



## EAS Series Motorized Linear Slides

### OPERATING MANUAL

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.

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# 1 Introduction

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## 1.1 Introduction

Only qualified personnel should work with the product. Use the product correctly after thoroughly reading the section "Motorized Actuators BEFORE USING 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.

## 1.2 Notation on this manual

 <b>Warning</b>	Handling the product without observing the instructions that accompany a "Warning" symbol may result in serious injury or death.
 <b>Caution</b>	Handling the product without observing the instructions that accompany a "Caution" symbol may result in injury or property damage.
 <b>Note</b>	The items under this heading contain important handling instructions that the user should observe to ensure safe use of the product.
	

## 1.3 Composition and contents of this operating manual

The composition of operating manuals for this product are described as follows. Operating manuals supplied with the product vary depending on the type of the product.

< Operating manuals for motorized actuators >	< How to obtain the operating manual >	< Description >
<div style="border: 1px dashed black; padding: 5px;"> <p>Motorized Actuators BEFORE USING THE PRODUCT</p> <p>Motorized linear slides OPERATING MANUAL (this document)</p> <p>Read this manual before starting up your equipment. Recovery Guide</p> </div>	<p>Supplied with the product</p> <p>Supplied with the product</p> <p>Supplied with the product *</p>	<p>This manual explains safety precautions of the motorized actuator.</p> <p>This manual explains installation methods, maintenance and others.</p> <p>This manual is a recovery guide for when assuming to replace the motor at the time of maintenance.</p>
<p>&lt;Operating manuals for the motor and driver that are used&gt;</p>		
<div style="border: 1px dashed black; padding: 5px;"> <p>Motor OPERATING MANUAL</p> <p>Driver OPERATING MANUAL</p> <p>USER MANUAL or OPERATING MANUAL Function Edition</p> <p>Data setting software <b>MEXE02</b></p> </div>	<p>Supplied with the product</p> <p>Supplied with the product</p> <p>Supplied with the product (CD-ROM)</p> <p>Accessory (Sold separately)</p>	<p>This manual explains the connection, installation method, general specifications and others for the motor.</p> <p>This manual explains connections, setting methods, I/O signals and others.</p> <p>This manual explains various functions, I/O signals, operation and others.</p> <p>Use the data setting software <b>MEXE02</b> when setting the resolution with the electronic gear.</p>

\* This manual is supplied with products that the **AZ** Series motor is equipped.

## 1.4 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.

When purchasing a motorized linear slide and driver package	When purchasing a motorized linear slide only
<ul style="list-style-type: none"> <li>• Motorized linear slide</li> <li>• Driver</li> <li>• Surge suppressor *1</li> <li>• <u>Motorized Actuators BEFORE USING THE PRODUCT</u></li> <li>• <u>Motorized Linear Slides OPERATING MANUAL</u> (this document)</li> <li>• <u>Motor OPERATING MANUAL</u></li> <li>• <u>Driver OPERATING MANUAL</u></li> <li>• <u>USER MANUAL</u> (CD-ROM)</li> <li>• Recovery guide (supplied when the <b>AZ</b> Series motor is used)</li> <li>• A bag of connectors</li> <li>• Cable for motor *3</li> <li>• Cable for electromagnetic brake (supplied with an electromagnetic brake motor and driver package) *3</li> <li>• Cable for encoder (supplied when the <b>AZ</b> Series motor is used) *3</li> </ul>	<ul style="list-style-type: none"> <li>• Motorized linear slide</li> <li>• Surge suppressor *2</li> <li>• <u>Motorized Actuators BEFORE USING THE PRODUCT</u></li> <li>• <u>Motorized Linear Slides OPERATING MANUAL</u> (this document)</li> <li>• <u>Motor OPERATING MANUAL</u></li> <li>• Recovery guide (supplied when the <b>AZ</b> Series motor is used)</li> </ul>

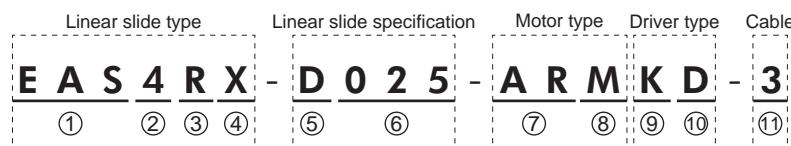
\*1 The surge suppressor comes with the product if the driver which combines the motorized linear slide with an electromagnetic brake is the ARD-K.

\*2 The surge suppressor comes with the DC power input type motorized linear slides with an electromagnetic brake.

\*3 This does not come with the "products without cables."

## 1.5 How to identify the product model

### ■ Motorized linear slides Linear slide and driver package name



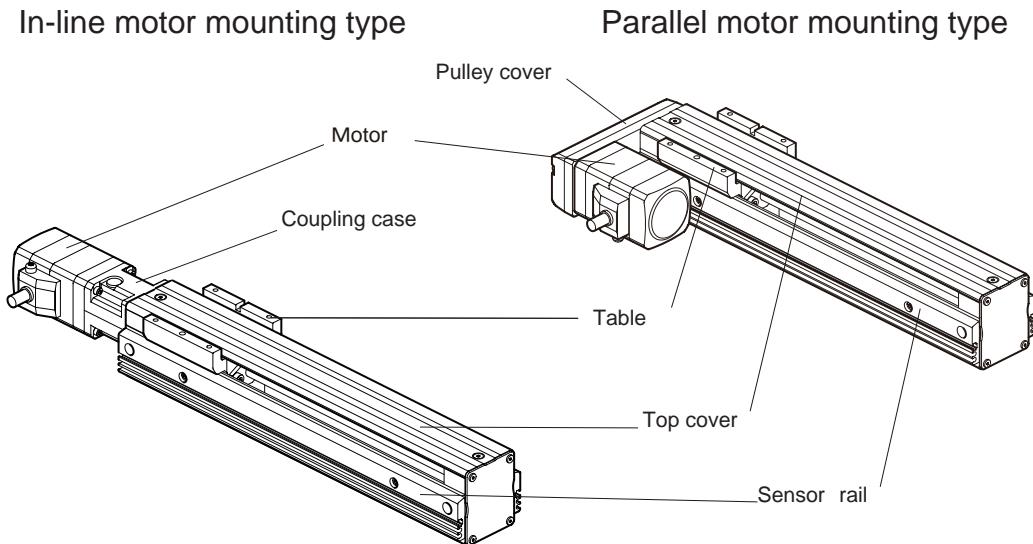
1	Series name	<b>EAS:</b> EAS series
2	Linear slide size	4: Width 58.4 mm (2.30 in.) Height 60 mm (2.36 in.) 6: Width 75.4 mm (2.97 in.) Height 83 mm (3.27 in.)
3	Motor mounting direction	R: Parallel motor mounting type (right side) L: Parallel motor mounting type (left side) Blank: In-line motor mounting type
4	Table	X: X-table Y: Y-table
5	Ball screw lead	D: 12 mm (0.47 in.) E: 6 mm (0.24 in.)
6	Stroke	005 ~ 085: 50 to 850 mm (1.97 to 33.46 in.)
7	Motor	<b>AR:</b> AR series <b>AZ:</b> AZ series
8	Motor type	A: Single shaft M: With electromagnetic brake
9	Power input	Motorized linear slide equipped the <b>AR</b> Series A: Single-phase 100-120 VAC (Single-phase 100-115 VAC for the pulse input type) C: Single-phase 200-240 VAC (Single-phase 200-230 VAC for the pulse input type) S: Three-phase 200-230 VAC (For the pulse input type only) K: 24 VDC/48 VDC Motorized linear slide equipped the <b>AZ</b> Series A: Single-phase 100-120 VAC C: Single-phase, three-phase 200-240 VAC K: 24 VDC/48 VDC
10	Driver type	D: Built-in controller type Blank: Pulse input Type
11	Connection cable	Number: Length of supplied cable 1: 1 m (3.3 ft.) 2: 2 m (6.6 ft.) 3: 3 m (9.8 ft.) Blank: Without connection cable

## ■ Motorized linear slides Linear slide name

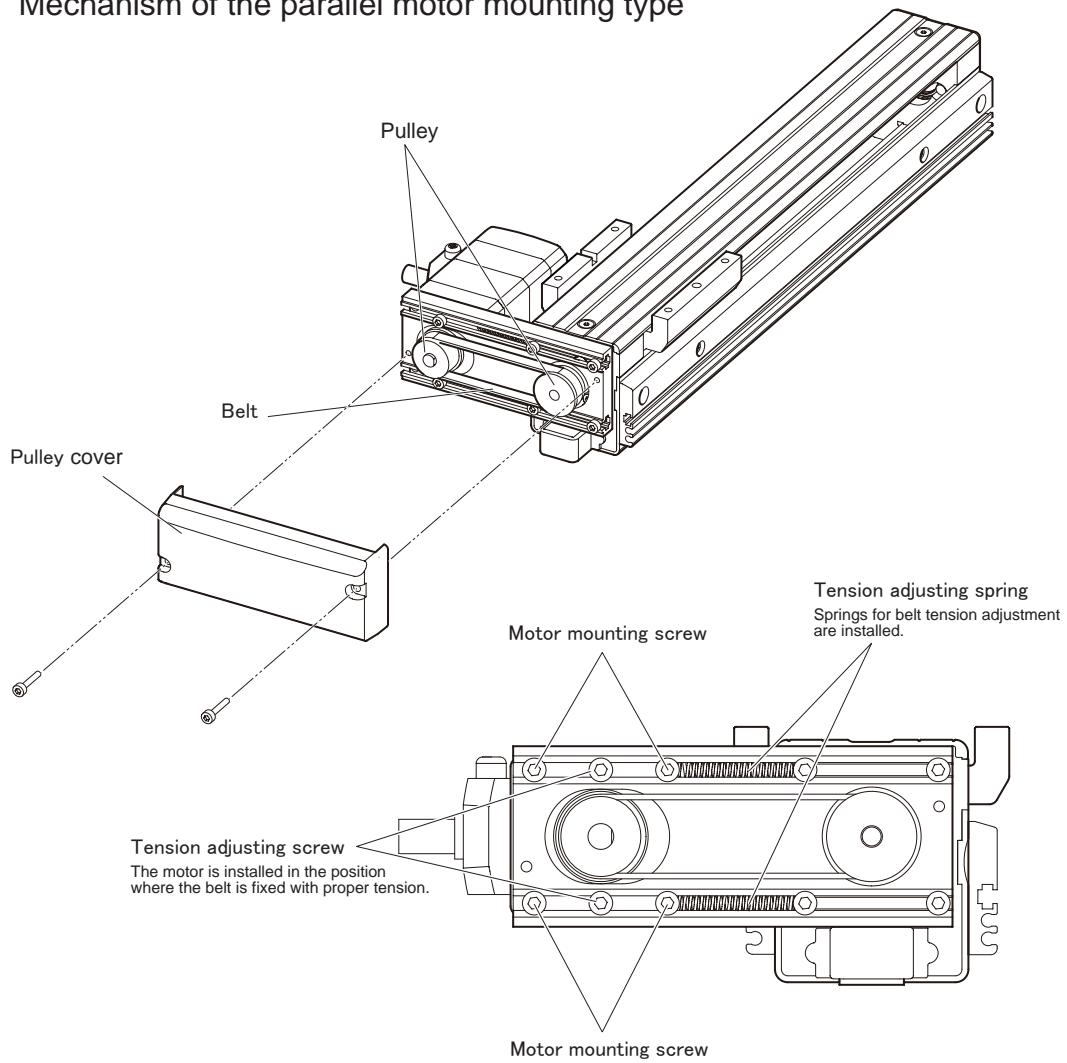
E A S M 4 R X D 0 2 5 A R M K  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

1	Series name	EASM: <b>EAS</b> series
2	Linear slide size	4: Width 58.4 mm (2.30 in.) Height 60 mm (2.36 in.) 6: Width 75.4 mm (2.97 in.) Height 83 mm (3.27 in.)
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6	Stroke	005 ~ 085: 50 to 850 mm (1.97 to 33.46 in.)
7	Motor	AR: <b>AR</b> serise AZ: <b>AZ</b> serise
8	Motor type	A: Single shaft M: With electromagnetic brake
9	Motor power supply type	K: DC power input C: AC power input

## 1.6 Names and functions of parts



## Mechanism of the parallel motor mounting type



# 2 Installation

## 2.1 Location for installation

The motorized actuator has been designed and manufactured to be incorporated in general industrial equipment. Install them in a well-ventilated location that provides easy access for inspection. The location must also satisfy the following conditions.

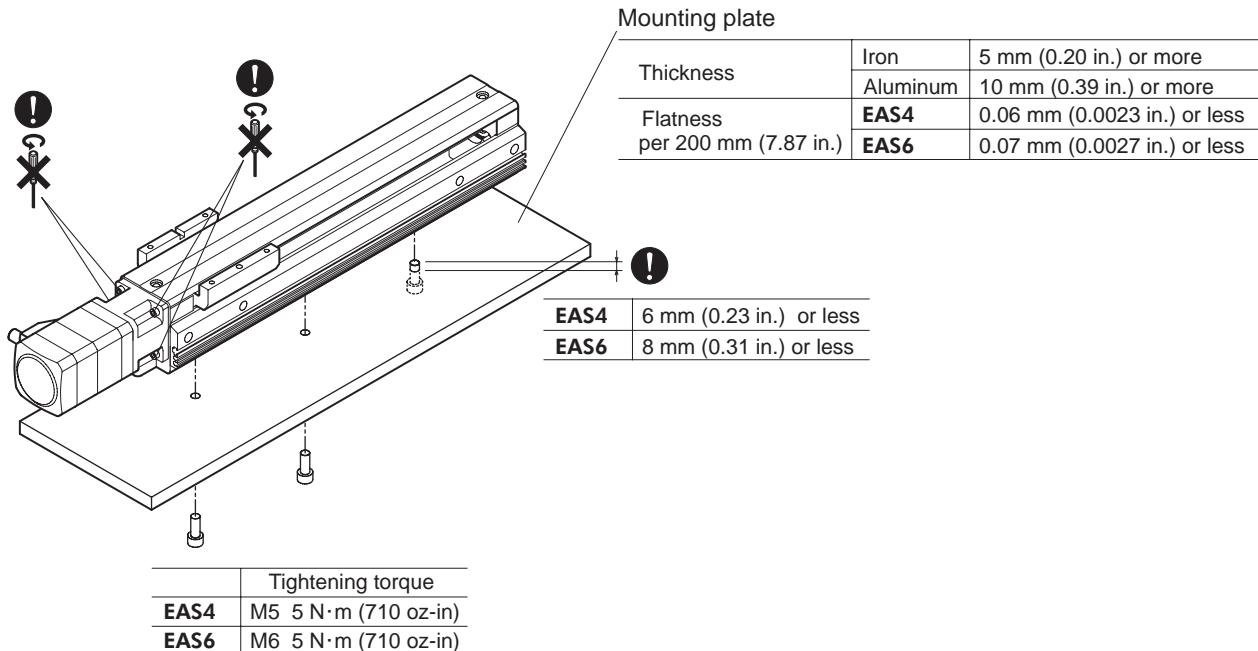
- Inside an enclosure that is installed indoors (provide vent holes)
- Operating ambient temperature: 0 to +40 °C (+32 to +104 °F) (non-freezing)
- Operating ambient humidity 85% or less (non-condensing)
- Area that is free of explosive atmosphere or toxic gas (such as sulfuric gas) or liquid
- Area 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 free of excessive salt
- Area not subject to continuous vibration or excessive shocks
- Area free of excessive electromagnetic noise (from welders, power machinery, etc.)
- Area free of radioactive materials, magnetic fields or vacuum
- 1000 m (3300 ft.) or lower above sea level

## 2.2 Installation direction

The motorized linear slide can be installed in any direction.

## 2.3 Installing the motorized linear slide

To prevent vibration and deflection of the linear slide, install it on a metal surface of sufficient strength.



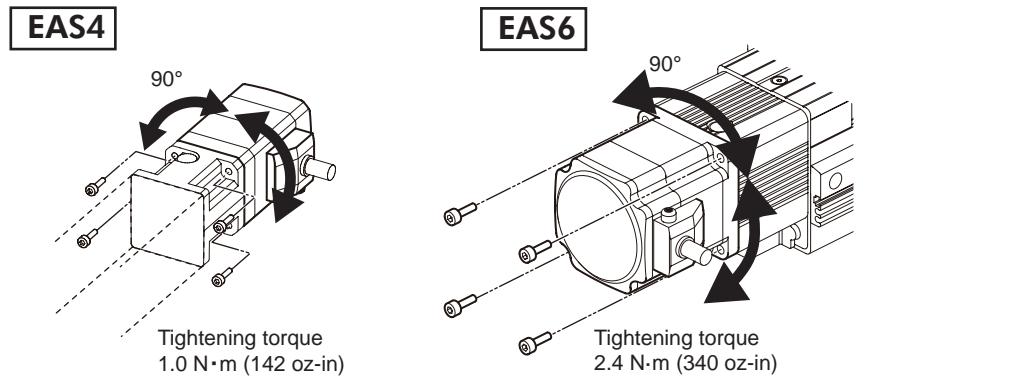
## 2.4 Changing the motor cable outlet direction

The motor cable outlet direction can be changed according to the equipment.

### ⚠ Warning

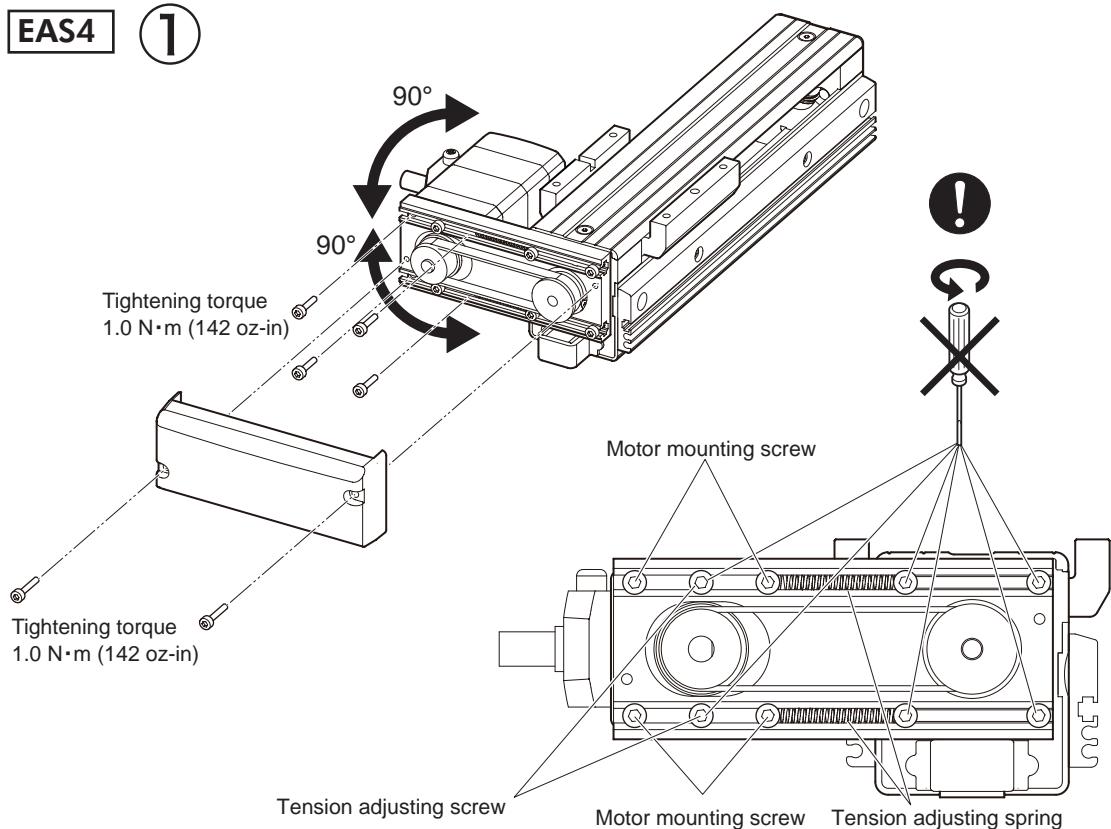
- When changing the motor cable outlet direction, remove the load and keep the motorized linear slide in a horizontal position. Doing the operation in a vertical condition may cause injury or damage to equipment.
  - Doing the operation in a vertical condition may allow the moving part of the motorized linear slide to fall.
  - Removing the screws fixed the motor in a vertical condition may cause the motor itself to rotate.
- If the actuator is operated without setting the home position again, the moving part may move to unexpected directions, causing injury or damage to equipment.
  - The moving part of the motorized linear slide may collide with the mechanical stopper.
  - The load may collide with other equipment.

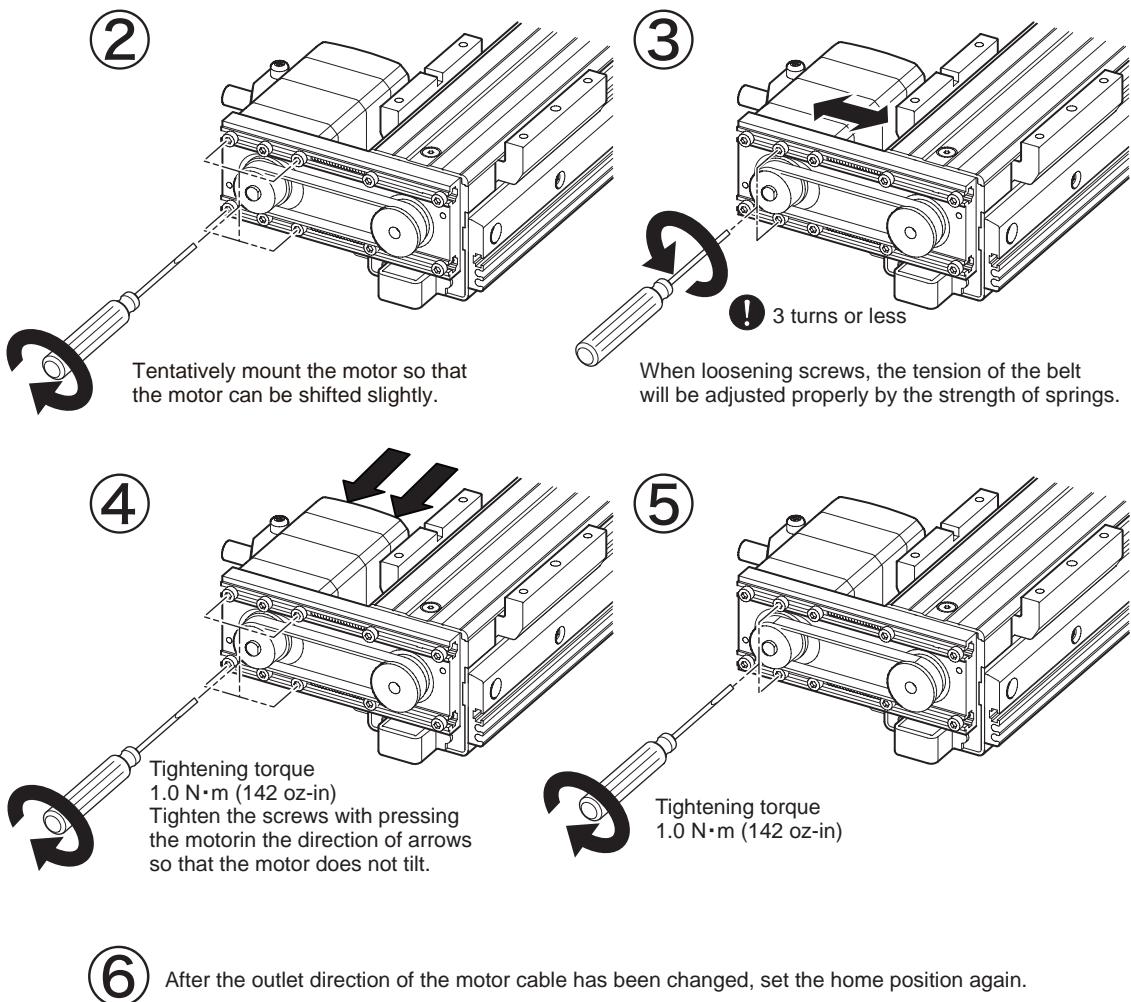
### ■ In-line motor mounting type



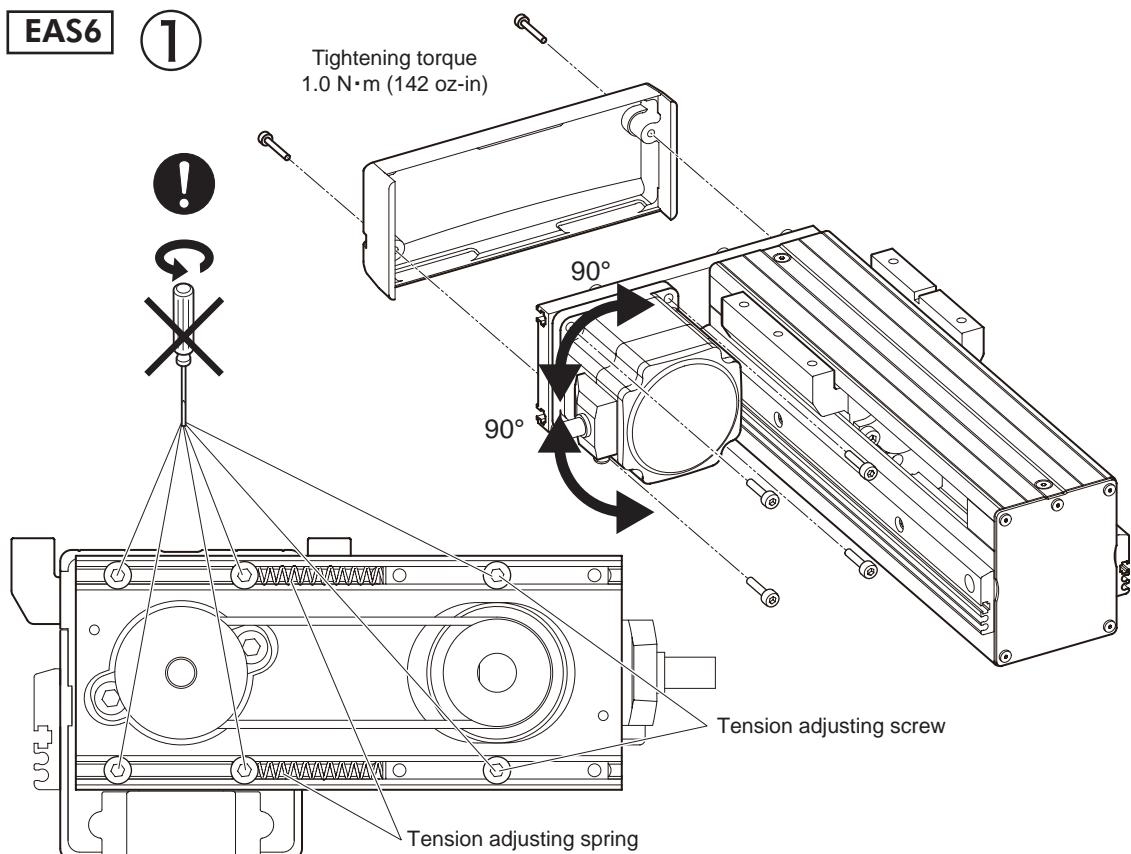
After the outlet direction of the motor cable has been changed, set the home position again.

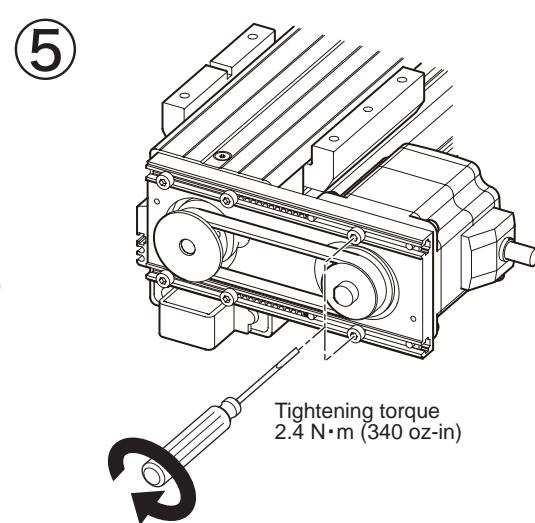
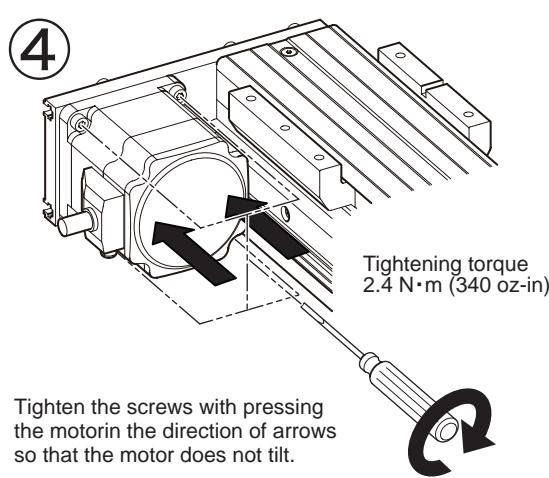
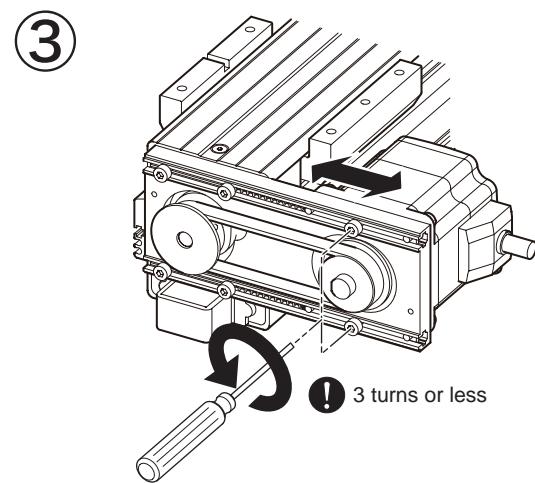
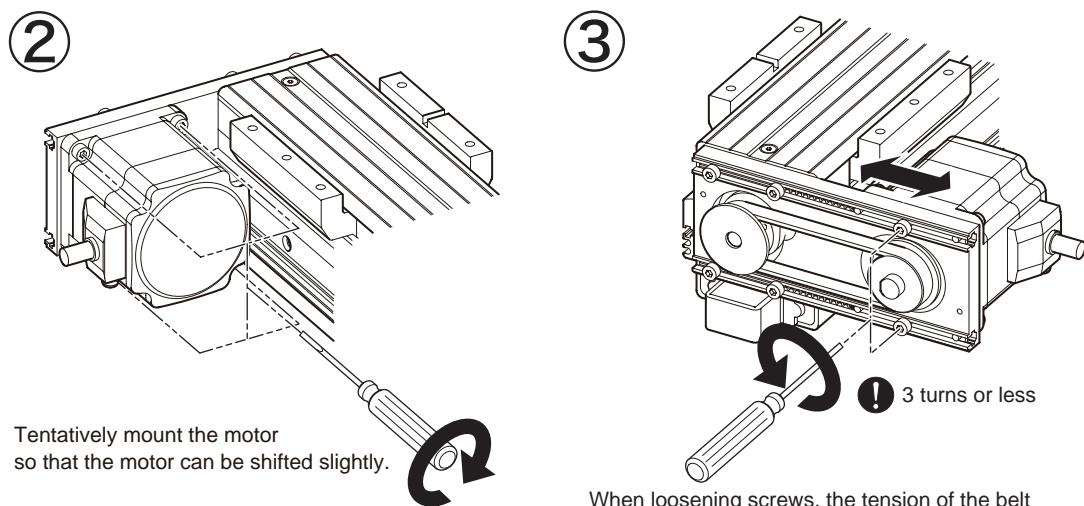
### ■ Parallel motor mounting type





**⑥** After the outlet direction of the motor cable has been changed, set the home position again.



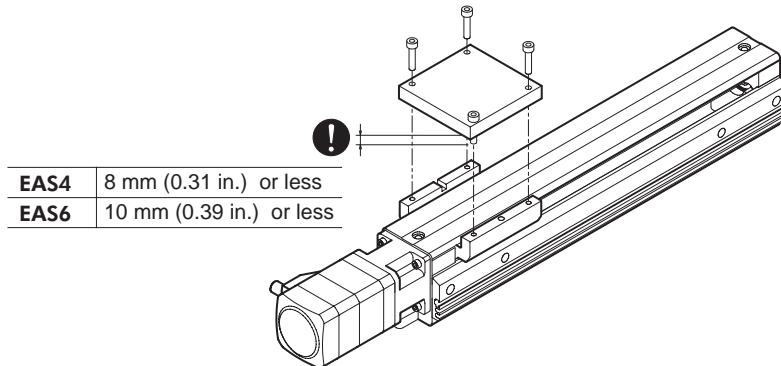


⑥ After the outlet direction of the motor cable has been changed, set the home position again.

## 2.5 Installing a load

Install a load with screws using the load-mounting screw hole in the table.

	Tightening torque
<b>EAS4</b>	M4 2.4 N·m (340 oz-in)
<b>EAS6</b>	M5 5 N·m (710 oz-in)

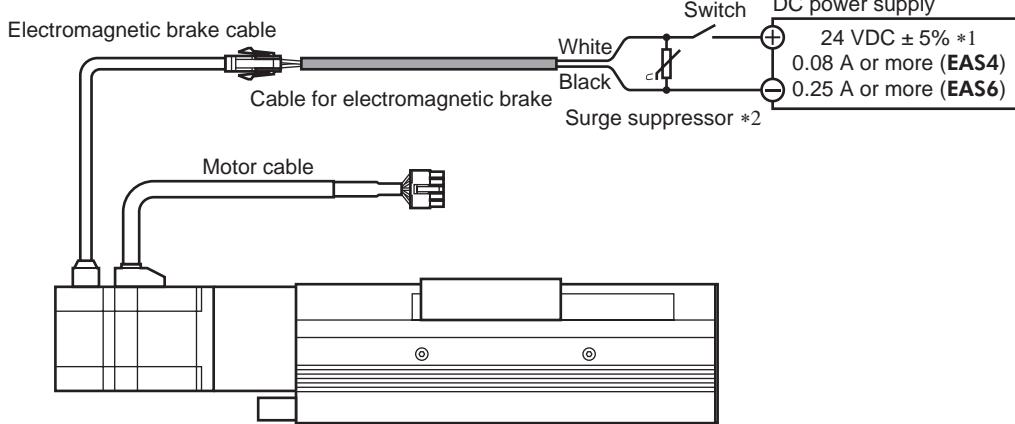


### ■ When the electromagnetic brake type is used

When the motorized linear slide with an electromagnetic brake is used, the table cannot move unless the electromagnetic brake is released. To release the electromagnetic brake, a DC power supply is required.

1. Connect the "electromagnetic brake cable" and supplied "cable for electromagnetic brake."
2. Connect the lead wires of the "cable for electromagnetic brake" to the 24 VDC power supply. Connect the white lead wire to the +24 VDC terminal, and the black lead wire to the GND terminal.

When turning on the power, the electromagnetic brake will be released and the table will be able to move by hand.



\*1 If the distance between the "motorized linear slide with an electromagnetic brake" and driver is extended to 20 m (65.6 ft.) or longer, use a power supply of 24 ± 4% VDC.

\*2 Connect the surge suppressor to protect the contact of the switch or to prevent electrical noise.  
[Recommended surge suppressor: Z15D121 (SEMITEC Corporation)]

**Note** | Connect the lead wires of the electromagnetic brake in the correct polarities since they have polarities. Connecting the lead wires in wrong polarities will not properly operate the electromagnetic brake.

# 3 Connection

## 3.1 Connecting to the driver

For connection method, refer to the [Driver OPERATING MANUAL](#) or [USER MANUAL \(OPERATING MANUAL\)](#) Function Edition for the **AZ Series**.

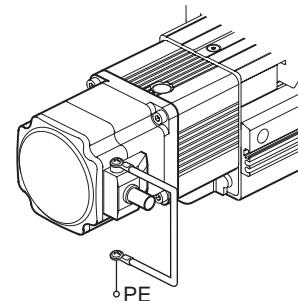
## 3.2 Grounding the motorized linear slide

### ■ Motorized linear slide equipped the AR Series

Be sure to ground the Protective Earth Terminal (screw size: M4) of the linear slide. (Not required when the power supply of the driver is 24 VDC.)

- Grounding wire: AWG18 (0.75 mm<sup>2</sup>) larger
- Tightening torque: 1.2 N·m (170 oz-in)

To ground the linear slide, use a round terminal and secure it with a screw over an inner clip washer. The grounding wire and crimp terminal do not come with the linear slide.



### ■ Motorized linear slide equipped the AZ Series

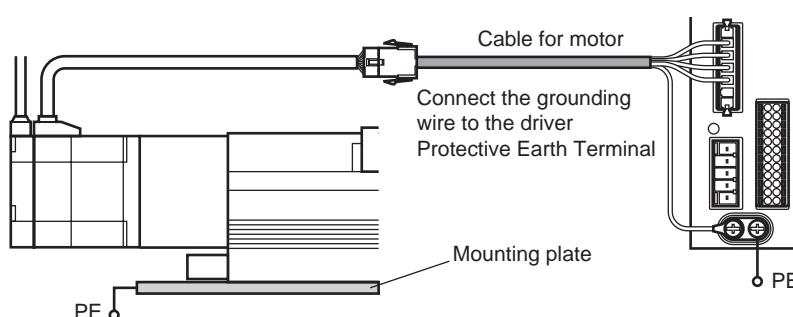
#### • AC power input type

Connect the grounding wire of the "cable for motor" to the driver Protective Earth Terminal.

However, the grounding resistance value provided in the standards in which the user applies to the equipment may not be satisfied depending on the type or length of the "cable for motor."

In this case, also ground the motorized linear slide.

1. Connect the grounding wire of the "cable for motor" to the driver Protective Earth Terminal.
2. Ground the driver Protective Earth Terminal.  
Refer to the [Driver OPERATING MANUAL](#) for how to ground the driver.
3. If the motorized linear slide is also grounded, secure the mounting surface of the motorized linear slide to the grounded mounting plate. Install the motorized linear slide so that the following conditions are satisfied.
  - The mounting surface of the motorized linear slide and mounting plate are closely attached.
  - The mounting surface of the motorized linear slide and mounting plate are electrically conducted.
  - The contact resistance between the mounting surface of the motorized linear slide and mounting plate is minimized.



If the motorized linear slide is also grounded : Secure the motorized linear slide to the grounded mounting plate

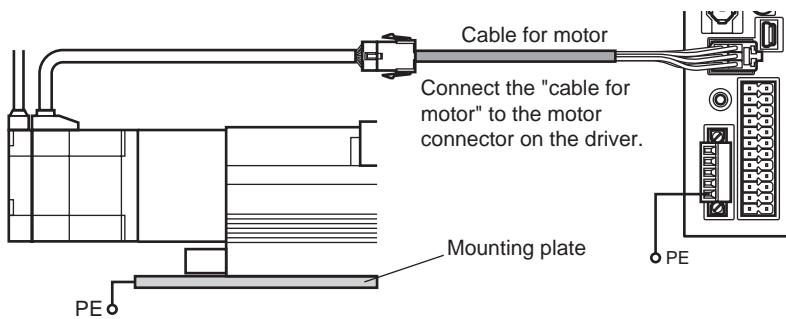
- Reference: Grounding wire of the "cable for motor"
  - Conductor size: AWG18 (0.75 mm<sup>2</sup>)
  - Maximum conductor resistance: 21.8 Ω/km (25.6 Ω/km for flexible cable)

- DC power input type

Since a grounding wire is included in the "cable for motor," you can ground it only to connect with a driver. However, the grounding resistance value provided in the standards in which the user applies to the equipment may not be satisfied depending on the type or length of the "cable for motor."

In this case, also ground the motorized linear slide.

1. Connect the "cable for motor" to the motor connector on the driver.
2. Ground the driver Protective Earth Terminal.  
Refer to the [Driver OPERATING MANUAL](#) for how to ground the driver.
3. If the motorized linear slide is also grounded, secure the mounting surface of the motorized linear slide to the grounded mounting plate. Install the motorized linear slide so that the following conditions are satisfied.
  - The mounting surface of the motorized linear slide and mounting plate are closely attached.
  - The mounting surface of the motorized linear slide and mounting plate are electrically conducted.
  - The contact resistance between the mounting surface of the motorized linear slide and mounting plate is minimized.



If the motorized linear slide is also grounded : Secure the motorized linear slide to the grounded mounting plate

- Reference: Grounding wire of the "cable for motor"

- Conductor size: AWG18 ( $0.75 \text{ mm}^2$ )
- Maximum conductor resistance:  $21.8 \Omega/\text{km}$  ( $25.6 \Omega/\text{km}$  for flexible cable)

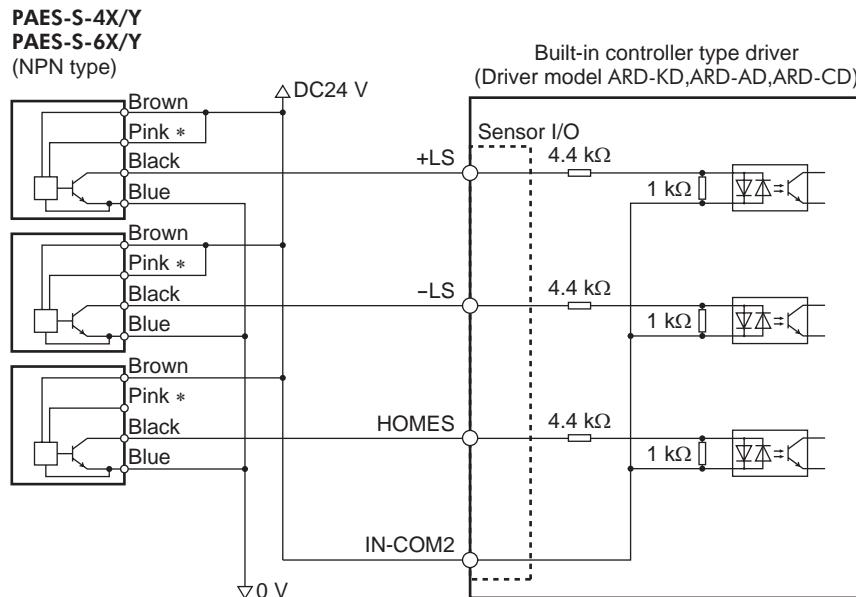
### 3.3 Connecting the sensors (Motorized linear slide equipped the AR Series)

This section explains examples for how to connect the driver and accessory sensor set. For details, refer to the OPERATING MANUAL for the sensor set or the Driver OPERATING MANUAL.

#### ■ Connection example for the sensor set PAES-S-4X/Y, PAES-S-6X/Y (NPN type)

The connection example is shown based on the following conditions.

- Return-to-home method: 3 sensors
  - Logic of +LS output, -LS output: Normally closed
  - Logic of HOMES output: Normally open

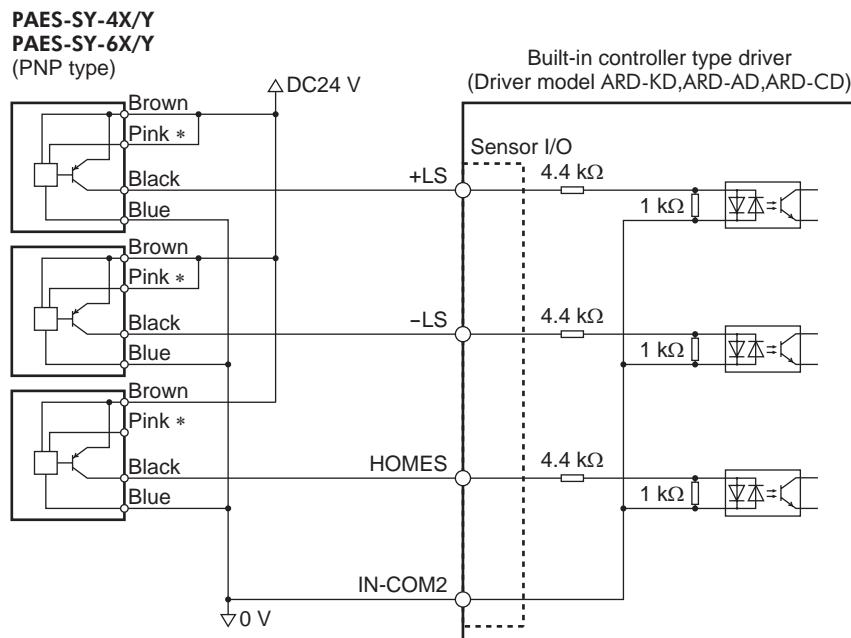


\* Normally open or normally closed can be selected by the connection method of the sensor. When selecting normally closed, connect the brown lead and pink lead.

#### ■ Connection example for the sensor set PAES-SY-4X/Y, PAES-SY-6X/Y (PNP type)

The connection example is shown based on the following conditions.

- Return-to-home method: 3 sensors
  - Logic of +LS output, -LS output: Normally closed
  - Logic of HOMES output: Normally open



\* Normally open or normally closed can be selected by the connection method of the sensor. When selecting normally closed, connect the brown lead and pink lead.

# 4 Maintenance

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This chapter explains the maintenance items in order to operate motorized actuators safely and efficiently. If an abnormal condition is noted on the motorized actuator, discontinue any use and contact your nearest Oriental Motor sales office.

## 4.1 Inspection Items and Timing

Perform maintenance after each applicable period specified in the tables below. The schedule assumes that the motorized linear slide is operated eight hours a day. Shorten the maintenance intervals accordingly if the operation rate is high, such as when the motorized linear slide is operated continuously day and night.

Maintenance time period	External check	Internal check
When operated for the first time	○	-
Six months after initial operation	○	○
Every six months thereafter	○	○

### ■ External Check

Check the items specified in table below.

Item	What to check	Action if problem is found
Motorized linear slide	<ul style="list-style-type: none"> <li>Are there any loose screws which have mounted the motorized linear slide?</li> <li>Are there any loose screws which have mounted the load?</li> <li>Are there any loose screws which have mounted the motor?</li> </ul>	Tighten the screws securely.
Cables	<ul style="list-style-type: none"> <li>Are there any scratches or areas under stress on the cable?</li> <li>Are there any loose connections on the motor or driver?</li> </ul>	Disconnect and reconnect the connector or replace the cable.
Operation	Are there any abnormal noise or vibration from the bearings, etc.?	Check the installation of the load and operating speed again.

### ■ External Cleaning

- Clean the exterior surface of the motorized linear slide whenever necessary.
- Wipe off any dirt and stains using a soft cloth.
- Do not apply compressed air. Dust may enter through gaps.
- Do not use petroleum solvents, since they will damage the coated surface.
- To remove stubborn stains, wipe the area using a soft cloth moistened with neutral detergent.

### ■ Internal Check

Visually check the internal condition of the motorized linear slide. Check the items specified in table below. Even if the grease has turned brown, lubrication condition is deemed appropriate if the running surface still appears glossy. Refer to p.16 for how to apply grease.

Item	What to check	Action if problem is found
Ball-screw shaft	Are there any deposits of foreign matter such as dust?	Remove the foreign matter.
	Has the grease lost its gloss or been consumed?	Clean the screw shaft with a soft cloth and apply grease to the nut running groove.
Guide rail	Are there any deposits of foreign matter such as dust?	Remove the foreign matter.
	Has the grease lost its gloss or been consumed?	Use a soft cloth to clean the ball rolling grooves on both sides of the guide rail, and add grease from the grease nipple.

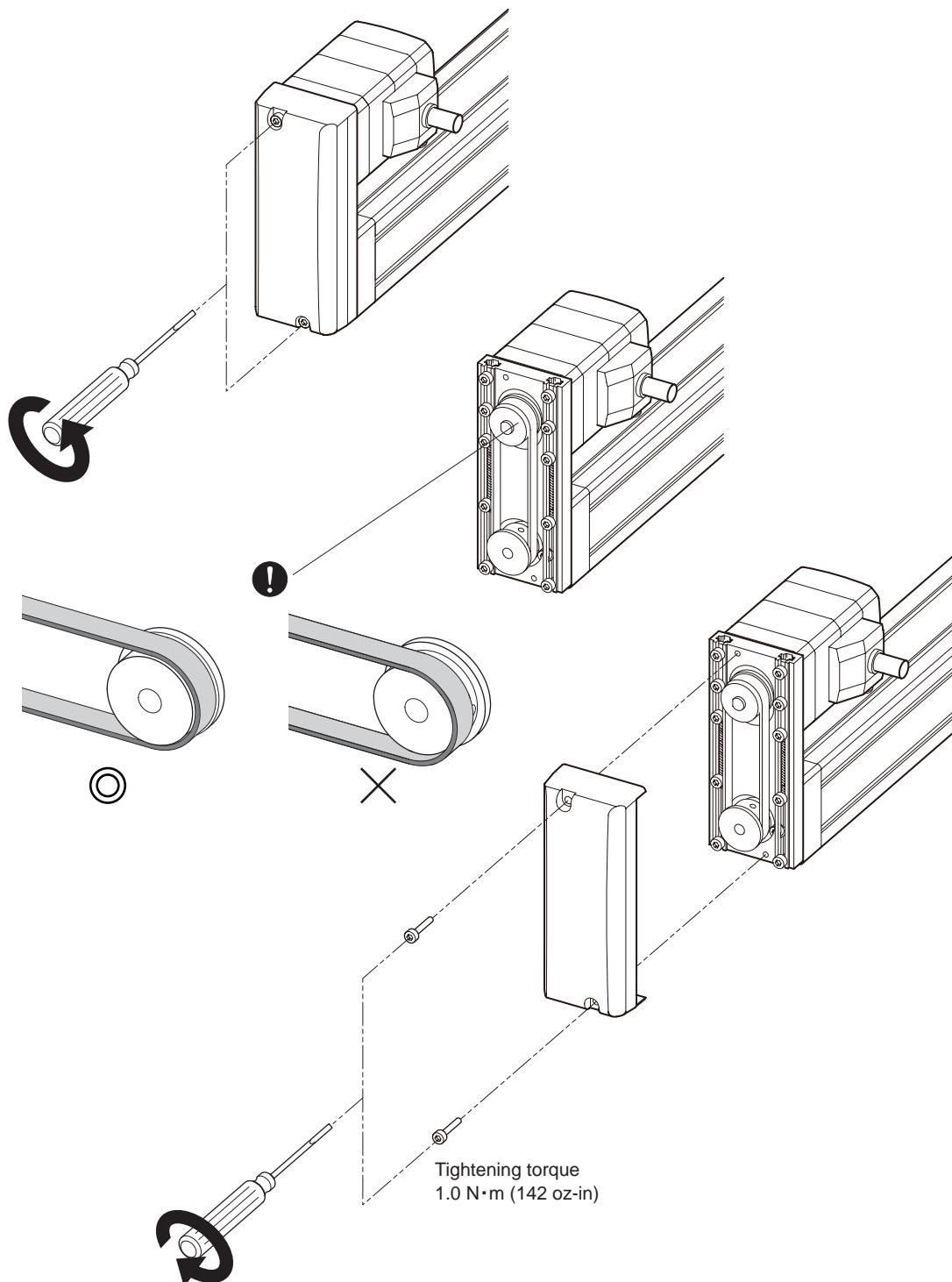
## ■ Checking the belt (when using the parallel motor mounting type)

Remove the pulley cover to check the belt condition.

Replace the belt if the following condition can be checked at the time of maintenance. See p.16 for how to replace the belt.

Inspection interval	Every 500 km (310 mi.) in mileage
Inspection item	<ul style="list-style-type: none"> <li>• Is there any crack on the belt rubber?</li> <li>• Is there any stripped teeth on the belt?</li> <li>• Is there any abnormal abrasion on facing fabric of the belt?</li> </ul>

- How to remove and install the pulley cover



## 4.2 Greasing

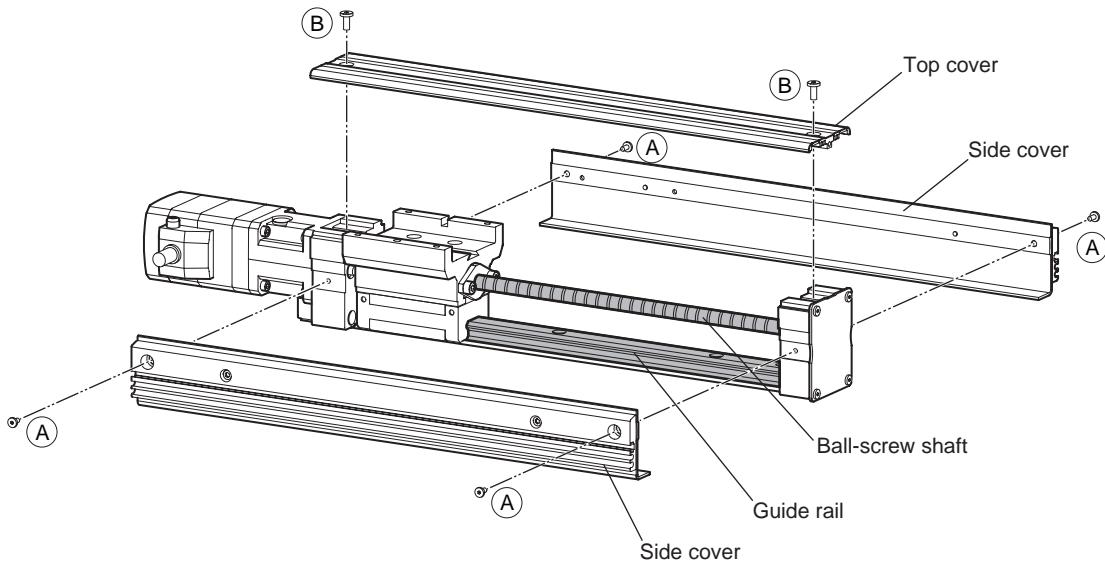
Apply grease as an indication of the greasing timing in the table below.

	Greasing timing	Type of grease	Grease amount
Ball-screw shaft	<ul style="list-style-type: none"> <li>• Every six months</li> <li>• Once every 100 km (62 mi) of travel</li> </ul>	AFF (THK CO., LTD.)	<b>EAS4</b> : 0.3 cm <sup>3</sup> (0.018 in <sup>3</sup> ) <b>EAS6</b> : 0.4 cm <sup>3</sup> (0.024 in <sup>3</sup> )
Guide rail	<ul style="list-style-type: none"> <li>• When grease becomes extremely dirty</li> </ul>		<b>EAS4</b> : 0.7 cm <sup>3</sup> (0.043 in <sup>3</sup> ) <b>EAS6</b> : 1.5 cm <sup>3</sup> (0.092 in <sup>3</sup> )



**Caution** Wear protective goggles when applying grease. Pay attention to safety and handle the grease carefully by following the instructions provided with that product. If grease gets into the eyes or comes in contact with the skin, immediately flush the area thoroughly with water.

- How to remove the side cover and top cover



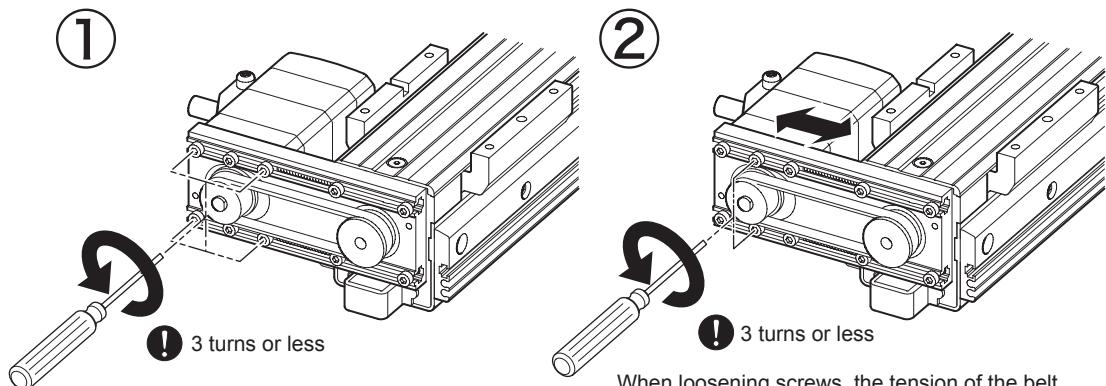
	Tightening torque
(A)	M3 0.6 N·m (85 oz-in)
(B)	M4 1.0 N·m (142 oz-in.)

## 4.3 Adjusting the belt tension and replacing the belt



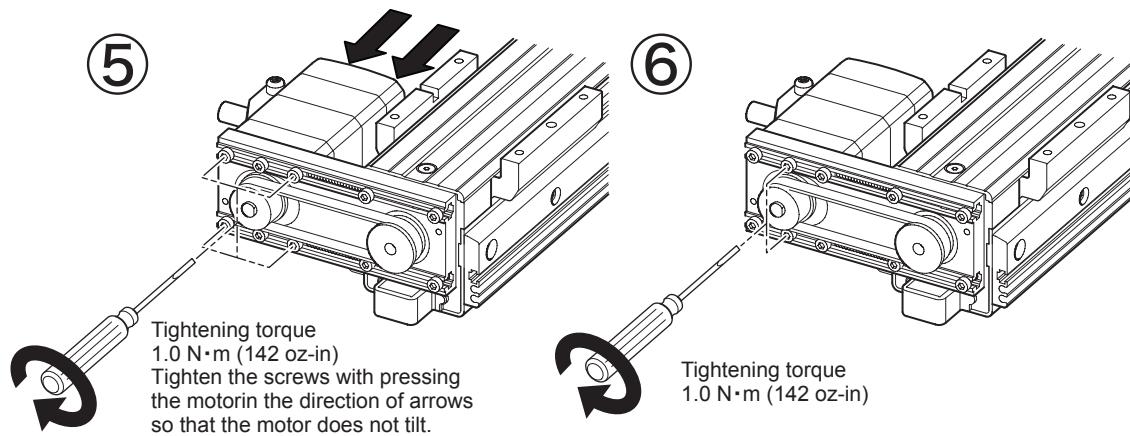
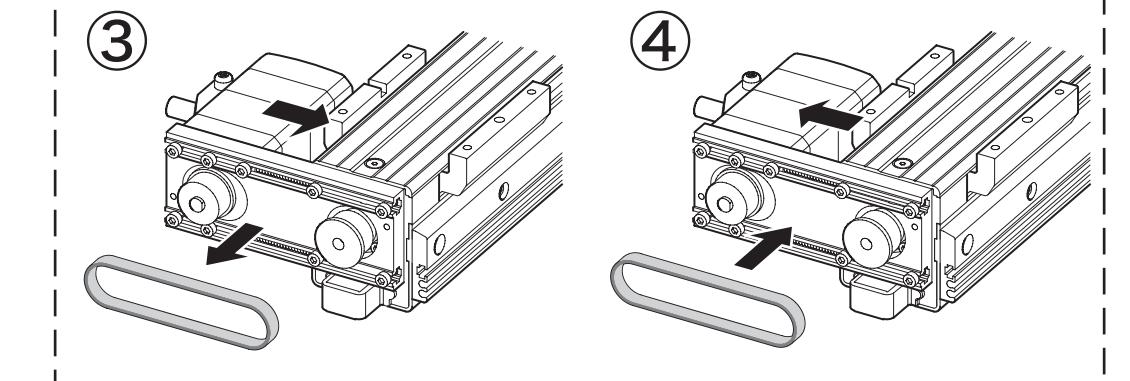
- When performing tension adjustment or replacement of the belt, remove the load and keep the motorized linear slide in a horizontal position. Doing the operation in a vertical condition may allow the moving part to fall, causing injury or damage to equipment.
  - If the motorized linear slide is operated without setting the home position again, the moving part may move to unexpected directions, causing injury or damage to equipment.
    - The moving part of the motorized linear slide may collide with the mechanical stopper.
    - The load may collide with other equipment.
  - Perform the belt tension adjustment in the order of ①→②→⑤→⑥
  - Perform the belt replacement in the order of ①→②→③→④→⑤→⑥
- Use the following accessories (sold separately) for the belt replacement.

Motorized linear slide model	Belt model
<b>EAS4</b>	<b>LS-LVCS2M060186</b>
<b>EAS6</b>	<b>LS-LVCS3M080252</b>

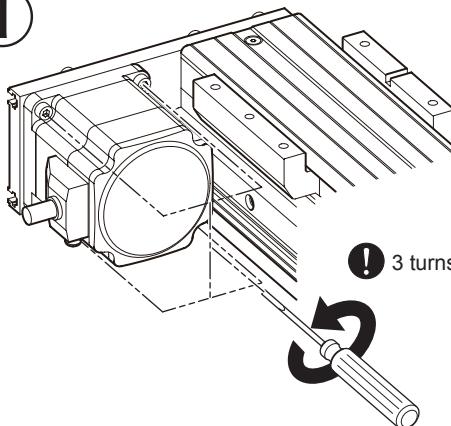
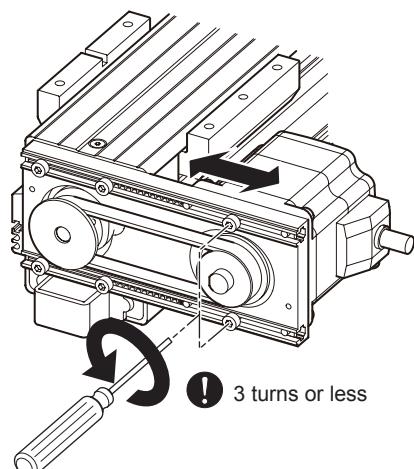
**EAS4**

When loosening screws, the tension of the belt will be adjusted properly by the strength of springs.

Replace the belt

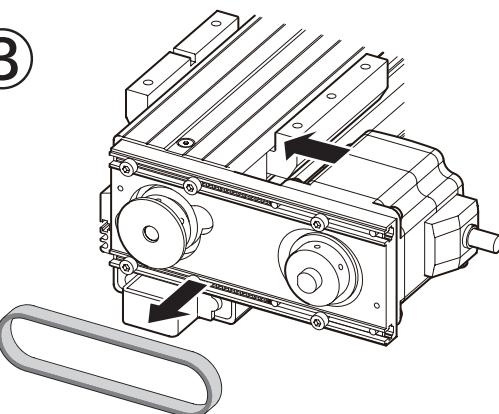
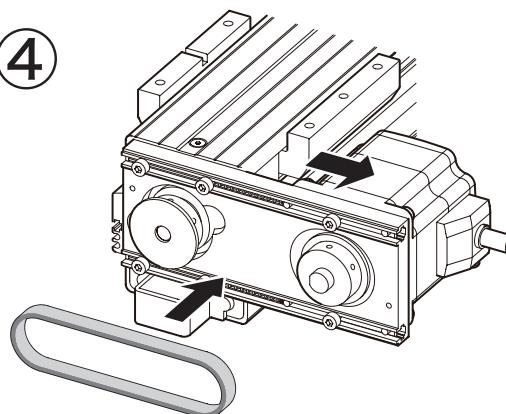
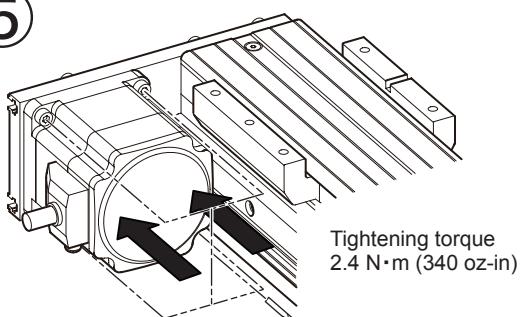
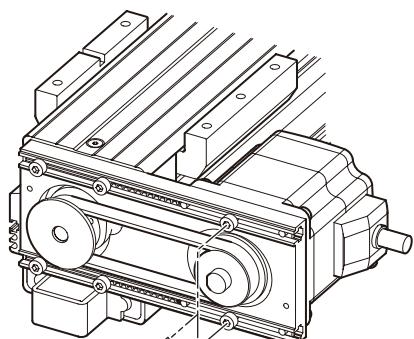


⑦ When adjusting the belt tension or replacing the belt, set the home position again.

**EAS6****1****2**

When loosening screws, the tension of the belt will be adjusted properly by the strength of springs.

Replace the belt

**3****4****5****6**

Tighten the screws with pressing the motor in the direction of arrows so that the motor does not tilt.



Tightening torque  
2.4 N·m (340 oz-in)

**7**

When adjusting the belt tension or replacing the belt, set the home position again.

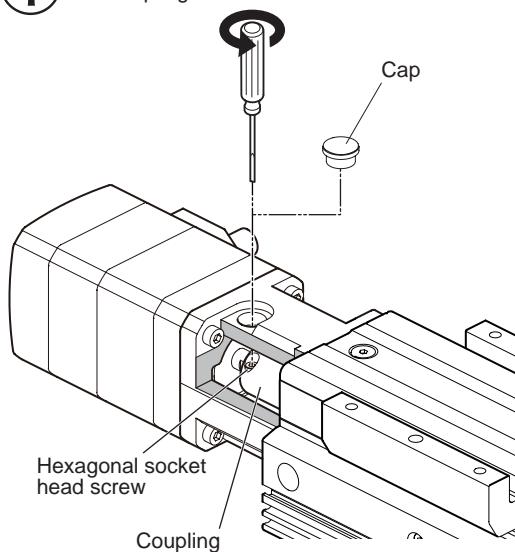
## 4.4 Replacing the motor

### ⚠ Warning

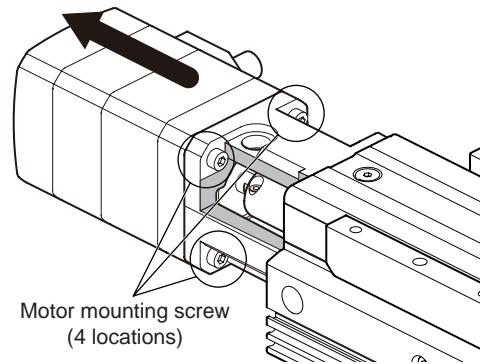
- When replacing the motor, remove the load and keep the motorized linear slide in a horizontal position. Doing the operation in a vertical condition may cause injury or damage to equipment.
  - Doing the operation in a vertical condition may allow the moving part of the motorized linear slide to fall.
  - Removing the screws fixed the motor in a vertical condition may cause the motor itself to rotate.
- Be sure to secure the coupling and pulley with the specified tightening torque. If they are not secured with the specified torque, the ball screw may rotate idly, causing injury or damage to equipment.
  - When the motorized linear slide is used in a vertical condition, the load may fall.
  - When the motorized linear slide is used in a horizontal condition, the moving part of the motorized linear slide may collide with the mechanical stopper. Also, the load may collide with other equipment.
- For the motorized linear slide equipped the AZ Series, perform maintenance according to the separate manual "Read this manual before starting up your equipment Recovery Guide." If the motorized linear slide is operated immediately after replacing the motor only, since the optimal parameters have not set to the driver, it may move to unexpected directions or run at unexpected speeds, causing injury or damage to equipment.
- If the motorized linear slide is operated without setting the home position again, the moving part may move to unexpected directions, causing injury or damage to equipment.
  - The moving part of the motorized linear slide may collide with the mechanical stopper.
  - The load may collide with other equipment.

### ■ In-line motor mounting type

- 1** Open the cap and loosen the screws of the coupling.



- 2** Remove the motor by loosening the screws (4 locations) that are secured the motor.



- 3** When installing the motor, perform the reverse procedure to removing the motor. (②→①)  
Refer to p.7 "Changing the cable outlet direction of the motor" for the tightening torque of the motor mounting screw. Refer to the table below for the tightening torque of the coupling.

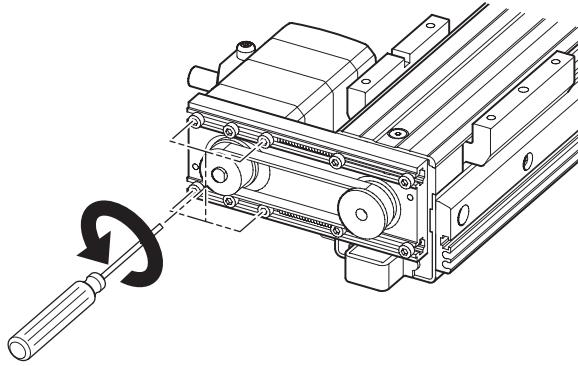
	Tightening torque
<b>EAS4</b>	M1.6 0.25 N·m (35 oz-in)
<b>EAS6</b>	M2.5 1.0 N·m (142 oz-in)

- 4** For the motorized linear slide equipped the AZ Series, perform maintenance according to the separate manual "Read this manual before starting up your equipment Recovery Guide."

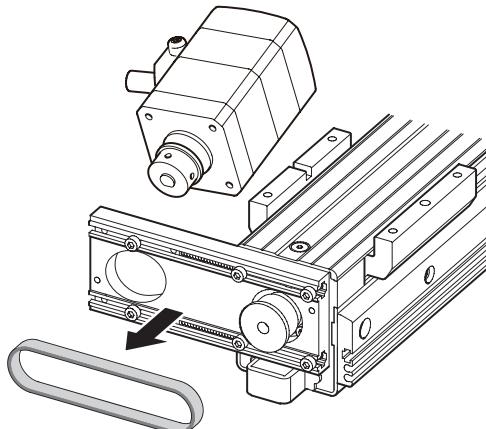
- 5** Set the home position again after replacing the motor.

## ■ Parallel motor mounting type

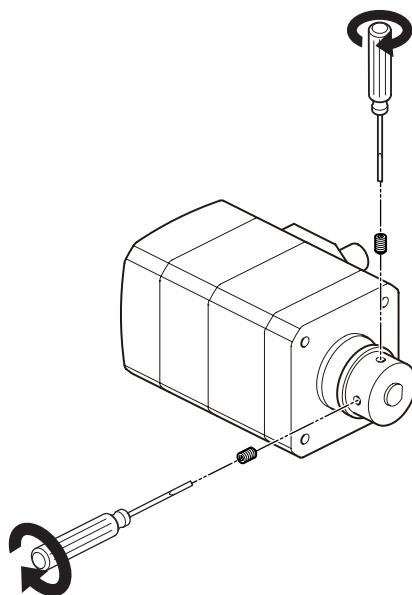
- 1** Remove the motor by loosening the screws (4 locations) that are secured the motor.



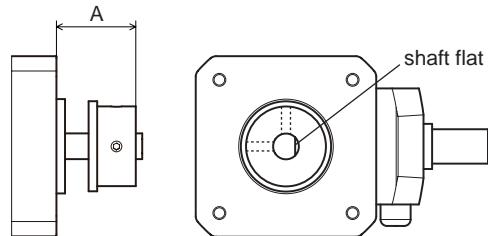
- 2** When the motor is removed, the belt can be removed.



- 3** Install the pulley to the new motor.

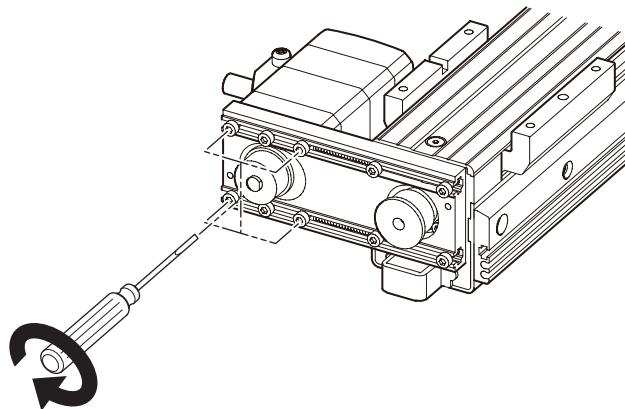


	A	Tightening torque
<b>EAS4</b>	18.5 mm (0.73 in)	M3 0.8 N·m (113 oz-in)
<b>EAS6</b>	20 mm (0.79 in)	M4 1.7 N·m (241 oz-in)



Fix the screw at the location other than the shaft flat on the motor shaft.

- ④** Tentatively mount the motor so that the motor can be shifted slightly. After tentatively attaching the motor, perform steps (②→④→⑤→⑥) according to p.17 "Adjusting the belt tension and replacing the belt."



- ⑤** For the motorized linear slide equipped the **AZ Series**, perform maintenance according to the separate manual "Read this manual before starting up your equipment Recovery Guide."
- ⑥** Set the home position again after replacing the motor.

## 4.5 List of motor for maintenance

Check the motor for maintenance in reference to the table below. Contact your nearest Oriental Motor office when purchasing.

### ■ AC power input type

Motorized linear slides Linear slide name	Motor model
EASM4000000ARAC	ARM46AC
EASM4000000ARMC	ARM46MC
EASM6000000ARAC	ARM66AC
EASM6000000ARMC	ARM66MC
EASM4000000AZAC	AZM46AC
EASM4000000AZMC	AZM46MC
EASM6000000AZAC	AZM66AC
EASM6000000AZMC	AZM66MC

### ■ DC power input type

Motorized linear slides Linear slide name	Motor model
EASM4000000ARAK	ARM46SAK
EASM4000000ARMK	ARM46SMK
EASM6000000ARAK	ARM66SAK
EASM6000000ARMK	ARM66SMK
EASM4000000AZAK	AZM46AK
EASM4000000AZMK	AZM46MK
EASM6000000AZAK	AZM66AK
EASM6000000AZMK	AZM66MK

# 5 Standard General specifications

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## 5.1 Standard

### ■ Machinery Directive

The motorized actuators and drivers have been designed and manufactured to be incorporated in general industrial equipment, and a Declaration of Incorporation of Partly Completed Machinery is issued with them according to the Machinery Directive.

- Applicable standard: EN ISO 12100

### ■ Hazardous substances

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

## 5.2 General specifications

### ■ Installation conditions

The product described in this manual has been designed and manufactured to be incorporated in general industrial equipment.

Power input	DC power supply	AC power supply
Over voltage category		II
Protection against electric shock		Class I
Pollution degree	2	3
Degree of protection		—
Noise level		72 dB

### ■ Environmental conditions

	Operation environment	Storage environment	Shipping environment
Ambient temperature	0 to +40 °C (+32 to +104 °F) (non-freezing)		-20 to +60 °C (-4 to +140 °F) (non-freezing)
Humidity		85% or less (non-condensing)	
Altitude	Up to 1000 m (3300 ft.) above sea level		Up to 3000 m (10000 ft.) above sea level

# 6 Before starting operation (Motorized linear slide equipped the AR Series)

## 6.1 Operation data setting for the motorized linear slide

When the minimum travel amount, travel amount, operating speed and acceleration/deceleration speed are set, the following calculation is required.

### ■ Minimum travel amount

The minimum travel amount can be changed using the driver switch or parameters (electronic gear A, electronic gear B).

$$\text{Minimum travel amount (mm)} = \frac{\text{Ball screw lead (mm)}}{\text{Motor resolution (P/R)}}$$

$$\text{Motor resolution (P/R)} = 1000 \times (\text{Electronic gear B} \div \text{Electronic gear A})$$

#### Setting example

When setting the minimum travel amount to 0.01 mm for 6 mm lead of the motorized linear slide

$$\text{Minimum travel amount (mm)} = \frac{6 \text{ (mm)}}{\text{Motor resolution (P/R)}} = 0.01 \text{ (mm)}$$

$$\text{Motor resolution (P/R)} = \frac{6 \text{ (mm)}}{0.01 \text{ (mm)}} = 600 \text{ (P/R)}$$

$$\text{Motor resolution (P/R)} = 1000 \times (\text{Electronic gear B} \div \text{Electronic gear A}) = 600 \text{ (P/R)}$$

$$\frac{\text{Electronic gear B}}{\text{Electronic gear A}} = \frac{600}{1000} = \frac{3}{5}$$

When setting the minimum travel amount to 0.01 mm,  
set the electronic gear A to 5 and the electronic gear B to 3.

### ■ Travel amount

The travel amount is set by number of pulses.

$$\text{Travel amount (mm)} = \text{Number of pulses (pulse)} \times \text{Minimum travel amount (mm)}$$

\* Number of pulses: For the pulse input types only. It will be the position (step) for the built-in controller types.

#### Setting example

When the motorized linear slide which minimum travel amount is set to 0.01 mm is moved by 30 mm

$$\text{Travel amount (mm)} = \text{Number of pulses (pulse)} \times 0.01 \text{ (mm)} = 30 \text{ (mm)}$$

$$\text{Number of pulses (pulse)} = \frac{30 \text{ (mm)}}{0.01 \text{ (mm)}} = 3000 \text{ pulse}$$

When moving the motorized linear slide by 30 mm, set 3000 pulses.

### ■ Operating speed

The operating speed is set by the pulse speed.

$$\text{Operating speed (mm/s)} = \text{Pulse speed (Hz)} \times \text{Minimum travel amount (mm)}$$

\* Pulse speed: For the pulse input types only. It will be the operating speed (Hz) for the built-in controller types.

#### Setting example

When the motorized linear slide which minimum travel amount is set to 0.01 mm is moved at the operating speed of 50 mm/s

$$\text{Operating speed (mm/s)} = \text{Pulse speed (Hz)} \times 0.01 \text{ (mm)} = 50 \text{ (mm/s)}$$

$$\text{Pulse speed (Hz)} = \frac{50 \text{ (mm/s)}}{0.01 \text{ (mm)}} = 5000 \text{ Hz}$$

When moving the motorized linear slide at the operating speed of 50 mm/sec, set 5000 Hz.

## ■ Acceleration/deceleration speed

The acceleration/deceleration speed is set by any of the acceleration/deceleration rate (ms/kHz), acceleration/deceleration rate [ms/(1000 r/min)] or acceleration/deceleration time (sec).

$$\text{Acceleration/deceleration speed (m/s}^2\text{)} = \frac{\text{Minimum travel amount (mm)} \times 1000}{\text{Acceleration/deceleration rate (ms/kHz)}}$$

$$\text{Acceleration/deceleration speed (m/s}^2\text{)} = \frac{\text{Ball screw lead (mm)} \times 1000}{60 \times \text{Acceleration/deceleration rate [ms/(1000 r/min)]}}$$

$$\text{Acceleration/deceleration speed (m/s}^2\text{)} = \frac{\text{Operating speed (mm/s)}}{\text{Acceleration/deceleration time (sec)}}$$

### Setting example

When the motorized linear slide which minimum travel amount is set to 0.01 mm is moved at the acceleration/deceleration speed of 10 m/s<sup>2</sup>

$$\text{Acceleration/deceleration speed (m/s}^2\text{)} = \frac{0.01 \text{ (mm)} \times 1000}{\text{Acceleration/deceleration rate (ms/kHz)}} = 10 \text{ (m/s}^2\text{)}$$

$$\text{Acceleration/deceleration rate (ms/kHz)} = \frac{0.01 \text{ (mm)} \times 1000}{10 \text{ (m/s}^2\text{)}} = 1 \text{ ms/kHz}$$

When moving the motorized linear slide at the acceleration/deceleration speed of 10 m/s<sup>2</sup>, set 1 ms/kHz.

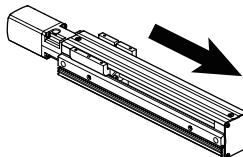
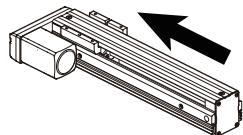
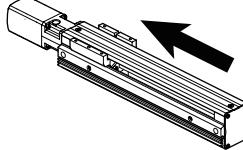
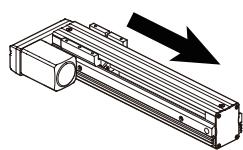
## 6.2 Moving direction of the table for the motorized linear slide

The moving direction of the table is set as follows at the time of shipment.

**⚠ Warning** Operate the motorized linear slide after setting the resolution, moving direction and other parameters. If the motorized linear slide is operated without setting parameters, it may move to unexpected directions or run at unexpected speeds, causing injury or damage to equipment.

## ■ Built-in controller type

The moving direction varies depending on the setting of plus/minus of the travel amount.

	In-line motor mounting type	Parallel motor mounting type
When setting the travel amount to the plus side	The table moves to opposite the motor side 	The table moves to the motor side 
When setting the travel amount to the minus side	The table moves to the motor side 	The table moves to opposite the motor side 

## ■ Pulse input type

The moving direction varies depending on the input method of the pulse signal.

	In-line motor mounting type	Parallel motor mounting type
<ul style="list-style-type: none"> <li>• 2-pulse input mode When inputting the pulse signal to the CW input</li> <li>• 1-pulse input mode When inputting the pulse signal to the PLS input while the DIR input is OFF</li> </ul>	The table moves to opposite the motor side 	The table moves to the motor side 
<ul style="list-style-type: none"> <li>• 2-pulse input mode When inputting the pulse signal to the CCW input</li> <li>• 1-pulse input mode When inputting the pulse signal to the PLS input while the DIR input is ON</li> </ul>	The table moves to the motor side 	The table moves to opposite the motor side 

## 6.3 Data setter, data setting software

The minimum travel amount or operation data can be set using the accessory data setter **OPX-2A** (sold separately) or data setting software **MEXE02**. Provide as necessary.

### ■ Notes about using the data setter OPX-2A

In addition to setting operation data or parameters, the **OPX-2A** can save data that is set in the driver. Data can be saved (uploaded) by a driver basis. The saved data can be written to drivers which model names are the same. Refer to the operating manual of the **OPX-2A** for details.

### ■ Notes about using the data setting software MEXE02

- When creating or editing data using the **MEXE02**, set data by selecting the series name of the equipped motor and driver model name.
- For the **EAS** Series, there are two types of driver to combine the actuator: One is the LSD drivers (driver model: LSD-OO) and the other is the ARD drivers (driver model: ARD-OO). When operation data and parameters are set using the **MEXE02**, select the following series in the product selection screen. If you have any questions, contact your nearest Oriental Motor sales office.

Driver	MEXE02 version	Series to be selected
LSD driver	2.6	<b>DG II / EAS</b>
	3.00 or later	<b>AR</b>
ARD driver	2.6	<b>AR</b>
	3.00 or later	<b>AR</b>

- Data can be saved by a driver basis. The saved data can be written to drivers which model names are the same.

## 6.4 Parameter setting list

### ■ For ARD-K, ARD-A, ARD-C and ARD-S

An example to set the minimum travel amount to 0.01 mm (0.0004 in.) is shown below.

 represents parameters to be changed.

**Note**

- Set the starting speed to 6 mm/s (0.24 in/s) or less.
- Set the operating speed by checking the specification of the maximum speed for each linear slide.
- If a load is operated in a vertical direction using the AC power input type of the **EAS6** models, an overvoltage alarm may generate depending on the driving condition. When the alarm has detected, review the operating conditions or use the regeneration unit **RGB100** (sold separately).

• Lead: 6 mm (0.24 in.)

Setting items		Setting example		Initial value *1	
		Setting value	Converted value	Setting value	Converted value
Ball screw lead [mm (in.)]		6 (0.24)	—	6 (0.24)	—
Resolution { Minimum travel amount [mm (in.)] }		600 [0.01 (0.0004)]	—	1000 [0.006 (0.0002)]	—
Electronic gear	Electronic gear A1	5	—	10	—
	Electronic gear B	3	—	10	—
Operation setting	Motor rotation direction	Positive direction=CW (The linear slide table moves to opposite the motor side) *2	—	Positive direction=CW (The linear slide table moves to opposite the motor side) *2	—
Return to electrical home operation	Operating speed of return operation [r/min]	1000	100 [mm/s] 3.94 [in/s]	30	3 [mm/s] 0.12 [in/s]
	Acceleration and deceleration rate of return operation [ms/(1000 r/min)]	50	2 [m/s <sup>2</sup> ] 6.6 [ft/s <sup>2</sup> ]	100	1 [m/s <sup>2</sup> ] 3.3 [ft/s <sup>2</sup> ]
	Starting speed of return operation [r/min]	60	6 [mm/s] 0.24 [in/s]	30	3 [mm/s] 0.12 [in/s]
Test operation	Operating speed of JOG operation [r/min]	1000	100 [mm/s] 3.94 [in/s]	30	3 [mm/s] 0.12 [in/s]
	Acceleration and deceleration rate of JOG operation [ms/(1000 r/min)]	50	2 [m/s <sup>2</sup> ] 6.6 [ft/s <sup>2</sup> ]	100	1 [m/s <sup>2</sup> ] 3.3 [ft/s <sup>2</sup> ]
	Starting speed of JOG operation [r/min]	60	6 [mm/s] 0.24 [in/s]	30	3 [mm/s] 0.12 [in/s]

\*1 Factory setting data or initialized data.

\*2 This is the table moving direction of the in-line motor mounting type. For the parallel motor mounting type, the table moves in the opposite direction of the in-line motor mounting type.

• Lead: 12 mm (0.47 in.)

Setting items		Setting example		Initial value *1	
		Setting value	Converted value	Setting value	Converted value
Ball screw lead [mm (in.)]		12 (0.47)	—	12 (0.47)	—
Resolution { Minimum travel amount [mm (in.)] }		1200 [0.01 (0.0004)]	—	1000 [0.012 (0.0005)]	—
Electronic gear	Electronic gear A1	5	—	10	—
	Electronic gear B	6	—	10	—
Operation setting	Motor rotation direction	Positive direction=CW (The linear slide table moves to opposite the motor side) *2	—	Positive direction=CW (The linear slide table moves to opposite the motor side) *2	—
Return to electrical home operation	Operating speed of return operation [r/min]	500	100 [mm/s] 3.94 [in/s]	30	6 [mm/s] 0.24 [in/s]
	Acceleration and deceleration rate of return operation [ms/(1000 r/min)]	100	2 [m/s <sup>2</sup> ] 6.6 [ft/s <sup>2</sup> ]	100	2 [m/s <sup>2</sup> ] 6.6 [ft/s <sup>2</sup> ]
	Starting speed of return operation [r/min]	30	6 [mm/s] 0.24 [in/s]	30	6 [mm/s] 0.24 [in/s]
Test operation	Operating speed of JOG operation [r/min]	500	100 [mm/s] 3.94 [in/s]	30	6 [mm/s] 0.24 [in/s]
	Acceleration and deceleration rate of JOG operation [ms/(1000 r/min)]	100	2 [m/s <sup>2</sup> ] 6.6 [ft/s <sup>2</sup> ]	100	2 [m/s <sup>2</sup> ] 6.6 [ft/s <sup>2</sup> ]
	Starting speed of JOG operation [r/min]	30	6 [mm/s] 0.24 [in/s]	30	6 [mm/s] 0.24 [in/s]

\*1 Factory setting data or initialized data.

\*2 This is the table moving direction of the in-line motor mounting type. For the parallel motor mounting type, the table moves in the opposite direction of the in-line motor mounting type.

## ■ For ARD-KD, ARD-AD and ARD-CD

An example to set the minimum travel amount to 0.01 mm (0.0004 in.) is shown below.

 represents parameters to be changed.

### Note

- Set the starting speed to 6 mm/s (0.24 in/s) or less.
- Set the operating speed by checking the specification of the maximum speed for each linear slide.
- When performing sensorless return-to-home operation upward in a vertical direction with the **EAS4** type, keep the load mass to be less than 4 kg (8.8 lb). If the load mass is 4 kg (8.8 lb) or more, the linear slide cannot push up to the position of the actuator end, causing variation in the stopping accuracy of return-to-home.
- For the travel amount of the "position offset of home-seeking," set the following value or larger.  
If sensorless return-to-home operation is performed keeping the initial values, the linear slide table becomes a state of contacting the dedicated stop buffer, causing a negative effect on the stopping accuracy of return-to-home.
  - **EAS4:** 3 mm (0.12 in.) or more (setting value: 100, the table moves 300 steps from the actuator end)
  - **EAS6:** 6 mm (0.24 in.) or more (setting value: 400, the table moves 600 steps from the actuator end)
- If a load is operated in a vertical direction using the AC power input type of the **EAS6** models, an overvoltage alarm may generate depending on the driving condition. When the alarm has detected, review the operating conditions or use the regeneration unit **RGB100** (sold separately).

### • Lead: 6 mm (0.24 in.)

Setting items		Setting example		Initial value *1		
		Setting value	Converted value	Setting value	Converted value	
Ball screw lead [mm (in.)]		6 (0.24)		6 (0.24)		
Resolution { (Minimum travel amount [mm (in.)]) }		600 [0.01 (0.0004)]		1000 [0.006 (0.0002)]		
Coordination	Electronic gear A	5	—	1	—	
	Electronic gear B	3	—	1	—	
Operation data	Motor rotation direction		Positive direction=CW (The linear slide table moves to opposite the motor side) *3	Positive direction=CW (The linear slide table moves to opposite the motor side) *3	—	
	Position [step]		1000	0	0 [mm] 0 [in.]	
Operation	Operating speed [Hz]		10000	1000	6 [mm/s] 0.24 [in/s]	
	Acceleration (deceleration) rate [ms/kHz] *2		1	1	6 [m/s <sup>2</sup> ] 19.7 [ft/s <sup>2</sup> ]	
	JOG operating speed [Hz]		10000	1000	6 [mm/s] 0.24 [in/s]	
Return-to-home	JOG acceleration (deceleration) rate [ms/kHz] *2		1	1	6 [m/s <sup>2</sup> ] 19.7 [ft/s <sup>2</sup> ]	
	JOG starting speed [Hz]		600	500	3 [mm/s] 0.12 [in/s]	
	Home-seeking mode		Push mode	3-sensor mode	—	
Coordination	Starting speed of home-seeking [Hz]		2500	500	3 [mm/s] 0.12 [in/s]	
	Position offset of home-seeking [step]	<b>EAS4</b>	100	0	0 [mm] 0 [in.]	
			0.04 [in.]	0	0 [mm] 0 [in.]	
	<b>EAS6</b>		400	0	0 [mm] 0 [in.]	
			0.16 [in.]	Positive direction(Return-to-home operation starts to opposite the motor side) *3	—	
Coordination	Starting direction of home-seeking		—	Positive direction(Return-to-home operation starts to opposite the motor side) *3	—	
	Positive software limit [step]		Stroke+3 [mm] Stroke+0.12 [in.]	8388607	50331.642 [mm] 1981.56 [in.]	
	Negative software limit [step]		—2 [mm] —0.08 [in.]	—8388608	—50331.648 [mm] —1981.56 [in.]	

\*1 Factory setting data or initialized data.

\*2 When setting the acceleration/deceleration rate via network, input integral number. Set by increasing the value calculated by the conversion formula to 1000 times.

\*3 This is the table moving direction of the in-line motor mounting type. For the parallel motor mounting type, the table moves in the opposite direction of the in-line motor mounting type.

- Lead : 12 mm (0.47 in.)

Setting items		Setting example		Initial value *1	
		Setting value	Converted value	Setting value	Converted value
Ball screw lead [mm (in.)]		12 (0.47)	—	12 (0.47)	—
Resolution { (Minimum travel amount [mm (in.)]) }		1200 [0.01 (0.0004)]	—	1000 [0.012 (0.0005)]	—
Coordination	Electronic gear A	5	—	1	—
	Electronic gear B	6	—	1	—
	Motor rotation direction (The linear slide table moves to opposite the motor side) *3	—	Positive direction=CW (The linear slide table moves to opposite the motor side) *3	Positive direction=CW (The linear slide table moves to opposite the motor side) *3	—
Operation data	Position [step]	1000	10 [mm] 0.39 [in.]	0	0 [mm] 0 [in.]
	Operating speed [Hz]	10000	100 [mm/s] 3.94 [in/s]	1000	12 [mm/s] 0.47 [in/s]
	Acceleration (deceleration) rate [ms/kHz] *2	1	10 [m/s <sup>2</sup> ] 32.8 [ft/s <sup>2</sup> ]	1	12 [m/s <sup>2</sup> ] 39.4 [ft/s <sup>2</sup> ]
Operation	JOG operating speed [Hz]	10000	100 [mm/s] 3.94 [in/s]	1000	12 [mm/s] 0.47 [in/s]
	JOG acceleration (deceleration) rate [ms/kHz] *2	1	10 [m/s <sup>2</sup> ] 32.8 [ft/s <sup>2</sup> ]	1	12 [m/s <sup>2</sup> ] 39.4 [ft/s <sup>2</sup> ]
	JOG starting speed [Hz]	600	6 [mm/s] 0.24 [in/s]	500	6 [mm/s] 0.24 [in/s]
Return-to-home	Home-seeking mode	Push mode	—	3-sensor mode	—
	Starting speed of home-seeking[Hz]	2500	25 [mm/s] 0.98 [in/s]	500	6 [mm/s] 0.24 [in/s]
	Position offset of home-seeking [step]	EAS4	100	0	0 [mm] 0 [in.]
		EAS6	400	0	0 [mm] 0 [in.]
	Starting direction of home-seeking	Negative direction (Return-to-home operation starts to the motor side) *3	—	Positive direction (Return-to-home operation starts to opposite the motor side) *3	—
Coordination	Positive software limit [step]	(Stroke × 100)+300	Stroke+3 [mm] Stroke+0.12 [in.]	8388607	100663.284 [mm] 3963.12 [in.]
	Negative software limit [step]	−200	−2 [mm] −0.08 [in.]	−8388608	−100663.296 [mm] −3963.12 [in.]

\*1 Factory setting data or initialized data.

\*2 When setting the acceleration/deceleration rate via network, input integral number. Set by increasing the value calculated by the conversion formula to 1000 times.

\*3 This is the table moving direction of the in-line motor mounting type. For the parallel motor mounting type, the table moves in the opposite direction of the in-line motor mounting type.

## 6.5 Power supply current capacity

### ■ DC power input type

Model	Motorized linear slide model	Driver			Power supply for releasing an electromagnetic brake
		Driver model	Power supply input voltage	Power supply current capacity	
<b>EAS400-0000-ARAK-O</b>	EASM4000000ARAK	ARD-K	24 VDC ± 10%	1.4 A or more	—
<b>EAS400-0000-ARMK-O</b>	EASM4000000ARMK				24 VDC ± 5% * 0.08 A or more
<b>EAS600-0000-ARAK-O</b>	EASM6000000ARAK		48 VDC ± 5%	—	—
<b>EAS600-0000-ARMK-O</b>	EASM6000000ARMK		3.1 A or more	24 VDC ± 5% * 0.25 A or more	—
<b>EAS400-0000-ARAKD-O</b>	EASM4000000ARAK	ARD-KD	24 VDC ± 5%	1.72 A or more	—
<b>EAS400-0000-ARMKD-O</b>	EASM4000000ARMK				—
<b>EAS600-0000-ARAKD-O</b>	EASM6000000ARAK		48 VDC ± 5%	3.55 A or more	—
<b>EAS600-0000-ARMKD-O</b>	EASM6000000ARMK		3.8 A or more	3.8 A or more	—

\* If the distance between the motorized linear slide and driver is extended to 20 m (65.6 ft.) or longer, use a power supply of 24 VDC ± 4%.

### ■ AC power input type

- Pulse input type

Model	Motorized linear slide model	Driver			Control power supply 24 VDC ± 5% *1 *2	
		Driver model	Power supply input voltage	Frequency		
<b>EAS400-0000-ARAA-O</b>	EASM4000000ARAC	ARD-A	Single-Phase 100-115 VAC -15 to +10%	50/60 Hz	2.9 A or more	
<b>EAS400-0000-ARMA-O</b>	EASM4000000ARMC				0.5 A or more 0.58 A or more	
<b>EAS600-0000-ARAA-O</b>	EASM6000000ARAC		4.4 A or more		0.5 A or more 0.75 A or more	
<b>EAS600-0000-ARMA-O</b>	EASM6000000ARMC		1.9 A or more		0.5 A or more 0.58 A or more	
<b>EAS400-0000-ARAC-O</b>	EASM4000000ARAC	ARD-C	Single-Phase 200-230 VAC -15 to +10%		2.7 A or more	
<b>EAS400-0000-ARMC-O</b>	EASM4000000ARMC				0.5 A or more 0.75 A or more	
<b>EAS600-0000-ARAC-O</b>	EASM6000000ARAC		1.9 A or more		0.5 A or more 0.58 A or more	
<b>EAS600-0000-ARMC-O</b>	EASM6000000ARMC		2.7 A or more		0.5 A or more 0.75 A or more	
<b>EAS400-0000-ARAS-O</b>	EASM4000000ARAC	ARD-S	Three-Phase 200-230 VAC -15 to +10%		1.0 A or more	
<b>EAS400-0000-ARMS-O</b>	EASM4000000ARMC				0.5 A or more 0.58 A or more	
<b>EAS600-0000-ARAS-O</b>	EASM6000000ARAC		1.4 A or more		0.5 A or more 0.75 A or more	
<b>EAS600-0000-ARMS-O</b>	EASM6000000ARMC		1.4 A or more		0.5 A or more 0.75 A or more	

\*1 If a motorized linear slide with an electromagnetic brake is used, be sure to connect a 24 VDC power supply as the electromagnetic brake power.

\*2 If the distance between the linear slide with an electromagnetic brake and driver is extended to 20 m (65.6 ft.) or longer, use a power supply of 24 VDC ± 4%.

- Built-in controller type

Model	Motorized linear slide model	Driver			Control power supply 24 VDC ± 5% *1 *2	
		Driver model	Power supply input voltage	Frequency		
<b>EAS400-0000-ARAAD-O</b>	EASM4000000ARAC	ARD-AD	Single-Phase 100-120 VAC -15 to +10%	50/60 Hz	2.4 A or more	
<b>EAS400-0000-ARMAD-O</b>	EASM4000000ARMC				0.25 A or more 0.33 A or more	
<b>EAS600-0000-ARAAD-O</b>	EASM6000000ARAC		3.6 A or more		0.25 A or more 0.5 A or more	
<b>EAS600-0000-ARMAD-O</b>	EASM6000000ARMC		1.5 A or more		0.25 A or more 0.33 A or more	
<b>EAS400-0000-ARACD-O</b>	EASM4000000ARAC	ARD-CD	Single-Phase 200-240 VAC -15 to +10%		2.3 A or more	
<b>EAS400-0000-ARMCD-O</b>	EASM4000000ARMC				0.25 A or more 0.5 A or more	
<b>EAS600-0000-ARACD-O</b>	EASM6000000ARAC		2.3 A or more		0.25 A or more 0.5 A or more	
<b>EAS600-0000-ARMCD-O</b>	EASM6000000ARMC		2.3 A or more		0.25 A or more 0.5 A or more	

\*1 The 24 VDC power supply is for control circuit. Be sure to connect it.

\*2 If the distance between the linear slide with an electromagnetic brake and driver is extended to 20 m (65.6 ft.) or longer, use a power supply of 24 VDC ± 4%.

# 7 Before starting operation (Motorized linear slide equipped the AZ Series)

## 7.1 Operation data setting for the motorized linear slide

The operation data for the motorized linear slide equipped the **AZ** Series is set on the millimeter unit.

- Minimum travel amount Unit: mm
- Position Unit: mm
- Operating speed Unit: mm/s
- Acceleration rate Unit: mm/s<sup>2</sup>

### ■ Minimum travel amount

The factory setting of the minimum travel amount is as follows.

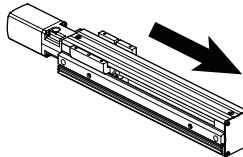
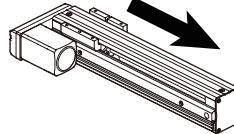
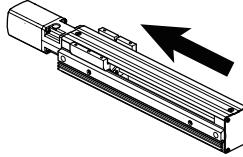
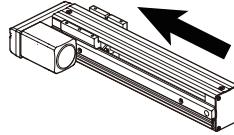
- Built-in controller type: Minimum travel amount 0.01 mm (0.00039 in.)
  - Pulse input type: Minimum travel amount 0.01 mm (0.00039 in.)
- \* Use the electronic gear to change the minimum travel amount. See "6.1 Operation data setting for the motorized linear slide" on p.23 for how to calculate the setting value of the electronic gear.

## 7.2 Moving direction of the table for the motorized linear slide

The moving direction of the table is set as follows at the time of shipment.

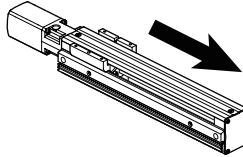
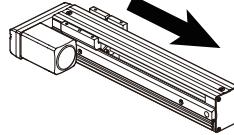
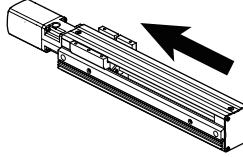
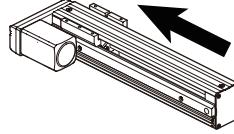
### ■ Built-in controller type

The moving direction varies depending on the setting of plus/minus of the travel amount.

	In-line motor mounting type	Parallel motor mounting type
When setting the travel amount to the plus side	<p>The table moves to opposite the motor side</p> 	<p>The table moves to opposite the motor side</p> 
When setting the travel amount to the minus side	<p>The table moves to the motor side</p> 	<p>The table moves to the motor side</p> 

### ■ Pulse input type

The moving direction varies depending on the input method of the pulse signal.

	In-line motor mounting type	Parallel motor mounting type
<ul style="list-style-type: none"><li>• 2-pulse input mode</li><li>When inputting the pulse signal to the CW input</li><li>• 1-pulse input mode</li><li>When inputting the pulse signal to the PLS input while the DIR input is OFF</li></ul>	<p>The table moves to opposite the motor side</p> 	<p>The table moves to opposite the motor side</p> 
<ul style="list-style-type: none"><li>• 2-pulse input mode</li><li>When inputting the pulse signal to the CCW input</li><li>• 1-pulse input mode</li><li>When inputting the pulse signal to the PLS input while the DIR input is ON</li></ul>	<p>The table moves to the motor side</p> 	<p>The table moves to the motor side</p> 

## 7.3 Data setter, data setting software

The operation data is set using the data setting software **MEXE02**. Download the data setting software from Oriental Motor Website Download Page, and connect the PC and driver using a commercially available mini-USB cable. Note that the data setter **OPX-2A** cannot be used to set the data.

## 7.4 Parameter setting list

Factory settings of the motorized linear slide and standard/geared motor for maintenance are shown in the table below.

- Note**
- Set the starting speed to 6 mm/s (0.24 in/s) or less.
  - Set the operating speed by checking the specification of the maximum speed for each linear slide.
  - When performing sensorless return-to-home operation upward in a vertical direction, the linear slide cannot push up to the position of the actuator mechanical end, causing variation in the stopping accuracy of return-to-home.
  - If a load is operated in a vertical direction using the AC power input type of the **EAS6** models, an overvoltage alarm may generate depending on the driving condition. When the alarm has detected, review the operating conditions or use the regeneration unit **RGB100** (sold separately).

- Lead: 6 mm (0.24 in.)

Parameter item	Factory setting	
	Motorized linear slide	Standard/geared motor for maintenance
Ball screw lead [mm (in.)]	6 (0.24)	—
Minimum travel amount [mm (in.)] [Resolution]	0.01 (0.0004) [600]	0.006 (0.00024) [1000]
Manual setting of the mechanism settings.	Auto setting (use encoder parameter (if any)) *1	Manual setting (use driver parameter)
Mechanism type	mm	step
Electronic gearA	5	1
Electronic gearB	3	1
Motor rotation direction	In-line motor mounting type Parallel motor mounting type	CW CCW
Mechanism lead pitch	6	1
JOG/HOME/ZHOME operation manual setting	Auto setting (use encoder parameter (if any)) *1	Manual setting (use driver parameter)
(JOG) operating speed	10 [mm/s] (0.39 [in/s])	1000 [Hz]
(JOG) acceleration/deceleration rate	0.5 [m/s <sup>2</sup> ] (1.6 [ft/s <sup>2</sup> ])	1000 [kHz/s]
(JOG) starting speed	5 [mm/s] (0.2 [in/s])	500 [Hz]
(JOG) Operating speed of JOG-H	50 [mm/s] (1.97 [in/s])	5000 [Hz]
(ZHOME) Operating speed	50 [mm/s] (1.97[in/s])	5000 [Hz]
(ZHOME) acceleration/deceleration	0.5 [m/s <sup>2</sup> ] (1.6 [ft/s <sup>2</sup> ])	1000 [kHz/s]
(ZHOME) Starting speed	5 [mm/s] (0.2 [in/s])	500 [Hz]
(HOME) Home-seeking mode	Push	3sensor
(HOME) Starting direction	In-line motor mounting type Parallel motor mounting type	Negative direction Negative direction
(HOME) acceleration/deceleration of home-seeking	0.5 [m/s <sup>2</sup> ] (1.6 [ft/s <sup>2</sup> ])	1000 [kHz/s]
(HOME) Starting speed	5 [mm/s] (0.2 [in/s])	500 [Hz]
(HOME) Operating speed	50 [mm/s] (1.97 [in/s])	5000 [Hz]
(HOME) Home seeking speed	5 [mm/s] (0.2 [in/s])	500 [Hz]
(HOME) Backward steps in 2-sensor-home-seeking	5 [mm] (0.20 [in.])	500 [step]
(HOME) operating amount of 1 sensor home-seeking	5 [mm] (0.20 [in.])	500 [step]
(HOME) operating current of push-motion home-seeking	This item has been set for each model	
(HOME) Backward steps after first entry in push-home-seeking	EAS4 EAS6	3 [mm] (0.12 [in.]) 6 [mm] (0.24 [in.])
Electronic damper function	Enable (for motorized linear slides)	
Protected parameter *2	Maximum Starting speed	100 [mm/s] (3.94 [in/s])
	Maximum Operating speed	This item has been set for each model
	Maximum Push motion speed	25 [mm/s] (0.98 [in/s])
	Maximum push home operation speed	50 [mm/s] (1.97 [in/s])
	Maximum push current (Push Impossibility is 0)	This item has been set for each model

\*1 When changing the factory setting of parameter items, change the setting for the "Manual setting of the mechanism settings" and "JOG/HOME/ZHOME operation manual setting" to "Manual setting."

\*2 "Protected parameter" cannot be set by customers.

● Lead : 12 mm (0.47 in.)

Parameter item	Factory setting	
	Motorized linear slide	Standard/geared motor for maintenance
Ball screw lead [mm (in.)]	12 (0.47)	—
Minimum travel amount [mm (in.)] [Resolution]	0.01 (0.0004) [1200]	0.012 (0.00047) [1000]
Manual setting of the mechanism settings.	Auto setting (use encoder parameter (if any)) *1	Manual setting (use driver parameter)
Mechanism type	mm	step
Electronic gearA	5	1
Electronic gearB	6	1
Motor rotation direction	In-line motor mounting type Parallel motor mounting type	CW CCW
Mechanism lead pitch	12	1
JOG/HOME/ZHOME operation manual setting	Auto setting (use encoder parameter (if any)) *1	Manual setting (use driver parameter)
(JOG) operating speed	10 [mm/s] (0.39 [in/s])	1000 [Hz]
(JOG) acceleration/deceleration rate	0.5 [m/s <sup>2</sup> ] (1.6 [ft/s <sup>2</sup> ])	1000 [kHz/s]
(JOG) starting speed	5 [mm/s] (0.2 [in/s])	500 [Hz]
(JOG) Operating speed of JOG-H	50 [mm/s] (1.97 [in/s])	5000 [Hz]
(ZHOME) Operating speed	100 [mm/s] (3.94 [in/s])	5000 [Hz]
(ZHOME) acceleration/deceleration	0.5 [m/s <sup>2</sup> ] (1.6 [ft/s <sup>2</sup> ])	1000 [kHz/s]
(ZHOME) Starting speed	5 [mm/s] (0.2 [in/s])	500 [Hz]
(HOME) Home-seeking mode	Push	3sensor
(HOME) Starting direction	In-line motor mounting type Parallel motor mounting type	Negative direction Negative direction
(HOME) acceleration/deceleration of home-seeking	0.5 [m/s <sup>2</sup> ] (1.6 [ft/s <sup>2</sup> ])	1000 [kHz/s]
(HOME) Starting speed	5 [mm/s] (0.2 [in/s])	500 [Hz]
(HOME) Operating speed	100 [mm/s] (3.94 [in/s])	5000 [Hz]
(HOME) Home seeking speed	5 [mm/s] (0.2 [in/s])	500 [Hz]
(HOME) Backward steps in 2-sensor-home-seeking	5 [mm] (0.20 [in.])	500 [step]
(HOME) operating amount of 1 sensor home-seeking	5 [mm] (0.20 [in.])	500 [step]
(HOME) operating current of push-motion home-seeking	This item has been set for each model	
(HOME) Backward steps after first entry in push-home-seeking	EAS4 EAS6	3 [mm] (0.12 [in.]) 6 [mm] (0.24 [in.])
Electronic damper function	Enable (for motorized linear slides)	
Protected parameter *2	Maximum Starting speed	200 [mm/s] (7.87 [in/s])
	Maximum Operating speed	This item has been set for each model
	Maximum Push motion speed	25 [mm/s] (0.98 [in/s])
	Maximum push home operation speed	100 [mm/s] (3.94 [in/s])
	Maximum push current (Push Impossibility is 0)	This item has been set for each model
		Enable (for standard/geared motors)
		4,000,000 [Hz]
		100 [%]

\*1 When changing the factory setting of parameter items, change the setting for the "Manual setting of the mechanism settings" and "JOG/HOME/ZHOME operation manual setting" to "Manual setting."

\*2 "Protected parameter" cannot be set by customers.

## 7.5 Power supply current capacity

### ■ DC power input type

Model	Motorized linear slide model	Driver		
		Driver model	Power supply input voltage	Power supply current capacity
EAS400-0000-AZAK-O	EASM4000000AZAK	AZD-K	24 VDC ± 5%	1.72 A or more
EAS400-0000-AZMK-O	EASM4000000AZMK			1.8 A or more
EAS600-0000-AZAK-O	EASM6000000AZAK		3.8 A or more	3.55 A or more
EAS600-0000-AZMK-O	EASM6000000AZMK		48 VDC ± 5%	3.8 A or more
EAS400-0000-AZAKD-O	EASM4000000AZAK	AZD-KD	1.72 A or more	1.72 A or more
EAS400-0000-AZMKD-O	EASM4000000AZMK		1.8 A or more	1.8 A or more
EAS600-0000-AZAKD-O	EASM6000000AZAK		3.55 A or more	3.55 A or more
EAS600-0000-AZMKD-O	EASM6000000AZMK		3.8 A or more	3.8 A or more

### ■ AC power input type

Model	Motorized linear slide model	Driver			Control power supply 24 VDC ± 5% *	
		Driver model	Power supply input voltage	Frequency		
EAS400-0000-AZAA-O	EASM4000000AZAC	AZD-A	Single-Phase 100-120 VAC -15 to +6%	50/60 Hz	0.25 A or more	
EAS400-0000-AZMA-O	EASM4000000AZMC				0.33 A or more	
EAS600-0000-AZAA-O	EASM6000000AZAC		3.8 A or more		0.25 A or more	
EAS600-0000-AZMA-O	EASM6000000AZMC				0.5 A or more	
EAS400-0000-AZAC-O	EASM4000000AZAC	AZD-C	Single-phase, three-phase 200-240 V -15 to +6%	50/60 Hz	0.25 A or more	
EAS400-0000-AZMC-O	EASM4000000AZMC				0.33 A or more	
EAS600-0000-AZAC-O	EASM6000000AZAC		Single-Phase 2.3 A or more Three-Phase 1.4 A or more		0.25 A or more	
EAS600-0000-AZMC-O	EASM6000000AZMC				0.5 A or more	
EAS400-0000-AZAAD-O	EASM4000000AZAC	AZD-AD	Single-Phase 100-120 V -15 to +6%	50/60 Hz	0.25 A or more	
EAS400-0000-AZMAD-O	EASM4000000AZMC				0.33 A or more	
EAS600-0000-AZAAD-O	EASM6000000AZAC		3.8A or more		0.25 A or more	
EAS600-0000-AZMAD-O	EASM6000000AZMC				0.5 A or more	
EAS400-0000-AZACD-O	EASM4000000AZAC	AZD-CD	Single-Phase 1.7 A or more Three-Phase 1.0 A or more	50/60 Hz	0.25 A or more	
EAS400-0000-AZMCD-O	EASM4000000AZMC				0.33 A or more	
EAS600-0000-AZACD-O	EASM6000000AZAC		Single-Phase 2.3 A or more Three-Phase 1.4 A or more		0.25 A or more	
EAS600-0000-AZMCD-O	EASM6000000AZMC				0.5 A or more	

\* The 24 VDC power supply is for control circuit. Be sure to connect it.





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