

MRS Series MRS30

Precautions for use

• Static electricity measures

The fan uses components that are sensitive to static electricity. Take measures against static electricity since it may cause the fan to malfunction or suffer damage. Do not approach or touch the fan while the power is supplied.

• Electrolytic corrosion

If the induced current flows into the fan due to external noise, the electric corrosion may occur in the bearing.

Do not use the product in environments susceptible to electromagnetic noise, such as near switching circuits or high-frequency power supplies. Otherwise, electrical erosion may cause abnormal noise and premature failure.

Checking the product

■ Package contents

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 unit
 - ☐ Capacitor 1 piece*
 - ☐ Capacitor cap..... 1 piece*
 - ☐ Instructions and Precautions for Safe Use 1 copy
- * Included with single-phase fans only

■ How to identify the product model

Verify the model name of the purchased product against the model shown on the nameplate.

Tell us the model name, product serial number, and manufacturing date shown on the nameplate when you contact us.

• Example of the product name

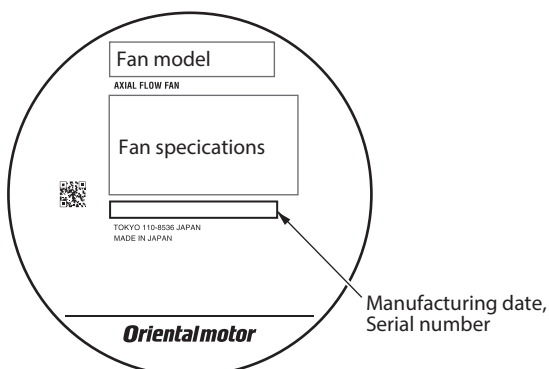
MRS 30 - JS B

1 2 3 4

1	Series name	MRS: MRS Series
2	Frame size	30: 300 mm (11.81 in.)
3	Rated voltage	EC: Single-phase 220/230 VAC JS: Three-phase 200 VAC
4	Additional function	Blank: No additional functions B: Low-speed alarm, contact alarm type

■ Information about nameplate

The figure shows an example.



Installation

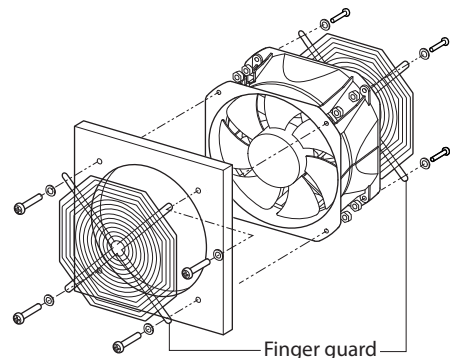
■ Installation location

Install the product in the following location that provides easy access for inspection.

- Inside an enclosure installed indoors
- Operating ambient temperature: -30 to +60 °C [-22 to +140 °F]
(non-freezing, non-condensing)
- Operating ambient humidity: 85 % or less (non-condensing)
- Area not subject to continuous vibration or excessive shocks
- Area free of radioactive materials, magnetic fields or vacuum
- Area not exposed to direct sun
- Area free of dust, iron particles, or the like
- Area free of excessive electromagnetic noise (from welders, power machinery, etc.)

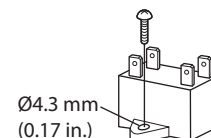
■ Installation method

- Install the fan on a flat metal plate with sufficient strength.
- Drill mounting holes in equipment, and secure the fan using screws (not supplied).
Hexagonal socket head screw
Screw size: M8, Tightening torque: 3 N·m (26 lb-in)
- For directions of the air flow and blades rotation, see the arrow indicated on the side of the fan frame.
- Finger guards that can prevent fingers and foreign particles from entering are available as peripheral equipment (sold separately). Install as shown in the figure when using.



■ Mounting the capacitor (only for single-phase fans)

Before mounting the provided capacitor, check that the capacitor's capacitance matches that stated on the fan's name plate. Mount the capacitor securely by using M4 screws (not provided).



Note

Do not let the screw fastening torque exceed 1 N·m (8.8 lb-in) to prevent damage to the mounting foot.

Connection

Insulate all connections such as connecting sections between the fan lead wires and the power supply connections.

■ Connecting Protective Earth Terminal

Ground using the Protective Earth Terminal (PE) of the fan.

Applicable crimp terminal:

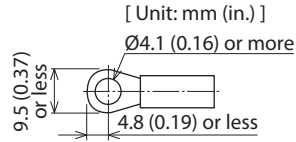
Insulated round crimp terminal

Terminal screw size: M4

Tightening torque: 1.0 to 1.3 N·m

(8.8 to 11.5 lb-in)

Applicable lead wire: AWG18 (0.75 mm²) or thicker



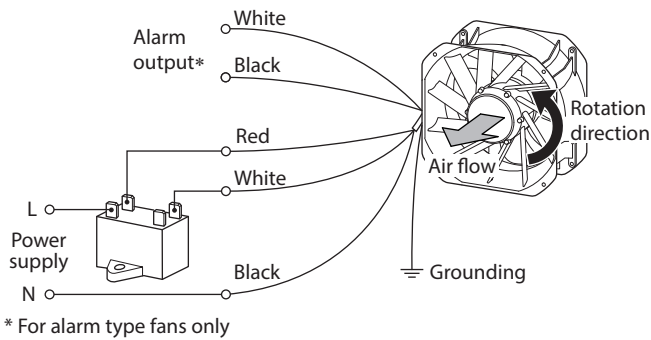
■ Connection diagram

Check the fan model name used before connecting.

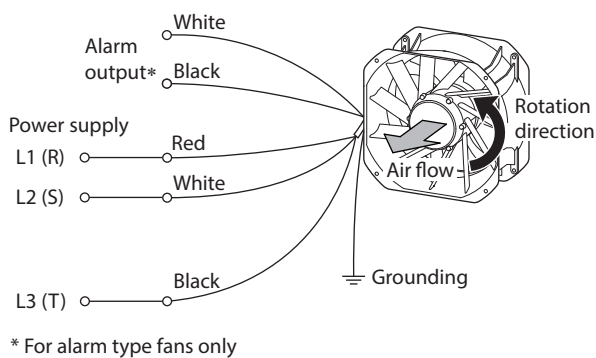
Power supply cable Lead wire size: AWG20 (0.5 mm²)

Alarm cable Lead wire size: AWG20 (0.5 mm²)

Single-phase input



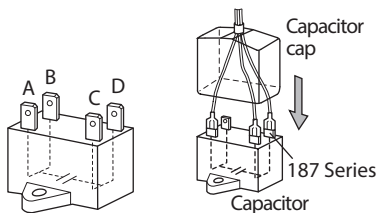
Three-phase input



■ Connecting the capacitor (Single-phase type only)

If crimp terminals are used, select the FASTON Terminal 187 Series.

In a four-terminal capacitor, the terminals A-B and C-D are internally connected as shown in the figure. This indicates electrically two terminals.



The capacitor cap or heat-shrinkable tube to ensure that they are entirely and securely covered. Failure to do so may result in fire or electric shock.

■ Connecting the alarm output

The alarm type fans are equipped with the low-speed alarm.

If the fan speed falls to 1800±300 r/min or lower, the alarm signal is output.

● Low-speed alarm, contact alarm type (Relay output)

Output status	Normal operation: Contact ON Alarm output: Contact OFF
Connection diagram	Contact capacity: Resistive load 10 VA max. (100 V max., 0.5 A max.) Minimum load: 5 V, 1 mA (Design your alarm circuit to operate at 0.5 mA or less.)

Note

The alarm circuit is not equipped with a delay function. To avoid an alarm detection when the fan starts rotating or stops, a delay function is required externally. The delay time should be at least ten seconds.

Operation

The fan rotates when the power supply is turned on.

For protection against electric shock, do not turn on the power supply until the wiring is complete.

Note

Make sure that the motor case temperature does not exceed 80 °C (176 °F) when operating the fan. Operating the fan in a state where the motor case temperature exceeds 80 °C (176 °F) deteriorates the windings and ball bearings of the motor, causing the lifetime to shorten. Measure to check the motor case temperature using a thermometer, thermo tape or thermocouple.

■ When using the fan with an inverter (Three-phase input only)

- When using the fan in combination with an inverter, use it by setting the inverter frequency to 60 Hz or less.
- The inverter which input voltage exceeds 200 VAC cannot be used. The insulation of the fan motor windings may deteriorate, causing damage to the fan.
- Number of fan poles: 2 poles
- A resonance phenomenon may occur depending on the setting frequency. If the resonance phenomenon occurred, use the product with avoiding the resonance points.

Note

In the case of the alarm type fans, the low-speed alarm may operate if an inverter is used at low speeds.

Locked rotor burnout protection

The fan is equipped with a function of burning protection for locked-rotor state.

Thermal protection

The fan motor contains an automatic return type thermal protector in the motor windings. When the motor internal temperature exceeds the specified value, the thermal protector is activated to stop the fan. Always turn off the power before performing inspections.

Thermal protector activation range:

Power is turned off at 130 ± 5 °C (266 ± 9 °F)

Power is turned back on at 83 ± 15 °C (181 ± 27 °F)

Inspection and maintenance

■ Inspection

It is recommended that periodic inspections for the items listed below are conducted after each operation.

If an abnormal condition is noted, discontinue any use and contact your nearest Oriental Motor sales office.

● Inspection item

- Check if any of the mounting screws of the fan is loose.
- Check if the fan generates unusual noises.
- Check if a damage or stress is applied on the fan lead wire or cable.
- Check if the capacitance of the capacitor has decreased.
Even if the capacitance does not decrease, It is recommended to replace the capacitor after 10 years of use.

■ Warranty

Check on the Oriental Motor Website for the product warranty.

■ Disposal

Dispose the product correctly in accordance with laws and regulations, or instructions of local governments.

Specifications

Check on the Oriental Motor Website for the product specifications.

General specifications

Operating environment	Ambient temperature	-30 to +60 °C [-22 to +140 °F] (non-freezing)
	Ambient humidity	85 % or less (non-condensing)
	Altitude	Up to 1,000 m (3,300 ft.) above sea level
Storage environment* Shipping environment	Ambient temperature	-40 to +70 °C [-40 to +158 °F] (non-freezing)
	Ambient humidity	85 % or less (non-condensing)
	Altitude	Up to 3,000 m (10,000 ft.) above sea level
Surrounding atmosphere		No corrosive gas or dust. No water or oil. Cannot be used in radioactive materials, magnetic field, vacuum or other special environments.
Degree of protection		IP00

* Storage environment

- The storage environment must be free from condensation, freezing, vibration, or external force.
- This product cannot be stored in a freezer where the temperature is controlled to -10 °C [+14 °F] or lower.
- The storage environment is a short-term value, including the time during transportation.
- This product conforms to the following environmental standards related to the storage environment.
ETSI EN 300 019-2-1 V2.1.2(2000-09) Class 1.3E Storage
ETSI EN 300 019-2-2 V2.1.2(1999-09) Class 2.3 Transportation
ETSI EN 300 019-2-3 V2.2.2(2003-04) Class 3.4 Stationary use

Regulations and standard

Check on the Oriental Motor Website for the regulations and standards.

■ UL Standards, CSA Standards

This product is recognized by UL under the UL and CSA Standards.

■ CE Marking / UKCA Marking

This product is affixed with the marks under the following directives/regulations.

● EU Low Voltage Directive / UK Electrical Equipment (Safety) Regulations

Installation conditions (For EN standard)

Overvoltage category II , Pollution degree 2, Class I equipment

If the specified values of the overvoltage category III is required based on the equipment, supply the rated voltage to the fan via an isolation transformer.

● EU EMC Directive / UK EMC Regulation (Alarm type fans only)

Refer to "Compliance with the EMC Directive/Regulations" for details about conformity.

● EU Ecodesign Regulation / UK Ecodesign Regulation

COMMISSION REGULATION(EU)

Check on the Oriental Motor Website for information about conformity such as efficiency.

● EU RoHS Directive / UK RoHS Regulation

This product does not contain the substances exceeding the restriction values.

Noise elimination measures

There are two types of electrical noise: One is noise that enters the product from the outside and causes it to malfunction, and the other is noise that is emitted from the product and causes peripheral equipment to malfunction. For noise entering the product from the outside, take measures to prevent the product from malfunctioning. It is necessary to take appropriate measures because the signal lines are very likely to be affected by the noise. For the noise that is emitted by the product, take measures to suppress it.

■ Measures to eliminate electrical noise

- Use a DC power supply that complies with the EMC Directive/Regulations.
- When relays or electromagnetic switches are used, use noise filters or CR circuits to suppress the surge generated by these devices.
- Connect noise filters to the power lines.
- Keep the cables as short as possible.
- Use shielded twisted pair cables for power lines and signal lines.
- Keep power lines, such as power supply cables, at least 100 mm (3.94 in.) away from signal lines. Also, do not bundle the cables or wire them in parallel. If the power cables and signal cables must cross, cross them at right angles.
- Wrap the cable around a ferrite core. This prevents the propagated noise from entering the product or from being emitted from the product. To increase the effect of noise attenuation by the ferrite core, wrap the cable several more turns.
- To ground a shielded cable, use a conductive cable clamp that ensures contact with the entire circumference of the shielded cable, and ground it as close to the equipment as possible.
- Use the shortest, thickest grounding wire possible.
- Choose a large and uniformly conductive surface for the grounding point.
- Ground the product and other peripheral control equipment so that a potential difference does not occur among the grounds.

Compliance with the EMC Directive/Regulations

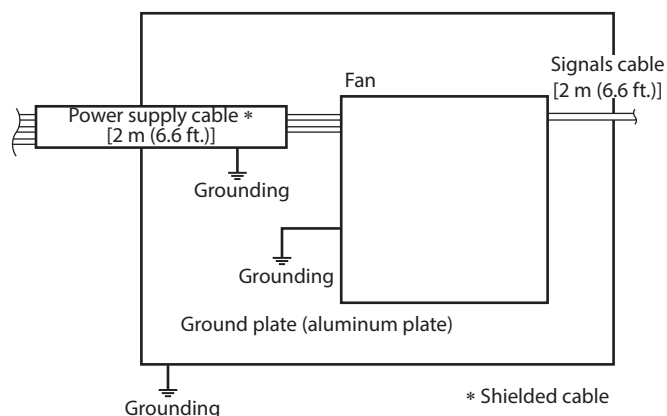
Oriental Motor products are compliant with the EMC Directive/Regulations in accordance with the contents of "Noise elimination measures" on p. 5 under the terms of "Example of installation and wiring." The results of EMC testing of the equipment will vary depending on the type, layout, wiring method, etc. of the parts and components used.

Verify compliance with the EMC Directive/Regulations in a condition where all parts and components, including Oriental Motor products, are assembled into the equipment.

⚠ CAUTION

This equipment is not intended for use in residential environments nor for use on a low-voltage public network supplied in residential premises, and it may not provide adequate protection to radio reception interference in such environments.

● Example of installation and wiring



-
- Unauthorized reproduction or copying of all or part of this manual is prohibited.
 - Oriental Motor shall not be liable whatsoever for any problems relating to industrial property rights arising from use of any information, circuit, equipment or device provided or referenced in this manual.
 - Characteristics, specifications and dimensions are subject to change without notice.
 - While we make every effort to offer accurate information in the manual, we welcome your input. Should you find unclear descriptions, errors or omissions, please contact the nearest office.
 - ***Orientalmotor*** and ***ORIX*** are registered trademarks or trademarks of Oriental Motor Co., Ltd., in Japan and other countries.

© Copyright ORIENTAL MOTOR CO., LTD. 2024

Published in June 2026

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

ORIENTAL MOTOR U.S.A. CORP.
Technical Support Tel:800-468-3982
8:30am EST to 5:00pm PST (M-F)

ORIENTAL MOTOR (EUROPA) GmbH
Schiesstraße 44, 40549 Düsseldorf, Germany
Technical Support Tel:00 800/22 55 66 22

ORIENTAL MOTOR (UK) LTD.
Blythe Valley Business Park,
Central Blvd Blythe Valley Park,
Solihull B90 8AG, United Kingdom
Tel:+44-1926-671 220

ORIENTAL MOTOR (FRANCE) SARL
Tel:+33-1 47 86 97 50

ORIENTAL MOTOR ITALIA s.r.l.
Tel:+39-02-93906347

ORIENTAL MOTOR CO., LTD.
4-8-1 Higashiueno, Taito-ku, Tokyo 110-8536
Japan
Tel:+81-3-6744-0361
www.orientalmotor.co.jp/ja

ORIENTAL MOTOR ASIA PACIFIC PTE. LTD.
Singapore
Tel:1800-842-0280

ORIENTAL MOTOR (MALAYSIA) SDN. BHD.
Tel:1800-806-161

ORIENTAL MOTOR (THAILAND) CO., LTD.
Tel:1800-888-881

ORIENTAL MOTOR (INDIA) PVT. LTD.
Tel:1800-120-1995 (For English)
1800-121-4149 (For Hindi)

TAIWAN ORIENTAL MOTOR CO., LTD.
Tel:0800-060708

SHANGHAI ORIENTAL MOTOR CO., LTD.
Tel:400-820-6516

INA ORIENTAL MOTOR CO., LTD.
Korea
Tel:080-777-2042