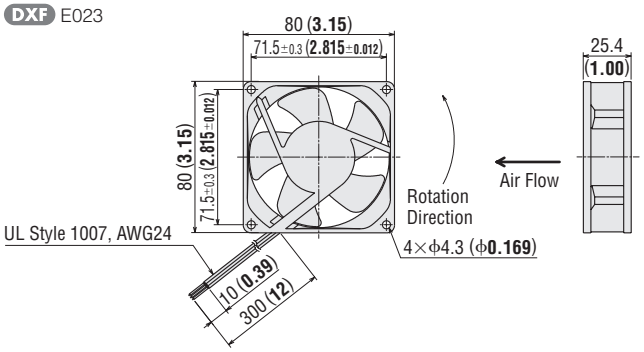


Dimensions Unit = mm (in.)

● Lead Wire Type

Mass: 0.11 kg (0.24 lb.)

DXF E023

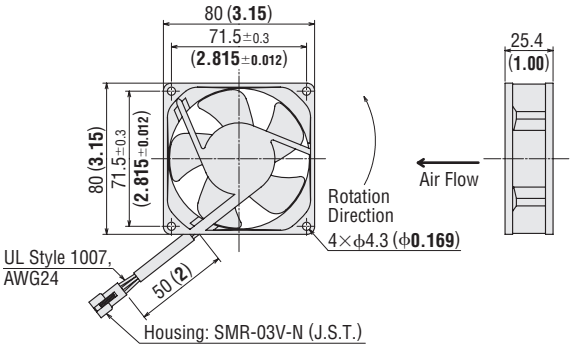


●Connector Type

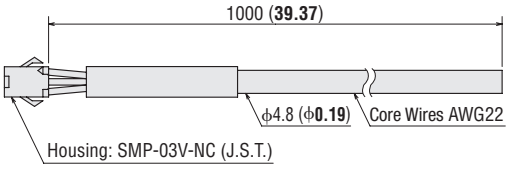
◇Fan

Mass: 0.11 kg (0.24 lb.)

DXF E122



◇Cable with Connector (Included)

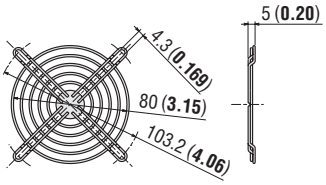


●Finger Guard (Included, common to lead wire type and connector type)

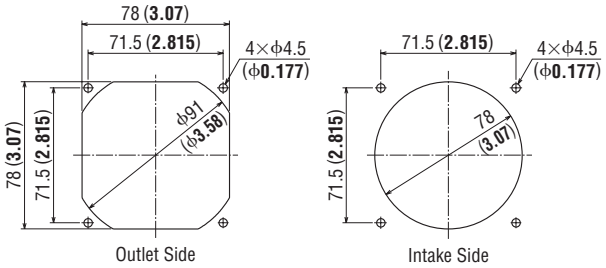
Conformed Component for Safety Standards

Mass: 24 g (0.85 oz.)

DXF E048

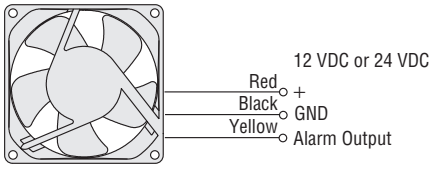


■Panel Cut-Out Unit = mm (in.)

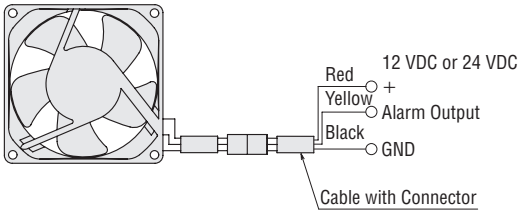


■Connection Diagrams

●Lead Wire Type



●Connector Type



■Accessories

Product	Model
Finger Guard	**FG8D**
Filter	**FL8**
Screen	**FS8S**

- When installing a finger guard on both sides, please purchase one additional accessory finger guard.
- For detailed accessories information see Oriental Motor General Catalog or visit www.orientalmotor.com.

MDA Series

□62 mm – 25 mm Thick (□2.44 in. – 1.00 in. Thick)

With Alarm

Operating Voltage Range: ±15% (Applies to each voltage)
Materials
Frame: Polycarbonate (Flammability grade V-0)
Blades: Polycarbonate (Flammability grade V-0)
Overheat Protection: Built-in overheat protection circuit
Bearings: Ball bearings

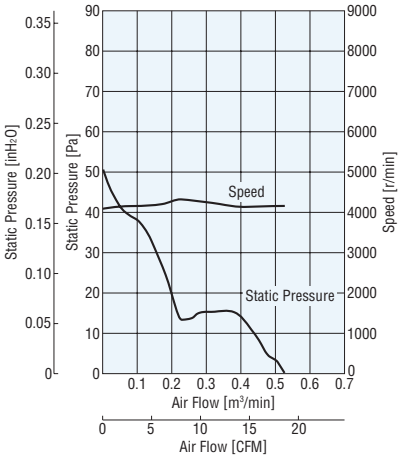
Specifications RoHS

Function	Model		Voltage VDC	Current A	Speed r/min	Max. Air Flow		Max. Static Pressure		Noise Level dB (A)
	Lead Wire Type	Connector Type				m^3/min	CFM	Pa	inH_2O	
Low-Speed Alarm, Electronic Alarm Type <Alarm Specifications: ③>	**MDA625-12G**	**MDA625-12HG**	12	0.16	4000	0.50	17.7	49	0.196	30
	MDA625-24G	**MDA625-24HG**	24	0.10						

● Alarm Specifications ③ ➜ Page 4

The following items are included in each product.
Fan, Finger Guard, Cable with Connector*, Mounting Screws (M3×40 mm (1.57 in)), Operating Manual
*Connector Type only

Air Flow – Static Pressure Characteristics (Characteristics when a finger guard is not installed)

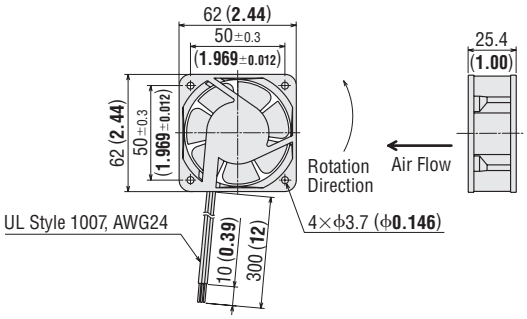


Dimensions Unit = mm (in.)

● Lead Wire Type

Mass: 0.1 kg (0.22 lb.)

DXF E024

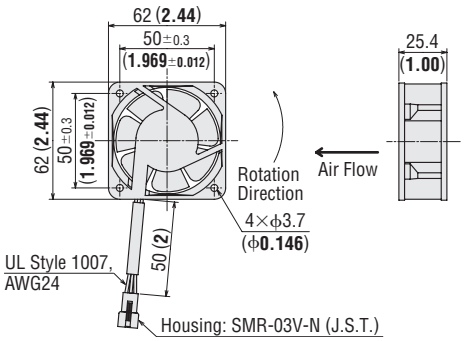


●Connector Type

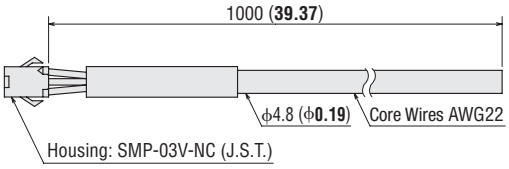
◇Fan

Mass: 0.1 kg (0.22 lb.)

DXF E123



◇Cable with Connector (Included)

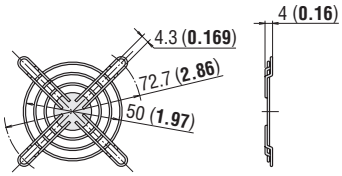


●Finger Guard (Included, common to lead wire type and connector type)

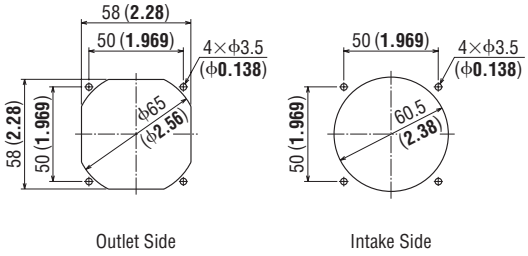
Conformed Component for Safety Standards

Mass: 8.3 g (0.29 oz.)

DXF E087

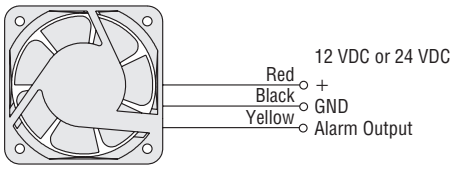


■Panel Cut-Out Unit = mm (in.)

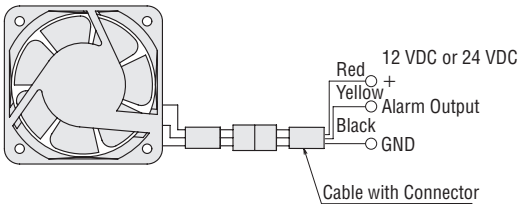


■Connection Diagrams

●Lead Wire Type



●Connector Type



■Accessories

Product	Model
Finger Guard	**FG6D**
Filter	**FL6**
Screen	**FS6S**

- When installing a finger guard on both sides, please purchase one additional accessory finger guard.
- For detailed accessories information see Oriental Motor General Catalog or visit www.orientalmotor.com.

Specifications are subject to change without notice.
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