

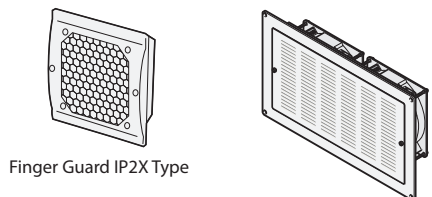


Enclosure Fan Modules EMU Equipped Type

Operating Guide

Thank you for purchasing an Oriental Motor product. This Operating Guide describes product handling procedures and safety precautions. Read installation methods printed on the reverse side of this paper.

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



Finger Guard IP2X Type

Slit Metal Plate IP4X Type

Before use

Only qualified personnel of electrical and mechanical engineering 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. Oriental Motor Co., Ltd. is not responsible for any damage caused through failure to observe this warning.

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.
- Do not install the filter media containing water. Doing so may cause malfunction of the fan mounted in the product, resulting in fire or electric shock.

- 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 product 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 product. 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 product by holding the rotating part (blades) of the product or cable. Doing so may result in injury.
- Keep the area around the product free of combustible materials. Failure to do so may result in fire or a skin burn(s).
- Do not leave anything around the product 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 product inside equipment for sure. Failure to do so may result in injury or damage to equipment.
- The surface temperature of the fan motor mounted in the product may exceed 70 °C (158 °F) even under normal operating conditions. If the operator is allowed to approach during operation, attach a warning label as shown in the figure in a conspicuous position. Failure to do so may result in a skin burn(s).

! ⚠ Warning label

Preparation

- Verify the model number of the purchased product against the number shown on the nameplate.
- 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.

Finger Guard IP2X Type

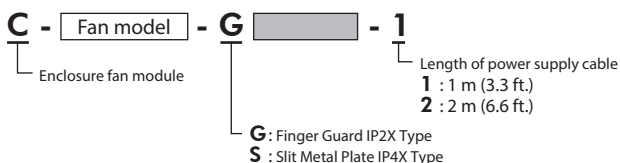
- Enclosure fan module 1 unit
- Power supply cable 1 pc [1 m (3.3 ft.) or 2 m (6.6 ft.)]
- Cable for alarm 2 m (6.6 ft.) 1 pc (For alarm type only)
- Mounting screw set 1 set
Speed nuts, Self-tapping screws, 2 pieces each
- Operating Guide 1 pc (this document)

Slit Metal Plate IP4X Type

- Enclosure fan module 1 unit
- Power supply cable 1 pc [1 m (3.3 ft.) or 2 m (6.6 ft.)]
- Cable for alarm 2 m (6.6 ft.) 1 pc (For alarm type only)
- Mounting screw set 1 set
Cross-recessed head screws, nuts
2 pieces each in the case of 1 piece of fan
4 pieces each in the case of 2 or 3 pieces of fan
- Operating Guide 1 pc (this document)

Each 2 pieces of the power supply cable and the cable for alarm are supplied with the enclosure fan module mounted two fans, and each 3 pieces are supplied with the one mounted three fans.

How to identify the product model



- The code "G" or "S" followed after the fan model name indicates the type of the enclosure fan module.
- The box ([]) in the model name indicates a code representing the specifications.

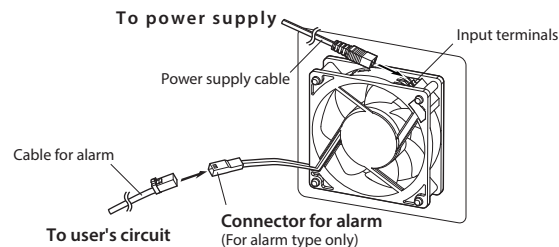
	Standard Type	Low-Speed Alarm, Electronic Alarm Type
Fan model	EMU938 EMU1238	EMU938M EMU1238M

Connection

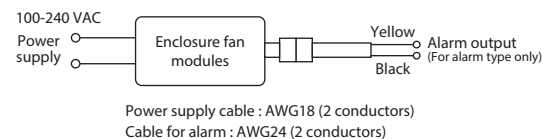
Connection of the power supply

Connect to the power supply using the supplied power supply cable. Securely plug the power supply cable into the input terminals. With a Low-speed alarm, electronic alarm type, plug to connect the cable for alarm to the connector.

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

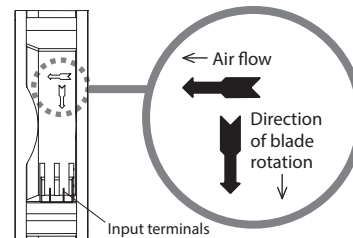


[Connection diagram]



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.

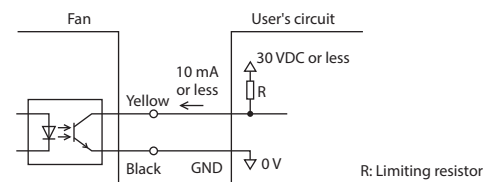


Specification and connection of the alarm

In the case of fans with the Low-speed alarm, electronic alarm type, the alarm signal is output when the speed of the fan falls below the alarm activation speed.

[Alarm specification]

Alarm activation speed	EMU938M equipped: 2000±300 r/min EMU1238M equipped: 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

- For the output signal, be sure to connect a current-limiting resistor R to keep the current at 10 mA or less.
- 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

The fan mounted in the product is equipped 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.

Standards and CE Marking

• CE Marking

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

- Low Voltage Directive
- EMC Directive

• Republic of Korea, Radio Waves Act.

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

• RoHS Directive

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



Double insulation

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

- 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.
- **Oriental motor** and **ORIX** are a registered trademark or trademark of Oriental Motor Co., Ltd., in Japan and other countries.

© Copyright ORIENTAL MOTOR CO., LTD. 2015

Published in October 2023

- 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)
 www.orientalmotor.com

ORIENTAL MOTOR (EUROPA) GmbH
 Schiessstraße 44, 40549 Düsseldorf, Germany
 Technical Support Tel:00 800/22 55 66 22
 www.orientalmotor.de

ORIENTAL MOTOR (UK) LTD.
 Unit 5 Faraday Office Park, Rankine Road,
 Basingstoke, Hampshire RG24 8QB UK
 Tel:+44-1256347090
 www.oriental-motor.co.uk

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

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

ORIENTAL MOTOR CO., LTD.
 4-8-1Higashiueno,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
 www.orientalmotor.com.sg

ORIENTAL MOTOR (MALAYSIA) SDN. BHD.
 Tel:1800-806-161
 www.orientalmotor.com.my

ORIENTAL MOTOR (THAILAND) CO., LTD.
 Tel:1800-888-881
 www.orientalmotor.co.th

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

TAIWAN ORIENTAL MOTOR CO., LTD.
 Tel:0800-060708
 www.orientalmotor.com.tw

SHANGHAI ORIENTAL MOTOR CO., LTD.
 Tel:400-820-6516
 www.orientalmotor.com.cn

INA ORIENTAL MOTOR CO., LTD.
 Korea
 Tel:080-777-2042
 www.inaom.co.kr

Enclosure Fan Modules EMU Equipped Type

Operating Guide Installation

Use the product safely after thoroughly reading the section "Safety precautions." Read safety precautions, connection method and other information printed on the reverse side of this paper.

Installation methods vary depending on the enclosure fan module types. Install the enclosure fan module using the supplied mounting screw set. When purchasing a panel separately, use it by installing in the same way.

Installation conditions

Install the product onto an appropriate flat metal plate having excellent vibration resistance and heat conductivity. Install it in a well-ventilated location that provides easy access for inspection. The location must also satisfy the following conditions:

- 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 (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.

Maintenance

● Inspection

Check periodically whether any of screws is loose. Re-tighten if the screw was loose. Turn off the power at the time of inspections.

● Cleaning

Clean or replace the filter media regularly because the clogged filter media reduces the cooling capacity. Clean the filter media by either of the following methods if the filter media has become dirty.

- Hand-wash by pushing it up and down in the water pool. Oil stain can be removed by washing with a neutral detergent. Do not strongly wash or scrub in order to use for a long period of time. After cleaning, dry out and install it.
- Suck dust with a vacuum cleaner.

● Warranty

Check on the Oriental Motor Website for the product warranty.

● Disposal

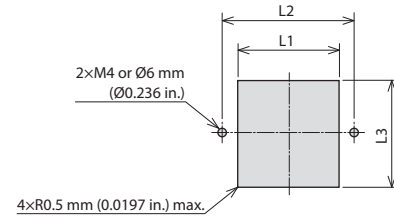
Dispose the product correctly in accordance with laws and regulations, or instructions of local governments.

Slit Metal Plate IP4X Type

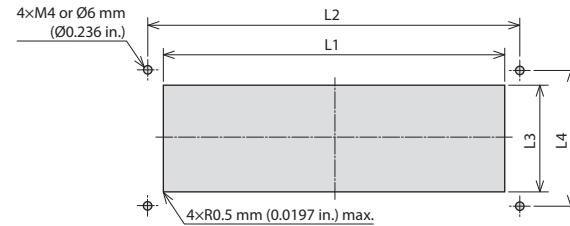
Machining of mounting hole

Drill a mounting hole into the enclosure.

Reference panel cut-out A



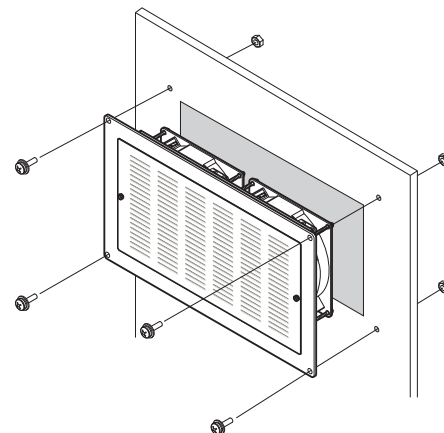
Reference panel cut-out B



Fan model	Number of fan	Reference panel cut-out	Dimensions [mm (in.)]			
			L1	L2	L3	L4
EMU938 EMU938M	1 pc	A	135 (5.32)	145 (5.71)	135 (5.32)	-
			160 (6.30)	170 (6.69)	160 (6.30)	-
EMU1238 EMU1238M	1 pc	B	285 (11.2)	295 (11.6)	160 (6.30)	170 (6.69)
	2 pcs		410 (16.1)	420 (16.5)	160 (6.30)	170 (6.69)
	3 pcs					

Installation

Install the product into the mounting hole and secure with the supplied mounting screws.

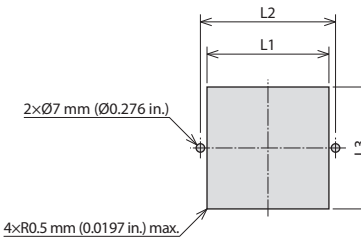


Finger Guard IP2X Type

Machining of mounting hole

Drill a mounting hole into the enclosure.

Reference panel cut-out



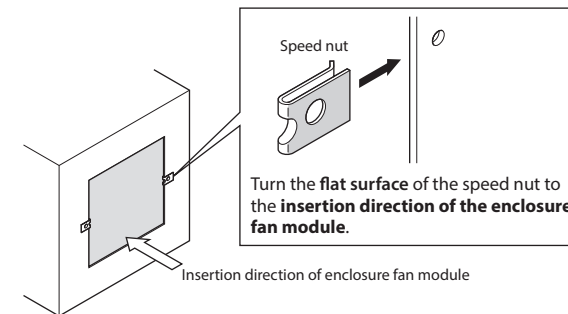
Applicable plate thickness: 1.0 mm to 1.6 mm (0.0394 in. to 0.063 in.)

Fan model	Dimensions [mm (in.)]		
	L1	L2	L3
EMU938	104 (4.09)	115 (4.53)	104 (4.09)
EMU1238	129 (5.08)	140 (5.51)	129 (5.08)

Installing speed nuts

Install the product in equipment after attaching speed nuts. Provide mounting holes in equipment and attach the speed nuts as follows.

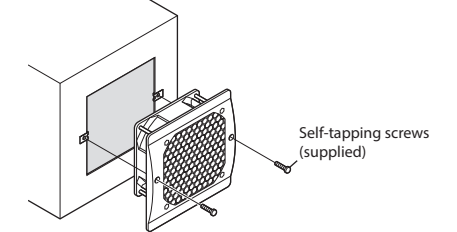
Attach the supplied speed nut to the mounting plate and adjust the position to the screw hole. If it is too tight to attach the speed nut, drive it with a hammer.



Installation

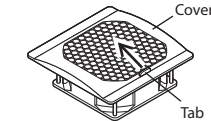
● Enclosure fan module without filter

Install the product into a mounting hole and secure it with two self-tapping screws (supplied). Tightening torque: 0.88 N·m (124 oz-in)

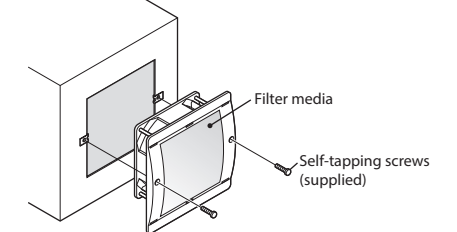


● Enclosure fan module with filter

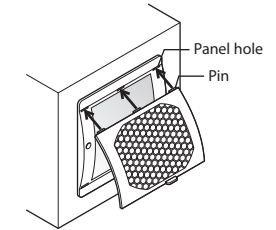
1. Place the product on a flat stand and remove the cover while pushing the tab of the cover in the direction of an arrow.



2. Install the product that was removed the cover into the mounting hole, and secure it with the supplied self-tapping screws. Tightening torque: 0.88 N·m (124 oz-in)



3. Insert the pins of the cover that is opposite the tab of the cover into the panel holes (3 locations).



4. Lift the tab lightly and push the pin of the tab side into the panel hole while bending the cover.
5. Check that the cover is firmly secured by pushing the both sides of the tab side.