

Before Using a Stepping Motor

Introduction

Motor & Driver Packages		2-Phase Stepping Motors		Driver	Controllers		Low-Speed Synchronous Motors	Accessories
Closed Loop <i>Q57ZP</i> AC Input	AS	5-Phase Microstep AC Input	RK	5-Phase Full/Half DC Input	2-Phase Full/Half AC Input	2-Phase Full/Half DC Input	without Encoder	with Encoder
	AS PLUS		AS PLUS					
DC Input	ASC	DC Input	CRK II	DC Input	DC Input	DC Input	with Indexer	

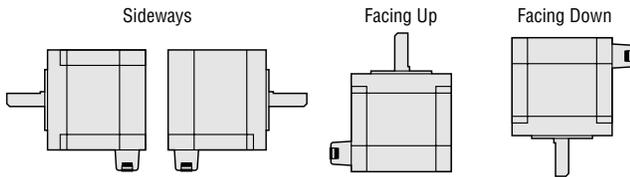
Before Using
a Stepping
Motor

Before Using a Stepping Motor

Motor Installation

Direction of Mounting

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.



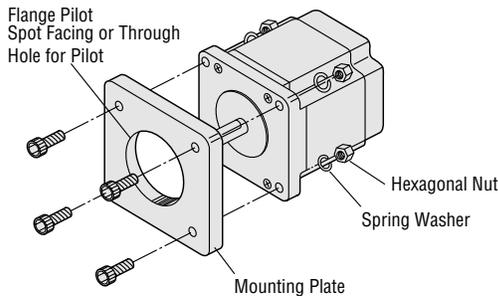
Notes:

- 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 surface.

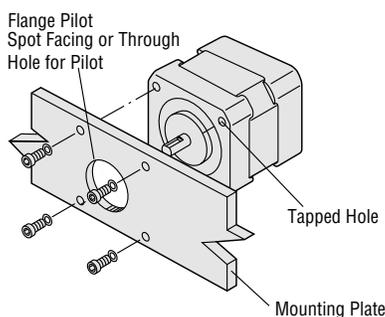
Through Hole Type



Thickness of the Mounting Plate (Through Hole Type)

Type	Model	Thickness of the Mounting Plate
<i>αSTEP</i>	AS6□, ASC66	0.2 in. (5 mm) min.
	AS9□	0.31 in. (8 mm) min.
	AS98-H	0.47 in. (12 mm) min.
5-Phase	RK56□, CSK56□, CFK56□	0.20 in. (5 mm) min.
	RK59□, CSK59□, CFK59□	0.31 in. (8 mm) min.
	RK59□-H	0.47 in. (12 mm) min.
2-Phase	UMK26□, UMK26□M, CSK26□, CSK26□M	0.20 in. (5 mm) min.
	PK26□, PK26□M, PV26□	0.31 in. (8 mm) min.

Tapped Hole Type



Thickness of the Mounting Plate (Tapped Hole Type)

Type	Model	Thickness of the Mounting Plate
<i>αSTEP</i>	AS46, ASC3□, ASC46, ASC34-H	0.12 in. (3 mm) min.
	AS46-T/N/H, AS66-T	0.20 in. (5 mm) min.
	ASC46-T/N/H, ASC66-T	0.31 in. (8 mm) min.
	AS98-T, AS66-N/H, ASC66-N/H	0.47 in. (12 mm) min.
5-Phase	AS98-N	0.47 in. (12 mm) min.
	CFK513, CFK53□, PMC3□	0.08 in. (2 mm) min.
	RK54□, CSK54□, CFK54□, PMC33-M	0.12 in. (3 mm) min.
	RK54□-T/N/H, RK564-T	0.20 in. (5 mm) min.
	CSK54□-T, CSK564-T, PMC33-H	0.20 in. (5 mm) min.
	RK56□-N/H, RK596-T	0.31 in. (8 mm) min.
2-Phase	RK59□-N	0.47 in. (12 mm) min.
	PK22□P	0.08 in. (2 mm) min.
	UMK24□, UMK24□M, CSK24□, CSK24□M, CSK243-SG, PK23□P, PK24□, PK24□P, PK24□M, PK223-SG, PK243-SG	0.12 in. (3 mm) min.
	CSK264-SG, PK264-SG	0.20 in. (5 mm) min.
	PK296-SG	0.31 in. (8 mm) min.

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.

When installing the separate bracket model driver vertically in the device, use bracket A; when installing the driver parallel to the bottom, use bracket B.

Models with Built-In Brackets

- Applicable Products:
RK Series
UI2120G

Separate Bracket Models

- Applicable Products:
αSTEP AS Series
UMK Series

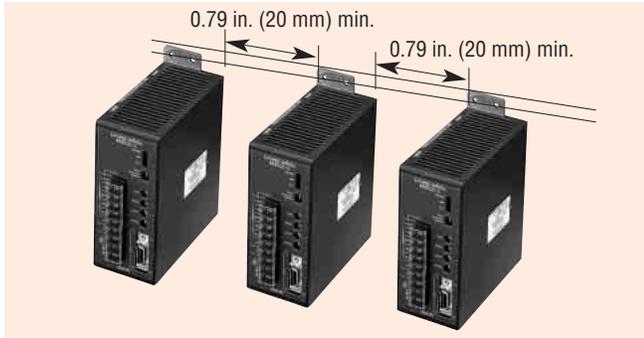


- Firmly install on a metal plate that has good heat conductivity, such as iron or aluminum 0.08 inch (2 mm) or more in thickness.
- To directly install the driver without using the screws provided, pay particular attention to the length of the screws used for the tapped holes.

● Using Multiple Axes

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

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



● Installation Conditions

Install the driver in a location that meets the following conditions. Using the product under conditions other than this could cause it to be damaged.

- Indoors (This product is designed and manufactured to be installed within another device)
- Ambient temperature:
 - 32°F to 122°F (0°C to +50°C) (nonfreezing)
 - 32°F to 104°F (0°C to +40°C) [for **UMK Series driver and UI2120G**]
- Ambient humidity: 85% maximum (noncondensing)
- Not exposed to explosive, flammable, or corrosive gas
- 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 board 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 176°F (80°C).* (When the temperature of the heat sink exceeds 176°F (80°C), forced cooling is required.)
- * CSD5828N-T: 194°F (90°C)

● Installation Conditions

Install the driver in a location that meets the following conditions. Using the product under conditions other than this could cause it to be damaged.

- Indoors (This product is designed and manufactured to be installed within another device)
- Ambient temperature: 32°F to 104°F (0°C~+40°C) (nonfreezing)
- Ambient humidity: 85% maximum (noncondensing)
- Not exposed to explosive, flammable, or corrosive gas
- 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.
- 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.

Introduction

AS

AC Input

AS PLUS

ASC

DC Input

AC Input

RK

DC Input

CRK II

CSK

PMC

UMK

CSK

PK/PV

PK

UI2120G

EMP401

EMP402

SG8030J

SMK

Accessories

Before Using a Stepping Motor

Motor & Driver Packages

5-Phase Microstep

5-Phase Full/Half

2-Phase Full/Half

2-Phase Stepping Motors

without Encoder

with Encoder

Driver

with Indeler

Controllers

Low-Speed Synchronous Motors

Accessories

Before Using a Stepping Motor

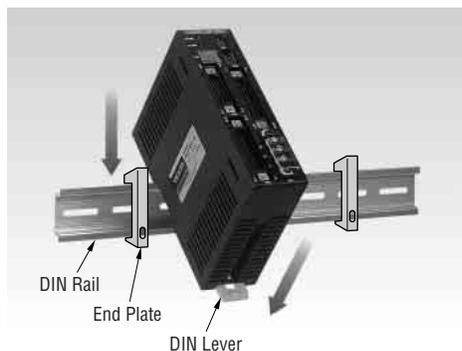
Before Using a Controller

Installation Method

EMP400 Series

DIN Rail Mounting

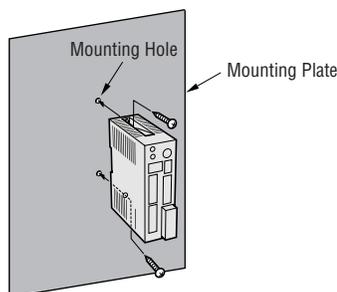
- Use DIN rails with a width of 1.38 in. (35 mm).
- Use end plates to secure the controller.
- DIN rails and end plates are not provided with the unit.



EMP400 Series

Screw Mounting

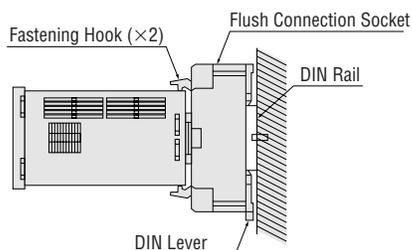
- To fasten the unit with screws, use the two screw holes at the top and bottom.
- The mounting holes should be machined for either M3 or M4 size screws. Use washers to secure the controller.



SG8030J

DIN Rail Mounting using Flush Connection Socket

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

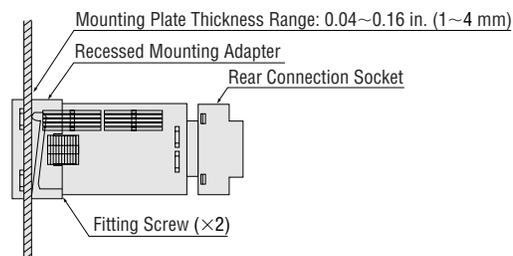


Note:

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

Panel Mounting using Rear Connection Socket

1. Insert the controller into the mounting cutout from the front.
2. Insert the flush mount adapter from the rear and push it in to eliminate mounting panel clearance.
3. Fasten the adapter with the fitting screws (2 locations).
4. Insert the controller terminals firmly into the rear connection socket.



- For information on mounting cutout dimensions, see page C-267.

Installation Location

Indoors, ambient temperature 32°F to 122°F (0°C to +50°C) [32°F to 104°F (0°C to +40°C) for SG8030J] (Nonfreezing)

- If the ambient temperature exceeds 122°F (+50°C) [104°F (+40°C) for **SG8030J**], use a fan to provide forced cooling. Otherwise the internal heat buildup may lead to damage.
- When installing the controller in an enclosed space such as a control box, or somewhere close to a heat-radiating object, ventilation holes should be used to prevent the controller from overheating.

Ambient humidity 85% maximum (Noncondensing)

Not exposed to corrosive gass or dust

Take care that pieces of conductive material (filing, pins, pieces of wire, etc.) do not enter the controllers. Otherwise circuit damage may occur.

Not exposed to water or oil

Exposure to liquids can lead to corrosion or short-circuits.

Not exposed to direct sunlight

Not in the vicinity of noise sources

In situations where controllers are located close to an electrical noise source such as high frequency welding machines or large electromagnetic switches, take steps to prevent noise interference, either by inserting noise filters, using shielded wires or connecting the controller to a separate circuit.

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AS	AS PLUS	DC Input	DC Input	AC Input	DC Input	AC Input	DC Input	PK/PV	PK	UI2120G						
		AS	AS PLUS	ASC	RK	CRK II	CSK	PMC	UMK	CSK						

● Not in the vicinity of vibration sources

When the controller is to be installed in a location where a source of vibration will cause the controller to vibrate as well, install a shock absorber.

● Do not overtighten screws

When fastening the unit with screws, use appropriate tightening torque. Take care not to damage the case by overtightening.