

OPERATING MANUAL

AC Power Supply Input
Low Power Consumption Axial Flow Fans
EMU Series



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.

Description of graphic symbols

 : Indicates "prohibited" actions that must not be performed.

 : Indicates "compulsory" actions that must be performed.

 **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, electric shock or injury.
- Do not transport, install, connect or inspect the product while the power is supplied. Always turn the power off before carrying out these operations. Failure to do so may result in electric shock or injury.
- Do not forcibly bend, pull or pinch the cable. Doing so may result in fire or electric shock.
- Do not disassemble or modify the fan. This may cause electric shock or injury. Refer all such internal inspections and repairs to the branch or sales office from which you purchased the product.



- Only qualified and educated personnel should be allowed to perform installation, connection, operation and inspection/ troubleshooting of the product. Handling by unqualified and uneducated personnel may result in fire, electric shock or injury.
- Shut off the power to the fan in the event the overheat protection circuit is activated. Otherwise, the fan will start unexpectedly when released from the locked condition, causing bodily injury or equipment damage.
- Keep the input-power voltage within the specified range. Failure to do so may result in fire or electric shock.
- Connect the cables securely according to the wiring diagram. Failure to do so may result in fire or electric shock.
- Turn off the power in the event of a power failure. Otherwise, the fan will suddenly start when the power is restored, and this may cause injury or damage to equipment.

 **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 the specifications. Doing so may result in electric shock, injury or damage to equipment.
- Keep your fingers and objects out of the openings in the fan. Failure to do so may result in injury.
- Do not touch the fan motor while operating or immediately after stopping. The surface of the fan motor is hot and may cause a skin burn(s).
- Do not lift the fan by holding the rotating part (blades) of the fan or cable. Doing so may result in injury.
- Keep the area around the fan free of combustible materials. Failure to do so may result in fire or a skin burn(s).
- Do not leave anything around the fan that would obstruct ventilation. Doing so may result in damage to equipment.
- Do not touch the rotating part (blades) while operating. Doing so may result in injury. The use of the finger guard is recommended to ensure protection.



- Immediately when trouble has occurred, stop operation and turn off the power supply. Failure to do so may result in fire, electric shock or injury.
- Install the fan inside equipment for sure. Failure to do so may result in injury or damage to equipment.
- The surface temperature of fan motor may exceed 70 °C (158 °F) even under normal operating conditions. If the operator is allowed to approach the fan that is operating, attach a warning label as shown in the figure in a conspicuous position. Failure to do so may result in a skin burn(s).
- Dispose the product correctly in accordance with laws and regulations, or instructions of local governments.



Warning label

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.

Only qualified and educated personnel should work with the product. 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. Oriental Motor Co., Ltd. is not responsible for any damage caused through failure to observe this warning.

Checking the product

Verify the model number of the purchased product against the number shown on the package label. The fan model name is listed on the fan nameplate.

Checking the product

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 kit model :	Model :																				
Standard Type T-EMU938-□-G T-EMU1238-□-G Low-Speed Alarm, Electronic Alarm Type T-EMU938M-□-G T-EMU1238M-□-G <table><tr><td>• Fan</td><td>1 pc</td></tr><tr><td>• Power supply cable</td><td>1 pc</td></tr><tr><td>• Cable for alarm 2 m (6.6 ft.)</td><td>1 pc*</td></tr><tr><td>• OPERATING MANUAL (this manual)</td><td>1 copy</td></tr><tr><td>• Finger guard</td><td>1 pc</td></tr><tr><td>• Mounting screw set Screw 4 pcs, nut 4 pcs</td><td>1 set</td></tr></table>	• Fan	1 pc	• Power supply cable	1 pc	• Cable for alarm 2 m (6.6 ft.)	1 pc*	• OPERATING MANUAL (this manual)	1 copy	• Finger guard	1 pc	• Mounting screw set Screw 4 pcs, nut 4 pcs	1 set	Standard Type EMU938-□ EMU1238-□ Low-Speed Alarm, Electronic Alarm Type EMU938M-□ EMU1238M-□ <table><tr><td>• Fan</td><td>1 pc</td></tr><tr><td>• Power supply cable</td><td>1 pc</td></tr><tr><td>• Cable for alarm 2 m (6.6 ft.)</td><td>1 pc*</td></tr><tr><td>• OPERATING MANUAL (this manual)</td><td>1 copy</td></tr></table>	• Fan	1 pc	• Power supply cable	1 pc	• Cable for alarm 2 m (6.6 ft.)	1 pc*	• OPERATING MANUAL (this manual)	1 copy
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	* Supplied with the low-speed alarm, electronic alarm type																				

For products that the power supply cable is supplied with, enter **1** or **2** [1 m or 2 m (3.3 ft. or 6.6 ft.)] representing the length of the power supply cable in the box (□) within the model name. A fan, which the power supply cable or the cable for alarm is not supplied with, can also be purchased.

Standards and CE Marking

UL standard and CSA standard

This product is recognized by UL.
Applicable standards : UL 507, CSA C22.2 No.113
Certification body : UL

CE Marking

This product is affixed the CE Marking under the Low Voltage Directive and EMC Directive.

• Low Voltage Directive

Applicable standards EN 60950-1
This product is certified by TÜV Rheinland under the EN 60950-1.

• EMC Directive

Applicable standards EMI : EN 61000-6-3, EN 61000-3-2, EN 61000-3-3
EMS : EN 61000-6-2

Electrical Appliance and Material Safety Law

This product is affixed with the PSE mark under the Electrical Appliance and Material Safety Law (Air blowers).



Republic of Korea, Radio Waves Act.

KC Mark is affixed to this product under the Radio Waves Act, the republic of Korea.



RoHS Directive

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

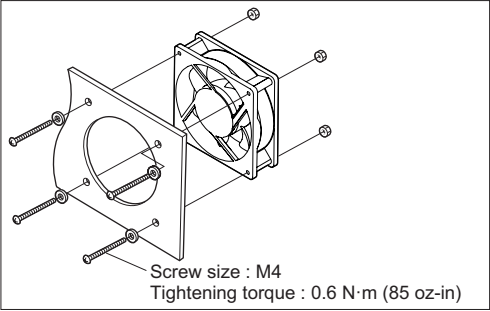


Double insulation

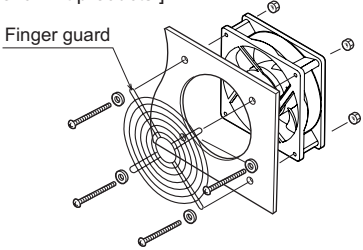
Since a double insulation structure is employed in this product, there is no need to ground.

Installation

- Install the fan to an appropriate flat metal plate having excellent vibration resistance.
- Drill mounting holes in equipment, and secure the fan using screws. Mounting screws are supplied with the fan kit products.

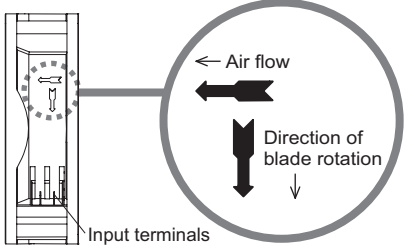


[For the fan kit products]



Air flow, direction of blade rotation

For the air flow and the direction of blade rotation, see the arrow indicated on the side of the fan frame.



Installation conditions

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

- Inside an enclosure that is installed indoors
- Operating ambient temperature –20 to +75 °C (–4 to +167 °F) (non-freezing)
- Operating ambient humidity 20 to 85% (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 (rain, 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.

Connection

Since a double insulation structure is employed in this product, there is no need to ground. Connect using the power supply cable and the cable for alarm, which are supplied with the product.

Standard Type

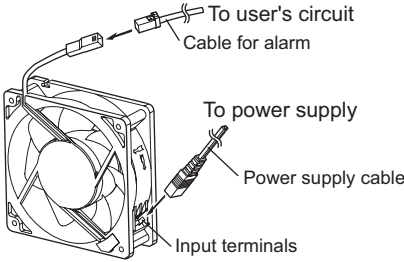
Securely plug the power supply cable into the input terminals.

[Connection diagram]

Power supply cable : AWG18 (2 conductors)

Low-Speed Alarm, Electronic Alarm Type

Securely plug the power supply cable into the input terminals.



[Connection diagram]

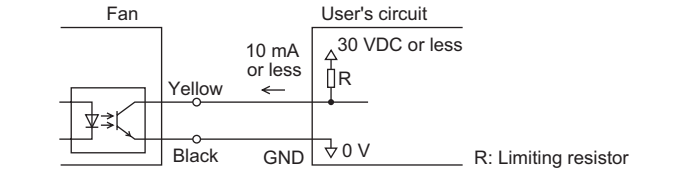
Power supply cable : AWG18 (2 conductors)
Cable for alarm : AWG24 (2 conductors)

Alarm

The alarm signal is output when the speed of the fan falls below the "alarm activation speed."

[Alarm specificaication]

Alarm activation speed	EMU938M : 2000±300 r/min EMU1238M : 1700±255 r/min
Output format	Open-collector output
Output status	Normal L level (Internal transistor ON) Abnormal H level (Internal transistor OFF)
Maximum rating	Maximum applied voltage: 30 VDC or less Maximum inflow current: 10 mA or less Output saturation voltage: 10 V or less



- Note
- Connect a current-limiting resistor R according to the power supply voltage if the current flowing through the output signal exceeds 10 mA.
 - The alarm circuit is equipped with an internal starting-delay function. The alarm function becomes effective within 10 seconds after the fan starts.

Overheat protection for locked condition

This fan is equipped with a built-in overheat protection circuit. Since this circuit automatically controls the current flow to the windings when a locked condition is detected, it prevents the fan from burning out. The fan resumes operation automatically as soon as it is released from the locked condition. Turn off the power in the event of inspections.

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