

OPERATING MANUAL

DC Propeller Fan Low-speed Alarm MDA Series

Introduction

■ Before using the fan

Only qualified and educated personnel should work with the product. Use the product correctly after thoroughly reading the section "Safety precautions."

The product described in this manual has been designed and manufactured to be incorporated in general industrial equipment. Do not use for any other purpose. For the power supply use a DC power supply with reinforced insulation on its primary and secondary sides. Oriental Motor Co., Ltd. is not responsible for any damage caused through failure to observe this warning.

■ Standards · CE Marking

- UL Standard, CSA Standard

The product is recognized by UL.

Standards	UL 507, CSA C22.2 No.113*
Certification body	UL

* With **MDA1238**, the CSA standard has been certified by CSA.

- EU Directive

CE Marking

This product has the CE Marking affixed under the EMC Directive.

Standards	
EMI	EN 61000-6-4
EMS	EN 61000-6-2

* Except for **MDA1238**

MDA1238 is certified by TÜV Rheinland to conform to EN 60950-1 with the third-party certificate.

Installation conditions:


Overvoltage category I, Pollution degree 2, Class III equipment

■ Hazardous substances

The products do not contain the substances exceeding the restriction values of RoHS Directive (2011/65/EU).

■ Republic of Korea, Radio Waves Act.

Applicable product: **MDA625, MDA825, MDA925, MDA1451**

Seller and user shall be noticed that this equipment is suitable for electromagnetic equipments for office work (Class A) and it can be used outside home. 

이 기기는 업무용 (A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Safety precautions

The precautions described below are intended to prevent danger or injury to the user and other personnel through safe, correct use of the product. Use the product only after carefully reading and fully understanding these instructions.

Warning

Handling the product without observing the instructions that accompany a "Warning" symbol may result in serious injury or death.

- Do not use the product in explosive or corrosive environments, in the presence of flammable gases, locations subjected to splashing water, or near combustibles. Doing so may result in fire or injury.
- Only qualified and educated personnel should be allowed to perform installation, connection, operation and inspection/troubleshooting of the product. Failure to do so may result in fire or injury.
- Shut off the power to the fan in the event the lock-protection circuit is activated. Otherwise, the fan will start unexpectedly when released from the locked condition, causing bodily injury or equipment damage.

Thank you for purchasing an Oriental Motor product.

This Operating Manual describes product handling procedures and safety precautions.

- Please read it thoroughly to ensure safe operation.
- Always keep the manual where it is readily available.

- Install the fan in an enclosure in order to prevent injury.
- Keep the input-power voltage within the specified range to avoid fire.
- Connect the cables securely according to the wiring diagram in order to prevent fire.
- Do not forcibly bend, pull or pinch the lead wires (cables). Doing so may fire.
- For the power supply use a DC power supply with reinforced insulation on its primary and secondary sides. Failure to do so may result in electric shock.
- Turn off the power in the event of a power failure, or the fan will suddenly start when the power is restored and may cause injury or damage to equipment.
- Do not disassemble or modify the fan. This may cause injury. Refer all such internal inspections and repairs to the branch or sales office from which you purchased the product.

Caution

Handling the product without observing the instructions that accompany a "Caution" symbol may result in injury or property damage.

- Do not use the fan beyond its specifications, or injury or damage to equipment may result.
- Keep your fingers and objects out of the openings in the fan. This may cause injury.
- Do not hold the rotating parts (blades) of the fan or lead wire. This may cause injury.
- Do not remove the lead wire from the frame hook. It may scratch and damage the surface of the lead wire.
- Keep the area around the fan free of combustible materials in order to prevent fire or a skin burn(s).
- To prevent the risk of damage to equipment, leave nothing around the fan that would obstruct ventilation.
- Provide anti-static measures before installing the fan. Failure to do so may result in equipment damage.
- Do not touch the rotating parts (blades) when the fan is in operation. This may cause injury. The use of the fingerguard (supplied or accessory) is recommended to ensure protection. *Wegen der Verletzungsgefahr dürfen die Lüfterflügel bei Ventilatorbetrieb nicht berührt werden. Der Gebrauch des als Sonderzubehör erhältlichen Fingerschutzes ist empfehlenswert, um erhöhte Sicherheit zu gewährleisten.*
- Immediately when trouble has occurred, stop running and turn off the power. Failure to do so may result in fire or injury.
- To dispose of the fan, disassemble it into parts and components as much as possible and dispose of individual parts/components as industrial waste.

Preparation

Verify that the items listed below are included. Report any missing or damaged items to the branch or sales office from which you purchased the product.

- Fan 1 pc.
- Extension Cable 1 pc.
(extension cable type only)
- **OPERATING MANUAL** (this manual) 1 copy

Accessories for fan kit products

- Finger guard 1 pc.
- Set of mounting screws for finger guard 1 set
(screw, hexagonal nut each 4 pcs.)

Installation

■ Location for installation

The fan is designed and manufactured for installation in equipment. Install it in a well-ventilated location that provides easy access for inspection. The location must also satisfy the following conditions:

- Inside an enclosure that is installed indoors
 - Operating ambient temperature
 - 10 to +60 °C (+14 to +140 °F) (non-freezing)
 - 10 to +70 °C (+14 to +158 °F) for **MDA1238**
 - Operating ambient humidity 85% or less (non-condensing)
 - Area that is free of explosive atmosphere or toxic gas (such as sulfuric gas) or liquid
 - Area not exposed to direct sun
 - Area free of excessive amount of dust, iron particles or the like
 - Area not subject to splashing water (rains, water droplets), oil (oil droplets) or other liquids
 - Area not subject to continuous vibration or excessive shocks
 - Area free of radioactive materials, magnetic fields or vacuum
 - Area free of excessive electromagnetic noise (from welders, power machinery, etc.)
- When using near a switching circuit or high-frequency power supply, the induced current may flow inside the fan due to electromagnetic noise (conductive noise, radiative noise). If the induced current flows, the electric corrosion is caused in the bearings of the fan. As a result, it may generate the noise or shorten the service life of the products. Use the fan in the environment that the electromagnetic noise does not cause.

■ How to install the fan

Install the fan onto an appropriate flat metal plate having excellent vibration resistance and heat conductivity. See the panel cut-out, mounting-hall reference drawing for information on how to provide mounting holes on the equipment used and secure the fan with screws. For air orientation and rotational direction, see the indications shown on the fan's side frame.

Model	Screw size	Tightening torque
MDA625	M3	0.4 N·m (3.5 lb-in)
Other MDA series	M4	0.6 N·m (5.3 lb-in)

■ Connector housings · Contacts

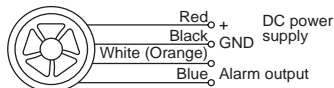
Manufacturer: J.S.T. Mfg Co., Ltd.
 Housings model: SMR-03V-N (3 poles), SMR-04V-N (4 poles)
 Contacts model: SYM-001T-P0.6

Connection of the power supply

[Connection Diagrams]



Low-speed alarm, contact alarm type



Check the voltage specification on the product identification plate and input the correct voltage. Use a DC power supply having a rise time of 100 ms or less.

Connection and specifications of the alarm

■ Low-speed alarm, electronic alarm type

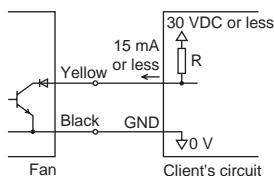
Output mode: Open collector output
 Output condition: Normal operation L level, Alarm output H level

• MDA625, MDA825, MDA925

The yellow wire is lead wire for the alarm circuit. Connect this wire to the client's as shown in the figure.

[Alarm activation speed]

MDA625, MDA825:
 2300±400 r/min or less
MDA925:
 1900±400 r/min or less



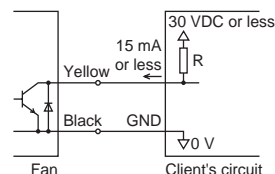
Note The low-speed alarm type of fan is not equipped with a delayed trip-point alarm circuit. Therefore, an external delay function is necessary to avoid the detection of fan start. The set time of the delay function should be at least 10 seconds.

• MDA1225

The yellow wire is lead wire for the alarm circuit. Connect these wires to the client's circuit as shown in the figure.

[Alarm activation speed]

2100±400 r/min or less



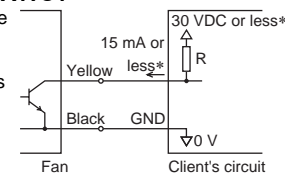
Note The low-speed alarm type of fan is equipped with an internal delayed-start alarm circuit. The alarm function becomes effective within 10 seconds of the fan start.

• MDA1238, MDA1451, MDA1751

The yellow wire is lead wire for the alarm circuit. GND is common to the sensor and power supply. Connect these wires to the client's circuit as shown in the figure.

[Alarm activation speed]

MDA1238:
 2200±220 r/min or less
MDA1451, MDA1751:
 1800±400 r/min or less

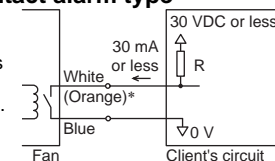


Note The low-speed alarm type of fan is equipped with an internal delayed-start alarm circuit. The alarm function becomes effective within 10 seconds of the fan start.

■ Low-speed alarm, contact alarm type

The white (Orange) * and blue wires are lead wires for the alarm circuit. An alarm (H level) signal is output when the fan's rotation speed falls below 1800±400 r/min.

* () indicate the color of the lead wire for the extension cable type.



Note The low-speed alarm type of fan is equipped with an internal delayed-start alarm circuit. The alarm function becomes effective within 10 seconds of the fan start.

Overheat protection

The fan is equipped with an internal protective circuit against overheating. In the event a lock-up condition is detected, this function automatically controls the current flow to the fan motor's windings, thus preventing the fan blades from locking and burning out. The fan resumes operation automatically as soon as it is released from the locked condition. Be sure to shut off the power to the fan before performing an inspection.

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* Please contact your nearest Oriental Motor office for further information.

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