

Stepping Motors

Installation

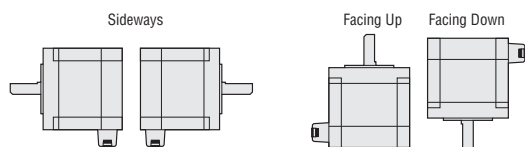
Installation

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Motor Installation

Mounting Direction

Motors can be mounted freely in any direction as shown below. Regardless of how the motor is mounted, take care not to apply an overhung load or thrust load on the shaft. Make sure the cable does not contact the mounting surface causing undesirable force on the cable.



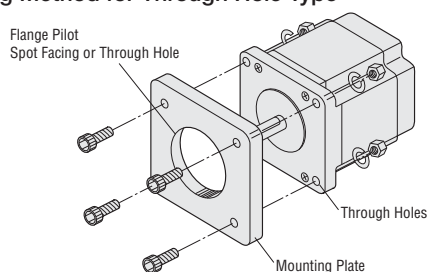
Notes:

- Do not disassemble the motors.
- Do not apply any shock to the motor.

Mounting Method

Considering heat radiation and vibration isolation as much as possible, mount the motor tightly against a metal plane.

Mounting Method for Through Hole Type



Thickness of the Mounting Plate for Through Hole Type

α STEP	Model					Thickness of the Mounting Plate
	RK Series	CRK Series	UMK Series RBK Series	CMK Series	2-Phase Stepping Motor	
AS66 AS69 ASC66	RK564 RK566 RK569	CRK564 CRK566 CRK569	UMK264 UMK266 UMK268 RBK264 RBK266 RBK268	CMK256 CMK258 CMK264 CMK266 CMK268	PK256 PK258 PK264 PK266 PK268 PV264 PV266 PV267 PV269	5 mm (0.2 in.) min.
AS98 AS911	RK596 RK599 RK5913	—	RBK296 RBK299 RBK2913	—	PK296 PK299 PK2913	8 mm (0.31 in.) min.
AS98-H□	RK596-H□	—	—	—	—	12 mm (0.47 in.) min.

- Enter the gear ratio into the box (□).

Installation Conditions

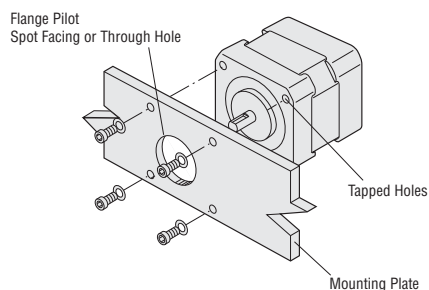
Install the motor in a location that meets the following conditions, or the product may be damaged.

- Indoors (This product is designed and manufactured to be installed within another device.)
- Ambient temperature:
 - 10~+50°C (+32~+122°F)* (non-freezing)
 - [0~+50°C (+32~+122°F) for α STEP (non-freezing)]
 - *0~+40°C (+32~+104°F) (non-freezing): Harmonic geared type
- Ambient humidity: 85% or less (non-condensing)
- Not exposed to explosive, flammable or corrosive gases
- Not exposed to direct sunlight
- Not exposed to dust
- Not exposed to water or oil (except for industrial connector and terminal box type motors)
- A place where heat can escape easily
- Not exposed to continuous vibration or excessive impact

Notes:

- When installing the motor in an enclosed space such as a control box, or somewhere close to a heat-radiating object, vent holes should be used to prevent the motor from overheating.
- Do not install the motor in a location where a source of vibration will cause the motor to vibrate.

◇ Mounting Method for Tapped Hole Type



◇ Thickness of the Mounting Plate for Tapped Hole Type

<i>αSTEP</i>	Model					Thickness of the Mounting Plate
	RK Series	CRK Series	UMK Series	CMK Series	2-Phase Stepping Motor	
-	-	CRK513	-	CMK223 CMK224 CMK235	PK223P PK224P PK225P	2 mm (0.08 in.) min.
AS46 ASC34 ASC36 ASC46 ASC34-T □ ASC34-N □ ASC34-H □	RK543 RK544 RK545	CRK523 CRK524 CRK525 CRK543 CRK544 CRK545 CRK546 CRK513-H □	UMK243 UMK244 UMK245	CMK233P CMK235P CMK243 CMK244 CMK245 CMK246P CMK223-SG □ CMK243-SG □	PK233P PK235P PK243 PK244 PK245 PK223P-SG □ PK243-SG □	3 mm (0.12 in.) min.
-	-	CRK523-T □ CRK523-N □	-	-	-	4 mm (0.16 in.) min.
AS46-T □ AS46-N □ AS46-H □ AS66-T □ ASC46-T □ ASC46-N □ ASC46-H □ ASC66-T □	RK543-T □ RK543-N □ RK543-H □ RK564-T □	CRK543-T □ CRK544-N □ CRK543-H □ CRK564-T □	-	CMK246-SG □	PK264-SG □	5 mm (0.2 in.) min.
AS66-N □ AS66-H □ AS98-T □ ASC66-N □ ASC66-H □	RK564-N □ RK566-N □ RK564-H □ RK596-T □	CRK564-N □ CRK566-N □ CRK564-H □	-	-	PK296-SG □	8 mm (0.31 in.) min.
AS98-N □	RK596-N □	-	-	-	-	12 mm (0.47 in.) min.

● Enter the gear ratio into the box (□).

Driver Installation

AC Input Type

● Installation Direction and Method

Drivers are designed to dissipate heat through natural convection. Install the driver vertically as shown in the photograph.

◇ Models with Built-In Brackets

- Applicable Product
RK Series



◇ Separate Bracket Models

- Applicable Products
αSTEP AS Series
UMK Series

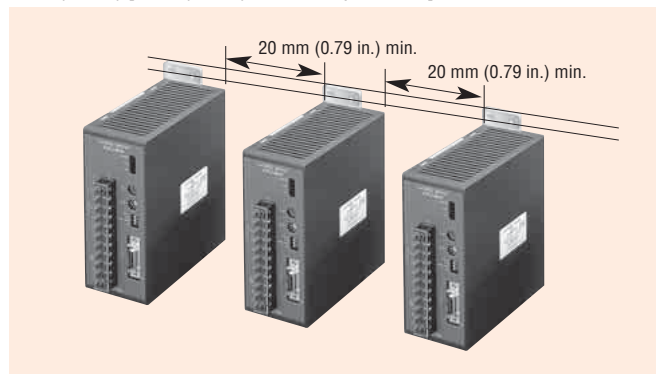


- Firmly install on a metal surface that has good heat conductivity, such as iron or aluminum 2 mm (0.08 in.) or more in thickness.
- To directly install the driver without using the mounting brackets and screws provided, pay particular attention to the length of the screws used for the tapped holes. For **AS Series**, the use of screw that would penetrate 3 mm (0.12 in.) or more through the surface of the driver may cause damage to the driver.

● Using Multiple Axes

When using multiple stepping motor axes, driver temperature rise will cause ambient temperatures to rise. At least 20 mm (0.79 in.) must be allowed between driver units and at least 25 mm (0.98 in.) between drivers and other equipment or structures.

Install a forced-air cooling fan if ambient temperatures exceed 50°C (122°F) [40°C (104°F) for some products].



● Installation Conditions

Install the driver in a location that meets the following conditions, or the product may be damaged.

- Indoors (This product is designed and manufactured to be installed within another device.)
- Ambient temperature: 0~+50°C (+32~+122°F) (non-freezing) [0~+40°C (+32~+104°F) for **αSTEP AS Series** built-in controller driver and **UMK Series** driver]
- Ambient humidity: 85% or less (non-condensing)
- Not exposed to explosive, flammable or corrosive gases
- Not exposed to direct sunlight
- Not exposed to dust
- Not exposed to water or oil
- A place where heat can escape easily
- Not exposed to continuous vibration or excessive impact

Notes:

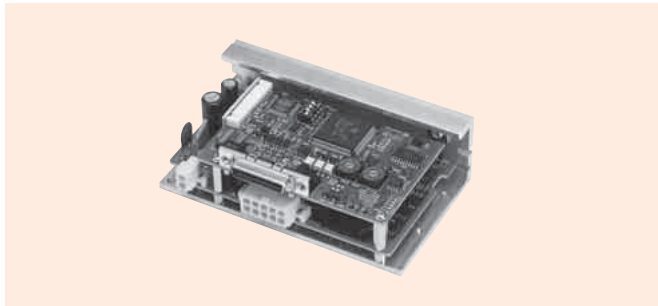
- When installing the driver in an enclosed space such as a control box, or somewhere close to a heat-radiating object, vent holes should be used to prevent the driver from overheating.
- Do not install the driver in a location where a source of vibration will cause the driver to vibrate.
- In situations where drivers are located close to a large noise source such as high frequency welding machines or large electromagnetic switches, take steps to prevent noise interference, either by inserting noise filters or connecting the driver to a separate circuit.
- Take care that pieces of conductive material (filings, pins, pieces of wire, etc.) do not enter the drivers.

DC Input Type

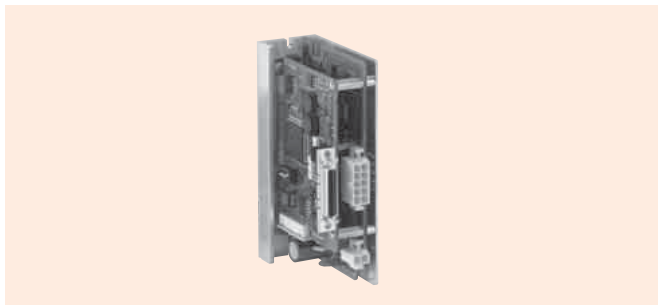
● Installation Direction

Considering heat radiation, install the driver vertically or metal plate side down. Install the driver in a way that the power element side faces up and the aluminum electrolytic capacitor side faces down.

◇ Horizontal Installation



◇ Vertical Installation



Note:

- The driver can generate a great deal of heat depending on the operating conditions. Make sure that the temperature of the heat sink does not exceed 80°C (176°F). [When the temperature of the heat sink exceeds 80°C (176°F), forced cooling is required.]

● Installation Conditions

Install the driver in a location that meets the following conditions, or the product may be damaged.

- Indoors (This product is designed and manufactured to be installed within another device.)
- Ambient temperature: 0~+40°C (+32~+104°F) (non-freezing)
- Ambient humidity: 85% or less (non-condensing)
- Not exposed to explosive, flammable or corrosive gases
- Not exposed to direct sunlight
- Not exposed to dust
- Not exposed to water or oil
- A place where heat can escape easily
- Not exposed to continuous vibration or excessive impact

Notes:

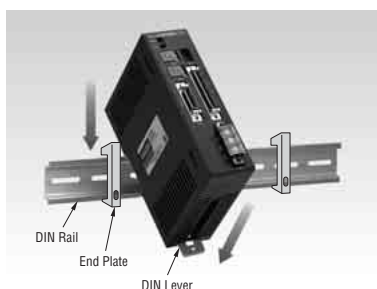
- When installing the driver in an enclosed space such as a control box, or somewhere close to a heat-radiating object, vent holes should be used to prevent the driver from overheating.
- Do not install the driver in a location where a source of vibration will cause the driver to vibrate.
- In situations where drivers are located close to a large noise source such as high frequency welding machines or large electromagnetic switches, take steps to prevent noise interference, either by inserting noise filters or connecting the driver to a separate circuit.
- Take care that pieces of conductive material (filings, pins, pieces of wire, etc.) do not enter the drivers.

Controller Installation

●EMP400 Series

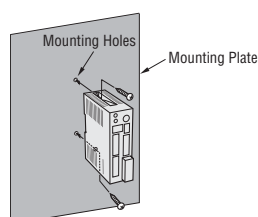
◇DIN Rail Mounting

- Use DIN rails with a width of 35 mm (1.38 in.).
- Use end plates to secure the controller.
- DIN rails and end plates are not provided with the product.



◇Screw Mounting

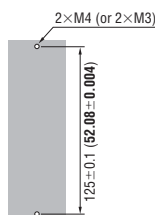
- When fastening the controller with screws, use the two screw holes at the top and bottom.
- The mounting holes should be machined for either M3 or M4 size screws. Use washers to secure the controller.
- The controller case is made from a resin. Take care not to damage the mounting hole.



Note:

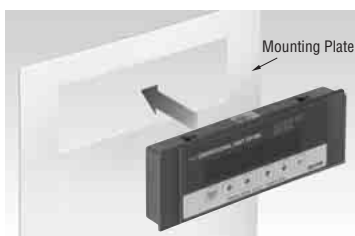
- Mounting screws are not included in the product.

Panel Mounting Cut-Out Dimensions Unit = mm (in.)

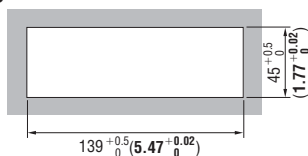


◇Installation of OP300

- The **OP300** can be affixed to a plate of 1 to 3 mm (0.04 to 0.12 in.) in thickness. The connection cable cannot be installed if the plate is thicker than 3 mm (0.12 in.), so exercise caution.
- Push in the unit from the front side of the mounting plate.



Panel Mounting Cut-Out Dimensions Unit = mm (in.)



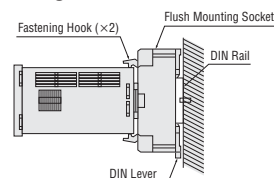
Note:

- Do not suspend the **OP300** from the connection cable.

●SG8030J

◇DIN Rail Mounting Using Flush Mounting Socket

1. Mount the flush mounting socket to the DIN rail. (The DIN lever should face down.)
2. Insert the controller terminals firmly into the flush mounting socket.
3. Engage the fastening hooks (two places) of the flush mounting socket on the controller to secure the assembly.

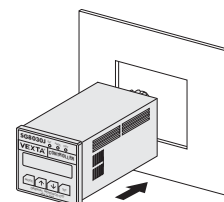


Note:

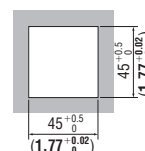
- Mount the controller only after connecting all required leads to the terminals of the flush mounting socket.

◇Panel Mounting Using Rear Connection Socket

- The **SG8030J** can be affixed to a plate of 1 to 4 mm (0.04 to 0.16 in.) in thickness.
1. Push in the controller from the front side of the mounting plate.
 2. Insert the recessed mounting adapter from the back and push it in until the gap with the mounting plate becomes minimal.
 3. Affix with the fixing screws (two places) of the recessed mounting adapter.
 4. Insert the controller terminals firmly into the rear connection socket.



Panel Mounting Cut-Out Dimensions Unit = mm (in.)



●Installation Conditions

Install the controller in a location that meets the following conditions, or the product may be damaged.

- Indoors (This product is designed and manufactured to be installed within another device.)
- Ambient temperature: 0~+50°C (+32~+122°F) (non-freezing) [**SG8030J**: 0~+40°C (+32~+104°F) (non-freezing)]
- Ambient humidity: 85% or less (non-condensing)
- Not exposed to explosive, flammable or corrosive gases
- Not exposed to direct sunlight
- Not exposed to dust
- Not exposed to water or oil
- A place where heat can escape easily
- Not exposed to continuous vibration or excessive impact

Notes:

- When installing the controller in an enclosed space such as a control box, or somewhere closed to a heat-radiating object, vent holes should be used to prevent the controller from overheating.
- Do not install the controller in a location where a source of vibration will cause the controller to vibrate.
- In situations where controllers are located close to a large noise source such as high frequency welding machines or large electromagnetic switches, take steps to prevent noise interference, either by inserting noise filters or connecting the controller to a separate circuit.
- Take care that places of conductive material (fillings, pins, pieces of wire, etc.) do not enter the controllers.

Stepping Motors

Introduction
<i>QSTEP</i> AS AC Input
<i>QSTEP</i> ASC DC Input
5-Phase Microstep RK AC Input
2-Phase Full/Half UMK
5-Phase Microstep CRK
2-Phase Microstep RBK DC Input
2-Phase Microstep CMK
2-Phase PK/PV Without Encoder
2-Phase PK With Encoder
EMP400 Controllers
SG8030J
Accessories
Installation