

**Orientalmotor**

**NEW  
PRODUCTS**

**RoHS** RoHS-Compliant  
Motorized Linear Slides

# EZ limo

**EZSII** Series



**EZSII** Series Without Electromagnetic Brake Stroke 300 mm

**RoHS** RoHS-Compliant

Motorized Linear Slides

## EZ limo EZSII Series

The structure of this motorized linear slide has been optimized to achieve greater convenience and performance in positioning applications. The compact design facilitates easy installation and wiring into your system.



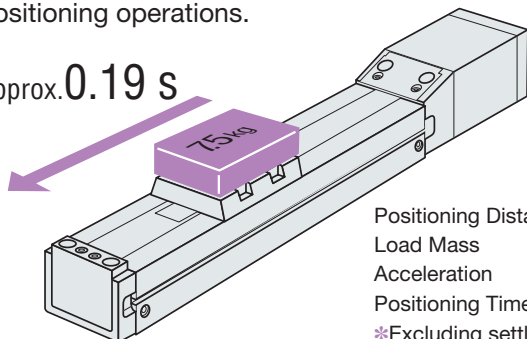
**Actual Size** EZS3D015-C Stroke 150 mm Without Electromagnetic Brake



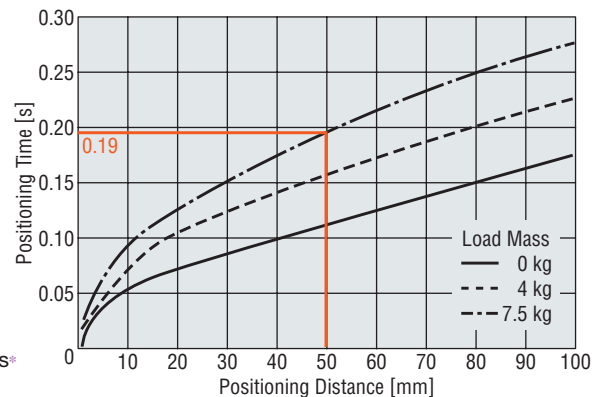
# Quick Positioning

The **EZSII** Series uses the  **$\alpha$ STEP** stepping motor characterized by its high response and ability to eliminate missteps. By fully utilizing the performance of the  **$\alpha$ STEP**, the **EZSII** Series is capable of performing quick positioning operations.

Approx. **0.19 s**



Positioning Distance 50 mm  
Load Mass 7.5 kg  
Acceleration 8 m/s<sup>2</sup> (0.8 G)  
Positioning Time Approx. 0.19 s\*  
\*Excluding settling time



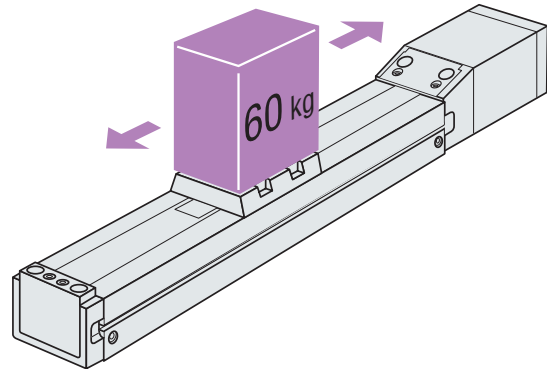
# Large Transportable Mass

The **EZSII** Series can perform positioning at high speeds, supporting a large transportable mass.

- Maximum Transportable Mass: Horizontal **60** kg Vertical **30** kg  
**EZS6** (Lead 6 mm)

- Maximum Speed: **800** mm/s  
**EZS3, EZS4, EZS6**

(Lead 12 mm, single-phase 100-115 VAC/200-230 VAC input)

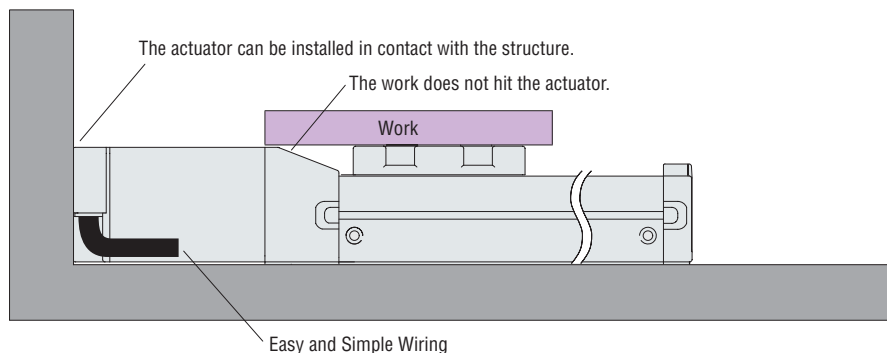


# Space-Saving

The total length of linear slide is shorter for every stroke and model, which enables space-saving design of your equipment.

$$\text{Stroke} + 209.5 \text{ mm} = \text{Total length of linear slide}$$

Since the space outside the linear slide's operating range is minimized, the overall system size can be reduced.



# Easy to Use

Controller Key



## Common Controller

A removable controller key is used that stores the parameters of various models.

This means that the same controller can be used with all models and series.

## Incremental Mode and Absolute Mode in One Model

One controller supports both incremental and absolute positioning functions. Specifically, the controller can be used as an absolute unit by connecting an accessory battery (sold separately).

## Three Types of Controllers

The controllers are available for three power supply voltages: 24 VDC, single-phase 100-115 VAC and single-phase 200-230 VAC.

Select the controller type that suits your equipment.

## RoHS-Compliant

The **EZSII** Series conforms to the RoHS Directive that prohibits the use of six chemical substances including lead and cadmium.

## Actual Size **EZS3D015-C** Stroke 150 mm Without Electromagnetic Brake



## Easy Stroke Selection

A desired stroke can be selected in 50 mm increments over the following ranges:

**EZS3, EZS4:** 50 to 700 mm

**EZS6:** 50 to 850 mm

## Maintenance-Free for Long-Term Performance

The ball screw employs the QZ™ lubrication system, while the LM Guide® uses the Ball Retainer® to retain the coupled rolling elements. The ball screw and LM Guide® use AFF grease with reduced dust-raising property, which is designed for use in clean rooms.

## Traveling Parallelism 0.03 mm

A traveling parallelism of 0.03 mm is achieved by the direct installation of the guide.

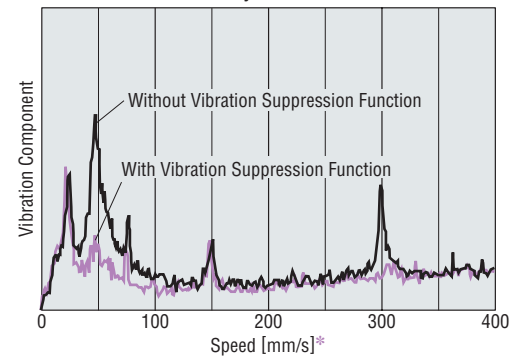
## Wear Prevention

A simple roller mechanism is used to prevent the stainless sheet from wearing quickly. The roller structure suppresses dust generation caused by rubbing of the stainless sheet and the table.



## Vibration Suppression Function

This newly developed control method achieves low vibration even at the speed range where large vibration occurs normally.



## Sensorless High-Speed Return to Home Operation at Speeds up to 100 mm/s

We have developed a dedicated stop buffer to achieve the sensorless return to home operation at a maximum speed of 100 mm/s.

Once the motor detects table contact with the stop buffer, it will perform the return to home operation at 6 mm/s.



Dedicated Stop Buffer

## Easy Wiring

The linear slide and controller are connected via a single cable, and the wiring distance can be extended to a maximum of 20 m\*.

The cable is fitted with a connector for quick connection.

\*Maximum of 10 m for 24 VDC products



The cable can be placed in a flexible conduit or cable gland with an inner diameter of  $\phi 16.5$  mm.

# Combining All Functions Needed to Operate a Linear Slide in Positioning Mode

This controller lets you operate all the functions required of a motorized linear slide easily.



## Common Controller

A removable controller key is used that stores the parameters of various models.

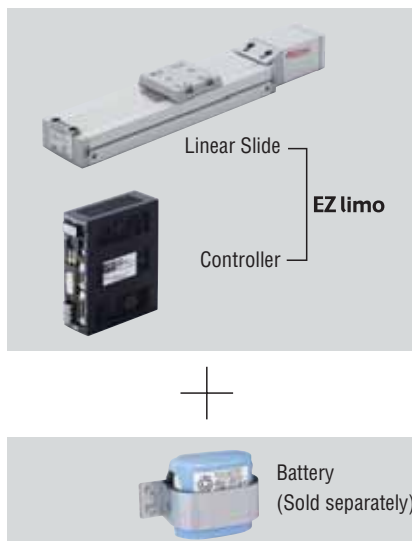


## Three Types of Controllers

The controllers are available for three power supply voltages: 24 VDC, single-phase 100-115 VAC and single-phase 200-230 VAC. Select the controller type that suits your equipment.

## Incremental Mode/ Absolute Mode

Specifically, the controller can be used as an absolute unit by connecting an accessory battery (sold separately).

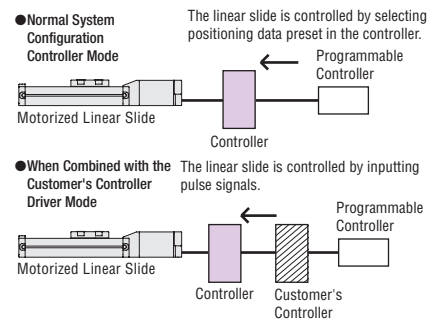


## Controller Mode/ Driver Mode

The EZ limo can be combined with your existing controller to serve as a driver controlling the linear slide by pulse input.

	Controller Mode	Driver Mode*
Teaching Function	●	×
Monitoring Function	●	×
Pause Function	●	×
Area Output Function	●	×
Absolute Mode	●	●
Return to Home	●	●

\*Certain functions cannot be used in the driver mode.



## Teaching Function

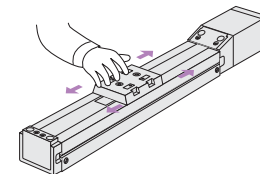
Positioning data can be set in one of three methods, as specified below.

① Enter the desired travel amount (mm) directly.



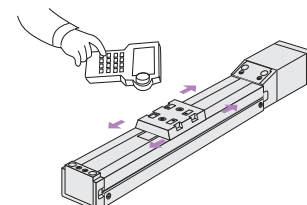
② Direct teaching

Move the table to the target position manually, and store the achieved position as positioning data.



③ Remote teaching

Move the table to the target position using a teaching pendant or data editing software, and store the achieved position as positioning data.

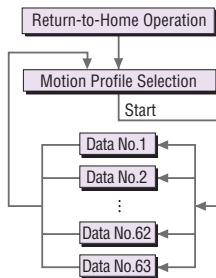


## Up to 63 Points of Positioning Data

Up to 63 points of positioning data can be set in simple steps. The positioning operation can be performed in one of two ways:

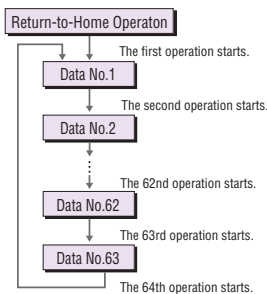
### ●Selective positioning mode:

The set data can be selected at random.



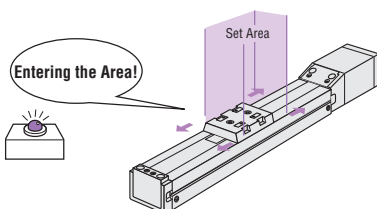
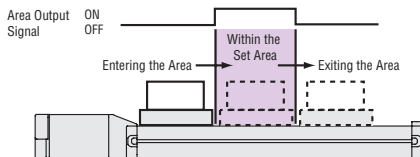
### ●Sequential positioning mode:

Positioning operation is performed sequentially from the desired data.



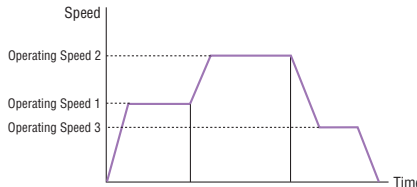
## Area Output Function

A signal is output when the linear slide enters a set area arbitrarily set along the stroke. One set area can be set.



## Linked Operation

Up to four operation data can be linked, thereby allowing the linear slide to change speeds without stopping.



·Data with the same operation direction can be linked.

## Choice of Two Return to Home Methods

### ●Sensorless Return to Home

Return to home is performed without the use of home sensors.

The home position and return to home speed (maximum of 100 mm/s) can be adjusted, and the direction of return to home can also be changed.

### ●Return to Home Using Sensors

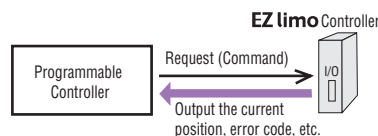
Return to home is performed using home sensors.

Sensors are sold separately as accessories\*.

(\*Refer to page 40 for the sensor set.)

## Output of Current Position and Error Code

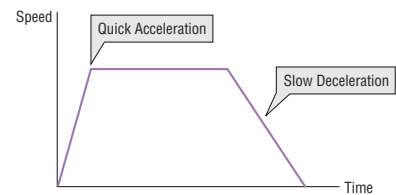
The current position, error code and other data can be output to an external device.



## Extensive Adjustment Functions

### ●Acceleration

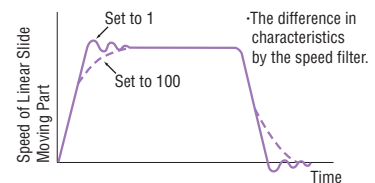
Four patterns of acceleration/deceleration setting are possible according to your operating conditions. Acceleration and deceleration can be set separately.



### ●Speed Filter

Use this filter to suppress shocks at starting and stopping or to reduce vibration during low-speed operation. With the speed filter function you can control the motor to minimize speed fluctuations even when switching the speed rapidly between operation commands.

The set value can be adjusted digitally (over a range of 1 to 100). Increasing the set value makes the movement smoother while decreasing the synchronism with the command.



# Easy Editing of Positioning Data

A teaching pendant and data editing software are available.

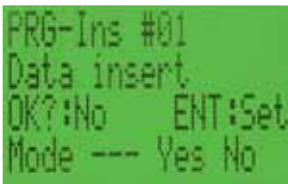
Choose the appropriate accessory based on the required functions.



Teaching Pendant (sold separately)  
Model: **EZT1**



- All functions required for operation and adjustment, including setting of positioning data, test operation, and I/O monitoring, are provided.
- The dialogue-type user interface ensures easy operation. All you need is to enter values in the necessary fields.
- No dedicated power supply is necessary. Simply connect the cable to the controller.



## Functions of Teaching Pendant (**EZT1**) and Data Editing Software (**EZED2**)

The table below summarizes the functions available with the teaching pendant (**EZT1**) and data editing software (**EZED2**).

Choose the appropriate tool based on the required functions.

Function	Item	
	Teaching Pendant (Model: <b>EZT1</b> )	Data Editing Software (Model: <b>EZED2</b> )
Cable Length	5 m	5 m <sup>*1</sup>
Display	LCD 17 characters × 4 lines	PC screen
Emergency Stop Switch	○	×
Operation Data Setting	○	○
Parameter Setting	○	○
Teaching Function (Direct/Remote)	○	○
Operation Data Monitoring	○	○
I/O & Alarm History Monitoring	○	○
Waveform Monitoring	×	○
Test Operation	○	○
Data Copy	×	○
Printing Function	×	○ <sup>*2</sup>

○ : Available    × : Not available

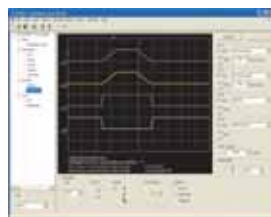
\*1 PC interface cable (supplied) is used.

\*2 The printing function is not available on computers running Windows® 98/Me.

Data Editing Software (sold separately)  
Model: **EZED2**



- All functions required for operation and adjustment, including setting of positioning data, test operation, and I/O monitoring, are provided.
- Running on any Windows based computer<sup>®</sup>, the software is a graphic navigation tool that guides you through various operations in easy steps. This user-friendly feature makes this an ideal accessory for editing large volumes of data.
  - \* Refer to page 39
- You can also access waveform monitoring, data copy and other features not available on the teaching pendant.





# Selection of Motorized Linear Slides EZSII Series

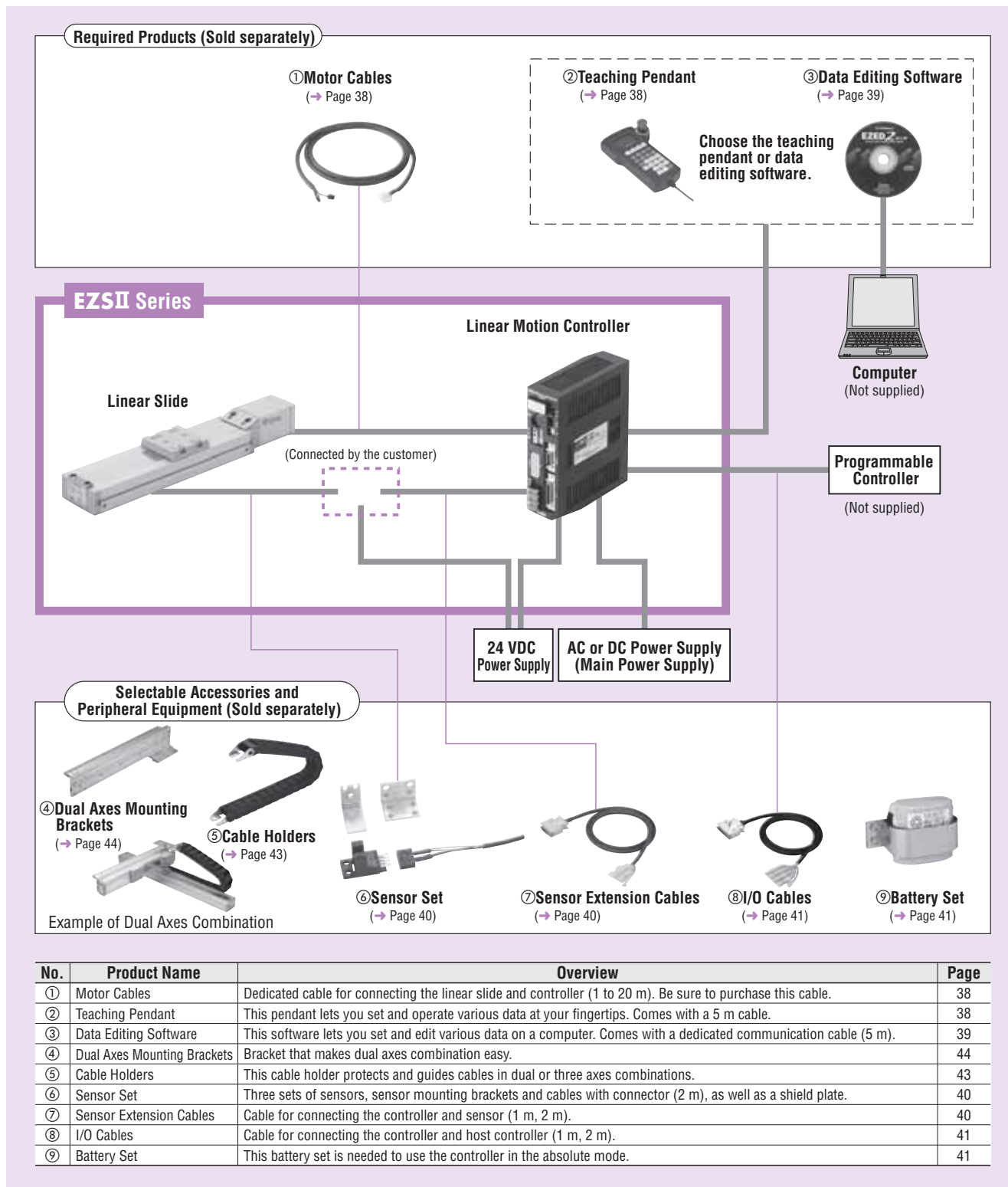
Linear Slide Size		EZS3				EZS4				EZS6			
Linear Slide Width × Height		54 mm × 50 mm				74 mm × 50 mm				74 mm × 66.5 mm			
Screw Type		Rolled Ball Screw											
Power Supply Voltage		24 VDC		Single-Phase 100-115 VAC/ Single-Phase 200-230 VAC		24 VDC		Single-Phase 100-115 VAC/ Single-Phase 200-230 VAC		24 VDC		Single-Phase 100-115 VAC/ Single-Phase 200-230 VAC	
Lead [mm]		12	6	12	6	12	6	12	6	12	6	12	6
Maximum Load Moment [N·m]	M <sub>P</sub>	4.2				8				45.7			
	M <sub>Y</sub>	4.2				8				37.5			
	M <sub>R</sub>	10.5				27.8				55.6			
Maximum Transportable Mass in Horizontal Direction [kg]	60												
	50												
	40												
	30												
Maximum Transportable Mass in Vertical Direction [kg]	30												
	25												
	20												
	15												
Maximum Speed [mm/s]	800												
	700												
	600												
	500												
Repetitive Positioning Accuracy [mm]		±0.02											
Stroke [mm]	800												
	700												
	600												
	500												
Available in 50 mm increments	400												
	300												
	200												
	100												
50	50	50	50	50	50	50	50	50	50	50	50	50	
700	700	700	700	700	700	700	700	700	700	700	700	700	
850	850	850	850	850	850	850	850	850	850	850	850	850	
Electromagnetic Brake		With electromagnetic brake and without electromagnetic brake versions are available											

Overview  
Selection  
System Configuration  
Product Line  
Specifications  
Connection and Operations  
Accessories  
Selection Calculations

# System Configuration

## System Configuration

### Controller Mode



### Example of System Configuration

(Sold separately)

<b>EZSII Series</b>	<b>Motor Cable (2 m)</b>	<b>Teaching Pendant</b>	+	<b>I/O Cable (1 m)</b>	<b>Sensor Extension Cable* (2 m)</b>	<b>Sensor Set*</b>
<b>EZS3E005-C</b>	<b>CC020ES-2</b>	<b>EZT1</b>		<b>CC36D1-1</b>	<b>CC20D2-1</b>	<b>PAES-S</b>

(Sold separately)

\*Not required if return to home operation is performed without sensors.

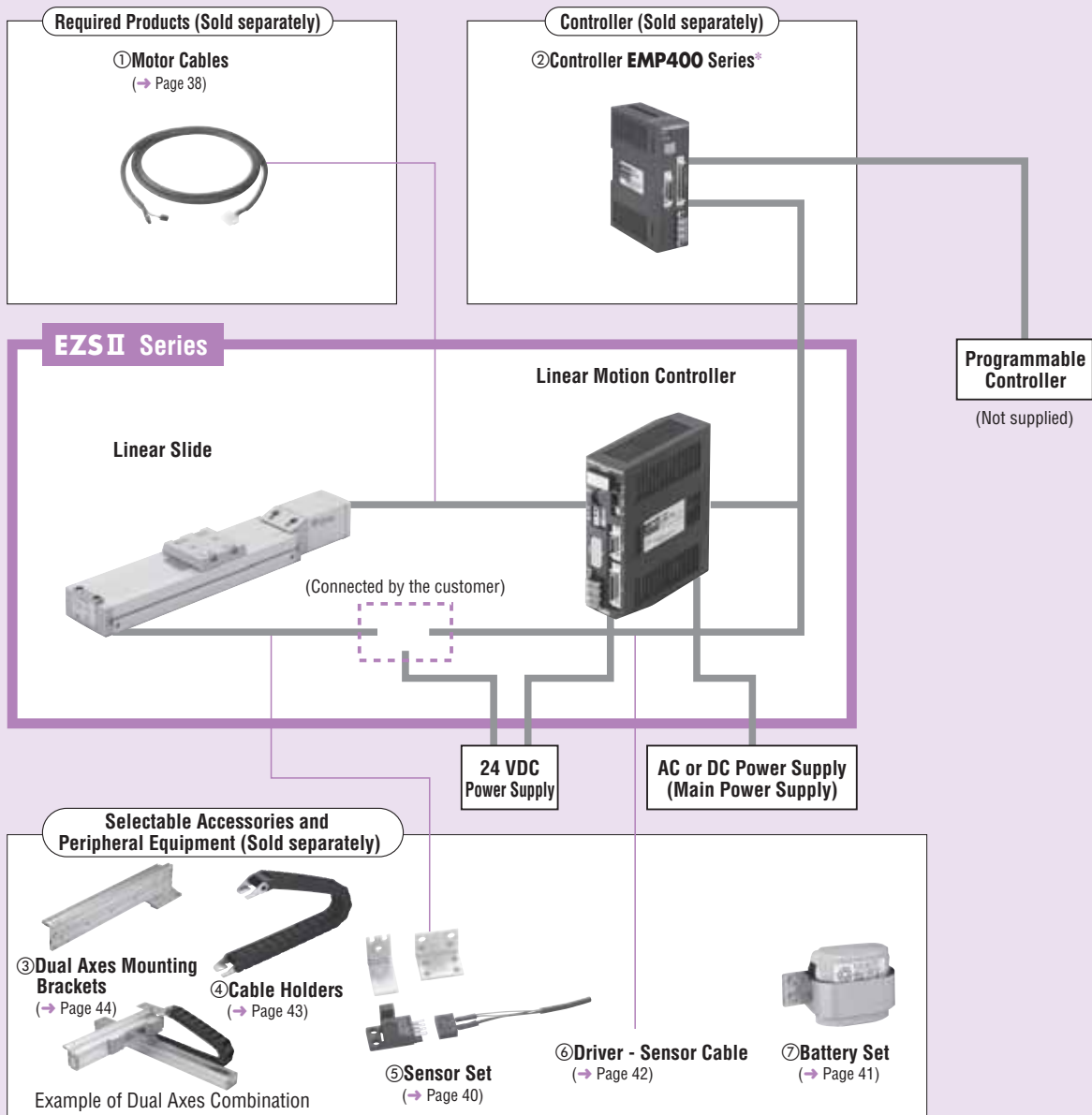
●The system configuration shown above is an example. Other combinations are available.

● Driver Mode

An example of a single-axis system configuration with the **EMP400** Series controller.

When performing return to home operation using the linear motion controller, refer to system configuration on page 10.

Teaching pendant or data editing software is required to change parameters (I/O logic, speed filter, etc.) of the linear motion controller.



No.	Product Name	Overview	Page
①	Motor Cables	Dedicated cable for connecting the linear slide and controller (1 to 20 m). Be sure to purchase this cable.	38
②	Controller	This controller gives commands needed to drive the linear slide.	*
③	Dual Axes Mounting Brackets	Bracket that makes dual axes combination easy.	44
④	Cable Holders	This cable holder protects and guides cables in dual or three axes combinations.	43
⑤	Sensor Set	Three sets of sensors, sensor mounting brackets and cables with connector (2 m), as well as a shield plate.	40
⑥	Driver - Sensor Cable	Cable for connecting the linear motion controller and <b>EMP</b> Series controller (0.5 m).	42
⑦	Battery Set	This battery set is needed to use the controller in the absolute mode.	41

\*Please contact the nearest Oriental Motor sales office for details.

● Example of System Configuration

(Sold separately)

(Sold separately)

<b>EZS II Series</b>	<b>Motor Cable (2 m)</b>	+	<b>Controller</b>	<b>Driver - Sensor Cable (0.5 m)</b>	<b>Sensor Set</b>
<b>EZS3E005-C</b>	<b>CC020ES-2</b>		<b>EMP401-1</b>	<b>CC005EZ6-EMPD</b>	<b>PAES-S</b>

● The system configuration shown above is an example. Other combinations are available.

# Product Line

## Product Number Code

# EZS 3 D 050 M - K

①      ②      ③      ④      ⑤      ⑥

①	Series	<b>EZS: EZSII Series</b>		
②	Linear Slide Size	<b>3:</b> Width: 54 mm    Height: 50 mm		
		<b>4:</b> Width: 74 mm    Height: 50 mm		
		<b>6:</b> Width: 74 mm    Height: 66.5 mm		
③	Lead	<b>D:</b> 12 mm	<b>E:</b> 6 mm	
④	Stroke	<b>005:</b> 50 mm	<b>010:</b> 100 mm	<b>015:</b> 150 mm
		<b>020:</b> 200 mm	<b>025:</b> 250 mm	<b>030:</b> 300 mm
		<b>035:</b> 350 mm	<b>040:</b> 400 mm	<b>045:</b> 450 mm
		<b>050:</b> 500 mm	<b>055:</b> 550 mm	<b>060:</b> 600 mm
		<b>065:</b> 650 mm	<b>070:</b> 700 mm	<b>075:</b> 750 mm
		<b>080:</b> 800 mm	<b>085:</b> 850 mm	
⑤	Electromagnetic Brake	Blank: Without Electromagnetic Brake <b>M:</b> With Electromagnetic Brake		
⑥	Power Supply Voltage	<b>K:</b> 24 VDC <b>A:</b> Single-Phase 100-115 VAC <b>C:</b> Single-Phase 200-230 VAC		

## Product Line

Available in 50 mm increments

### ● EZS3

#### ◇ Without Electromagnetic Brake

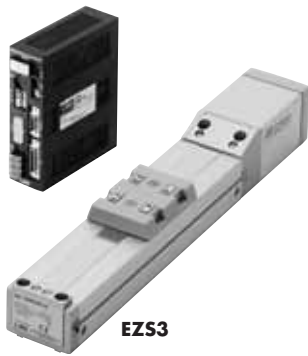
Stroke	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC
	Model	Model	Model
50 mm	<b>EZS3□005-K</b>	<b>EZS3□005-A</b>	<b>EZS3□005-C</b>
100 mm	<b>EZS3□010-K</b>	<b>EZS3□010-A</b>	<b>EZS3□010-C</b>
150 mm	<b>EZS3□015-K</b>	<b>EZS3□015-A</b>	<b>EZS3□015-C</b>
200 mm	<b>EZS3□020-K</b>	<b>EZS3□020-A</b>	<b>EZS3□020-C</b>
250 mm	<b>EZS3□025-K</b>	<b>EZS3□025-A</b>	<b>EZS3□025-C</b>
300 mm	<b>EZS3□030-K</b>	<b>EZS3□030-A</b>	<b>EZS3□030-C</b>
350 mm	<b>EZS3□035-K</b>	<b>EZS3□035-A</b>	<b>EZS3□035-C</b>
400 mm	<b>EZS3□040-K</b>	<b>EZS3□040-A</b>	<b>EZS3□040-C</b>
450 mm	<b>EZS3□045-K</b>	<b>EZS3□045-A</b>	<b>EZS3□045-C</b>
500 mm	<b>EZS3□050-K</b>	<b>EZS3□050-A</b>	<b>EZS3□050-C</b>
550 mm	<b>EZS3□055-K</b>	<b>EZS3□055-A</b>	<b>EZS3□055-C</b>
600 mm	<b>EZS3□060-K</b>	<b>EZS3□060-A</b>	<b>EZS3□060-C</b>
650 mm	<b>EZS3□065-K</b>	<b>EZS3□065-A</b>	<b>EZS3□065-C</b>
700 mm	<b>EZS3□070-K</b>	<b>EZS3□070-A</b>	<b>EZS3□070-C</b>

● Enter the lead length **D** (12 mm) or **E** (6 mm) in the box (□) within the model name.

#### ◇ With Electromagnetic Brake

Stroke	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC
	Model	Model	Model
50 mm	<b>EZS3□005M-K</b>	<b>EZS3□005M-A</b>	<b>EZS3□005M-C</b>
100 mm	<b>EZS3□010M-K</b>	<b>EZS3□010M-A</b>	<b>EZS3□010M-C</b>
150 mm	<b>EZS3□015M-K</b>	<b>EZS3□015M-A</b>	<b>EZS3□015M-C</b>
200 mm	<b>EZS3□020M-K</b>	<b>EZS3□020M-A</b>	<b>EZS3□020M-C</b>
250 mm	<b>EZS3□025M-K</b>	<b>EZS3□025M-A</b>	<b>EZS3□025M-C</b>
300 mm	<b>EZS3□030M-K</b>	<b>EZS3□030M-A</b>	<b>EZS3□030M-C</b>
350 mm	<b>EZS3□035M-K</b>	<b>EZS3□035M-A</b>	<b>EZS3□035M-C</b>
400 mm	<b>EZS3□040M-K</b>	<b>EZS3□040M-A</b>	<b>EZS3□040M-C</b>
450 mm	<b>EZS3□045M-K</b>	<b>EZS3□045M-A</b>	<b>EZS3□045M-C</b>
500 mm	<b>EZS3□050M-K</b>	<b>EZS3□050M-A</b>	<b>EZS3□050M-C</b>
550 mm	<b>EZS3□055M-K</b>	<b>EZS3□055M-A</b>	<b>EZS3□055M-C</b>
600 mm	<b>EZS3□060M-K</b>	<b>EZS3□060M-A</b>	<b>EZS3□060M-C</b>
650 mm	<b>EZS3□065M-K</b>	<b>EZS3□065M-A</b>	<b>EZS3□065M-C</b>
700 mm	<b>EZS3□070M-K</b>	<b>EZS3□070M-A</b>	<b>EZS3□070M-C</b>

● Enter the lead length **D** (12 mm) or **E** (6 mm) in the box (□) within the model name.



**EZS3**



**EZS4**



**EZS6**

● **EZS4**

◇ Without Electromagnetic Brake

Stroke	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC
	Model	Model	Model
50 mm	<b>EZS4□005-K</b>	<b>EZS4□005-A</b>	<b>EZS4□005-C</b>
100 mm	<b>EZS4□010-K</b>	<b>EZS4□010-A</b>	<b>EZS4□010-C</b>
150 mm	<b>EZS4□015-K</b>	<b>EZS4□015-A</b>	<b>EZS4□015-C</b>
200 mm	<b>EZS4□020-K</b>	<b>EZS4□020-A</b>	<b>EZS4□020-C</b>
250 mm	<b>EZS4□025-K</b>	<b>EZS4□025-A</b>	<b>EZS4□025-C</b>
300 mm	<b>EZS4□030-K</b>	<b>EZS4□030-A</b>	<b>EZS4□030-C</b>
350 mm	<b>EZS4□035-K</b>	<b>EZS4□035-A</b>	<b>EZS4□035-C</b>
400 mm	<b>EZS4□040-K</b>	<b>EZS4□040-A</b>	<b>EZS4□040-C</b>
450 mm	<b>EZS4□045-K</b>	<b>EZS4□045-A</b>	<b>EZS4□045-C</b>
500 mm	<b>EZS4□050-K</b>	<b>EZS4□050-A</b>	<b>EZS4□050-C</b>
550 mm	<b>EZS4□055-K</b>	<b>EZS4□055-A</b>	<b>EZS4□055-C</b>
600 mm	<b>EZS4□060-K</b>	<b>EZS4□060-A</b>	<b>EZS4□060-C</b>
650 mm	<b>EZS4□065-K</b>	<b>EZS4□065-A</b>	<b>EZS4□065-C</b>
700 mm	<b>EZS4□070-K</b>	<b>EZS4□070-A</b>	<b>EZS4□070-C</b>

● Enter the lead length **D** (12 mm) or **E** (6 mm) in the box (□) within the model name.

◇ With Electromagnetic Brake

Stroke	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC
	Model	Model	Model
50 mm	<b>EZS4□005M-K</b>	<b>EZS4□005M-A</b>	<b>EZS4□005M-C</b>
100 mm	<b>EZS4□010M-K</b>	<b>EZS4□010M-A</b>	<b>EZS4□010M-C</b>
150 mm	<b>EZS4□015M-K</b>	<b>EZS4□015M-A</b>	<b>EZS4□015M-C</b>
200 mm	<b>EZS4□020M-K</b>	<b>EZS4□020M-A</b>	<b>EZS4□020M-C</b>
250 mm	<b>EZS4□025M-K</b>	<b>EZS4□025M-A</b>	<b>EZS4□025M-C</b>
300 mm	<b>EZS4□030M-K</b>	<b>EZS4□030M-A</b>	<b>EZS4□030M-C</b>
350 mm	<b>EZS4□035M-K</b>	<b>EZS4□035M-A</b>	<b>EZS4□035M-C</b>
400 mm	<b>EZS4□040M-K</b>	<b>EZS4□040M-A</b>	<b>EZS4□040M-C</b>
450 mm	<b>EZS4□045M-K</b>	<b>EZS4□045M-A</b>	<b>EZS4□045M-C</b>
500 mm	<b>EZS4□050M-K</b>	<b>EZS4□050M-A</b>	<b>EZS4□050M-C</b>
550 mm	<b>EZS4□055M-K</b>	<b>EZS4□055M-A</b>	<b>EZS4□055M-C</b>
600 mm	<b>EZS4□060M-K</b>	<b>EZS4□060M-A</b>	<b>EZS4□060M-C</b>
650 mm	<b>EZS4□065M-K</b>	<b>EZS4□065M-A</b>	<b>EZS4□065M-C</b>
700 mm	<b>EZS4□070M-K</b>	<b>EZS4□070M-A</b>	<b>EZS4□070M-C</b>

● Enter the lead length **D** (12 mm) or **E** (6 mm) in the box (□) within the model name.

● **EZS6**

◇ Without Electromagnetic Brake

Stroke	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC
	Model	Model	Model
50 mm	<b>EZS6□005-K</b>	<b>EZS6□005-A</b>	<b>EZS6□005-C</b>
100 mm	<b>EZS6□010-K</b>	<b>EZS6□010-A</b>	<b>EZS6□010-C</b>
150 mm	<b>EZS6□015-K</b>	<b>EZS6□015-A</b>	<b>EZS6□015-C</b>
200 mm	<b>EZS6□020-K</b>	<b>EZS6□020-A</b>	<b>EZS6□020-C</b>
250 mm	<b>EZS6□025-K</b>	<b>EZS6□025-A</b>	<b>EZS6□025-C</b>
300 mm	<b>EZS6□030-K</b>	<b>EZS6□030-A</b>	<b>EZS6□030-C</b>
350 mm	<b>EZS6□035-K</b>	<b>EZS6□035-A</b>	<b>EZS6□035-C</b>
400 mm	<b>EZS6□040-K</b>	<b>EZS6□040-A</b>	<b>EZS6□040-C</b>
450 mm	<b>EZS6□045-K</b>	<b>EZS6□045-A</b>	<b>EZS6□045-C</b>
500 mm	<b>EZS6□050-K</b>	<b>EZS6□050-A</b>	<b>EZS6□050-C</b>
550 mm	<b>EZS6□055-K</b>	<b>EZS6□055-A</b>	<b>EZS6□055-C</b>
600 mm	<b>EZS6□060-K</b>	<b>EZS6□060-A</b>	<b>EZS6□060-C</b>
650 mm	<b>EZS6□065-K</b>	<b>EZS6□065-A</b>	<b>EZS6□065-C</b>
700 mm	<b>EZS6□070-K</b>	<b>EZS6□070-A</b>	<b>EZS6□070-C</b>
750 mm	<b>EZS6□075-K</b>	<b>EZS6□075-A</b>	<b>EZS6□075-C</b>
800 mm	<b>EZS6□080-K</b>	<b>EZS6□080-A</b>	<b>EZS6□080-C</b>
850 mm	<b>EZS6□085-K</b>	<b>EZS6□085-A</b>	<b>EZS6□085-C</b>

● Enter the lead length **D** (12 mm) or **E** (6 mm) in the box (□) within the model name.

◇ With Electromagnetic Brake

Stroke	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC
	Model	Model	Model
50 mm	<b>EZS6□005M-K</b>	<b>EZS6□005M-A</b>	<b>EZS6□005M-C</b>
100 mm	<b>EZS6□010M-K</b>	<b>EZS6□010M-A</b>	<b>EZS6□010M-C</b>
150 mm	<b>EZS6□015M-K</b>	<b>EZS6□015M-A</b>	<b>EZS6□015M-C</b>
200 mm	<b>EZS6□020M-K</b>	<b>EZS6□020M-A</b>	<b>EZS6□020M-C</b>
250 mm	<b>EZS6□025M-K</b>	<b>EZS6□025M-A</b>	<b>EZS6□025M-C</b>
300 mm	<b>EZS6□030M-K</b>	<b>EZS6□030M-A</b>	<b>EZS6□030M-C</b>
350 mm	<b>EZS6□035M-K</b>	<b>EZS6□035M-A</b>	<b>EZS6□035M-C</b>
400 mm	<b>EZS6□040M-K</b>	<b>EZS6□040M-A</b>	<b>EZS6□040M-C</b>
450 mm	<b>EZS6□045M-K</b>	<b>EZS6□045M-A</b>	<b>EZS6□045M-C</b>
500 mm	<b>EZS6□050M-K</b>	<b>EZS6□050M-A</b>	<b>EZS6□050M-C</b>
550 mm	<b>EZS6□055M-K</b>	<b>EZS6□055M-A</b>	<b>EZS6□055M-C</b>
600 mm	<b>EZS6□060M-K</b>	<b>EZS6□060M-A</b>	<b>EZS6□060M-C</b>
650 mm	<b>EZS6□065M-K</b>	<b>EZS6□065M-A</b>	<b>EZS6□065M-C</b>
700 mm	<b>EZS6□070M-K</b>	<b>EZS6□070M-A</b>	<b>EZS6□070M-C</b>
750 mm	<b>EZS6□075M-K</b>	<b>EZS6□075M-A</b>	<b>EZS6□075M-C</b>
800 mm	<b>EZS6□080M-K</b>	<b>EZS6□080M-A</b>	<b>EZS6□080M-C</b>
850 mm	<b>EZS6□085M-K</b>	<b>EZS6□085M-A</b>	<b>EZS6□085M-C</b>

● Enter the lead length **D** (12 mm) or **E** (6 mm) in the box (□) within the model name.

The following items are included in each product.

Linear Slide, Hexagonal Socket Head Screws for mounting Linear Slide, Controller, Mounting Bracket for Controller, User I/O Connector, Sensor I/O Connector, Operating Manual

# Specifications

## General Specifications of Motor ● General specifications of controller → Page 29

This is the value after rated operation under normal ambient temperature and humidity.

### ● 24 VDC

Item	Specification
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the following places: ·Motor case – Motor/Sensor windings ·Motor case – Windings of electromagnetic brake (Only for electromagnetic brake type)
Dielectric Strength	Sufficient to withstand the following for 1 minute: ·Motor case – Motor/Sensor windings      0.5 kVAC 50 Hz ·Motor case – Windings of electromagnetic brake (Only for electromagnetic brake type)      0.5 kVAC 50 Hz
Ambient Temperature	0~ +40°C (non-freezing)
Ambient Humidity	85% or less (non-condensing)

**Note:**

- Do not measure insulation resistance or perform the dielectric strength test while the linear slide and controller are connected.

## Safety Standards and CE Marking

Power Supply Voltage	Product	CE Marking
24 VDC	Linear Slide	EMC Directives
	Controller	
Single-Phase 100-115 VAC Single-Phase 200-230 VAC	Linear Slide	Low Voltage Directives
	Controller	EMC Directives

- The EMC value changes according to the wiring and layout. Therefore, the final EMC level must be checked with the linear slide/controller incorporated in the user's equipment. If you require EMC data of linear slides or controllers, please contact the nearest Oriental Motor sales office.

### ● Machinery Directive (98/37/EC)

The linear slides, controllers and teaching pendants are designed and manufactured for use in general industrial equipment as an internal component, and therefore need not comply with the Machinery Directive. However, each product has been evaluated under the following standards to ensure proper operation:

EN ISO 12100-1, EN ISO 12100-2, EN 1050, EN 60204-1

### ◇ Emergency Stop Function

The emergency stop circuit in the teaching pendant or controller is designed in accordance with the requirements of Category 1 under EN 954-1.

Refer to page 32 for a connection example that conforms to Stop Category 0 (non-controlled stop) under EN 60204-1.

### ◇ Emergency Stop Circuit

The customer must provide an appropriate emergency stop circuit by conducting a risk assessment based on your system.

### ● Single-Phase 100-115 VAC/Single-Phase 200-230 VAC

Item	Specification
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the following places: ·Motor case – Motor/Sensor windings ·Motor case – Windings of electromagnetic brake (Only for electromagnetic brake type)
Dielectric Strength	Sufficient to withstand the following for 1 minute: ·Motor case – Motor/Sensor windings <b>EZS3, EZS4:</b> 1.0 kVAC 50 Hz ·Motor case – Windings of electromagnetic brake (Only for electromagnetic brake type) <b>EZS6:</b> 1.5 kVAC 50 Hz 1.0 kVAC 50 Hz
Ambient Temperature	0~ +40°C (non-freezing)
Ambient Humidity	85% or less (non-condensing)

**Note:**

- Do not measure insulation resistance or perform the dielectric strength test while the linear slide and controller are connected.

## EZSII Series Using an $\alpha$ STEP Motor

# EZS3: 54 mm (W) × 50 mm (H) 24 VDC



Maximum Transportable Mass: Horizontal 15 kg/Vertical 7 kg

Stroke: 50 to 700 mm (in 50 mm increments)

### Specifications of Linear Slide (RoHS)



Drive Method | Ball Screw | Repetitive Positioning Accuracy [mm] | ±0.02 | Resolution [mm] | 0.01 | Traveling Parallelism [mm] | 0.03\* | Maximum Load Moment [N·m] | Mp: 4.2 Mv: 4.2 Ma: 10.5

Model	Lead [mm]	Transportable Mass [kg]		Thrust [N]	Electromagnetic Brake Holding Force [N]	Maximum Speed (Stroke) [mm/s]			
		Horizontal	Vertical			50~550 mm	560~600 mm	610~650 mm	660~700 mm
<b>EZS3D</b> □-K	12	~7.5	—	~43	—	600	550	460	400
<b>EZS3D</b> □M-K			~3.5		43				
<b>EZS3E</b> □-K	6	~15	—	~86	—	300	270	220	200
<b>EZS3E</b> □M-K			~7		86				

● Enter the stroke length in the box (□) within the model name.

\* This applies when the linear slide is installed from the base surface.

### Product Number Code

# EZS 3 D 050 M - K

① ② ③ ④ ⑤ ⑥

①	Series <b>EZS</b> : <b>EZSII</b> Series
②	Linear Slide Size <b>3</b> : Width: 54 mm Height: 50 mm
③	Lead <b>D</b> : 12 mm <b>E</b> : 6 mm
④	Stroke <b>005</b> (50 mm) ~ <b>070</b> (700 mm)
⑤	Electromagnetic Brake Blank: Without Electromagnetic Brake <b>M</b> : With Electromagnetic Brake
⑥	Power Supply Voltage <b>K</b> : 24 VDC

### Linear Slide/Controller Combinations

Model names for linear slide and controller combinations are shown below.

Electromagnetic Brake	Model	Linear Slide Model	Controller Model
Not equipped	<b>EZS3D</b> □-K	EZSM3D□K	ESMC-K2
	<b>EZS3E</b> □-K	EZSM3E□K	
Equipped	<b>EZS3D</b> □M-K	EZSM3D□MK	
	<b>EZS3E</b> □M-K	EZSM3E□MK	

● Enter the stroke length in the box (□) within the model name.

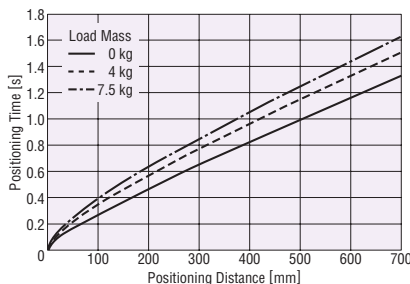
### Positioning Distance – Positioning Time

Check the (approximate) positioning time from the positioning distance.

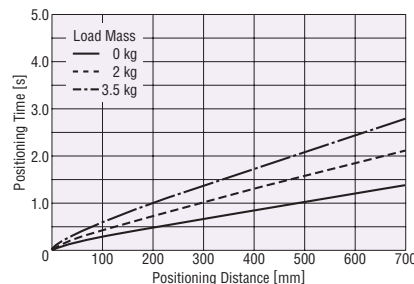
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.

#### ● EZS3D (Lead: 12 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation

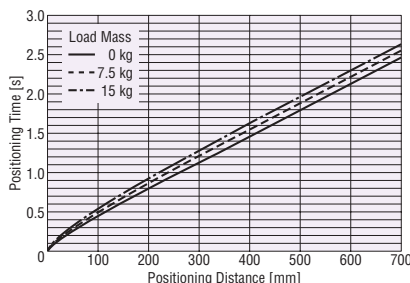


#### Positioning Time Coefficient

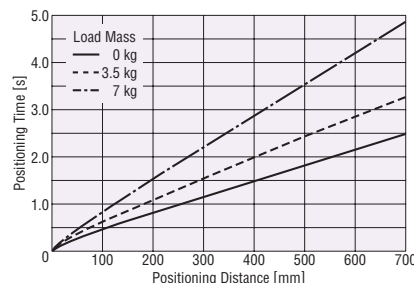
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	4 kg	7.5 kg	0 kg	2 kg	3.5 kg
50~550	1.0	1.0	1.0	1.0	1.0	1.0
560~600	1.0	1.0	1.0	1.0	1.0	1.0
610~650	1.2	1.1	1.1	1.2	1.0	1.0
660~700	1.4	1.2	1.2	1.3	1.0	1.0

#### ● EZS3E (Lead: 6 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation



#### Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50~550	1.0	1.0	1.0	1.0	1.0	1.0
560~600	1.1	1.1	1.1	1.1	1.0	1.0
610~650	1.3	1.3	1.2	1.3	1.0	1.0
660~700	1.4	1.4	1.4	1.4	1.1	1.0

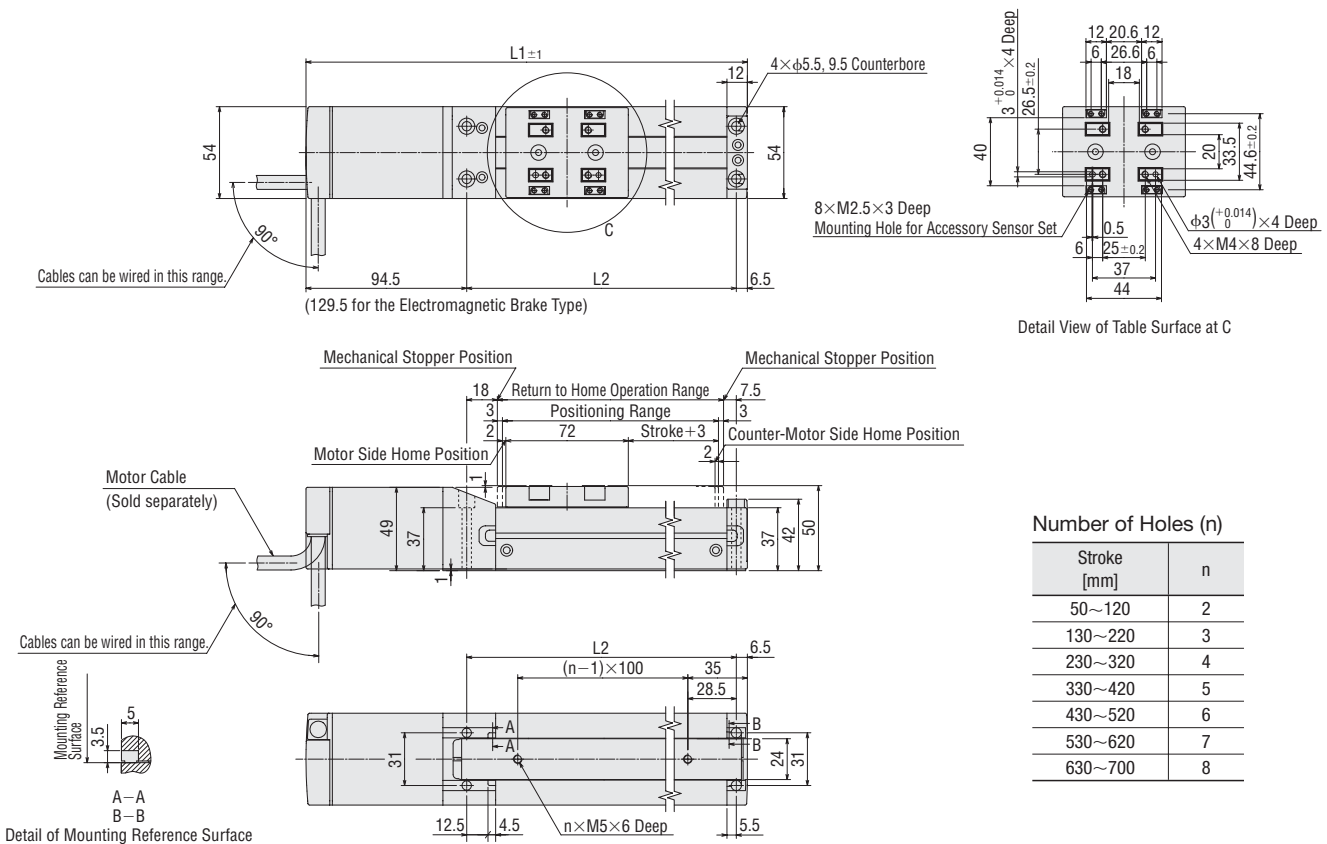
#### Notes:

● The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s as a reference (settling time is adjustable by speed filter function).

● The starting speed should be 6 mm/s or less.



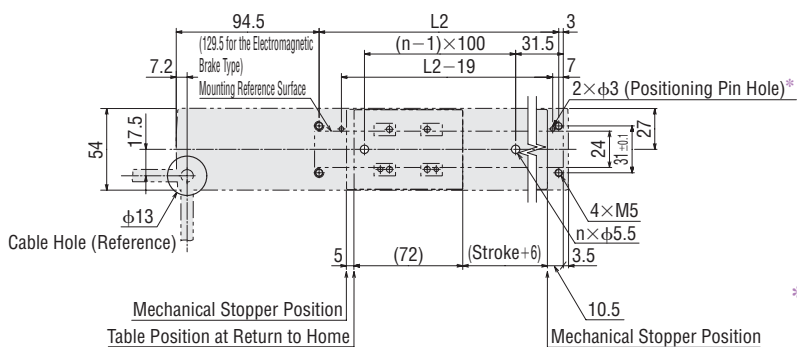
## Dimensions of Linear Slide (Unit = mm)



Linear Slide Model: EZSM3D□K, EZSM3E□K (Without Electromagnetic Brake)  
EZSM3D□MK, EZSM3E□MK (With Electromagnetic Brake)

	Electromagnetic Brake	Numbers Specifiable in the Box (□) within the Linear Slide Model Name													
		005	010	015	020	025	030	035	040	045	050	055	060	065	070
Stroke	Not Equipped/Equipped	50	100	150	200	250	300	350	400	450	500	550	600	650	700
L1	Not Equipped	259.5	309.5	359.5	409.5	459.5	509.5	559.5	609.5	659.5	709.5	759.5	809.5	859.5	909.5
	Equipped	294.5	344.5	394.5	444.5	494.5	544.5	594.5	644.5	694.5	744.5	794.5	844.5	894.5	944.5
L2	Not Equipped/Equipped	158.5	208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5
Mass [kg]	Not Equipped	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2	3.3
	Equipped	1.6	1.7	1.9	2.0	2.2	2.3	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5
CAD	Not Equipped	D548	D549	D550	D551	D552	D553	D554	D555	D556	D557	D558	D559	D560	D561
	Equipped	D562	D563	D564	D565	D566	D567	D568	D569	D570	D571	D572	D573	D574	D575

## Dimensions for Linear Slide Installation (Unit = mm)



## EZSII Series Using an $\alpha$ STEP Motor

# EZS3: 54 mm (W) × 50 mm (H)

Single-Phase 100-115 VAC  
Single-Phase 200-230 VAC



Maximum Transportable Mass: Horizontal 15 kg/Vertical 7 kg

Stroke: 50 to 700 mm (in 50 mm increments)

### Specifications of Linear Slide (RoHS)



Drive Method	Ball Screw	Repetitive Positioning Accuracy [mm]	± 0.02	Resolution [mm]	0.01	Traveling Parallelism [mm]	0.03*	Maximum Load Moment [N·m]	Mp: 4.2 Mv: 4.2 Mr: 10.5	
Model	Lead [mm]	Transportable Mass [kg]		Thrust [N]	Electromagnetic Brake Holding Force [N]	Maximum Speed (Stroke) [mm/s]				
		Horizontal	Vertical			50~500 mm	510~550 mm	560~600 mm	610~650 mm	660~700 mm
EZS3D□-□	12	~7.5	—	~43	—	800	650	550	460	400
EZS3D□M-□			~3.5		43					
EZS3E□-□	6	~15	—	~86	—	400	320	270	220	200
EZS3E□M-□			~7		86					

- Enter the stroke length in the box (□) within the model name.  
Enter the power supply voltage **A** or **C** in the box (■) within the model name.
- \* This applies when the linear slide is installed from the base surface.

### Product Number Code

# EZS 3 D 050 M - C

① ② ③ ④ ⑤ ⑥

①	Series <b>EZS</b> : EZSII Series
②	Linear Slide Size <b>3</b> : Width: 54 mm Height: 50 mm
③	Lead <b>D</b> : 12 mm <b>E</b> : 6 mm
④	Stroke <b>005</b> (50 mm) ~ <b>070</b> (700 mm)
⑤	Electromagnetic Brake Blank: Without Electromagnetic Brake <b>M</b> : With Electromagnetic Brake
⑥	Power Supply Voltage <b>A</b> : Single-Phase 100-115 VAC <b>C</b> : Single-Phase 200-230 VAC

### Linear Slide/Controller Combinations

Model names for linear slide and controller combinations are shown below.

Electromagnetic Brake	Model	Linear Slide Model	Controller Model
Not equipped	<b>EZS3D□-A</b>	EZSM3D□A	ESMC-A2
	<b>EZS3D□-C</b>	EZSM3D□C	ESMC-C2
	<b>EZS3E□-A</b>	EZSM3E□A	ESMC-A2
	<b>EZS3E□-C</b>	EZSM3E□C	ESMC-C2
Equipped	<b>EZS3D□M-A</b>	EZSM3D□MA	ESMC-A2
	<b>EZS3D□M-C</b>	EZSM3D□MC	ESMC-C2
	<b>EZS3E□M-A</b>	EZSM3E□MA	ESMC-A2
	<b>EZS3E□M-C</b>	EZSM3E□MC	ESMC-C2

- Enter the stroke length in the box (□) within the model name.

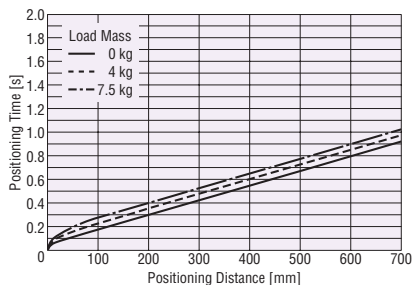
### Positioning Distance – Positioning Time

Check the (approximate) positioning time from the positioning distance.

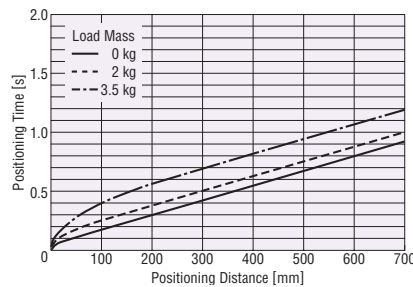
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.

#### ● EZS3D (Lead: 12 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation

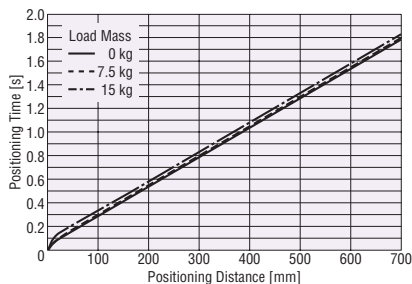


#### Positioning Time Coefficient

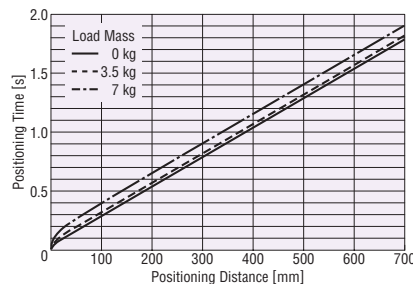
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	4 kg	7.5 kg	0 kg	2 kg	3.5 kg
50~500	1.0	1.0	1.0	1.0	1.0	1.0
510~550	1.2	1.2	1.2	1.2	1.2	1.1
560~600	1.4	1.4	1.3	1.4	1.3	1.2
610~650	1.7	1.6	1.6	1.7	1.6	1.4
660~700	1.9	1.8	1.8	1.9	1.8	1.6

#### ● EZS3E (Lead: 6 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation



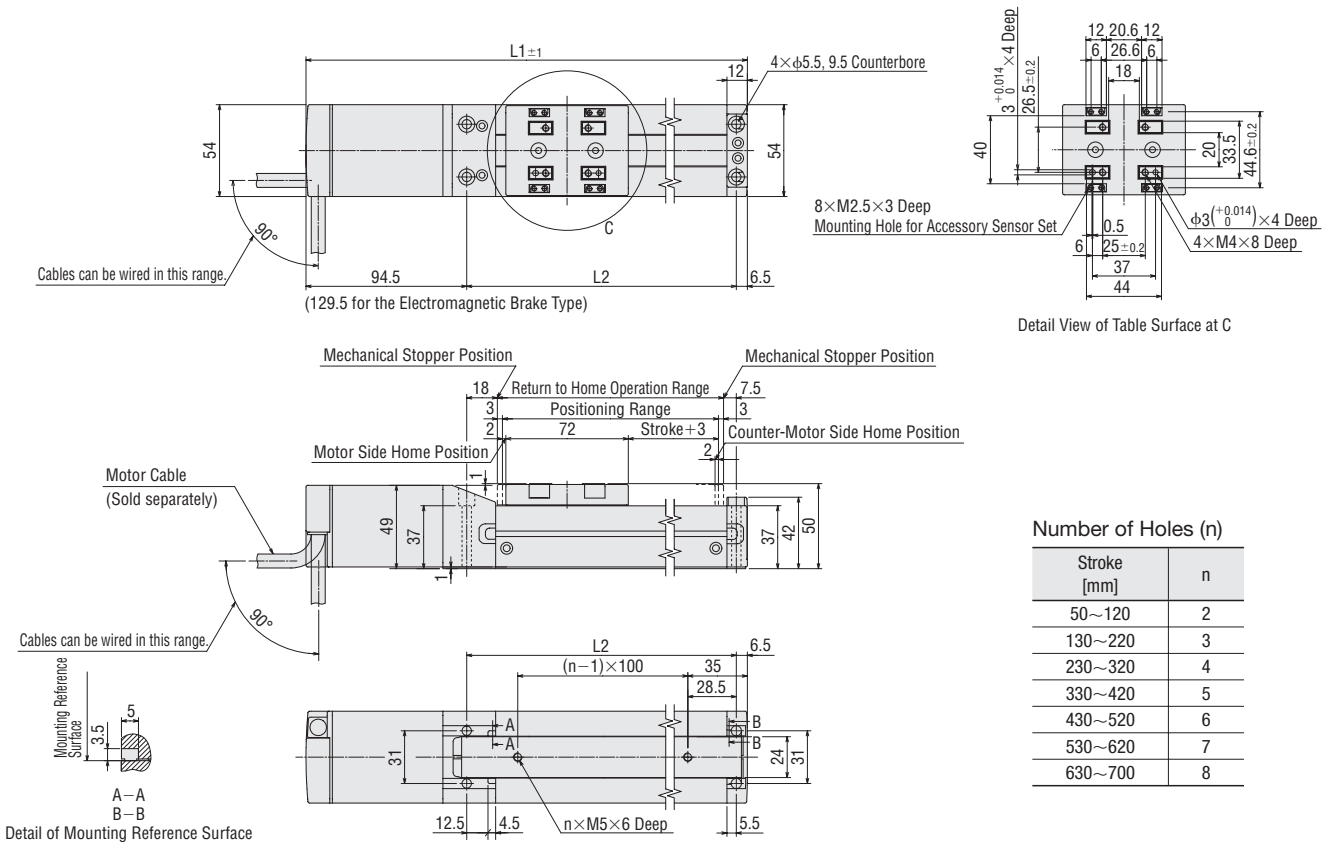
#### Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50~500	1.0	1.0	1.0	1.0	1.0	1.0
510~550	1.2	1.2	1.2	1.2	1.2	1.2
560~600	1.5	1.4	1.4	1.5	1.4	1.4
610~650	1.8	1.8	1.8	1.8	1.8	1.7
660~700	2.0	1.9	1.9	2.0	1.9	1.9

#### Notes:

- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s as a reference (settling time is adjustable by speed filter function).
- The starting speed should be 6 mm/s or less.

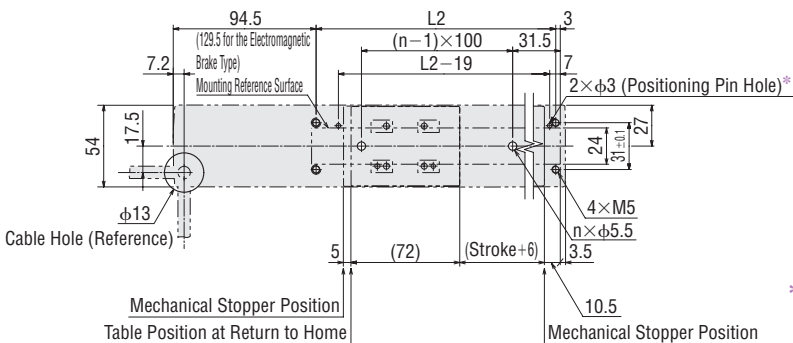
## Dimensions of Linear Slide (Unit = mm)



Linear Slide Model: EZSM3D□A, EZSM3E□A, EZSM3D□C, EZSM3E□C (Without Electromagnetic Brake)  
 EZSM3D□MA, EZSM3E□MA, EZSM3D□MC, EZSM3E□MC (With Electromagnetic Brake)

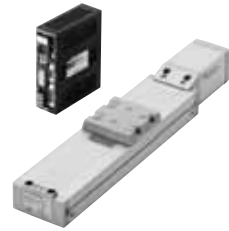
	Electromagnetic Brake	Numbers Specifiable in the Box (□) within the Linear Slide Model Name													
		005	010	015	020	025	030	035	040	045	050	055	060	065	070
Stroke	Not Equipped/Equipped	50	100	150	200	250	300	350	400	450	500	550	600	650	700
L1	Not Equipped	259.5	309.5	359.5	409.5	459.5	509.5	559.5	609.5	659.5	709.5	759.5	809.5	859.5	909.5
	Equipped	294.5	344.5	394.5	444.5	494.5	544.5	594.5	644.5	694.5	744.5	794.5	844.5	894.5	944.5
L2	Not Equipped/Equipped	158.5	208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5
Mass [kg]	Not Equipped	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2	3.3
	Equipped	1.6	1.7	1.9	2.0	2.2	2.3	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5
CAD	Not Equipped	D548	D549	D550	D551	D552	D553	D554	D555	D556	D557	D558	D559	D560	D561
	Equipped	D562	D563	D564	D565	D566	D567	D568	D569	D570	D571	D572	D573	D574	D575

## Dimensions for Linear Slide Installation (Unit = mm)



## EZSII Series Using an $\alpha$ STEP Motor

# EZS4: 74 mm (W) × 50 mm (H) 24 VDC



Maximum Transportable Mass: Horizontal 30 kg/Vertical 14 kg

Stroke: 50 to 700 mm (in 50 mm increments)

### Specifications of Linear Slide (RoHS)



Drive Method	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Resolution [mm]	0.01	Traveling Parallelism [mm]	0.03*	Maximum Load Moment [N·m]	M <sub>r</sub> : 8 M <sub>v</sub> : 8 M <sub>a</sub> : 27.8
Model	Lead [mm]	Transportable Mass [kg]		Thrust [N]	Electromagnetic Brake Holding Force [N]	Maximum Speed (Stroke) [mm/s]			
		Horizontal	Vertical			50~550 mm	560~600 mm	610~650 mm	660~700 mm
<b>EZS4D</b> □-K	12	~15	—	~70	—	600	550	460	400
<b>EZS4D</b> □M-K			~7		70				
<b>EZS4E</b> □-K	6	~30	—	~140	—	300	270	220	200
<b>EZS4E</b> □M-K			~14		140				

● Enter the stroke length in the box (□) within the model name.

\* This applies when the linear slide is installed from the base surface.

### Product Number Code

# EZS 4 D 050 M - K

① ② ③ ④ ⑤ ⑥

①	Series <b>EZS: EZSII</b> Series
②	Linear Slide Size <b>4</b> : Width: 74 mm Height: 50 mm
③	Lead <b>D</b> : 12 mm <b>E</b> : 6 mm
④	Stroke <b>005</b> (50 mm) ~ <b>070</b> (700 mm)
⑤	Electromagnetic Brake Blank: Without Electromagnetic Brake <b>M</b> : With Electromagnetic Brake
⑥	Power Supply Voltage <b>K</b> : 24 VDC

### Linear Slide/Controller Combinations

Model names for linear slide and controller combinations are shown below.

Electromagnetic Brake	Model	Linear Slide Model	Controller Model
Not equipped	<b>EZS4D</b> □-K	EZSM4D□K	ESMC-K2
	<b>EZS4E</b> □-K	EZSM4E□K	
Equipped	<b>EZS4D</b> □M-K	EZSM4D□MK	
	<b>EZS4E</b> □M-K	EZSM4E□MK	

● Enter the stroke length in the box (□) within the model name.

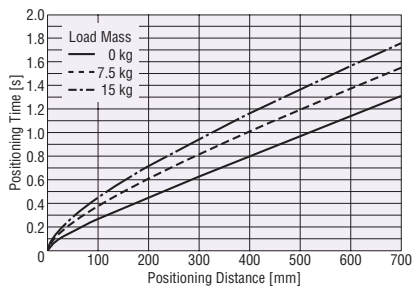
### Positioning Distance – Positioning Time

Check the (approximate) positioning time from the positioning distance.

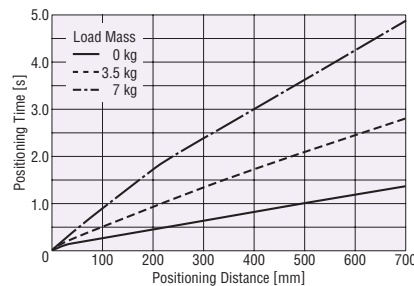
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.

#### ● EZS4D (Lead: 12 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation

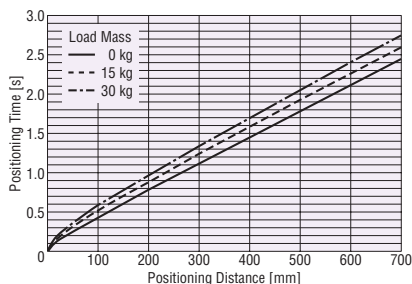


#### Positioning Time Coefficient

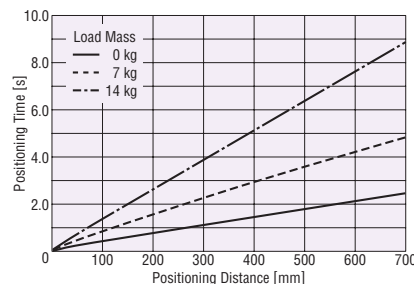
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50~550	1.0	1.0	1.0	1.0	1.0	1.0
560~600	1.0	1.0	1.0	1.0	1.0	1.0
610~650	1.2	1.1	1.0	1.2	1.0	1.0
660~700	1.4	1.1	1.1	1.3	1.0	1.0

#### ● EZS4E (Lead: 6 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation



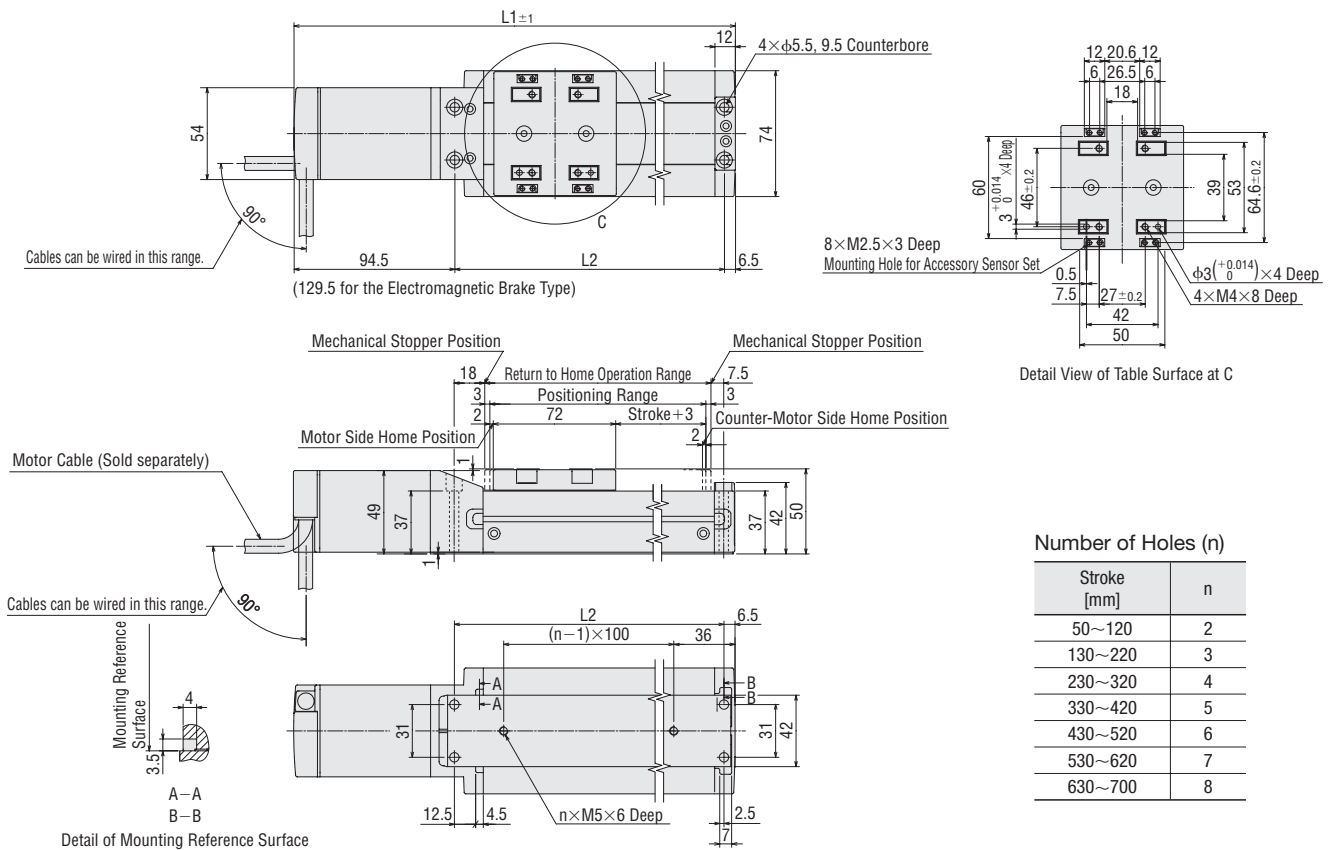
#### Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	15 kg	30 kg	0 kg	7 kg	14 kg
50~550	1.0	1.0	1.0	1.0	1.0	1.0
560~600	1.1	1.1	1.0	1.1	1.0	1.0
610~650	1.3	1.3	1.2	1.3	1.0	1.0
660~700	1.4	1.4	1.3	1.4	1.0	1.0

#### Notes:

- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s as a reference (settling time is adjustable by speed filter function).
- The starting speed should be 6 mm/s or less.

## Dimensions of Linear Slide (Unit = mm)



Detail View of Table Surface at C

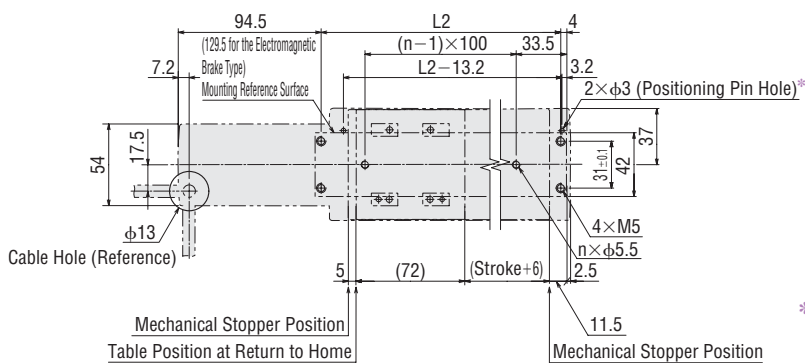
Number of Holes (n)

Stroke [mm]	n
50~120	2
130~220	3
230~320	4
330~420	5
430~520	6
530~620	7
630~700	8

Linear Slide Model: EZSM4D□K, EZSM4E□K (Without Electromagnetic Brake)  
EZSM4D□MK, EZSM4E□MK (With Electromagnetic Brake)

	Electromagnetic Brake	Numbers Specifiable in the Box (□) within the Linear Slide Model Name													
		005	010	015	020	025	030	035	040	045	050	055	060	065	070
Stroke	Not Equipped/Equipped	50	100	150	200	250	300	350	400	450	500	550	600	650	700
L1	Not Equipped	259.5	309.5	359.5	409.5	459.5	509.5	559.5	609.5	659.5	709.5	759.5	809.5	859.5	909.5
	Equipped	294.5	344.5	394.5	444.5	494.5	544.5	594.5	644.5	694.5	744.5	794.5	844.5	894.5	944.5
L2	Not Equipped/Equipped	158.5	208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5
	Not Equipped/Equipped	1.8	2.1	2.3	2.5	2.7	3.0	3.2	3.4	3.7	3.9	4.1	4.3	4.6	4.8
Mass [kg]	Not Equipped	1.8	2.1	2.3	2.5	2.7	3.0	3.2	3.4	3.7	3.9	4.1	4.3	4.6	4.8
	Equipped	2.0	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.9	4.1	4.3	4.5	4.8	5.0
CAD	Not Equipped	D576	D577	D578	D579	D580	D581	D582	D583	D584	D585	D586	D587	D588	D589
	Equipped	D590	D591	D592	D593	D594	D595	D596	D597	D598	D599	D600	D601	D602	D603

## Dimensions for Linear Slide Installation (Unit = mm)

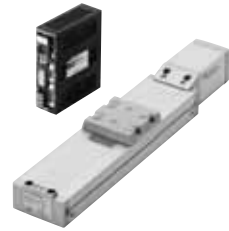


\*The mounting reference surface can be set on either side.  
The figure assumes that the linear slide is mounted on its top surface.

## EZSII Series Using an $\alpha$ STEP Motor

# EZS4: 74 mm (W) × 50 mm (H)

Single-Phase 100-115 VAC  
Single-Phase 200-230 VAC



Maximum Transportable Mass: Horizontal 30 kg/Vertical 14 kg

Stroke: 50 to 700 mm (in 50 mm increments)

### Specifications of Linear Slide (RoHS)



Drive Method	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Resolution [mm]	0.01	Traveling Parallelism [mm]	0.03*	Maximum Load Moment [N·m]	M <sub>r</sub> : 8 M <sub>y</sub> : 8 M <sub>z</sub> : 27.8	
Model	Lead [mm]	Transportable Mass [kg]		Thrust [N]	Electromagnetic Brake Holding Force [N]	Maximum Speed (Stroke) [mm/s]				
		Horizontal	Vertical			50~500 mm	510~550 mm	560~600 mm	610~650 mm	660~700 mm
EZS4D□-□	12	~15	—	~70	—	800	650	550	460	400
EZS4D□M-□			~7		70					
EZS4E□-□	6	~30	—	~140	—	400	320	270	220	200
EZS4E□M-□			~14		140					

● Enter the stroke length in the box (□) within the model name.

Enter the power supply voltage **A** or **C** in the box (■) within the model name.

\* This applies when the linear slide is installed from the base surface.

### Product Number Code

# EZS 4 D 050 M - C

① ② ③ ④ ⑤ ⑥

①	Series <b>EZS</b> : EZSII Series
②	Linear Slide Size <b>4</b> : Width: 74 mm Height: 50 mm
③	Lead <b>D</b> : 12 mm <b>E</b> : 6 mm
④	Stroke <b>005</b> (50 mm) ~ <b>070</b> (700 mm)
⑤	Electromagnetic Brake Blank: Without Electromagnetic Brake <b>M</b> : With Electromagnetic Brake
⑥	Power Supply Voltage <b>A</b> : Single-Phase 100-115 VAC <b>C</b> : Single-Phase 200-230 VAC

### Linear Slide/Controller Combinations

Model names for linear slide and controller combinations are shown below.

Electromagnetic Brake	Model	Linear Slide Model	Controller Model
Not equipped	EZS4D□- <b>A</b>	EZSM4D□A	ESMC-A2
	EZS4D□- <b>C</b>	EZSM4D□C	ESMC-C2
	EZS4E□- <b>A</b>	EZSM4E□A	ESMC-A2
	EZS4E□- <b>C</b>	EZSM4E□C	ESMC-C2
Equipped	EZS4D□M- <b>A</b>	EZSM4D□MA	ESMC-A2
	EZS4D□M- <b>C</b>	EZSM4D□MC	ESMC-C2
	EZS4E□M- <b>A</b>	EZSM4E□MA	ESMC-A2
	EZS4E□M- <b>C</b>	EZSM4E□MC	ESMC-C2

● Enter the stroke length in the box (□) within the model name.

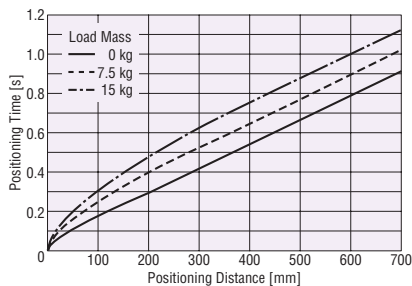
### Positioning Distance – Positioning Time

Check the (approximate) positioning time from the positioning distance.

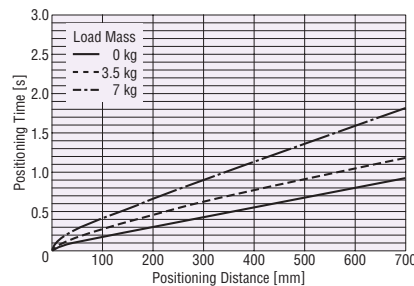
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.

#### ● EZS4D (Lead: 12 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation

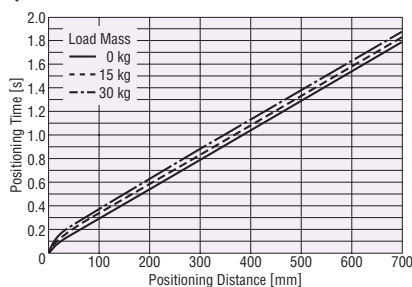


#### Positioning Time Coefficient

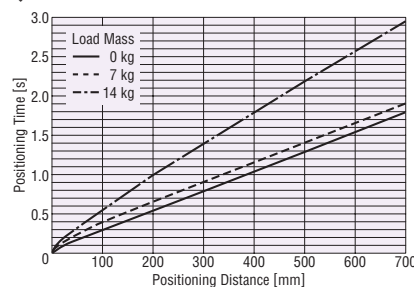
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50~500	1.0	1.0	1.0	1.0	1.0	1.0
510~550	1.2	1.1	1.1	1.2	1.0	1.0
560~600	1.4	1.3	1.2	1.4	1.1	1.0
610~650	1.7	1.5	1.4	1.7	1.3	1.0
660~700	1.9	1.8	1.6	1.9	1.5	1.0

#### ● EZS4E (Lead: 6 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation



#### Positioning Time Coefficient

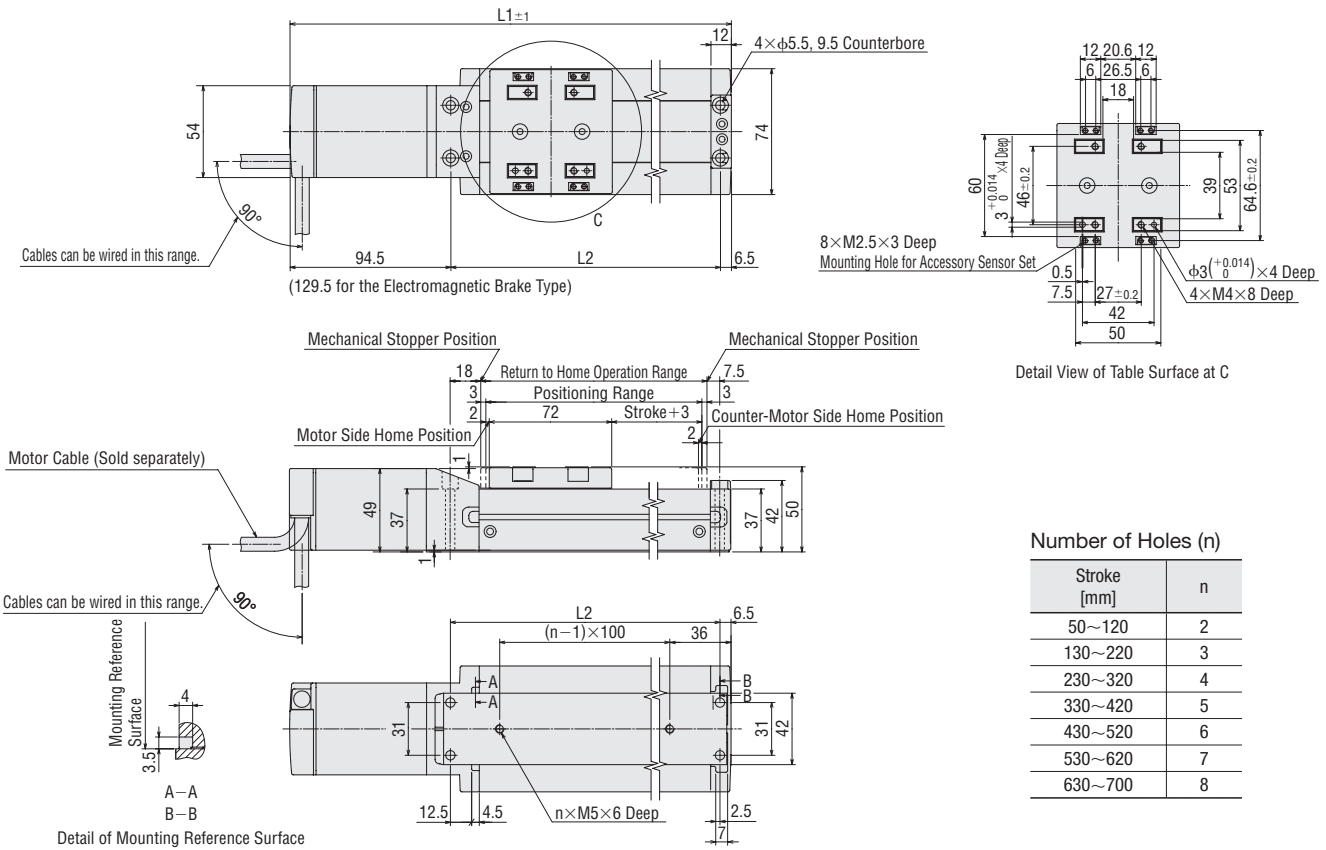
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	15 kg	30 kg	0 kg	7 kg	14 kg
50~500	1.0	1.0	1.0	1.0	1.0	1.0
510~550	1.2	1.2	1.2	1.2	1.2	1.0
560~600	1.5	1.4	1.4	1.5	1.4	1.0
610~650	1.8	1.7	1.7	1.8	1.7	1.1
660~700	2.0	1.9	1.9	2.0	1.9	1.2

#### Notes:

● The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s as a reference (settling time is adjustable by speed filter function).

● The starting speed should be 6 mm/s or less.

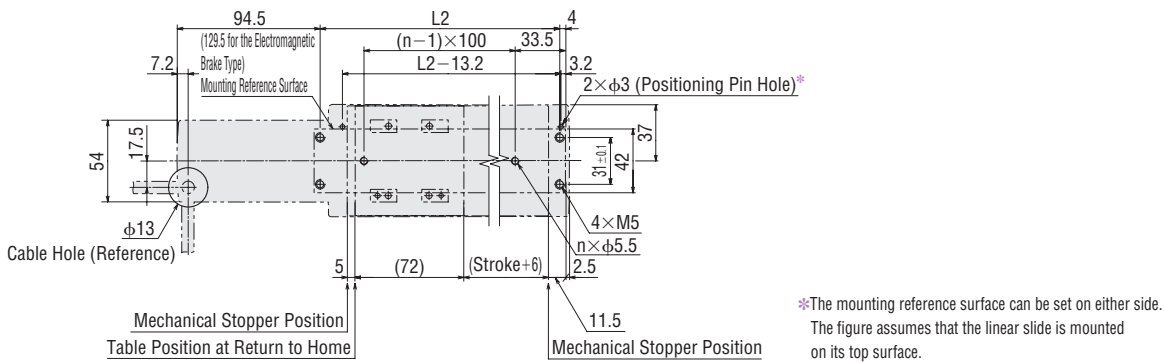
## ■ Dimensions of Linear Slide (Unit = mm)



Linear Slide Model: EZSM4D□A, EZSM4E□A, EZSM4D□C, EZSM4E□C (Without Electromagnetic Brake)  
EZSM4D□MA, EZSM4E□MA, EZSM4D□MC, EZSM4E□MC (With Electromagnetic Brake)

	Electromagnetic Brake	Numbers Specifiable in the Box (□) within the Linear Slide Model Name														
		005	010	015	020	025	030	035	040	045	050	055	060	065	070	
Stroke	Not Equipped/Equipped	50	100	150	200	250	300	350	400	450	500	550	600	650	700	
L1	Not Equipped	259.5	309.5	359.5	409.5	459.5	509.5	559.5	609.5	659.5	709.5	759.5	809.5	859.5	909.5	
	Equipped	294.5	344.5	394.5	444.5	494.5	544.5	594.5	644.5	694.5	744.5	794.5	844.5	894.5	944.5	
L2	Not Equipped/Equipped	158.5	208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	
	Not Equipped	1.8	2.1	2.3	2.5	2.7	3.0	3.2	3.4	3.7	3.9	4.1	4.3	4.6	4.8	
Mass [kg]	Equipped	2.0	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.9	4.1	4.3	4.5	4.8	5.0	
	Not Equipped	D576	D577	D578	D579	D580	D581	D582	D583	D584	D585	D586	D587	D588	D589	
CAD	Equipped	D590	D591	D592	D593	D594	D595	D596	D597	D598	D599	D600	D601	D602	D603	

## ■ Dimensions for Linear Slide Installation (Unit = mm)

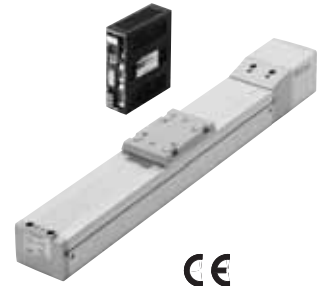


## EZSII Series Using an $\alpha$ STEP Motor

# EZS6: 74 mm (W) × 66.5 mm (H) 24 VDC

Maximum Transportable Mass: Horizontal 60 kg/Vertical 30 kg

Stroke: 50 to 850 mm (in 50 mm increments)



### Specifications of Linear Slide (RoHS)

Drive Method	Ball Screw	Repetitive Positioning Accuracy [mm]	± 0.02	Resolution [mm]	0.01	Traveling Parallelism [mm]	0.03*	Maximum Load Moment [N·m]	Mr: 45.7 My: 37.5 Ma: 55.6	
Model	Lead [mm]	Transportable Mass [kg]		Thrust [N]	Electromagnetic Brake Holding Force [N]	Maximum Speed (Stroke) [mm/s]				
		Horizontal	Vertical			50~650 mm	660~700 mm	710~750 mm	760~800 mm	810~850 mm
<b>EZS6D</b> □-K	12	~30	—	~184	—	600	550	470	420	360
<b>EZS6D</b> □M-K			~15		184					
<b>EZS6E</b> □-K	6	~60	—	~369	—	300	260	230	200	180
<b>EZS6E</b> □M-K			~30		369					

● Enter the stroke length in the box (□) within the model name.

\* This applies when the linear slide is installed from the base surface.

### Product Number Code

## EZS 6 D 050 M - K

① ② ③ ④ ⑤ ⑥

①	Series <b>EZS: EZSII</b> Series
②	Linear Slide Size <b>6</b> : Width: 74 mm Height: 66.5 mm
③	Lead <b>D</b> : 12 mm <b>E</b> : 6 mm
④	Stroke <b>005</b> (50 mm) ~ <b>085</b> (850 mm)
⑤	Electromagnetic Brake Blank: Without Electromagnetic Brake <b>M</b> : With Electromagnetic Brake
⑥	Power Supply Voltage <b>K</b> : 24 VDC

### Linear Slide/Controller Combinations

Model names for linear slide and controller combinations are shown below.

Electromagnetic Brake	Model	Linear Slide Model	Controller Model
Not equipped	<b>EZS6D</b> □-K	EZSM6D□K	ESMC-K2
	<b>EZS6E</b> □-K	EZSM6E□K	
Equipped	<b>EZS6D</b> □M-K	EZSM6D□MK	
	<b>EZS6E</b> □M-K	EZSM6E□MK	

● Enter the stroke length in the box (□) within the model name.

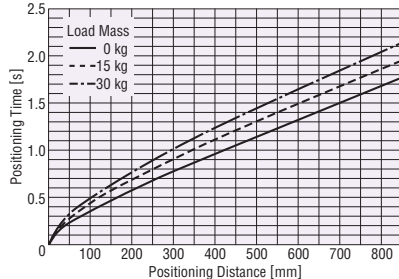
### Positioning Distance – Positioning Time

Check the (approximate) positioning time from the positioning distance.

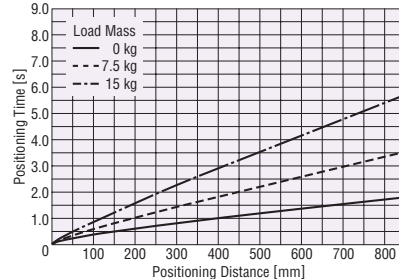
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.

#### ● EZS6D (Lead: 12 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation

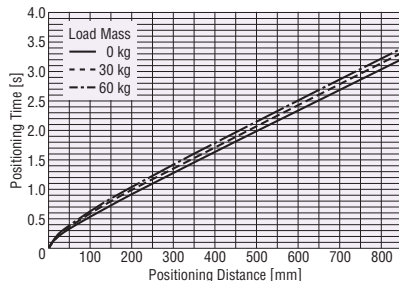


#### Positioning Time Coefficient

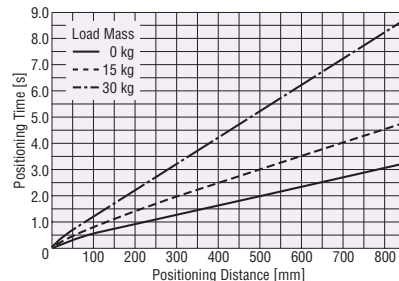
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	15 kg	30 kg	0 kg	7.5 kg	15 kg
50~650	1.0	1.0	1.0	1.0	1.0	1.0
660~700	1.0	1.0	1.0	1.0	1.0	1.0
710~750	1.1	1.1	1.0	1.1	1.0	1.0
760~800	1.2	1.2	1.2	1.2	1.0	1.0
810~850	1.4	1.3	1.2	1.4	1.0	1.0

#### ● EZS6E (Lead: 6 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation



#### Positioning Time Coefficient

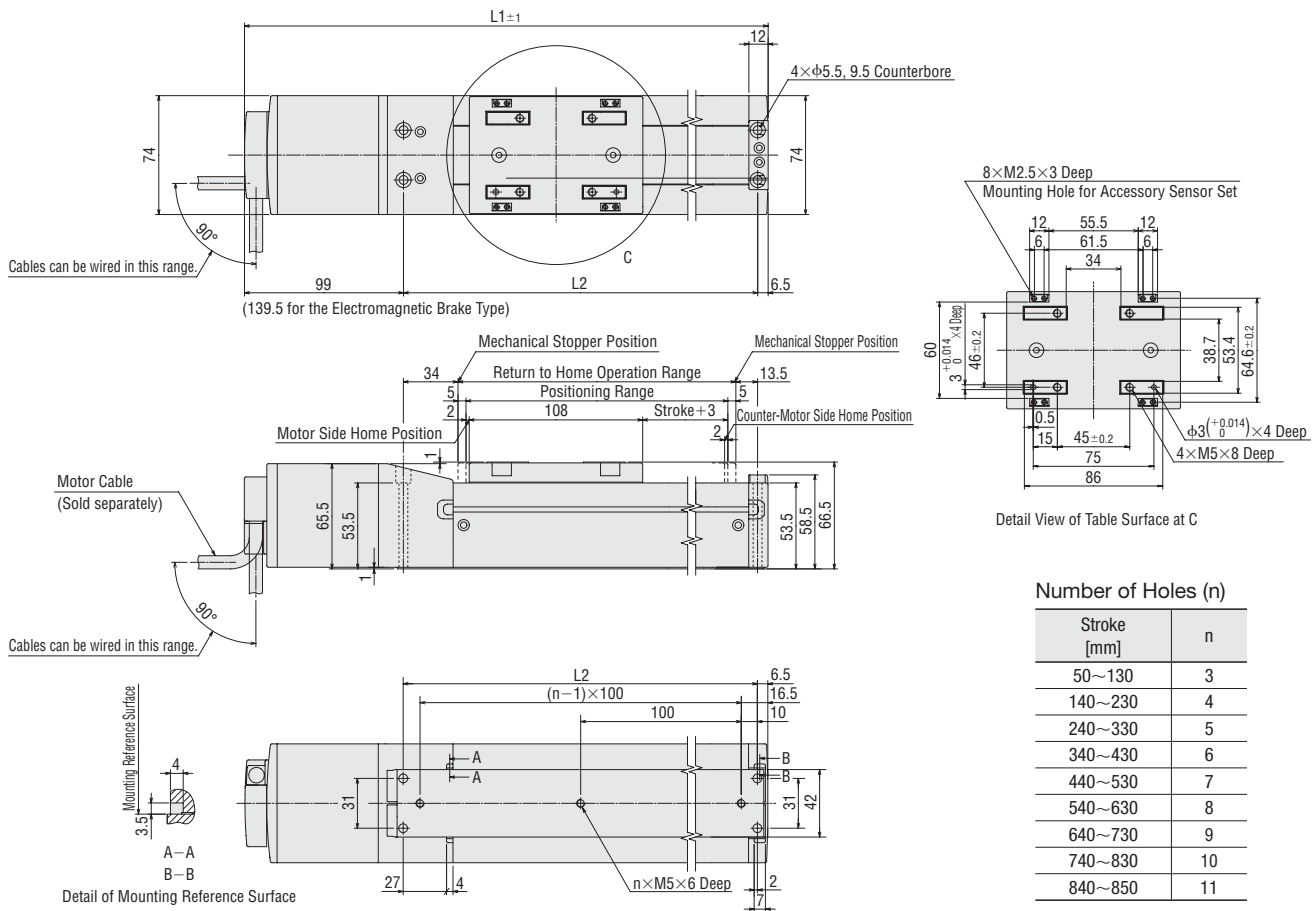
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	30 kg	60 kg	0 kg	15 kg	30 kg
50~650	1.0	1.0	1.0	1.0	1.0	1.0
660~700	1.1	1.0	1.0	1.1	1.0	1.0
710~750	1.2	1.2	1.1	1.2	1.0	1.0
760~800	1.3	1.3	1.3	1.4	1.0	1.0
810~850	1.5	1.5	1.0	1.5	1.0	1.0

#### Notes:

- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s as a reference (settling time is adjustable by speed filter function).
- The starting speed should be 6 mm/s or less.



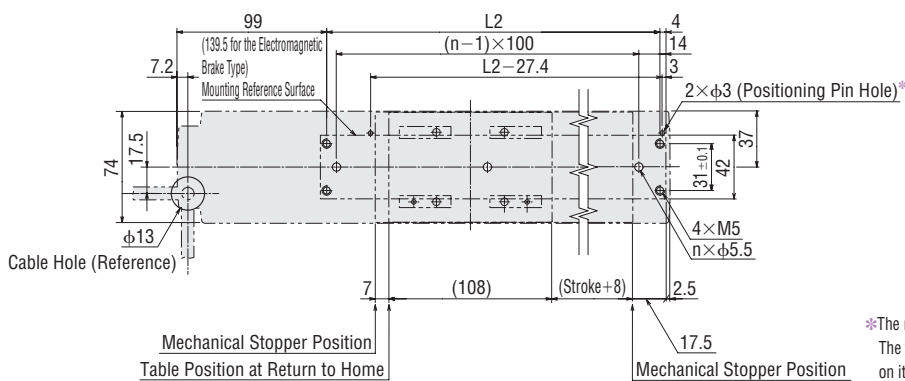
## Dimensions of Linear Slide (Unit = mm)



Linear Slide Model: EZSM6D□K, EZSM6E□K (Without Electromagnetic Brake)  
EZSM6D□MK, EZSM6E□MK (With Electromagnetic Brake)

	Electromagnetic Brake	Numbers Specifiable in the Box (□) within the Linear Slide Model Name																
		005	010	015	020	025	030	035	040	045	050	055	060	065	070	075	080	085
Stroke	Not Equipped/Equipped	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
	Not Equipped	326	376	426	476	526	576	626	676	726	776	826	876	926	976	1026	1076	1126
L1	Equipped	366.5	416.5	466.5	516.5	566.5	616.5	666.5	716.5	766.5	816.5	866.5	916.5	966.5	1016.5	1066.5	1116.5	1166.5
	Not Equipped/Equipped	220.5	270.5	320.5	370.5	420.5	470.5	520.5	570.5	620.5	670.5	720.5	770.5	820.5	870.5	920.5	970.5	1020.5
Mass [kg]	Not Equipped	3.4	3.6	3.9	4.1	4.4	4.7	4.9	5.2	5.4	5.7	6.0	6.2	6.5	6.7	7.0	7.3	7.5
	Equipped	3.8	4.0	4.3	4.5	4.8	5.1	5.3	5.6	5.8	6.1	6.4	6.6	6.9	7.1	7.4	7.7	7.9
CAD	Not Equipped	D604	D605	D606	D607	D608	D609	D610	D611	D612	D613	D614	D615	D616	D617	D618	D619	D620
	Equipped	D621	D622	D623	D624	D625	D626	D627	D628	D629	D630	D631	D632	D633	D634	D635	D636	D637

## Dimensions for Linear Slide Installation (Unit = mm)



# EZSII Series Using an $\alpha$ STEP Motor

## EZS6: 74 mm (W) × 66.5 mm (H)

Single-Phase 100-115 VAC  
Single-Phase 200-230 VAC



Maximum Transportable Mass: Horizontal 60 kg/Vertical 30 kg  
Stroke: 50 to 850 mm (in 50 mm increments)

### Specifications of Linear Slide (RoHS)

Drive Method	Ball Screw	Repetitive Positioning Accuracy [mm]	±0.02	Resolution [mm]	0.01	Traveling Parallelism [mm]	0.03	Maximum Load Moment [N·m]	M <sub>r</sub> : 45.7 M <sub>v</sub> : 37.5 M <sub>h</sub> : 55.6		
Model	Lead [mm]	Transportable Mass [kg]		Thrust [N]	Electromagnetic Brake Holding Force [N]	Maximum Speed (Stroke) [mm/s]					
		Horizontal	Vertical			50~550 mm	560~600 mm	610~650 mm	660~700 mm	710~750 mm	760~800 mm
EZS6D□-□	12	~30	—	~184	—	800	640	550	470	420	360
EZS6D□M-□			~15		184						
EZS6E□-□	6	~60	—	~369	—	400	350	300	260	230	200
EZS6E□M-□			~30		369						

- Enter the stroke length in the box (□) within the model name.
- Enter the power supply voltage **A** or **C** in the box (■) within the model name.
- \* This applies when the linear slide is installed from the base surface.

### Product Number Code

## EZS 6 D 050 M - C

- ① ② ③ ④ ⑤ ⑥

①	Series <b>EZS</b> : EZSII Series
②	Linear Slide Size <b>6</b> : Width: 74 mm Height: 66.5 mm
③	Lead <b>D</b> : 12 mm <b>E</b> : 6 mm
④	Stroke <b>005</b> (50 mm) ~ <b>085</b> (850 mm)
⑤	Electromagnetic Brake Blank: Without Electromagnetic Brake <b>M</b> : With Electromagnetic Brake
⑥	Power Supply Voltage <b>A</b> : Single-Phase 100-115 VAC <b>C</b> : Single-Phase 200-230 VAC

### Linear Slide/Controller Combinations

Model names for linear slide and controller combinations are shown below.

Electromagnetic Brake	Model	Linear Slide Model	Controller Model
Not equipped	<b>EZS6D□-A</b>	EZSM6D□A	ESMC-A2
	<b>EZS6D□-C</b>	EZSM6D□C	ESMC-C2
	<b>EZS6E□-A</b>	EZSM6E□A	ESMC-A2
	<b>EZS6E□-C</b>	EZSM6E□C	ESMC-C2
Equipped	<b>EZS6D□M-A</b>	EZSM6D□MA	ESMC-A2
	<b>EZS6D□M-C</b>	EZSM6D□MC	ESMC-C2
	<b>EZS6E□M-A</b>	EZSM6E□MA	ESMC-A2
	<b>EZS6E□M-C</b>	EZSM6E□MC	ESMC-C2

- Enter the stroke length in the box (□) within the model name.

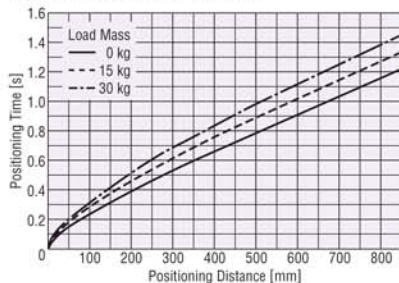
### Positioning Distance – Positioning Time

Check the (approximate) positioning time from the positioning distance.

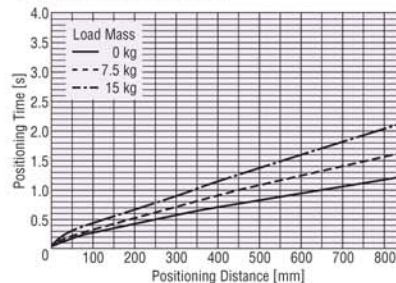
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.

#### ● EZS6D (Lead: 12 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation

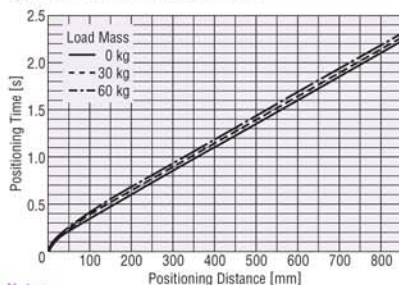


#### Positioning Time Coefficient

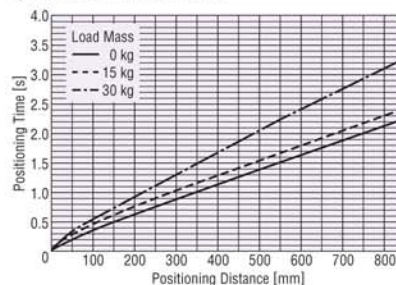
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	15 kg	30 kg	0 kg	7.5 kg	15 kg
50~600	1.0	1.0	1.0	1.0	1.0	1.0
610~650	1.1	1.1	1.0	1.1	1.0	1.0
660~700	1.3	1.2	1.1	1.3	1.0	1.0
710~750	1.5	1.4	1.3	1.5	1.2	1.0
760~800	1.7	1.5	1.4	1.7	1.3	1.1
810~850	2.0	1.8	1.7	2.4	1.5	1.2

#### ● EZS6E (Lead: 6 mm)

##### ◇ Horizontal Installation



##### ◇ Vertical Installation



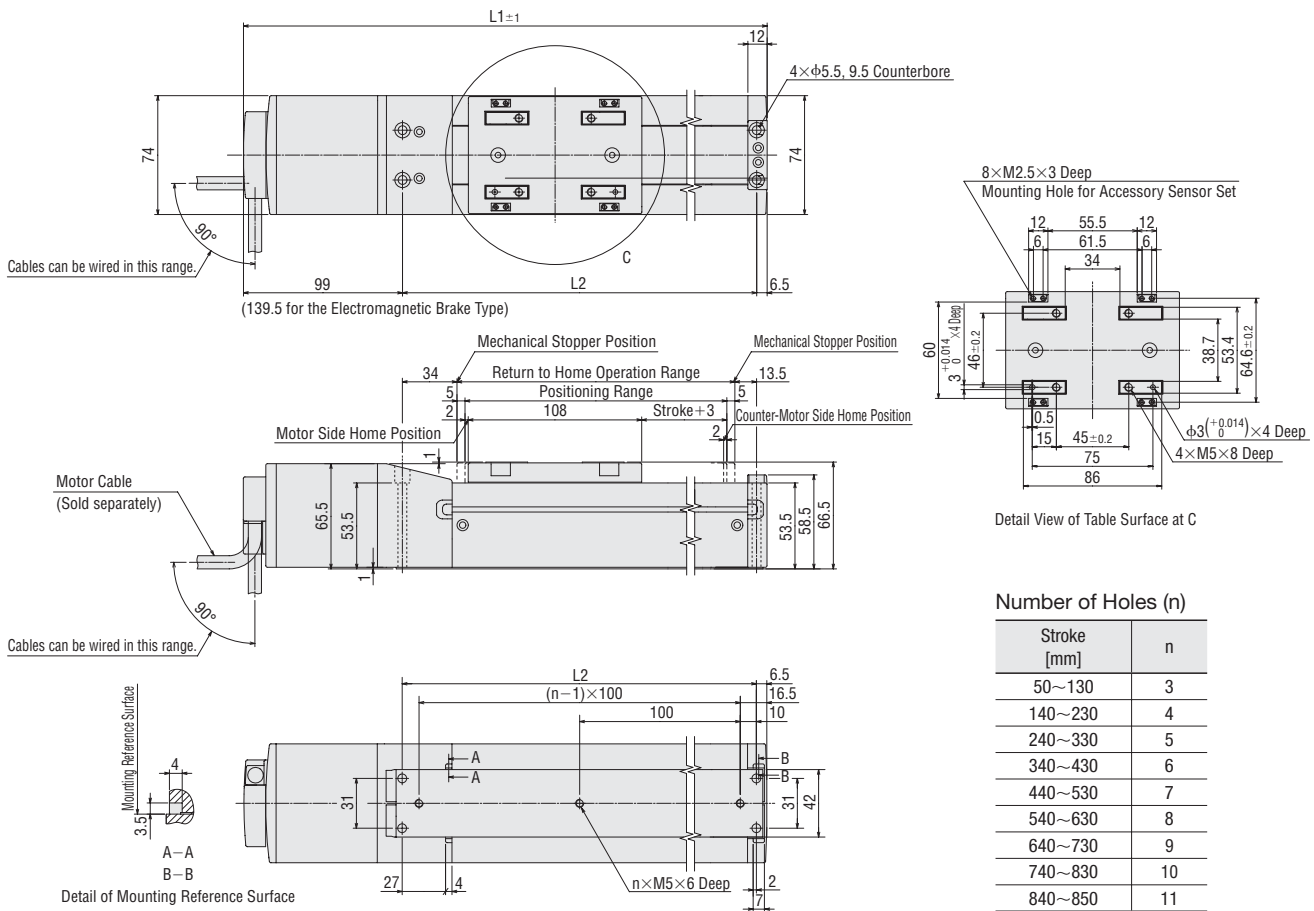
#### Positioning Time Coefficient

Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	30 kg	60 kg	0 kg	15 kg	30 kg
50~600	1.0	1.0	1.0	1.0	1.0	1.0
610~650	1.1	1.1	1.1	1.1	1.1	1.0
660~700	1.3	1.3	1.3	1.3	1.2	1.0
710~750	1.5	1.5	1.4	1.5	1.4	1.0
760~800	1.7	1.6	1.6	1.7	1.5	1.2
810~850	1.9	1.9	1.9	1.9	1.8	1.3

#### Notes:

- The positioning time in the graph does not include the settling time. Use a settling time of 0.15 s as a reference (settling time is adjustable by speed filter function).
- The starting speed should be 6 mm/s or less.

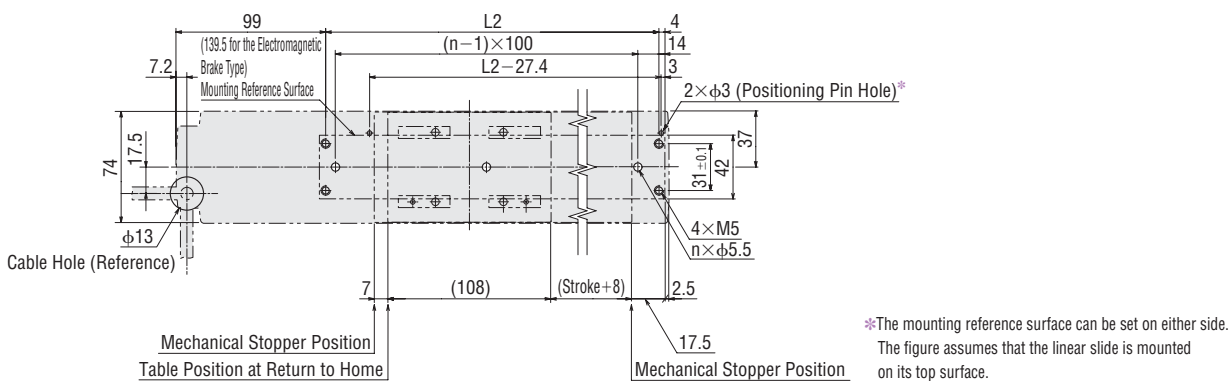
## Dimensions of Linear Slide (Unit = mm)



Linear Slide Model: EZSM6D□A, EZSM6E□A, EZSM6D□C, EZSM6E□C (Without Electromagnetic Brake)  
 EZSM6D□MA, EZSM6E□MA, EZSM6D□MC, EZSM6E□MC (With Electromagnetic Brake)

	Electromagnetic Brake	Numbers Specifiable in the Box (□) within the Linear Slide Model Name																
		005	010	015	020	025	030	035	040	045	050	055	060	065	070	075	080	085
Stroke	Not Equipped/Equipped	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
	Not Equipped	326	376	426	476	526	576	626	676	726	776	826	876	926	976	1026	1076	1126
L1	Equipped	366.5	416.5	466.5	516.5	566.5	616.5	666.5	716.5	766.5	816.5	866.5	916.5	966.5	1016.5	1066.5	1116.5	1166.5
	Not Equipped/Equipped	220.5	270.5	320.5	370.5	420.5	470.5	520.5	570.5	620.5	670.5	720.5	770.5	820.5	870.5	920.5	970.5	1020.5
Mass [kg]	Not Equipped	3.4	3.6	3.9	4.1	4.4	4.7	4.9	5.2	5.4	5.7	6.0	6.2	6.5	6.7	7.0	7.3	7.5
	Equipped	3.8	4.0	4.3	4.5	4.8	5.1	5.3	5.6	5.8	6.1	6.4	6.6	6.9	7.1	7.4	7.7	7.9
CAD	Not Equipped	D604	D605	D606	D607	D608	D609	D610	D611	D612	D613	D614	D615	D616	D617	D618	D619	D620
	Equipped	D621	D622	D623	D624	D625	D626	D627	D628	D629	D630	D631	D632	D633	D634	D635	D636	D637

## Dimensions for Linear Slide Installation (Unit = mm)



## Specifications of Controller

### Controller Mode

Item		Controller Model			
		ESMC-K2	ESMC-A2	ESMC-C2	
Type		Stored data type			
Power Supply Input	Control Power	24 VDC±5% 1.0 A [Controller only: 0.5 A (Take into account safety margin of +0.2 A for the teaching pendant, and/or +0.3 A for the electromagnetic brake type.)]			
	Main Power	Voltage	24 VDC±10%	Single-Phase 100-115 VAC -15~+10%   Single-Phase 200-230 VAC -15~+10%	
		Frequency	—	50/60 Hz	
		Current	4.0 A <sup>*1</sup>	6.0 A <sup>*1</sup>	3.5 A <sup>*1</sup>
Positioning Data	Setting Mode	Absolute mode (absolute-position specification), Incremental mode (relative-position specification)			
	Number	63			
	Setting Method	Data is set using the accessory teaching pendant ( <b>EZT1</b> ) or data editing software ( <b>EZED2</b> ) (Stored in EEPROM).			
Positioning Control <sup>*2</sup>	Mode	Selective positioning   Sequential positioning			
	Travel Amount Setting Range	-83886.08~+83886.07 mm (value set in units of 0.01 mm)			
	Starting Speed Setting Range	0.01~200.00 mm/s (value set in units of 0.01 mm/s)			
	Operating Speed Setting Range	0.01~800.00 mm/s (value set in units of 0.01 mm/s)			
	Acceleration/Deceleration Rate Setting Range	0.01~20.00 m/s <sup>2</sup> (value set in units of 0.01 m/s <sup>2</sup> )			
Control Mode		<ul style="list-style-type: none"> <li>External input mode (EXT): In this mode, operation by external signal, command position, I/O condition and alarm condition can be monitored.</li> <li>Program mode (PRG): In this mode, operation data can be created, changed or cleared.</li> <li>Parameter mode (PAR): In this mode, operation parameters and function setting parameters can be set or changed.</li> <li>Test mode (TST): In this mode, manual operation and I/O check can be performed.</li> </ul>			
Operation Mode		Positioning operation, Return to home operation, Linked operation (a maximum of 4 data), Continuous operation			
Input Signal/Input Mode		START, STOP, HOME/PRESET, FREE, MO~M5, REQ, ACL/CK 24 VDC Photocoupler input, Input resistance 4.7 kΩ FWD, RVS 5 VDC Photocoupler input, Input resistance 180 Ω or 24 VDC Photocoupler input, Input resistance 2.7 kΩ +LS, -LS, HOMELS 24 VDC Photocoupler input, Input resistance 4.7 kΩ			
Output Signal/Output Mode		ALM, END/OUTR, MOVE, AREA/OUTO, OUT1 Photocoupler, Open-collector output (24 VDC, 10 mA or less) ASG1, BSG1 Photocoupler, Open-collector output (24 VDC, 15 mA or less) ASG2, BSG2 Line driver output			
Protective Function		Excessive position deviation, Overcurrent protection, Overvoltage protection, Overheat protection, Overload, Sensor error, Overspeed, Nonvolatile memory error, etc.			
Indicator (LED)		PWR, ALM	PWR, ALM, CHARGE		
Cooling Method		Natural ventilation			
Mass		0.44 kg	0.77 kg		

### Driver Mode

Item		Controller Model			
		ESMC-K2	ESMC-A2	ESMC-C2	
Power Supply Input	Control Power	24 VDC±5% 1.0 A [Controller only: 0.5 A (Take into account safety margin of +0.2 A for the teaching pendant, and/or +0.3 A for the electromagnetic brake type.)]			
	Main Power	Voltage	24 VDC±10%	Single-Phase 100-115 VAC -15~+10%   Single-Phase 200-230 VAC -15~+10%	
		Frequency	—	50/60 Hz	
		Current	4.0 A <sup>*1</sup>	6.0 A <sup>*1</sup>	3.5 A <sup>*1</sup>
Maximum Response Frequency		1-pulse input mode, 2-pulse input mode: 80 kHz, Phase difference input mode: 20 kHz			
Operation Mode		Return to home operation, Pulse input operation (1-pulse input mode, 2-pulse input mode, Phase difference input mode)			
Input Signal/Input Mode		ACL/CK, FREE, C.OFF, HOME/PRESET, REQ, HMSTOP 24 VDC Photocoupler input, Input resistance 4.7 kΩ FP, RP 5 VDC Photocoupler input, Input resistance 180 Ω or 24 VDC Photocoupler input, Input resistance 2.7 kΩ +LS, -LS, HOMELS 24 VDC Photocoupler input, Input resistance 4.7 kΩ			
Output Signal/Output Mode		MOVE, END/OUTR, ALM, TIM/OUTO, OUT1 Photocoupler, Open-collector output (24 VDC, 10 mA or less) ASG1, BSG1 Photocoupler, Open-collector output (24 VDC, 15 mA or less) ASG2, BSG2 Line driver output			
Protective Function		Excessive position deviation, Overcurrent protection, Overvoltage protection, Overheat protection, Overload, Sensor error, Overspeed, Nonvolatile memory error, etc.			
Indicator (LED)		PWR, ALM	PWR, ALM, CHARGE		
Cooling Method		Natural ventilation			
Mass		0.44 kg	0.77 kg		

\*1 The maximum current varies depending on the connected linear slide.

[ESMC-K2] EZSM3/EZSM4: 1.7 A EZSM6: 4.0 A

[ESMC-A2] EZSM3/EZSM4: 3.0 A EZSM6: 5.0 A

[ESMC-C2] EZSM3/EZSM4: 2.1 A EZSM6: 3.0 A

\*2 Values vary depending on the connected linear slide. Check the specifications of each series.

## General Specifications of Controller

This is the value after rated operation under normal ambient temperature and humidity

### ● 24 VDC

Item	Specification
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the following places: • FG – Main power supply terminal • FG – I/O connector
Dielectric Strength	Sufficient to withstand the following for 1 minute: • FG – Main power supply terminal 0.5 kVAC 50 Hz • FG – I/O connector 0.5 kVAC 50 Hz
Ambient Temperature	0 ~ +40°C (non-freezing)
Ambient Humidity	85% or less (non-condensing)

**Note:**

- Do not measure insulation resistance or perform the dielectric strength test while the linear slide and controller are connected.

### ● Single-Phase 100-115 VAC/Single-Phase 200-230 VAC

Item	Specification
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the following places: • I/O connector – Main power supply terminal, Motor connector, Battery connector • Control power supply terminal – Main power supply terminal, Motor connector, Battery connector • PE – Main power supply terminal, Motor connector, Battery connector
Dielectric Strength	Sufficient to withstand the following terminals for 1 minute: • Signal I/O, Control power supply – Main power supply 1.8 kV • Signal I/O, Control power supply – Motor output 1.8 kV • Signal I/O, Control power supply – Battery input 1.8 kV • PE – Main power supply 1.5 kV • PE – Motor output 1.5 kV • PE – Battery input 1.5 kV
Ambient Temperature	0 ~ +40°C (non-freezing)
Ambient Humidity	85% or less (non-condensing)

**Note:**

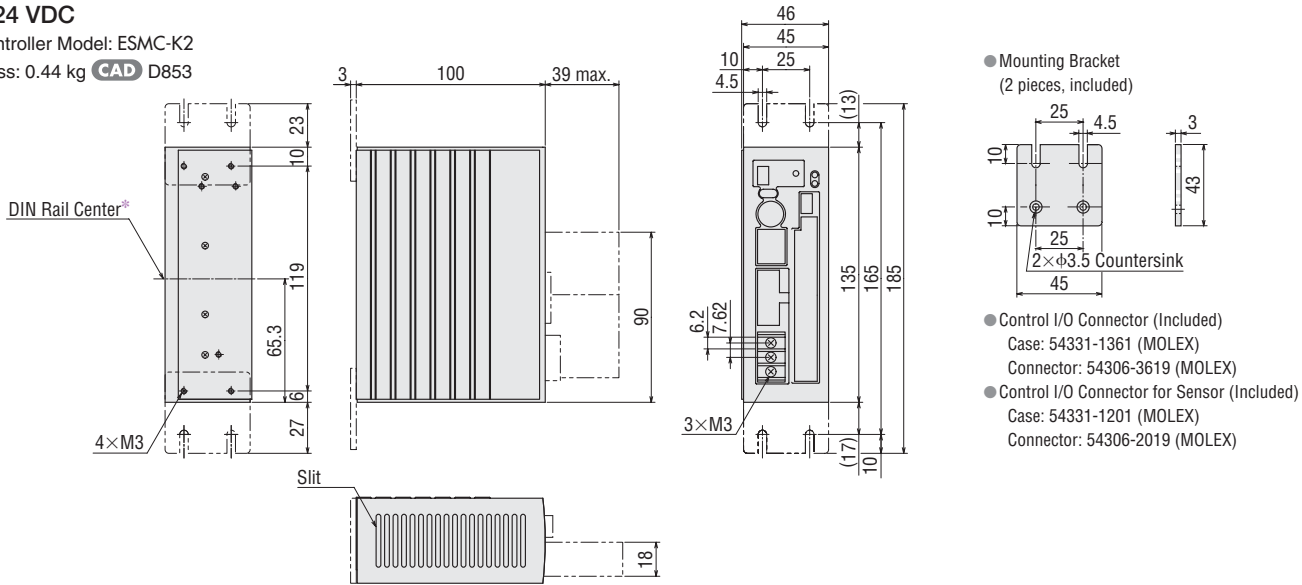
- Do not measure insulation resistance or perform the dielectric strength test while the linear slide and controller are connected.

## Controller Dimensions (Unit = mm)

### ● 24 VDC

Controller Model: ESMC-K2

Mass: 0.44 kg **CAD** D853

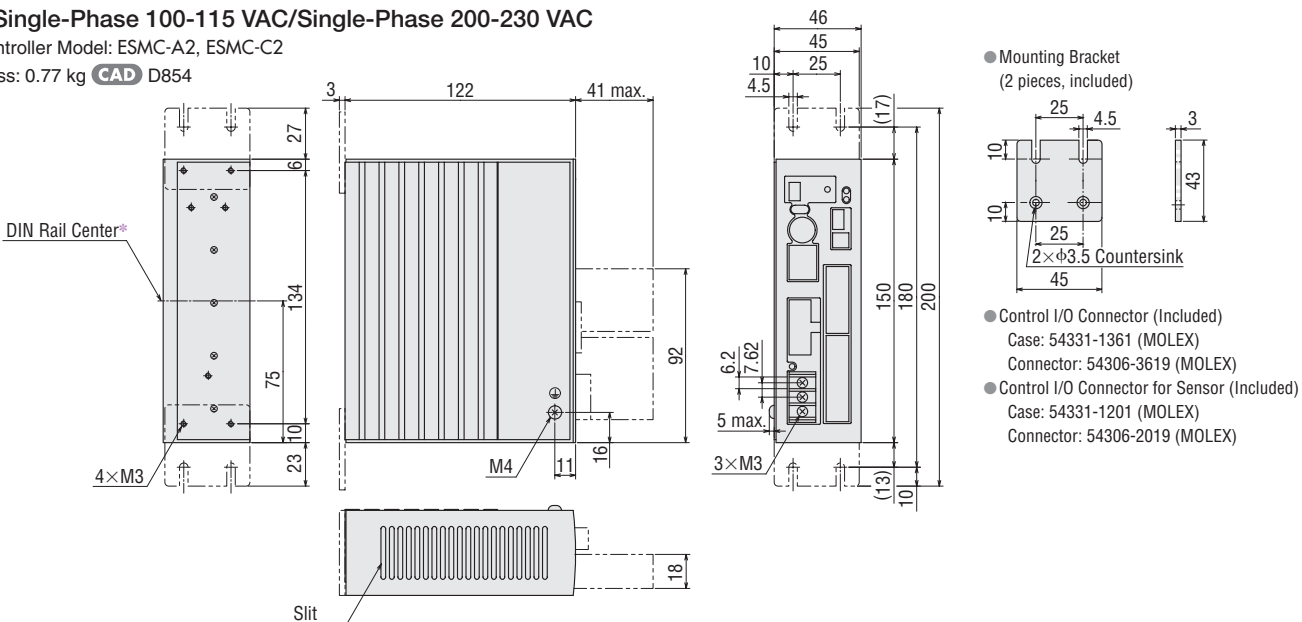


\*The center of the DIN rail when a DIN rail mounting plate (**PADP01**, sold separately) is used for installation.

### ● Single-Phase 100-115 VAC/Single-Phase 200-230 VAC

Controller Model: ESMC-A2, ESMC-C2

Mass: 0.77 kg **CAD** D854

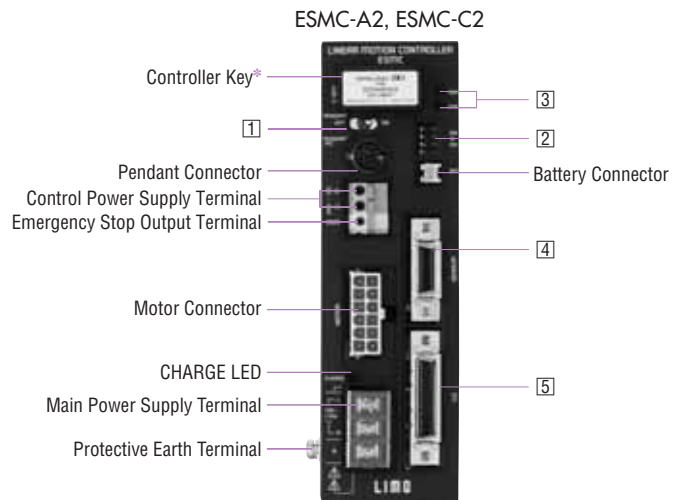
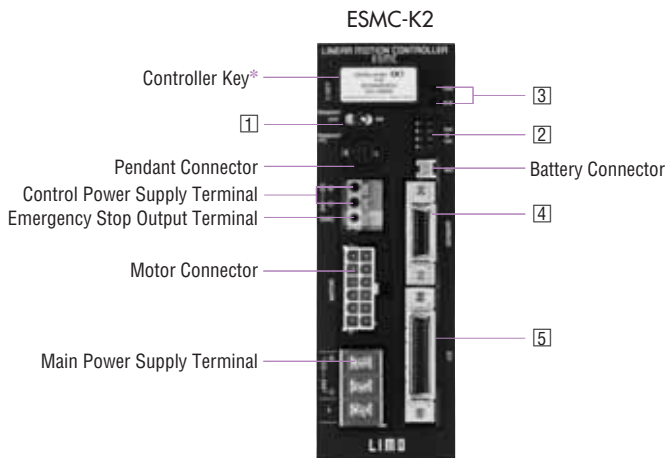


\*The center of the DIN rail when a DIN rail mounting plate (**PADP01**, sold separately) is used for installation.

# Connection and Operation

## ■ Connection and Operation

### ● Names and Functions of Controller Parts



#### 1 Teaching Pendant Switch

Indication	Function
PENDANT	Enable/disable the teaching pendant ON: Enable the teaching pendant OFF: Disable the teaching pendant (The emergency stop button on the teaching pendant is also disabled.)

#### 2 Mode Switch

Indication	Function
4	Not used
3	Switch ABS/INC ON: Absolute mode OFF: Incremental mode
2	Set pulse input mode (in driver mode) ON: 1-pulse input mode OFF: 2-pulse input mode
1	Switch modes ON: Driver mode OFF: Controller mode

● All switches are set to OFF at the time of shipment.

#### 3 LED Indicator

Indication	Color	Name
PWR	Green	Control power supply indicator
ALM	Red	Alarm indicator

#### 4 Sensor I/O Connector

Indication	Input	Pin No.	Signal Name	Function
SENSOR	Input	1	IN-COM2	Power supply for sensor
		11		
		19		
		13	+LS	+coordinate limit sensor
		14	-LS	-coordinate limit sensor
		15	HOMELS	Mechanical home sensor

\* Make sure the linear slide model name on the controller key matches the model name of the connected linear slide. If the names do not match, the linear slide cannot be operated as specified.

## 5 I/O Connector

### ● Controller Mode

Indication	I/O	Pin No.	Signal Name	Function	
I/O	Input	18	IN-COM <sup>*1*2</sup>	Power supply for input signals	
		19	GND	Power supply for I/O signals	
		1	OUT-COM <sup>*3</sup>	Power supply for output signals	
	Output	2	ALM	This signal is output when a protective function has been activated.	
		3	MOVE	This signal is output while the linear slide is operating.	
		4	END/ OUTR	END: This signal is output when a positioning operation or return to home operation has been completed. OUTR: Output the current position	
		5	AREA/ OUT0	AREA: This output notifies that the table of the linear slide is staying inside a specified area. OUT0: Output the current position	
		6	T-UP/ OUT1	T-UP: This signal is output when a push-motion operation has been completed. OUT1: Output the current position	
		20	ASG1	A-phase pulse output (Open-collector)	
		21	BSG1	B-phase pulse output (Open-collector)	
		22	ASG2	A-phase pulse output (Line driver)	
		23	ASG2	A-phase pulse output (Line driver)	
		24	BSG2	B-phase pulse output (Line driver)	
		25	BSG2	B-phase pulse output (Line driver)	
		Input	7	START	Start the positioning operation
			8	ACL/CK	ACL: Cancel the protective function currently active CK: Output the current position
			9	FREE	Stop motor excitation and release the electromagnetic brake
			10	STOP	Stop a positioning operation, return to home operation and continuous operation
	11		M0	Select the positioning operation No.	
	12		M1		
	13		M2		
	14		M3		
	15		M4		
	16		M5		
	17		HOME/ PRESET	HOME: Start return to home operation PRESET: Preset the current position	
	30		REQ	Request the current position output	
	31		FWD+	FWD: Move the linear slide table in the + coordinate direction	
	32		FWD-		
	33		P24-FWD		
	34		RVS+	RVS: Move the linear slide table in the - coordinate direction	
	35		RVS-		
	36		P24-RVS		

### ● Driver Mode

Indication	I/O	Pin No.	Signal Name	Function	
I/O	Input	18	IN-COM <sup>*1*2</sup>	Power supply for input signals	
		19	GND	Power supply for I/O signals	
		1	OUT-COM <sup>*3</sup>	Power supply for output signals	
	Output	2	ALM	This signal is output when a protective function has been activated.	
		3	MOVE	This signal is output while the linear slide is operating.	
		4	END/ OUTR	END: This signal is output when a positioning operation or return to home operation has been completed. OUTR: Output the current position	
		5	TIM/ OUT0	TIM: This signal is output when the excitation sequence is at step "0." OUT0: Output the current position	
		6	OUT1	Output the current position	
		20	ASG1	A-phase pulse output (Open-collector)	
		21	BSG1	B-phase pulse output (Open-collector)	
		22	ASG2	A-phase pulse output (Line driver)	
		23	ASG2	A-phase pulse output (Line driver)	
		24	BSG2	B-phase pulse output (Line driver)	
		25	BSG2	B-phase pulse output (Line driver)	
		Input	8	ACL/CK	ACL: Cancel the protective function currently active CK: Output the current position
			9	FREE	Stop motor excitation and release the electromagnetic brake
			10	C.OFF	Stop motor excitation and hold the electromagnetic brake
			11	HMSTOP	Stop return to home operation
	17		HOME/ PRESET <sup>*4</sup>	HOME: Start return to home operation PRESET: Preset the current position	
	30		REQ	Request the current position output	
	31		FP+	FP: Operation command pulse input in the + coordinate direction (The operation command pulse input in the 1-pulse input mode)	
	32		FP-		
	33		P24-FP		
	34		RP+	RP: Operation command pulse input in the - coordinate direction (The direction of movement input in the 1-pulse input mode)	
	35		RP-		
	36		P24-RP		

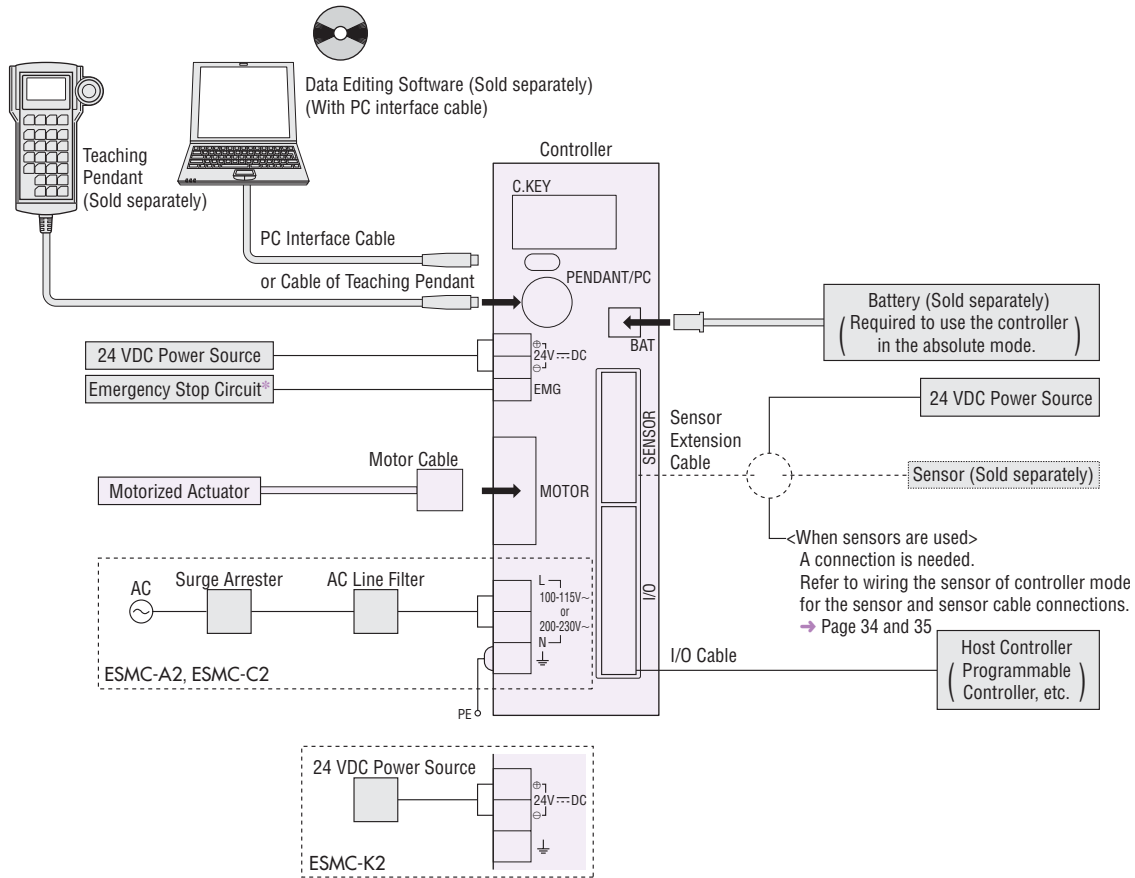
\*1 Connect this signal to 24 VDC if your controller is used in the NPN mode, or connect it to ground if the controller is used in the PNP mode.

\*2 Connect this signal even when only output signals are used.

\*3 Connect this signal to ground if your controller is used in the NPN mode, or connect it to 24 VDC if the controller is used in the PNP mode.

\*4 Teaching pendant (**EZT1**) or data editing software (**EZED2**) is required when switching the HOME/PRESET input or changing parameters in the driver mode.

## ● Connection Diagram



\* For the circuit configuration, refer to "Emergency stop circuit" below.

## ● Emergency Stop Circuit

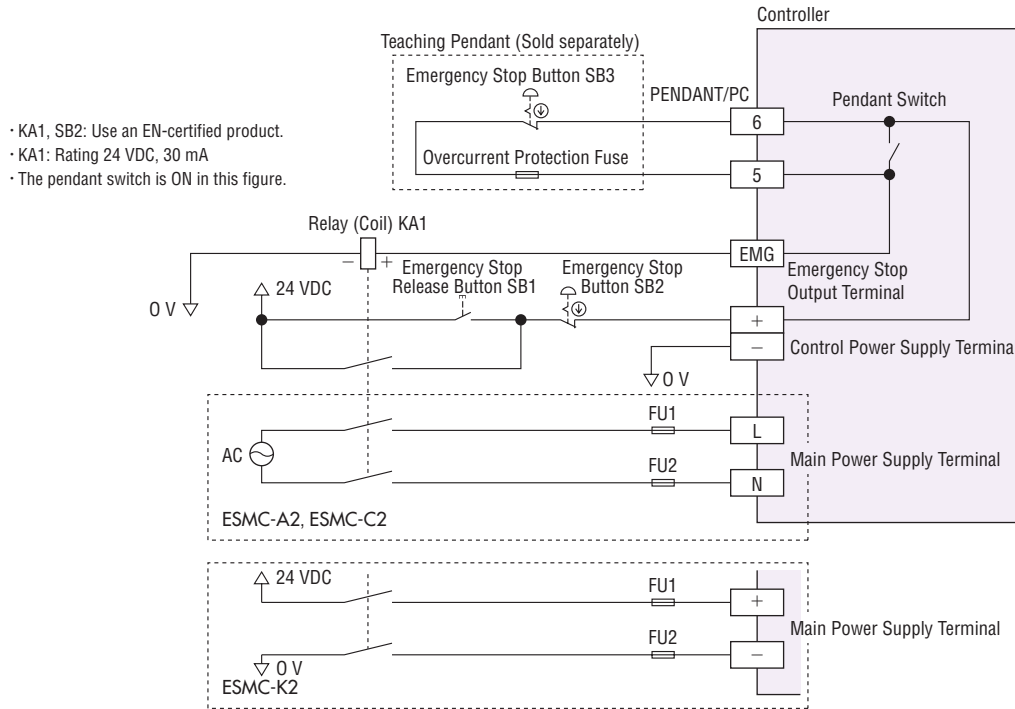
If an emergency stop function is used, provide a circuit that will cut off the main power supply and control power supply upon pressing of the emergency stop button.

- When providing an emergency stop circuit, examine an appropriate circuit configuration based on the result of risk assessment of the equipment you are manufacturing.
- If the risk assessment result indicates that no emergency stop function is necessary, the circuit configuration shown in "Connection example when an emergency stop function is not used" can be used.
- Do not connect the emergency stop output terminal directly to GND (0 V). Doing so will blow the overcurrent protection fuse in the teaching pendant, in which case the emergency stop can no longer be canceled.
- Provide a measure on the machine side so that the machine will operate safely when the motorized actuator is stopped.

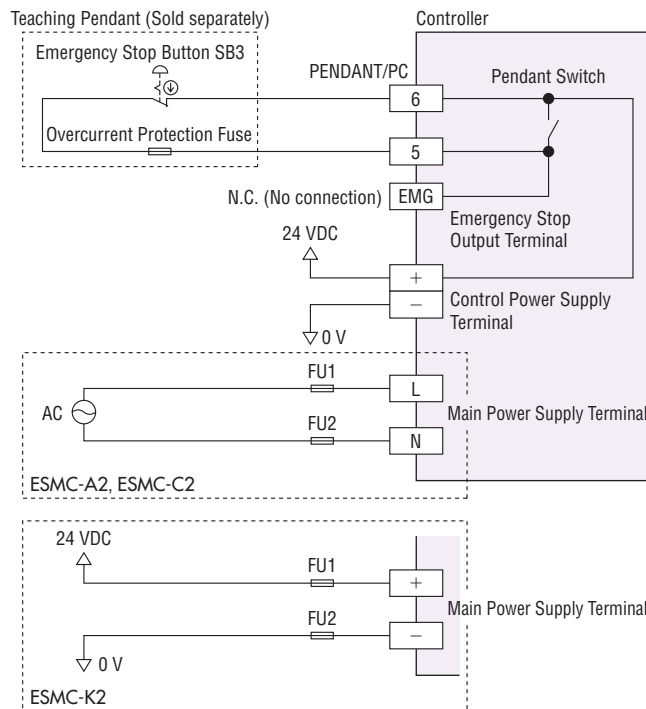


### ◇ Connection Example When an Emergency Stop Function is Used

A connection example of controller power system and emergency stop system is given below, which conforms to Category 1 under the EN 954-1 safety standard and Stop Category 0 under the EN 60204-1 safety standard.



### ◇ Connection Example When an Emergency Stop Function is Not Used



#### Note:

- When the emergency stop button (SB3) on the teaching pendant is pressed, an emergency stop alarm (Err68) will generate and the motorized actuator will stop operating. This stopping method is based on software control. It does not meet the emergency stop requirements specified in safety standards.

### ◇ Power Source

- Two types of power source, main power and control power are required. Both power sources must at least have the specified capacity.  
**Specifications of controller** → Page 28
- If the power capacity is insufficient, motor output may drop, which may cause the linear slide to malfunction (due to lack of thrust force).

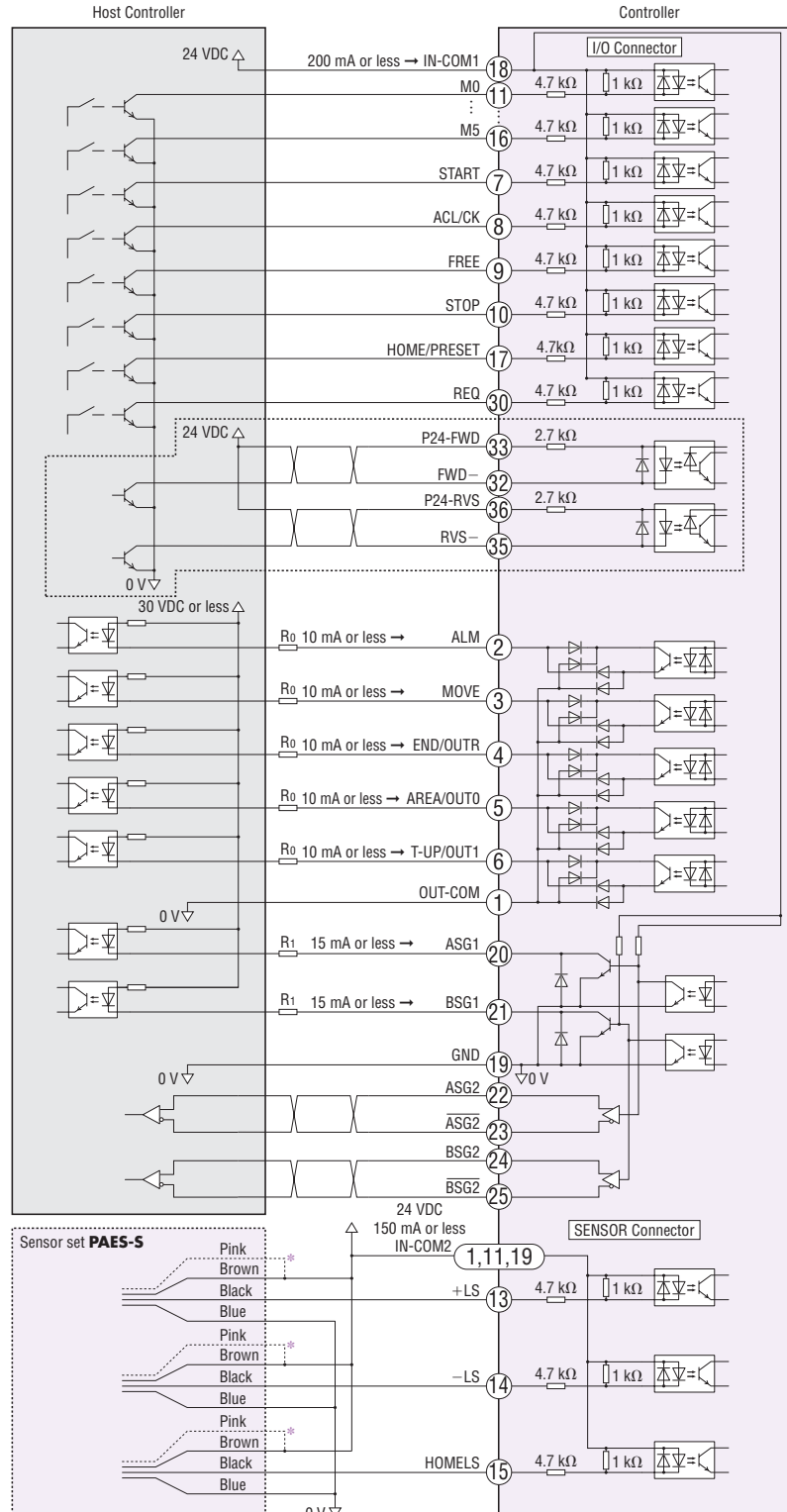
### ◇ Notes on Wiring

- Wire the control I/O signal lines over as short a distance as possible, using a shield cable [AWG28 (0.08 mm<sup>2</sup>) or thicker].
- Be sure to use an accessory motor cable to wire the linear slide and controller.
- Wire the control I/O signal lines by providing a minimum distance of 30 cm from the power lines (large-current circuits such as the power supply line and motor line). Do not wire the control I/O signal lines with the power lines in the same duct or bundle them together.

● Connection to Host Controller

◇ Controller Mode

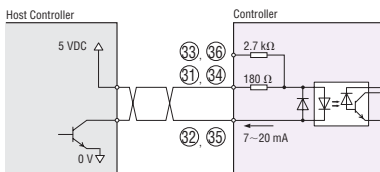
• Sink Logic (NPN) Specification



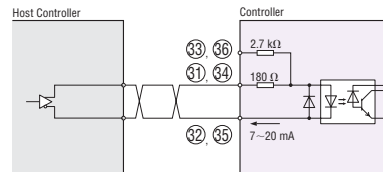
\*Connect this line if the normally closed (NC) logic is used.

◇ FWD (FP) and RVS (RP) Signals

When connecting to sink logic (NPN) specification of 5 VDC

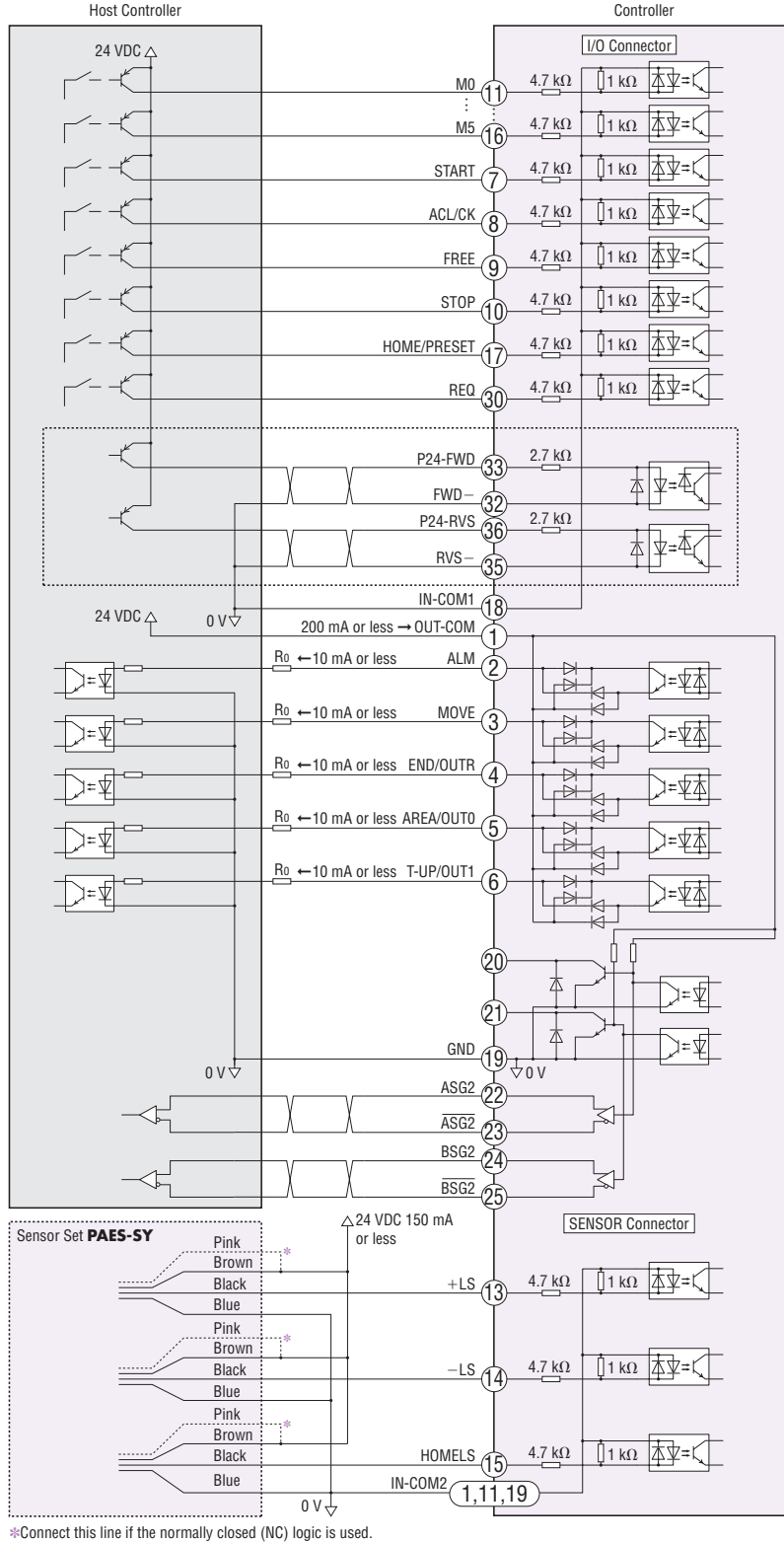


When connecting to a line driver output circuit



◇ Controller Mode

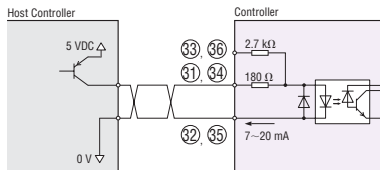
• Source Logic (PNP) Specification



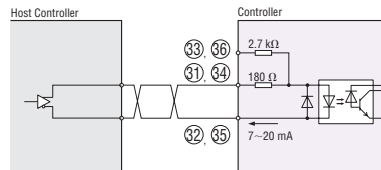
\*Connect this line if the normally closed (NC) logic is used.

◇ FWD (FP) and RVS (RP) Signals

When connecting to source logic (PNP) specification of 5 VDC

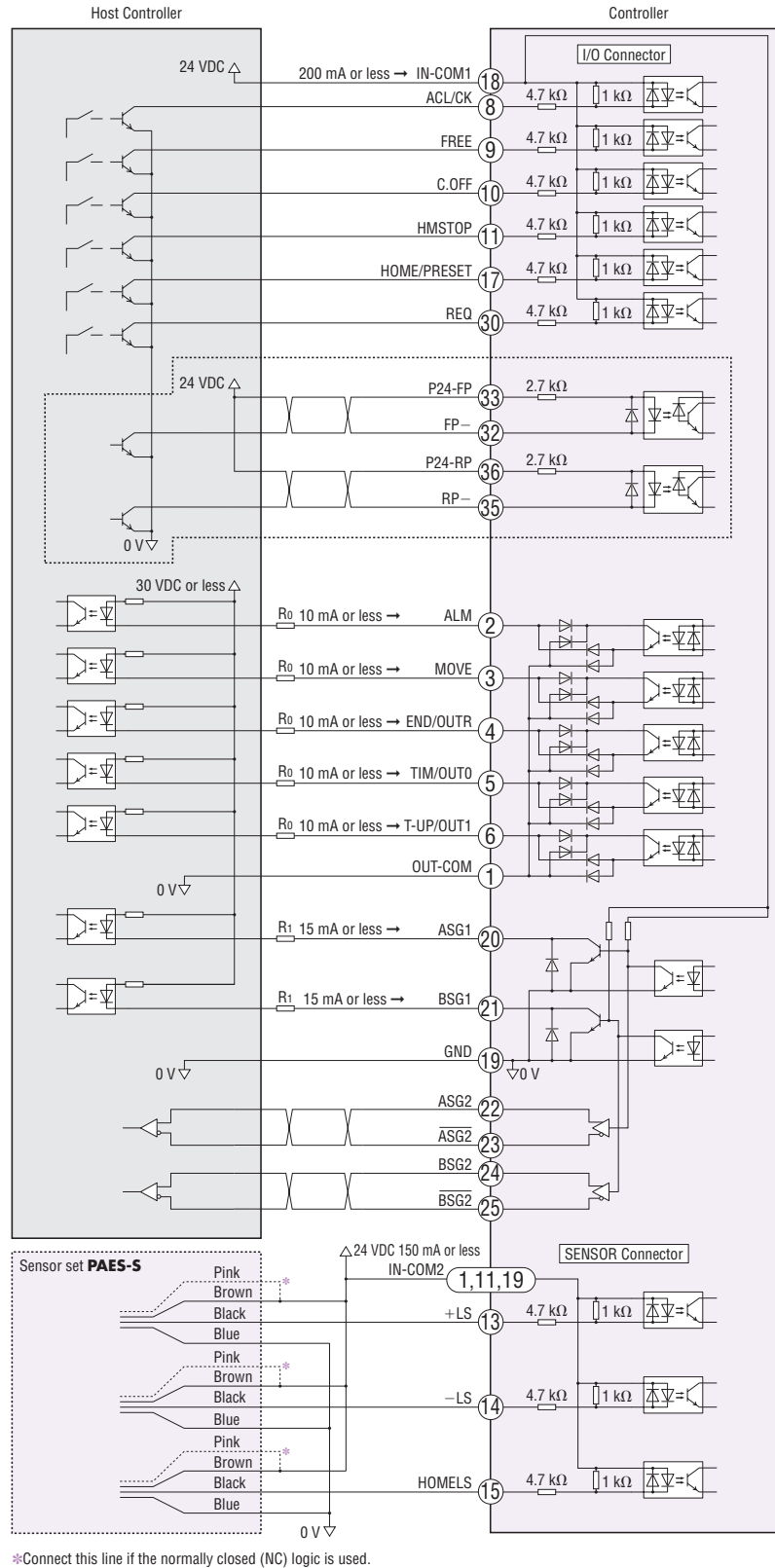


When connecting to a line driver output circuit



## ◇ Driver Mode

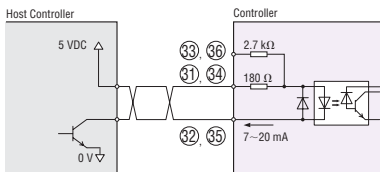
### • Sink Logic (NPN) Specification



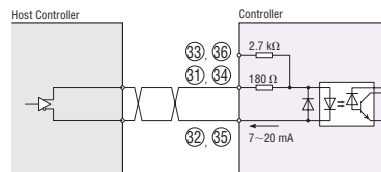
\*Connect this line if the normally closed (NC) logic is used.

## ◇ FWD (FP) and RVS (RP) Signals

When connecting to sink logic (NPN) specification of 5 VDC

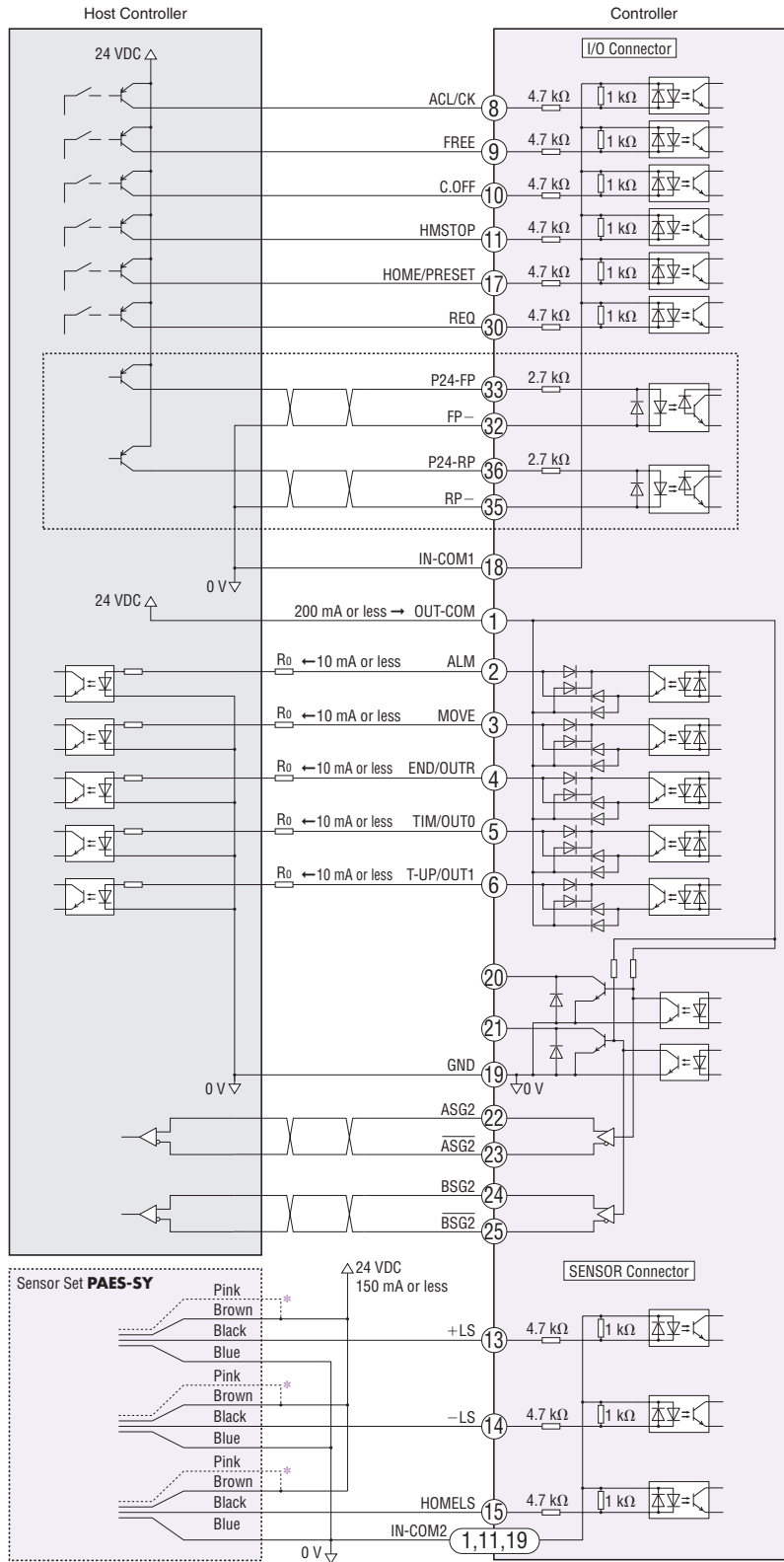


When connecting to a line driver output circuit



## ◇ Driver Mode

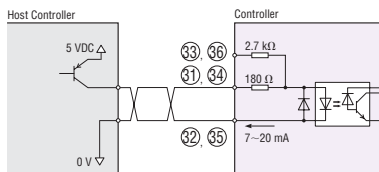
### · Source Logic (PNP) Specification



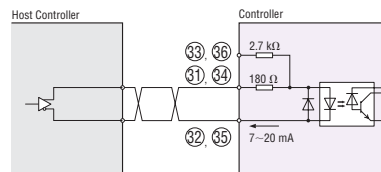
\*Connect this line if the normally closed (NC) logic is used.

## ◇ FWD (FP) and RVS (RP) Signals

When connecting to source logic (PNP) specification of 5 VDC



When connecting to a line driver output circuit



# Accessories (Sold separately)

## Motor Cables (RoHS)

These dedicated cables are used to connect the linear slide of the **EZSII** Series, with the controller.  
Use flexible cables in applications where the cables will flex repeatedly.  
(Available for both the electromagnetic brake type and non-electromagnetic brake type.)



### Product Line

Standard Cables (Without electromagnetic brake/with electromagnetic brake)

Length (L)	Model
1 m	<b>CC010ES-2</b>
2 m	<b>CC020ES-2</b>
3 m	<b>CC030ES-2</b>
5 m	<b>CC050ES-2</b>
7 m	<b>CC070ES-2</b>
10 m	<b>CC100ES-2</b>
15 m*	<b>CC150ES-2</b>
20 m*	<b>CC200ES-2</b>

\* Keep the cable length to 10 m or below for 24 VDC linear slides.

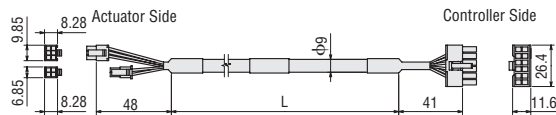
Flexible Cables (Without electromagnetic brake/with electromagnetic brake)

Length (L)	Model
1 m	<b>CC010ESR-2</b>
2 m	<b>CC020ESR-2</b>
3 m	<b>CC030ESR-2</b>
5 m	<b>CC050ESR-2</b>
7 m	<b>CC070ESR-2</b>
10 m	<b>CC100ESR-2</b>
15 m*	<b>CC150ESR-2</b>
20 m*	<b>CC200ESR-2</b>

\* Keep the cable length to 10 m or below for 24 VDC linear slides.

### Dimensions (Unit = mm)

CC□ES-2/CC□ESR-2



## Teaching Pendant

The teaching pendant allows you to set and operate various data by hand, as well as to monitor the set data, current position and I/O status in real time.

### Product Line

Model	<b>EZT1</b>

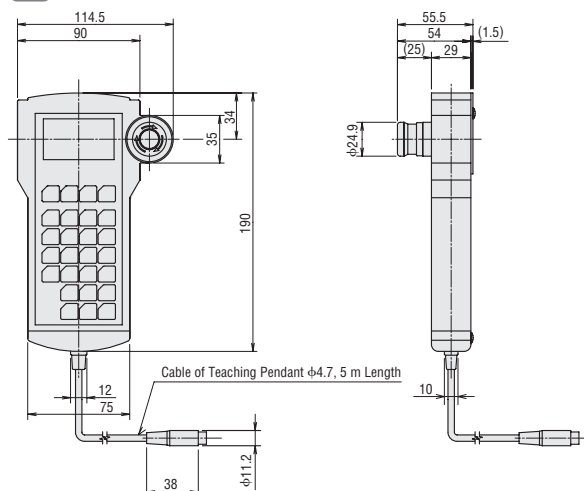


### Specifications

Display	LCD with 2-colored back light
Cable Length	5 m
Mass	0.37 kg
Ambient Temperature	0~+40°C (non-freezing)

### Dimensions (Unit = mm)

CAD D416



### Teaching Pendant (EZT1)/Data Editing Software (EZED2) Function Comparison Table

Function	Item	
	Teaching Pendant (Model: <b>EZT1</b> )	Data Editing Software (Model: <b>EZED2</b> )
Cable Length	5 m	5 m <sup>*1</sup>
Display	LCD 17 characters × 4 lines	PC screen
Emergency Stop Button	○	×
Operation Data Setting	○	○
Parameter Setting	○	○
Teaching Function (Direct/Remote)	○	○
Operation Data Monitoring	○	○
I/O Monitoring	○	○
Waveform Monitoring	×	○
Test Operation	○	○
Data Copy	×	○
Printing Function	×	○ <sup>*2</sup>

○ : Available    × : Not available

\*1 PC interface cable (included) is used.

\*2 The printing function is not available on computers running Windows® 98/Me.

## Data Editing Software (RoHS)

With this software you can set and edit various data on a PC. It comes with a PC interface cable for connecting the controller and PC. The software also provides various monitoring functions.

### Product Line

Model	EZED2
-------	-------

- Ver 1.30 or later



### PC Interface Cable

Cable Length	5 m
PC Connector Type	D-sub 9-pin
Communication Port	One RS-232C communication port

### Specifications (Operating environment)

Item	Model: EZED2
Operating Software	Microsoft® Windows® 2000 Professional Service Pack 4 or later (hereinafter referred to as "Windows® 2000") Microsoft® Windows® XP Home Edition Service Pack 2 or later (hereinafter referred to as "Windows® XP") Microsoft® Windows® XP Professional Edition Service Pack 2 or later (hereinafter referred to as "Windows® XP") Microsoft® Windows® XP Media Center Edition 2004 Service Pack 2 or later (hereinafter referred to as "Windows® XP") Microsoft® Windows® XP Media Center Edition 2005 Service Pack 2 or later (hereinafter referred to as "Windows® XP") Microsoft® Windows® 98 Service Pack 1 or later* (hereinafter referred to as "Windows® 98") Microsoft® Windows® 98 Second Edition* (hereinafter referred to as "Windows® 98") Microsoft® Windows® Millennium Edition* (hereinafter referred to as "Windows® Me")
Memory	Windows® 2000: 128 MB or more (192 MB or more is recommended.) Windows® XP Home Edition or Professional Edition: 256 MB or more Windows® XP Media Center Edition 2004 or 2005: 320 MB or more Windows® 98: 64 MB or more (128 MB or more is recommended.) Windows® 98 Second Edition: 64 MB or more (128 MB or more is recommended.) Windows® Me: 96 MB or more (160 MB or more is recommended.)
Computer	Pentium® III 500 MHz or more (The OS must be supported.)
Display Resolution	XGA (1024×768) or higher resolution video adapter and monitor
Free Hard Disk Space	Free disk space of 60 MB or more
Serial Port	RS-232C port, 1 channel
Disk Device	CD-ROM drive

\*Microsoft® Internet Explorer 5.01 or later is also required.

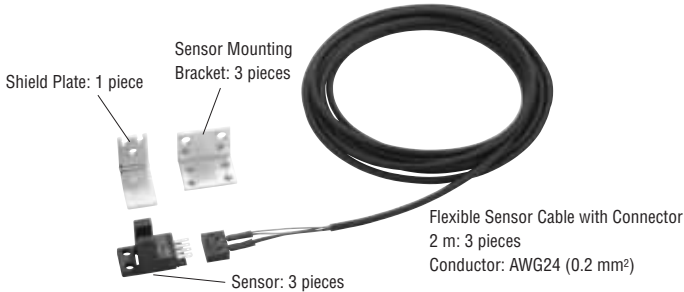
- Service Pack signifies a service pack provided by Microsoft Corporation.
- Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and other countries.
- Pentium is a trademark or registered trademark of Intel Corporation or its subsidiaries in the United States and other countries.

## Sensor Set (RoHS)

The sensor set, dedicated to the **EZSII** Series, consists of three sensors, three sensor mounting brackets and three flexible sensor cables with connector (2 m), and one shield plate. The screws needed for installation are also included.

### Product Line

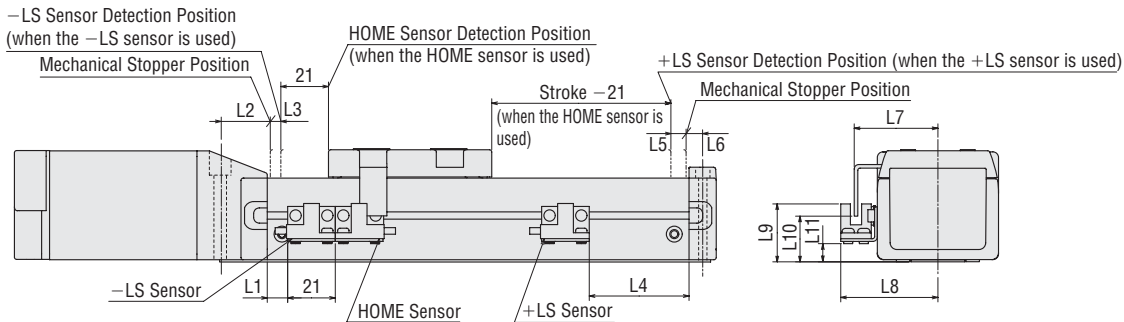
Model	<b>PAES-S</b>
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### Specifications

Item	Model: EE-SX674A (OMRON)
Power Supply	5 to 24 VDC $\pm$ 10%, ripple (p-p) 10% or less
Current Consumption	35 mA or less
Control Output	NPN open-collector output, 5 to 24 VDC, 100 mA or less Residual voltage 0.8 V or less (at load current of 100 mA)
Indicator LED	Detection display (red)
Sensor Logic	Normally open/normally closed (selectable, depending on connection)

### Dimensions of Recommended Sensor Installation Positions (Unit = mm)



Linear Slide Size	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11
<b>EZS3</b>	9	18	5	44	6	7.5	37.3	43.3	25.8	20.4	8.1
<b>EZS4</b>	9	18	5	44	6	7.5	47.3	53.3	25.8	20.4	8.1
<b>EZS6</b>	13.5	34	7	87.5	8	13.5	47.3	53.3	42.3	36.9	24.6

#### Note:

- If the stroke is 60 mm or less, all three sensors cannot be installed.

## Sensor Extension Cables (RoHS)

These cables are used for connection between the controller and the sensors.

### Product Line

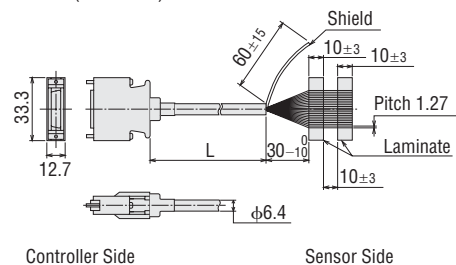
Model	Length (L)
<b>CC20D1-1</b>	1 m
<b>CC20D2-1</b>	2 m



### Dimensions (Unit = mm)

#### CC20D□-1

Conductor: AWG28 (0.08 mm<sup>2</sup>)





## I/O Cables (RoHS)

This cable is used for connection between the linear motion controller and the host controller.

A half-pitch connector allowing one-touch connection to the controller is attached at one end of the flat cable.

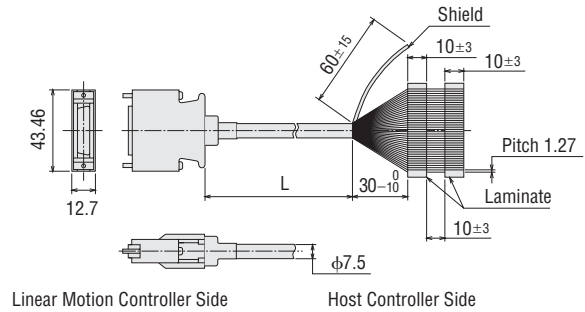
### Product Line

Model	Length (L)
<b>CC36D1-1</b>	1 m
<b>CC36D2-1</b>	2 m



### Dimensions (Unit = mm)

Conductor: AWG28 (0.08 mm<sup>2</sup>)



## Battery Set (RoHS)

This battery set is needed to use the controller in the absolute mode.

A dedicated battery holder is included.

### Product Line

Model	<b>PAEZ-BT2H</b>
-------	------------------



### Specifications

Item	Model: <b>PAEZ-BT2H</b>
Battery Type	Cylindrical sealed nickel-cadmium storage cell
Nominal Voltage	2.4 V
Rated Capacity	2000 mAh
Mass	180 g
Life	Approx. 4 years <sup>*1</sup> *2 *3
Data Retention Period	Approx. 360 hours (Approx. 15 days) <sup>*1</sup> *4
Ambient Temperature	0~+40°C (non-freezing)
Ambient Humidity	20~85%

\*1 At an ambient temperature of 20°C

\*2 Calculated by assuming the following conditions of use (one-week cycle)

The battery is charged for eight hours and used for 16 hours to back up data six days in a week.

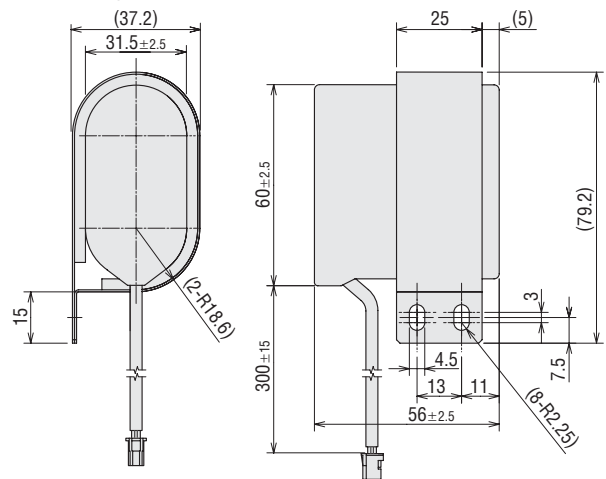
The battery is used to back up data for all 24 hours one day in a week.

\*3 The battery that came with the product is not charged. Charge the battery for at least 48 hours before using it.

\*4 After the power is cut off with the battery fully charged.

### Dimensions (Unit = mm)

Mass: 0.18 kg **CAD** D488



**EZ limo** absolute mode uses Ni-Cd rechargeable batteries. Disposal of the used batteries is subject to each country's regulations on environmental control. Please contact Oriental Motor if you have any questions regarding disposal of the batteries.

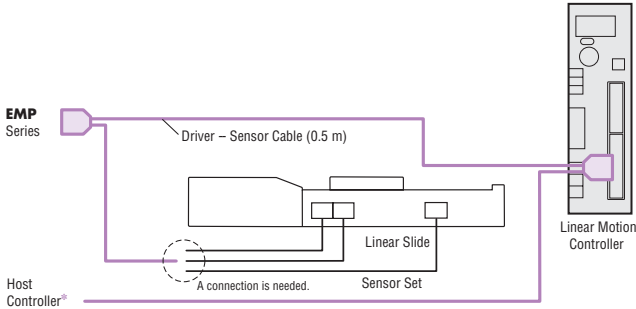
## Driver – Sensor Cable

This cable is used for connecting the linear motion controller and **EMP** Series controller.

### Product Line

Model	Length	Applicable <b>EMP</b> Series
<b>CC005EZ6-EMPD</b>	0.5 m	<b>EMP400</b> Series

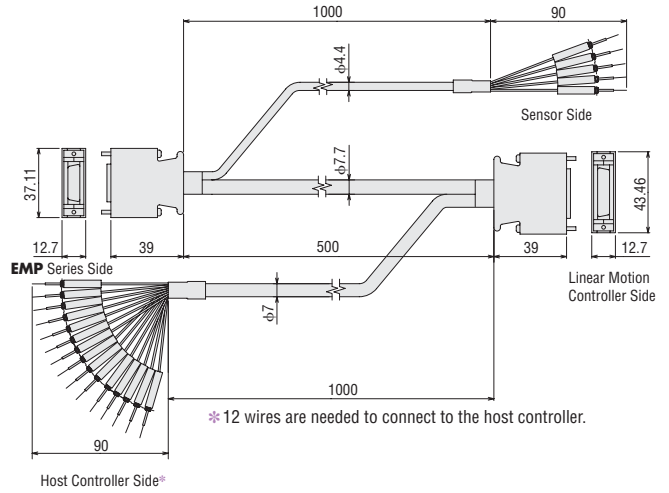
- The current position output function of the linear motion controller is not available. To use the current position output function, use the I/O cable **CC36D□-1** and implement control from the host controller.



\* The following signals are connected to the host controller:

A-phase/B-phase pulse, alarm clear, motor non-excitation/electromagnetic brake release, preset, all windings off

### Dimensions (Unit = mm)



## DIN Rail Mounting Plate (RoHS)

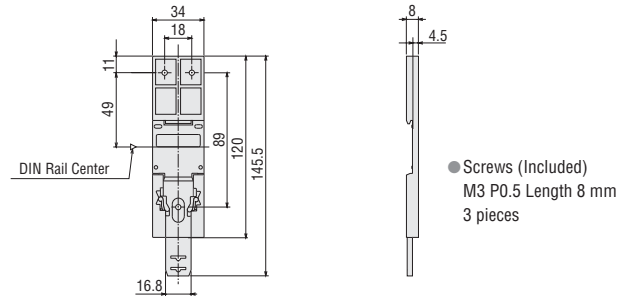
This mounting plate is convenient for installing the controller of the **EZ limo** on DIN rails easily. (Mounting screws are included.)

### Product Line

Model	<b>PADP01</b>
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### Dimensions (Unit = mm)



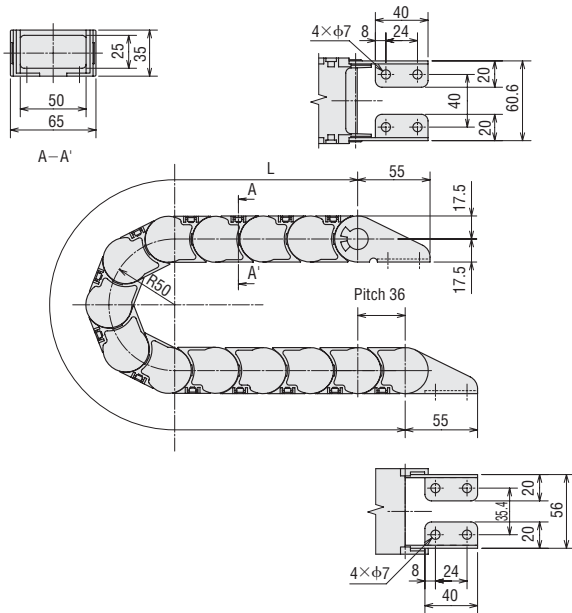
## Cable Holders (RoHS)

- This cable holder protects and guides cables in dual or three axes combinations.
- It can be combined with the mounting bracket of the **EZSII** Series.

Applicable Product		Applicable Cable Holder	
Applicable Product	Stroke [mm]	Length (L) [mm]	Model
<b>EZSII</b> Series	50~70	396	<b>PACH65-11</b>
	80~120	468	<b>PACH65-13</b>
	130~170	504	<b>PACH65-14</b>
	180~220	540	<b>PACH65-15</b>
	230~270	612	<b>PACH65-17</b>
	280~320	648	<b>PACH65-18</b>
	330~370	720	<b>PACH65-20</b>
	380~420	756	<b>PACH65-21</b>
	430~470	792	<b>PACH65-22</b>
	480~520	864	<b>PACH65-24</b>
	530~570	900	<b>PACH65-25</b>
	580~620	972	<b>PACH65-27</b>
	630~670	1008	<b>PACH65-28</b>
	680~720	1044	<b>PACH65-29</b>
	730~770	1116	<b>PACH65-31</b>
780~820	1152	<b>PACH65-32</b>	
830~850	1224	<b>PACH65-34</b>	



### Dimensions (Unit = mm)



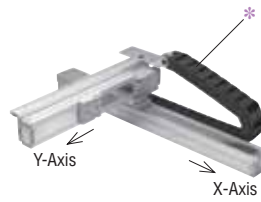
Model	L [mm]
<b>PACH65-11</b>	396
<b>PACH65-13</b>	468
<b>PACH65-14</b>	504
<b>PACH65-15</b>	540
<b>PACH65-17</b>	612
<b>PACH65-18</b>	648
<b>PACH65-20</b>	720
<b>PACH65-21</b>	756
<b>PACH65-22</b>	792
<b>PACH65-24</b>	864
<b>PACH65-25</b>	900
<b>PACH65-27</b>	972
<b>PACH65-28</b>	1008
<b>PACH65-29</b>	1044
<b>PACH65-31</b>	1116
<b>PACH65-32</b>	1152
<b>PACH65-34</b>	1224

## Dual Axes Mounting Brackets (RoHS)

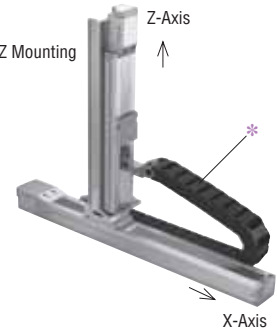
Mounting bracket for using two axes of **EZSII** Series motorized linear slides.



● X-Y Mounting



● X-Z Mounting



\* Shown with optional cable holder. (→Page 43)

### ● Features

#### ◇ Dual Axes Combination Can be Easily Implemented in **EZSII** Series.

Using the dedicated mounting bracket allows you to use two motorized linear slides in dual axes combination. Various combinations are available such as X-Y or X-Z.

#### Available Combinations

##### X-Y Mounting

X-Axis	Y-Axis	Transportable Mass (kg)
<b>EZS4D</b>	<b>EZS3D</b>	2.3 or less
<b>EZS6D</b>	<b>EZS3D</b>	5.7 or less
<b>EZS6D</b>	<b>EZS4D</b>	12.7 or less

##### X-Z Mounting

X-Axis	Z-Axis	Transportable Mass (kg)
<b>EZS4D</b>	<b>EZS3D</b>	3.5 or less
<b>EZS6D</b>	<b>EZS3D</b>	3.5 or less
<b>EZS6D</b>	<b>EZS4D</b>	6.7 or less

- The maximum length of a linear slide for the second axis (Y and Z) is 300 mm.
- This is applicable to products with 12 mm in lead. Speed is reduced by half for products with 6 mm in lead.
- Specification values are based on those when the X-axis is mounted horizontally.

### ● Product Number Code

**PAB - S4 S3 R 005**

①                      ②                      ③                      ④                      ⑤

①	Dual Axes Mounting Bracket	
②	First Axis Linear Slide	<b>S4: EZS4D</b> <b>S6: EZS6D</b>
③	Second Axis Linear Slide	<b>S3: EZS3D</b> <b>S4: EZS4D</b>
④	Combination Patterns	<b>R: R-Type</b> <b>L: L-Type</b>
⑤	Stroke in Second Axis	

● First axis refers to X-axis, while second axis refers to Y- or Z-axis.

### ● Product Line

Available in 50 mm increments

Combination of <b>EZS4</b> and <b>EZS3</b>		Combination of <b>EZS6</b> and <b>EZS3</b>		Combination of <b>EZS6</b> and <b>EZS4</b>	
R-Type	L-Type	R-Type	L-Type	R-Type	L-Type
<b>PAB-S4S3R005</b>	<b>PAB-S4S3L005</b>	<b>PAB-S6S3R005</b>	<b>PAB-S6S3L005</b>	<b>PAB-S6S4R005</b>	<b>PAB-S6S4L005</b>
<b>PAB-S4S3R010</b>	<b>PAB-S4S3L010</b>	<b>PAB-S6S3R010</b>	<b>PAB-S6S3L010</b>	<b>PAB-S6S4R010</b>	<b>PAB-S6S4L010</b>
<b>PAB-S4S3R015</b>	<b>PAB-S4S3L015</b>	<b>PAB-S6S3R015</b>	<b>PAB-S6S3L015</b>	<b>PAB-S6S4R015</b>	<b>PAB-S6S4L015</b>
<b>PAB-S4S3R020</b>	<b>PAB-S4S3L020</b>	<b>PAB-S6S3R020</b>	<b>PAB-S6S3L020</b>	<b>PAB-S6S4R020</b>	<b>PAB-S6S4L020</b>
<b>PAB-S4S3R025</b>	<b>PAB-S4S3L025</b>	<b>PAB-S6S3R025</b>	<b>PAB-S6S3L025</b>	<b>PAB-S6S4R025</b>	<b>PAB-S6S4L025</b>
<b>PAB-S4S3R030</b>	<b>PAB-S4S3L030</b>	<b>PAB-S6S3R030</b>	<b>PAB-S6S3L030</b>	<b>PAB-S6S4R030</b>	<b>PAB-S6S4L030</b>

## Combination Patterns

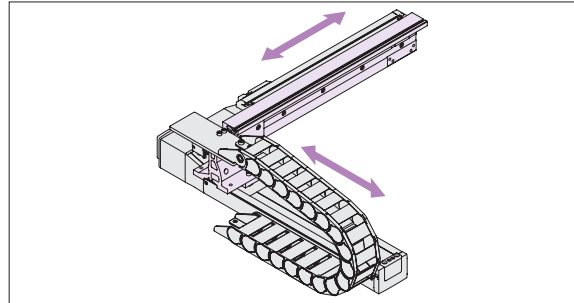
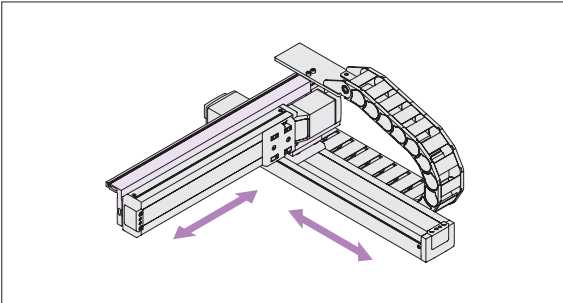
● R-Type

PAB-S4S3R

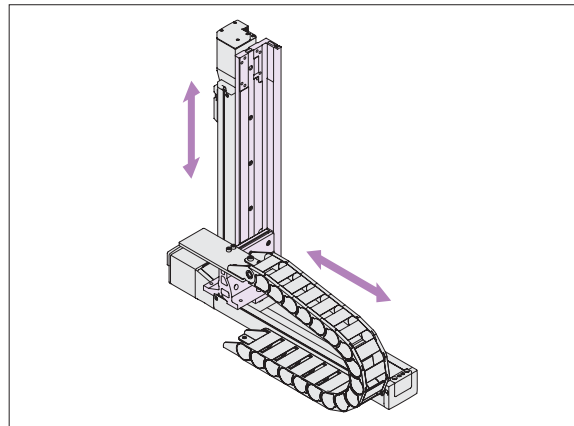
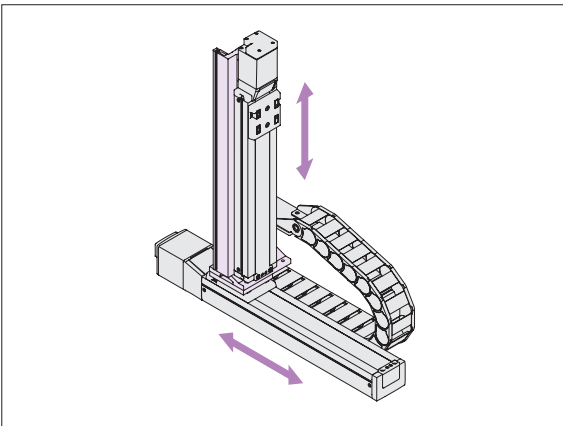
PAB-S6S3R

PAB-S6S4R

◇ X-Y



◇ X-Z



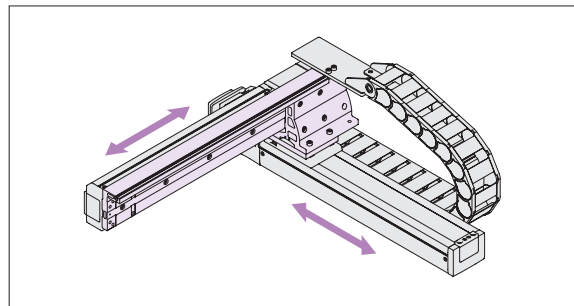
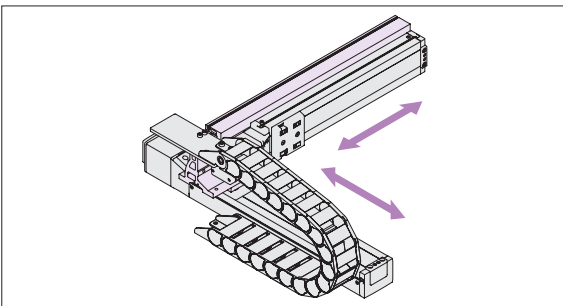
● L-Type

PAB-S4S3L

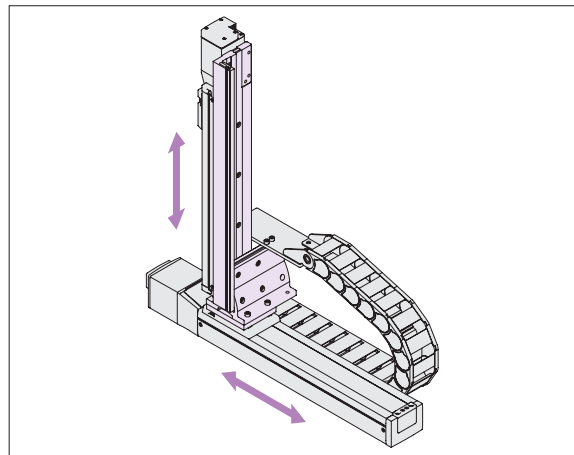
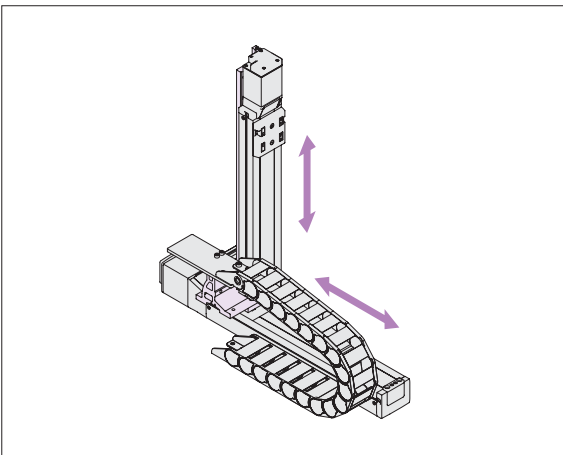
PAB-S6S3L

PAB-S6S4L

◇ X-Y



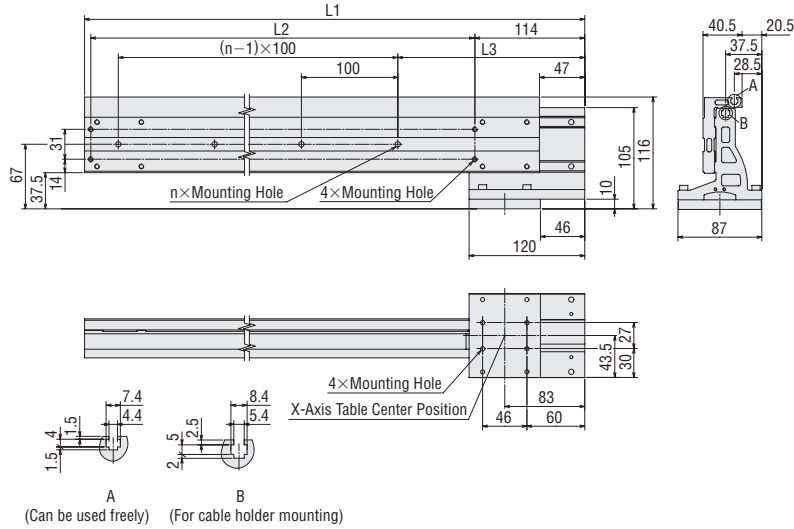
◇ X-Z



● Dimensions (Unit = mm)

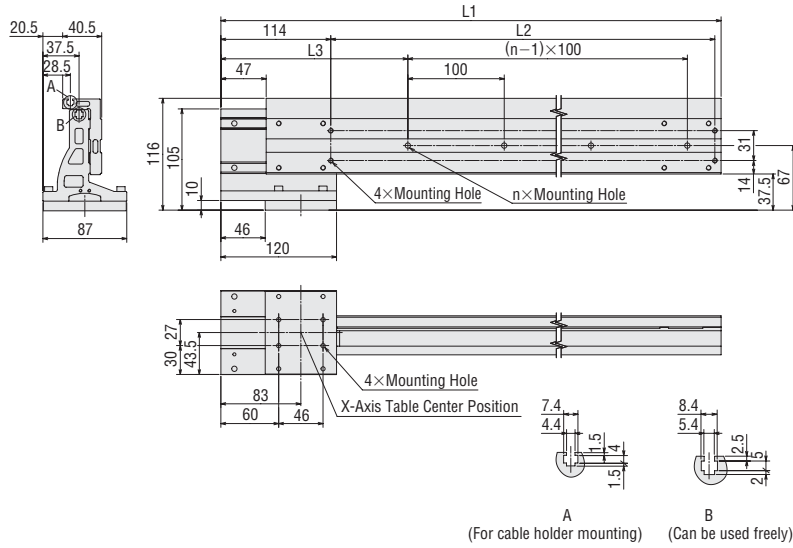
◇ X-Y (Combination of **EZS4** and **EZS3**)

● R-Type



Model	Stroke	L1	L2	L3	n	Mass [kg]	CAD
<b>PAB-S4S3R005</b>	50	279	158.5	144	2	1.58	D979
<b>PAB-S4S3R010</b>	100	329	208.5	194	2	1.72	D980
<b>PAB-S4S3R015</b>	150	379	258.5	144	3	1.86	D981
<b>PAB-S4S3R020</b>	200	429	308.5	194	3	2.00	D982
<b>PAB-S4S3R025</b>	250	479	358.5	144	4	2.14	D983
<b>PAB-S4S3R030</b>	300	529	408.5	194	4	2.27	D984

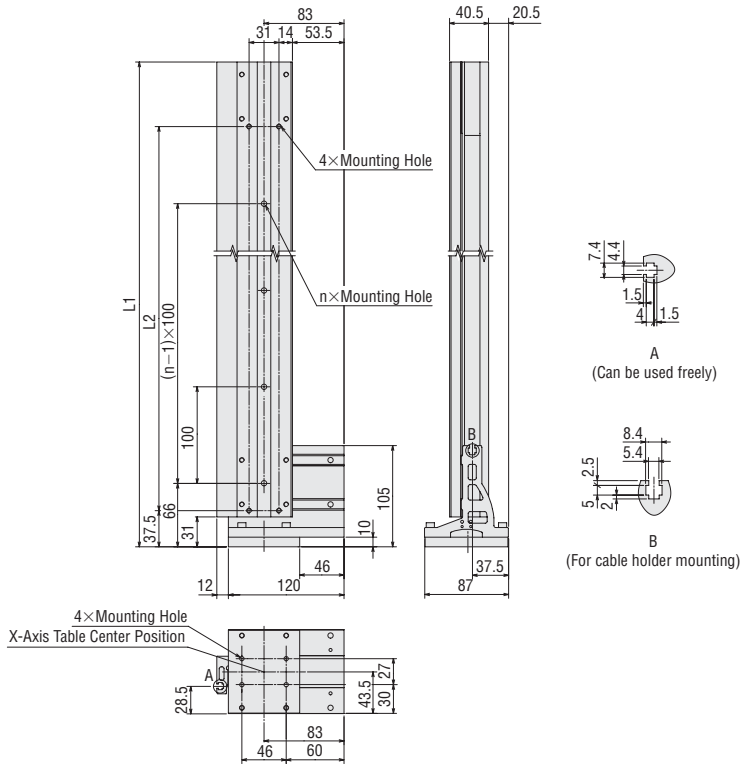
● L-Type



Model	Stroke	L1	L2	L3	n	Mass [kg]	CAD
<b>PAB-S4S3L005</b>	50	279	158.5	144	2	1.58	D985
<b>PAB-S4S3L010</b>	100	329	208.5	194	2	1.72	D986
<b>PAB-S4S3L015</b>	150	379	258.5	144	3	1.86	D987
<b>PAB-S4S3L020</b>	200	429	308.5	194	3	2.00	D988
<b>PAB-S4S3L025</b>	250	479	358.5	144	4	2.14	D989
<b>PAB-S4S3L030</b>	300	529	408.5	194	4	2.27	D990

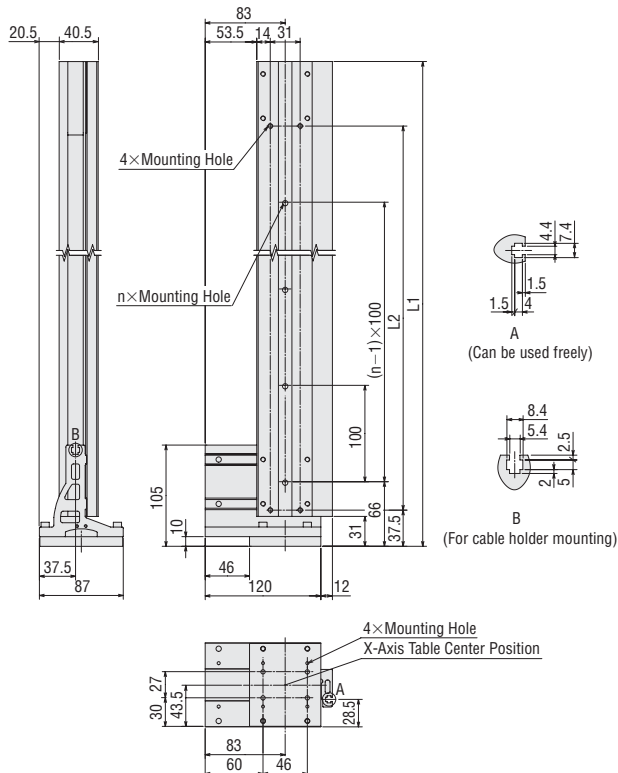
◇ X-Z (Combination of EZS4 and EZS3)

• R-Type



Model	Stroke	L1	L2	n	Mass [kg]	CAD
<b>PAB-S4S3R005</b>	50	263	158.5	2	1.58	D991
<b>PAB-S4S3R010</b>	100	313	208.5	2	1.72	D992
<b>PAB-S4S3R015</b>	150	363	258.5	3	1.86	D993
<b>PAB-S4S3R020</b>	200	413	308.5	3	2.00	D994
<b>PAB-S4S3R025</b>	250	463	358.5	4	2.14	D995
<b>PAB-S4S3R030</b>	300	513	408.5	4	2.27	D996

• L-Type



Model	Stroke	L1	L2	n	Mass [kg]	CAD
<b>PAB-S4S3L005</b>	50	263	158.5	2	1.58	D997
<b>PAB-S4S3L010</b>	100	313	208.5	2	1.72	D998
<b>PAB-S4S3L015</b>	150	363	258.5	3	1.86	D999
<b>PAB-S4S3L020</b>	200	413	308.5	3	2.00	D1000
<b>PAB-S4S3L025</b>	250	463	358.5	4	2.14	D1001
<b>PAB-S4S3L030</b>	300	513	408.5	4	2.27	D1002

Overview

Selection

System Configuration

Product Line

Specifications

Connection and Operations

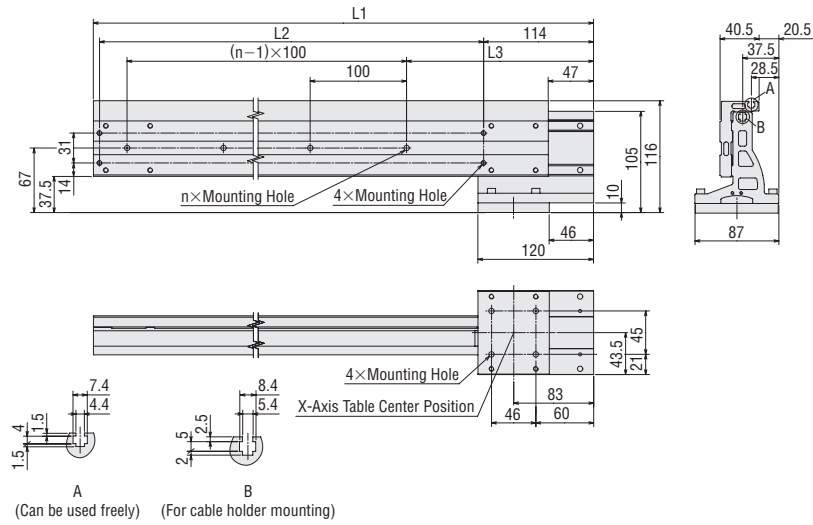
Accessories

Selection Calculations

● Dimensions (Unit = mm)

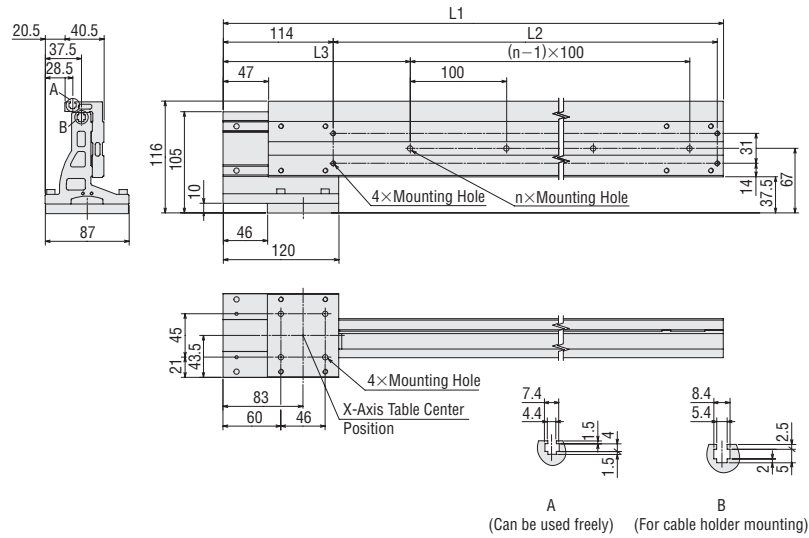
◇ X-Y (Combination of EZS6 and EZS3)

● R-Type



Model	Stroke	L1	L2	L3	n	Mass [kg]	CAD
<b>PAB-S6S3R005</b>	50	279	158.5	144	2	1.58	D1003
<b>PAB-S6S3R010</b>	100	329	208.5	194	2	1.72	D1004
<b>PAB-S6S3R015</b>	150	379	258.5	144	3	1.86	D1005
<b>PAB-S6S3R020</b>	200	429	308.5	194	3	2.00	D1006
<b>PAB-S6S3R025</b>	250	479	358.5	144	4	2.14	D1007
<b>PAB-S6S3R030</b>	300	529	408.5	194	4	2.27	D1008

● L-Type

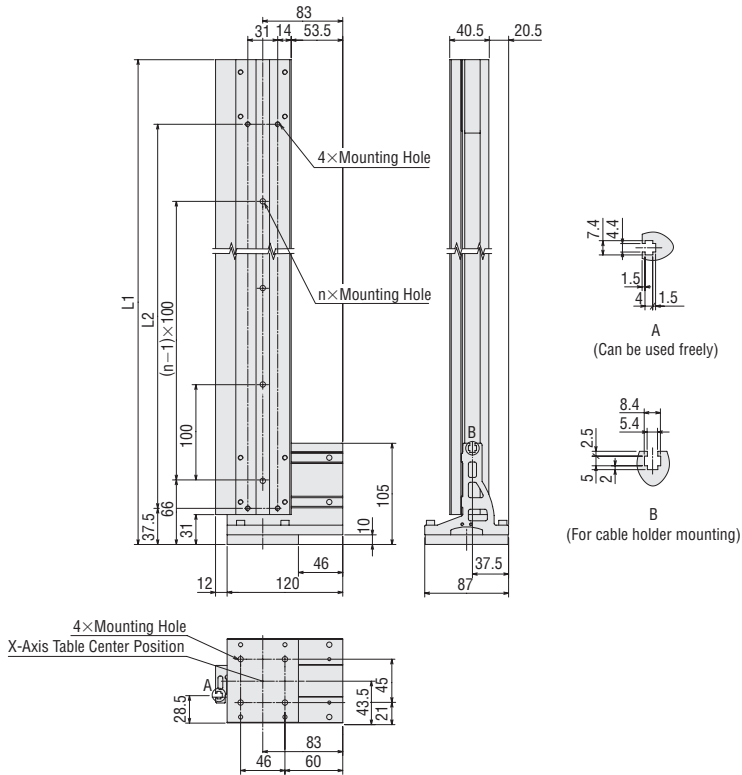


Model	Stroke	L1	L2	L3	n	Mass [kg]	CAD
<b>PAB-S6S3L005</b>	50	279	158.5	144	2	1.58	D1009
<b>PAB-S6S3L010</b>	100	329	208.5	194	2	1.72	D1010
<b>PAB-S6S3L015</b>	150	379	258.5	144	3	1.86	D1011
<b>PAB-S6S3L020</b>	200	429	308.5	194	3	2.00	D1012
<b>PAB-S6S3L025</b>	250	479	358.5	144	4	2.14	D1013
<b>PAB-S6S3L030</b>	300	529	408.5	194	4	2.27	D1014

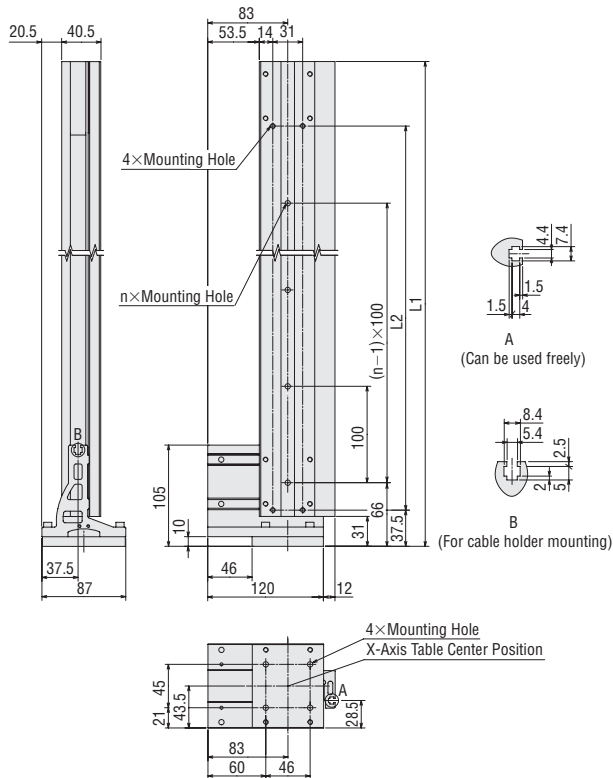


◇ X-Z (Combination of EZS6 and EZS3)

• R-Type



• L-Type



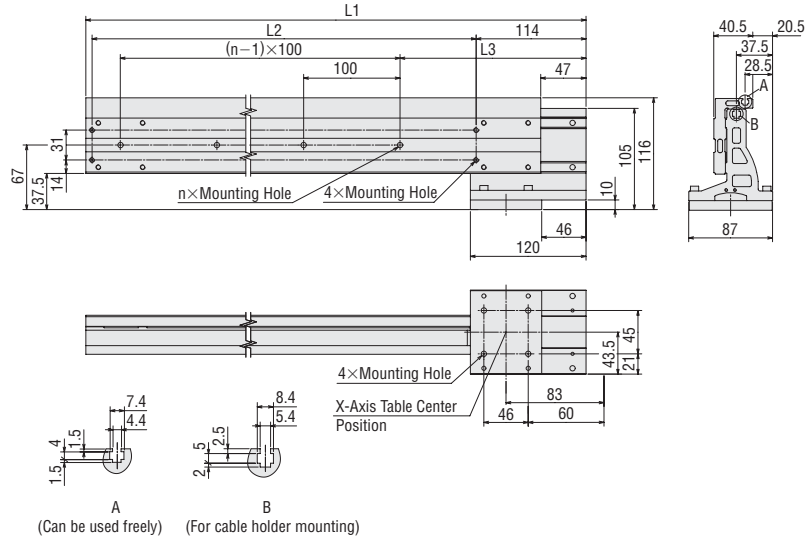
Model	Stroke	L1	L2	n	Mass [kg]	CAD
<b>PAB-S6S3R005</b>	50	263	158.5	2	1.58	D1015
<b>PAB-S6S3R010</b>	100	313	208.5	2	1.72	D1016
<b>PAB-S6S3R015</b>	150	363	258.5	3	1.86	D1017
<b>PAB-S6S3R020</b>	200	413	308.5	3	2.00	D1018
<b>PAB-S6S3R025</b>	250	463	358.5	4	2.14	D1019
<b>PAB-S6S3R030</b>	300	513	408.5	4	2.27	D1020

Model	Stroke	L1	L2	n	Mass [kg]	CAD
<b>PAB-S6S3L005</b>	50	263	158.5	2	1.58	D1021
<b>PAB-S6S3L010</b>	100	313	208.5	2	1.72	D1022
<b>PAB-S6S3L015</b>	150	363	258.5	3	1.86	D1023
<b>PAB-S6S3L020</b>	200	413	308.5	3	2.00	D1024
<b>PAB-S6S3L025</b>	250	463	358.5	4	2.14	D1025
<b>PAB-S6S3L030</b>	300	513	408.5	4	2.27	D1026

● Dimensions (Unit = mm)

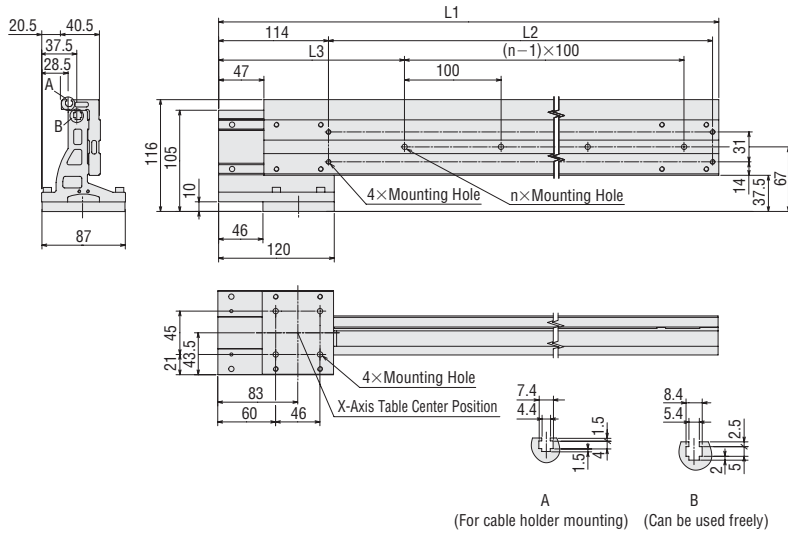
◇ X-Y (Combination of EZS6 and EZS4)

● R-Type



Model	Stroke	L1	L2	L3	n	Mass [kg]	CAD
<b>PAB-S6S4R005</b>	50	279	158.5	143	2	1.58	D1027
<b>PAB-S6S4R010</b>	100	329	208.5	193	2	1.72	D1028
<b>PAB-S6S4R015</b>	150	379	258.5	143	3	1.86	D1029
<b>PAB-S6S4R020</b>	200	429	308.5	193	3	2.00	D1030
<b>PAB-S6S4R025</b>	250	479	358.5	143	4	2.14	D1031
<b>PAB-S6S4R030</b>	300	529	408.5	193	4	2.27	D1032

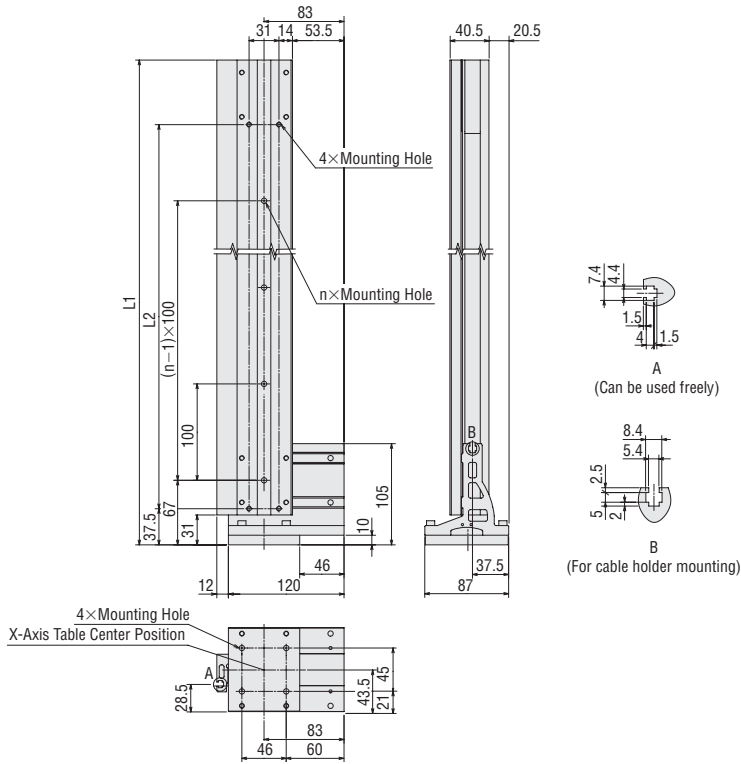
● L-Type



Model	Stroke	L1	L2	L3	n	Mass [kg]	CAD
<b>PAB-S6S4L005</b>	50	279	158.5	143	2	1.58	D1033
<b>PAB-S6S4L010</b>	100	329	208.5	193	2	1.72	D1034
<b>PAB-S6S4L015</b>	150	379	258.5	143	3	1.86	D1035
<b>PAB-S6S4L020</b>	200	429	308.5	193	3	2.00	D1036
<b>PAB-S6S4L025</b>	250	479	358.5	143	4	2.14	D1037
<b>PAB-S6S4L030</b>	300	529	408.5	193	4	2.27	D1038

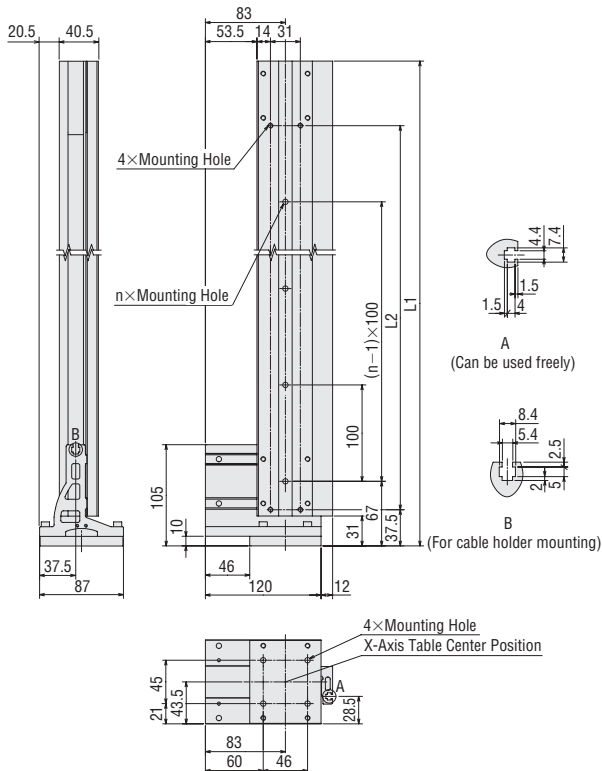
◇ X-Z (Combination of EZS6 and EZS4)

• R-Type



Model	Stroke	L1	L2	n	Mass [kg]	CAD
<b>PAB-S6S4R005</b>	50	263	158.5	2	1.58	D1039
<b>PAB-S6S4R010</b>	100	313	208.5	2	1.72	D1040
<b>PAB-S6S4R015</b>	150	363	258.5	3	1.86	D1041
<b>PAB-S6S4R020</b>	200	413	308.5	3	2.00	D1042
<b>PAB-S6S4R025</b>	250	463	358.5	4	2.14	D1043
<b>PAB-S6S4R030</b>	300	513	408.5	4	2.27	D1044

• L-Type

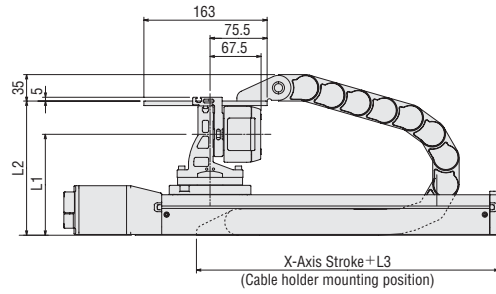
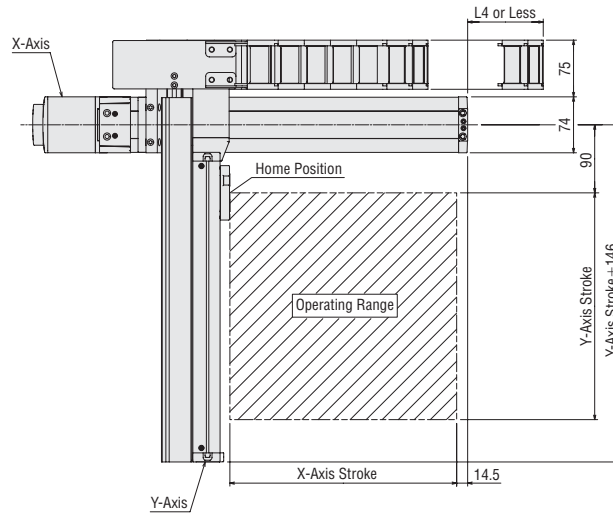


Model	Stroke	L1	L2	n	Mass [kg]	CAD
<b>PAB-S6S4L005</b>	50	263	158.5	2	1.58	D1045
<b>PAB-S6S4L010</b>	100	313	208.5	2	1.72	D1046
<b>PAB-S6S4L015</b>	150	363	258.5	3	1.86	D1047
<b>PAB-S6S4L020</b>	200	413	308.5	3	2.00	D1048
<b>PAB-S6S4L025</b>	250	463	358.5	4	2.14	D1049
<b>PAB-S6S4L030</b>	300	513	408.5	4	2.27	D1050

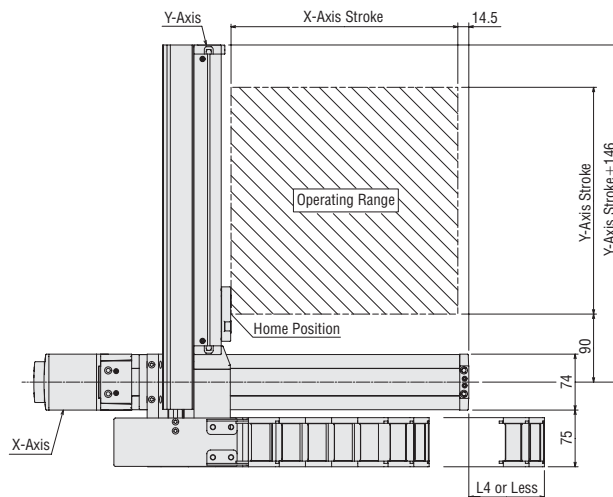
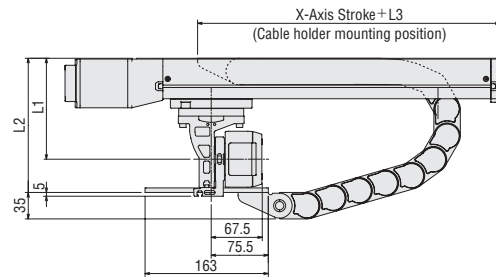
● Operating Range (Unit = mm)

◇ X-Y Mounting Pattern 1

● R-Type



● L-Type

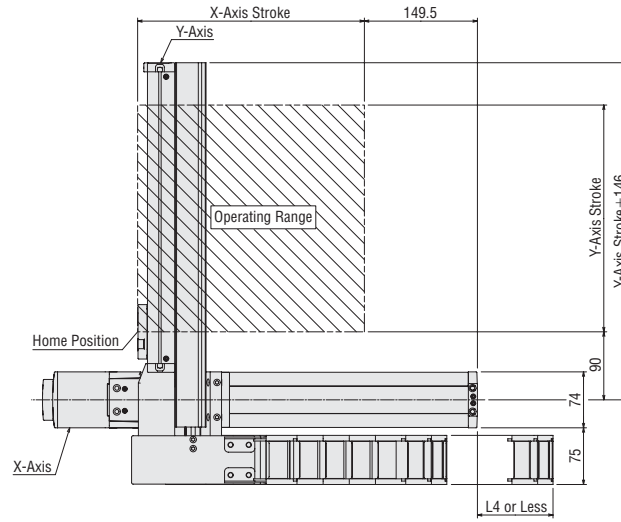
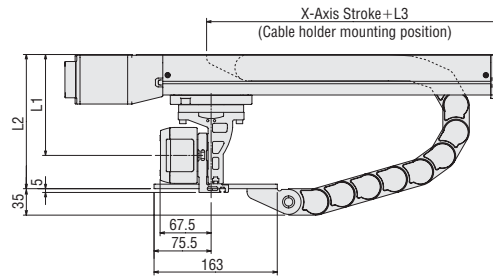


Dual Axes Mounting Bracket Model	X-Axis	Y-Axis	L1	L2	L3	L4
<b>PAB-S4S3R(L)</b> □□□	EZS4	EZS3	117	161	102	170
<b>PAB-S6S3R(L)</b> □□□	EZS6	EZS3	133.5	177.5	128	150
<b>PAB-S6S4R(L)</b> □□□	EZS6	EZS4	133.5	177.5	128	150

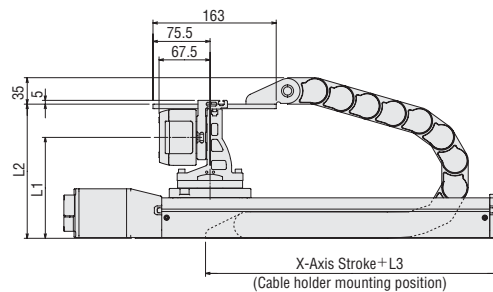
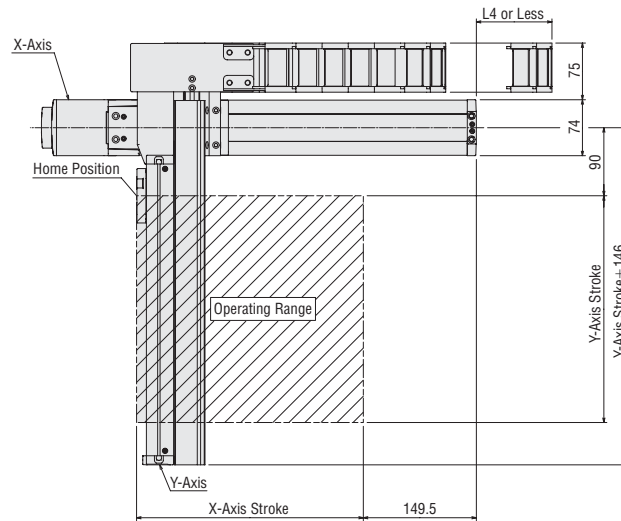
● Enter the Y-axis stroke in the box (□) within the model name.

◇ X-Y Mounting Pattern 2

• R-Type



• L-Type



Dual Axes Mounting Bracket Model	X-Axis	Y-Axis	L1	L2	L3	L4
<b>PAB-S4S3R(L)</b> □□□	EZS4	EZS3	117	161	90	170
<b>PAB-S6S3R(L)</b> □□□	EZS6	EZS3	133.5	177.5	116	150
<b>PAB-S6S4R(L)</b> □□□	EZS6	EZS4	133.5	177.5	116	150

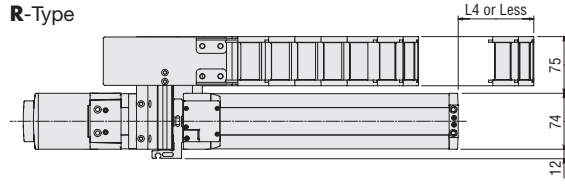
● Enter the Y-axis stroke in the box (□) within the model name.

● Operating Range (Unit = mm)

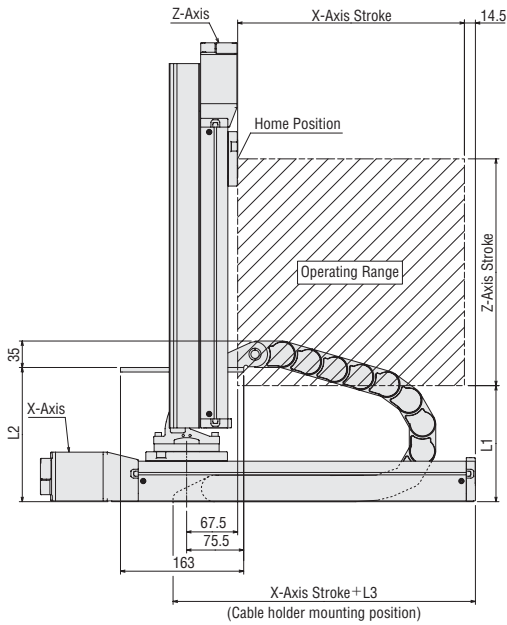
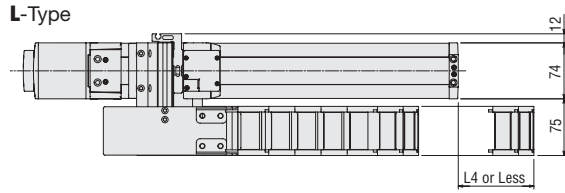
◇ X-Z Mounting

● Pattern 1

R-Type



L-Type

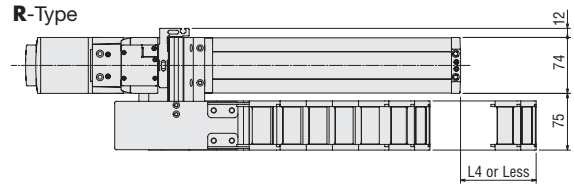


Dual Axis Mounting Bracket Model	X-Axis	Z-Axis	L1	L2	L3	L4
<b>PAB-S4S3R(L)</b> □□□	EZS4	EZS3	137	161	102	170
<b>PAB-S6S3R(L)</b> □□□	EZS6	EZS3	153.5	177.5	128	150
<b>PAB-S6S4R(L)</b> □□□	EZS6	EZS4	153.5	177.5	128	150

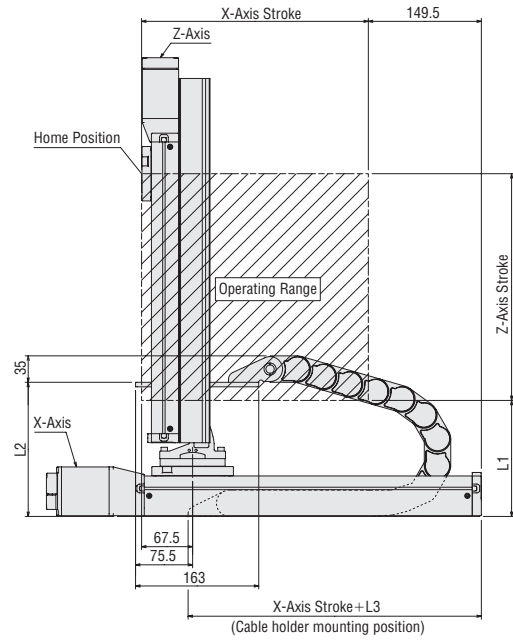
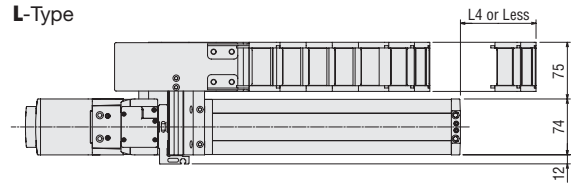
● Enter the Z-axis stroke in the box (□) within the model name.

● Pattern 2

R-Type



L-Type



Dual Axis Mounting Bracket Model	X-Axis	Z-Axis	L1	L2	L3	L4
<b>PAB-S4S3R(L)</b> □□□	EZS4	EZS3	137	161	90	170
<b>PAB-S6S3R(L)</b> □□□	EZS6	EZS3	153.5	177.5	116	150
<b>PAB-S6S4R(L)</b> □□□	EZS6	EZS4	153.5	177.5	116	150

● Enter the Z-axis stroke in the box (□) within the model name.

Overview

Selection

System  
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and Operations

Accessories

Selection Calculations

# Selection Calculations (Selecting a motorized linear slide)

After you have determined which series to use, select an appropriate model. Select a linear slide of the size that satisfies your desired condition.

Select an appropriate model by following the steps below.

- Refer to page 64 for selection calculations using a dual axes mounting bracket.

## (1) Select a Linear Slide Satisfying the Transportable Mass

By referring to "■ specifications of linear slide," select a linear slide satisfying the transportable mass.

**Condition: Drive a load of 15 kg over a horizontal distance of 400 mm within 1.5 seconds.**

### EZS4: Specifications of Width 74 mm × Height 50 mm, 24 VDC Linear Slide

■ Specifications of Linear Slide (RoHS)										CE	
Drive Method	Ball Screw	Repetitive Positioning Accuracy [mm]		±0.02	Resolution [mm]	0.01	Traveling Parallelism [mm]	0.03*	Maximum Load Moment [N·m]	Mp: 8 Mv: 8 Ma: 27.8	
Model	Lead [mm]	Transportable Mass [kg]		Thrust [N]	Electromagnetic Brake Holding Force [N]	Maximum Speed (Stroke) [mm/s]					
		Horizontal	Vertical			50~550 mm	560~600 mm	610~650 mm	660~700 mm		
EZS4D□-K	12	~15	—	~70	—	600	550	460	400		
EZS4D□M-K			~7		70						
EZS4E□-K	6	~30	—	~140	—	300	270	220	200		
EZS4E□M-K			~14		140						

● Enter the stroke length in the box (□) within the model name.  
\* This applies when the linear slide is installed from the base surface.

Based on the "condition" and "specifications of linear slide," select **EZS4D040-K**.

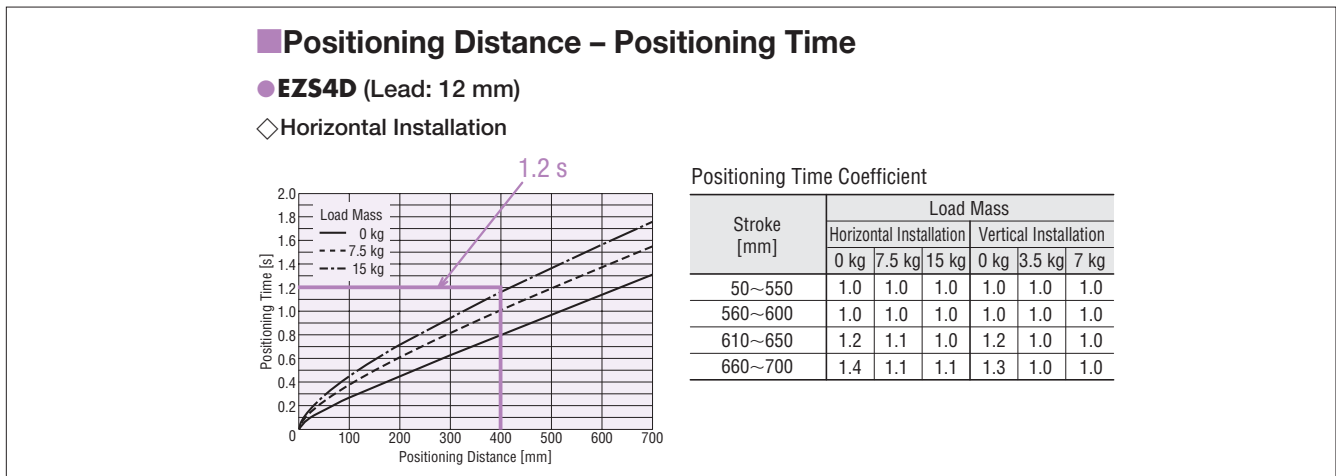
## (2) Check the Positioning Time

From the graph "■ positioning distance – positioning time" below, check if the selected linear slide satisfies the desired positioning time. As a rough guideline, the positioning time required by the selected linear slide corresponds to the positioning time identified from the graph, multiplied by the "positioning time coefficient" applicable to the linear slide.

From the graph, find the "positioning time of 1.2 s" for the "positioning distance of 400 mm." You obtain the "positioning time of 1.2 s." Since the stroke is 550 mm or less, multiply "positioning time of 1.2 s" by the "positioning time coefficient of 1.0" to obtain an approximate positioning time.

#### Notes:

- The calculated positioning time does not include the settling time.  
Use a settling time of 0.15 s as a reference.
- The running duty cycle, which represents the relationship of running time and stopping time, should be kept to 50% or less (reference).  
Running duty cycle [%] = running time [s] × 100 / (running time [s] + stopping time [s])





### (3) Check the Operating Speed and Acceleration of the Linear Slide

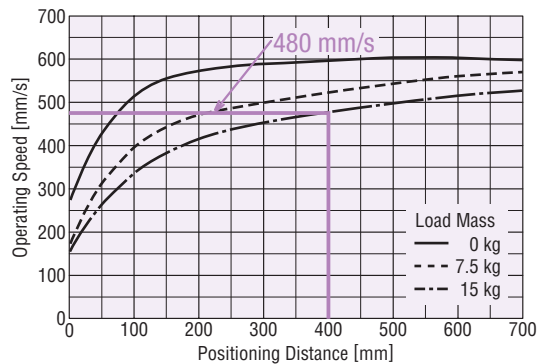
The time calculated from "■positioning distance – positioning time" assumes the operating speed and acceleration that achieve the shortest positioning time. Check the specific operating speed and acceleration at which to drive the linear slide based on the time calculated in step (2).

#### ◇ Operating Speed and Acceleration of the Linear Slide

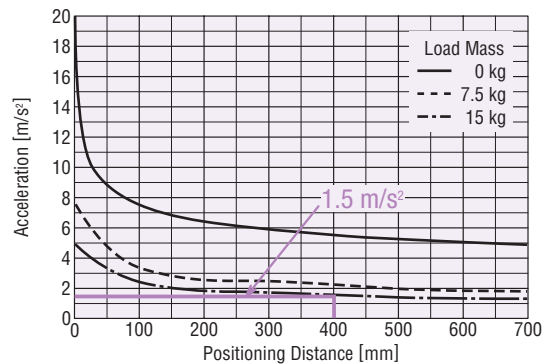
Check the operating speed and acceleration by referring to "■positioning distance – operating speed" and "■positioning distance – acceleration." If the identified speed exceeds the maximum speed specified in specifications of linear slide, use the "maximum speed specified in ■specifications of linear slide" as the operating speed of the linear slide.

Example) For a positioning distance of 400 mm on the graph, the operating speed is 480 mm/s, and the acceleration is  $1.5 \text{ m/s}^2$ .

#### EZS4D040-K "■Positioning Distance – Operating Speed"



#### EZS4D040-K "■Positioning Distance – Acceleration"

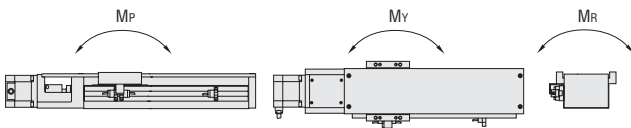


#### Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~550	600
560~600	550
610~650	460
660~700	400

### (4) Check the Load Moment

Calculate the load moment that will generate under the applicable condition, and confirm that the calculated result is smaller than the "maximum load moment specified in ■specifications of linear slide." If the maximum load moment is exceeded, select another model. The maximum load moment has been calculated by considering the estimated traveling life of each model. If a given model is operated at load moment exceeding the designed limit, the life of the linear slide will decrease. The life is also affected by the operating environment and conditions.



## How to Calculate the Speed for Sensorless Return to Home Operation

The **EZSII** Series can perform the high-speed, sensorless return to home operation. The maximum return to home speed is 100 mm/s when the lead is 12 mm, and the maximum speed becomes 50 mm/s when the lead is 6 mm. Select an applicable calculating formula by referring to the linear slide installation conditions and calculate the maximum settable speed for return to home operation from the specific overhang length and load mass.

Note that the load will receive impact if the sensorless return to home operation is performed at high speed.

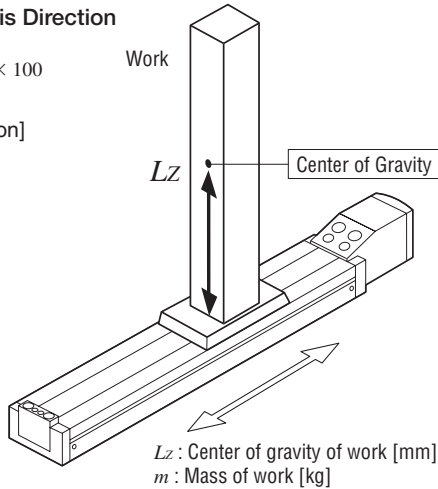
● If there are overhangs along both the Z-axis and Y-axis, compare  $V_z$  and  $V_y$ . The smaller of the two provides the maximum settable speed for return to home operation.

### ● Linear Slide Installation Conditions (Horizontal, wall-mounted or ceiling-mounted)

#### ◇ Overhang in Z-Axis Direction

$$V_z [\text{mm/s}] = \frac{k \times 10^3}{mL_z} \times 100$$

[Overhang in Z direction]

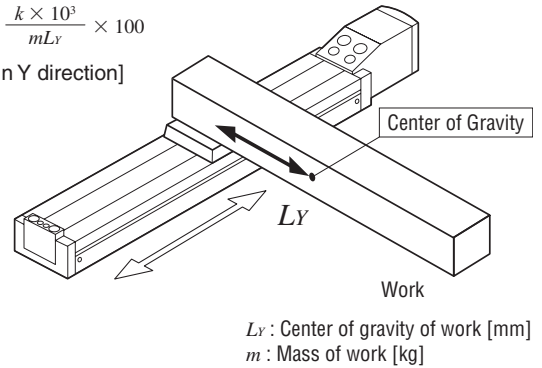


Linear Slide Size	Strength Coefficient $k$	
	Lead 12 mm	Lead 6 mm
<b>EZS3</b>	6.7	4.2
<b>EZS4</b>	7.1	6.3
<b>EZS6</b>	18.6	16.1

#### ◇ Overhang in Y-Axis Direction

$$V_y [\text{mm/s}] = \frac{k \times 10^3}{mL_y} \times 100$$

[Overhang in Y direction]



Linear Slide Size	Strength Coefficient $k$	
	Lead 12 mm	Lead 6 mm
<b>EZS3</b>	0.6	0.5
<b>EZS4</b>	1.7	1.5
<b>EZS6</b>	7.5	6.4

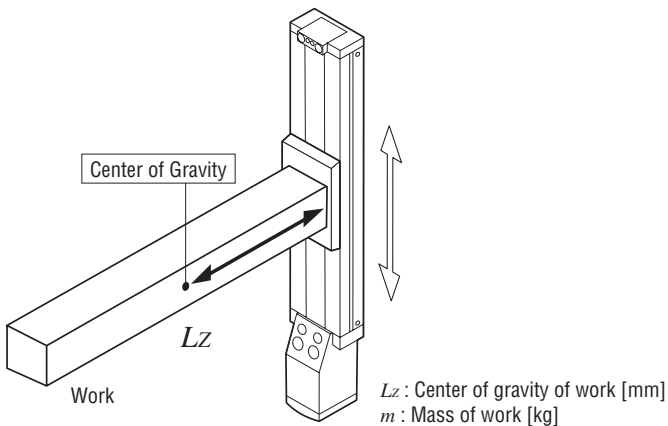
### ● Linear Slide Installation Conditions (Vertical)

If the linear slide is installed vertically, the applicable coefficient varies depending on the return to home direction (upward or downward). Use the correct coefficient according to the specific direction.

#### ◇ Overhang in Z-Axis Direction

$$V_z [\text{mm/s}] = \left( \frac{k \times 10^3}{mL_z} + i \right) \times 100$$

[Overhang in Z direction]



Upward:

Linear Slide Size	Strength Coefficient $k$		Upward Coefficient $i$	
	Lead 12 mm	Lead 6 mm	Lead 12 mm	Lead 6 mm
<b>EZS3</b>	6.7	5.7	1.8	1.5
<b>EZS4</b>	9.6	13.7	2.6	3.7
<b>EZS6</b>	20.7	51.7	2.1	5.4

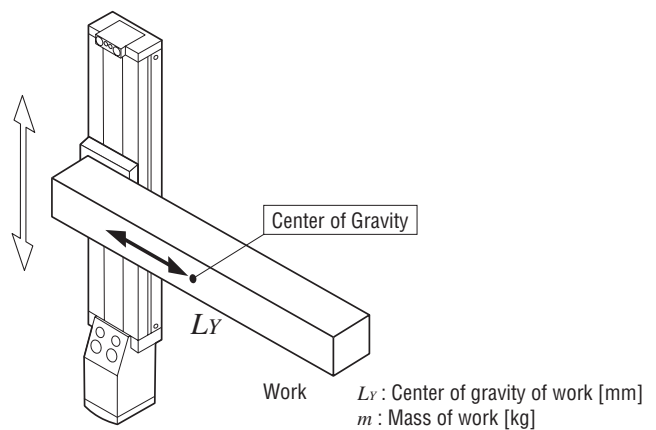
Downward:

Linear Slide Size	Strength Coefficient $k$		Downward Coefficient $i$	
	Lead 12 mm	Lead 6 mm	Lead 12 mm	Lead 6 mm
<b>EZS3</b>	5.3	3.1	-1.5	-0.9
<b>EZS4</b>	5.3	3.5	-1.5	-1.0
<b>EZS6</b>	11.2	12.2	-1.2	-1.3

#### ◇ Overhang in Y-Axis Direction

$$V_y [\text{mm/s}] = \left( \frac{k \times 10^3}{mL_y} + i \right) \times 100$$

[Overhang in Y direction]



Upward:

Linear Slide Size	Strength Coefficient $k$		Upward Coefficient $i$	
	Lead 12 mm	Lead 6 mm	Lead 12 mm	Lead 6 mm
<b>EZS3</b>	0.7	0.6	1.8	1.5
<b>EZS4</b>	2.2	3.2	2.6	3.7
<b>EZS6</b>	8.3	20.8	2.1	5.4

Downward:

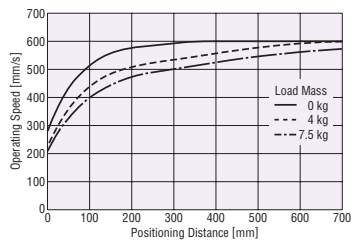
Linear Slide Size	Strength Coefficient $k$		Downward Coefficient $i$	
	Lead 12 mm	Lead 6 mm	Lead 12 mm	Lead 6 mm
<b>EZS3</b>	0.6	0.3	-1.5	-0.9
<b>EZS4</b>	1.2	0.8	-1.5	-1.0
<b>EZS6</b>	4.5	4.9	-1.2	-1.3

## Positioning Distance – Operating Speed, Positioning Distance – Acceleration

### ● EZS3D□-K (Lead 12 mm, 24 VDC)

#### ◇ Horizontal Installation

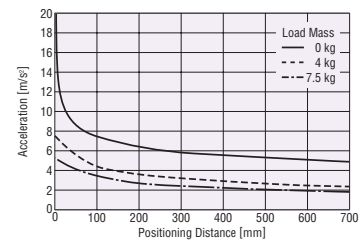
##### Positioning Distance – Operating Speed



##### Maximum Speed by Stroke

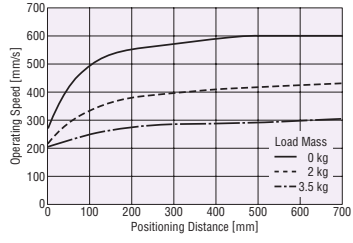
Stroke [mm]	Maximum Speed [mm/s]
50~550	600
560~600	550
610~650	460
660~700	400

##### Positioning Distance – Acceleration



#### ◇ Vertical Installation

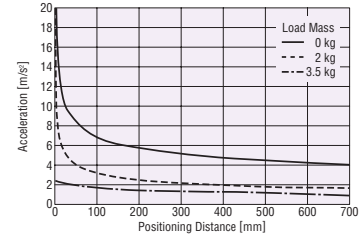
##### Positioning Distance – Operating Speed



##### Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~550	600
560~600	550
610~650	460
660~700	400

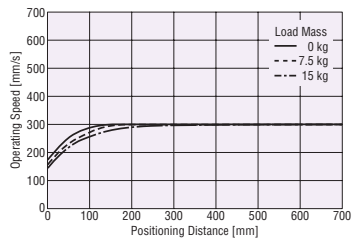
##### Positioning Distance – Acceleration



### ● EZS3E□-K (Lead 6 mm, 24 VDC)

#### ◇ Horizontal Installation

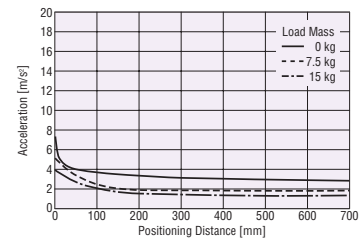
##### Positioning Distance – Operating Speed



##### Maximum Speed by Stroke

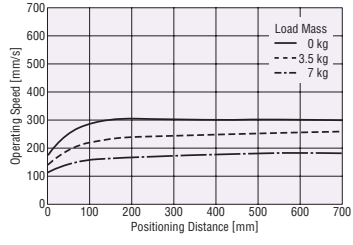
Stroke [mm]	Maximum Speed [mm/s]
50~550	300
560~600	270
610~650	220
660~700	200

##### Positioning Distance – Acceleration



#### ◇ Vertical Installation

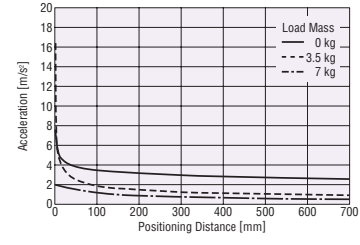
##### Positioning Distance – Operating Speed



##### Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~550	300
560~600	270
610~650	220
660~700	200

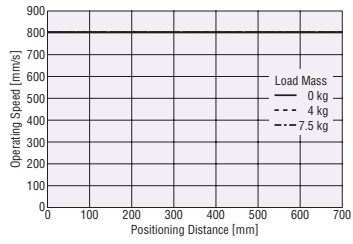
##### Positioning Distance – Acceleration



### ● EZS3D□-A/EZS3D□-C (Lead 12 mm, Single-Phase 100-115 VAC/Single-Phase 200-230 VAC)

#### ◇ Horizontal Installation

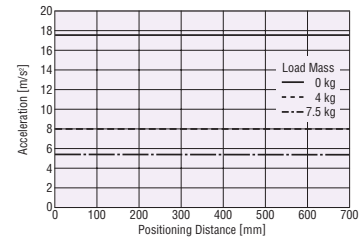
##### Positioning Distance – Operating Speed



##### Maximum Speed by Stroke

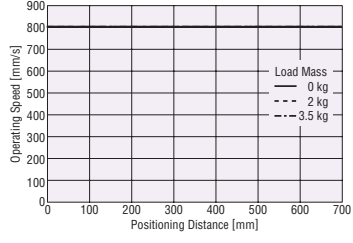
Stroke [mm]	Maximum Speed [mm/s]
50~500	800
510~550	650
560~600	550
610~650	460
660~700	400

##### Positioning Distance – Acceleration



#### ◇ Vertical Installation

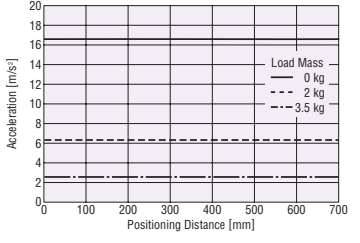
##### Positioning Distance – Operating Speed



##### Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~500	800
510~550	650
560~600	550
610~650	460
660~700	400

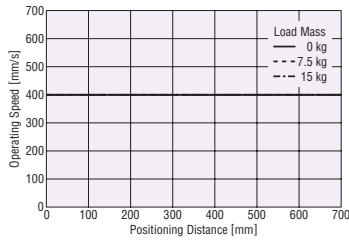
##### Positioning Distance – Acceleration



● **EZS3E□-A/EZS3E□-C** (Lead 6 mm, Single-Phase 100-115 VAC/Single-Phase 200-230 VAC)

◇ Horizontal Installation

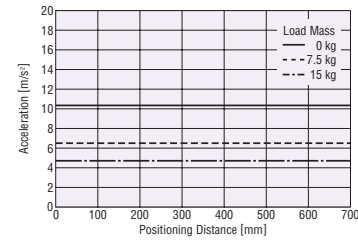
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

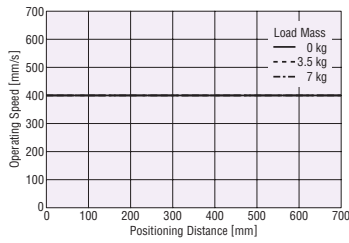
Stroke [mm]	Maximum Speed [mm/s]
50~500	400
510~550	320
560~600	270
610~650	220
660~700	200

• Positioning Distance – Acceleration



◇ Vertical Installation

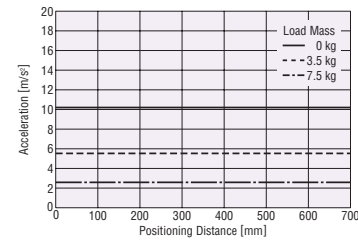
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~500	400
510~550	320
560~600	270
610~650	220
660~700	200

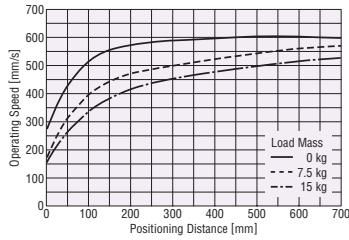
• Positioning Distance – Acceleration



● **EZS4D□-K** (Lead 12 mm, 24 VDC)

◇ Horizontal Installation

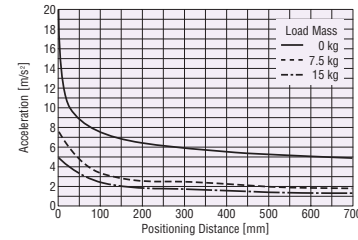
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

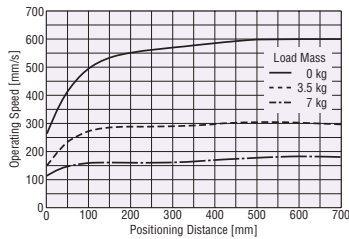
Stroke [mm]	Maximum Speed [mm/s]
50~550	600
560~600	550
610~650	460
660~700	400

• Positioning Distance – Acceleration



◇ Vertical Installation

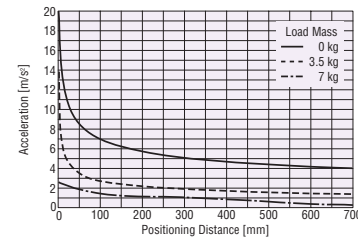
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~550	600
560~600	550
610~650	460
660~700	400

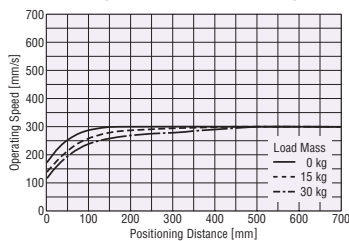
• Positioning Distance – Acceleration



● **EZS4E□-K** (Lead 6 mm, 24 VDC)

◇ Horizontal Installation

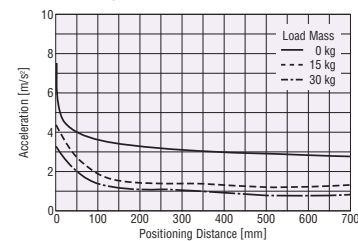
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

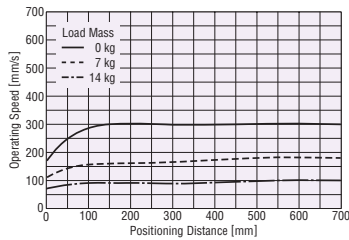
Stroke [mm]	Maximum Speed [mm/s]
50~550	300
560~600	270
610~650	220
660~700	200

• Positioning Distance – Acceleration



◇ Vertical Installation

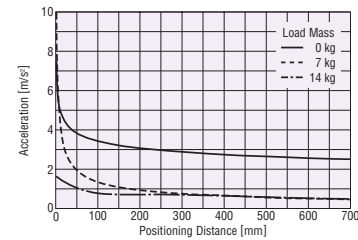
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~550	300
560~600	270
610~650	220
660~700	200

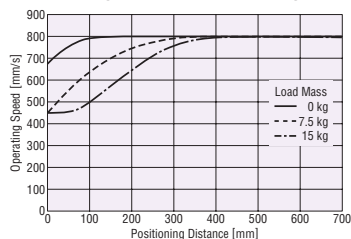
• Positioning Distance – Acceleration



● **EZS4D□-A/EZS4D□-C** (Lead 12 mm, Single-Phase 100-115 VAC/Single-Phase 200-230 VAC)

◇ Horizontal Installation

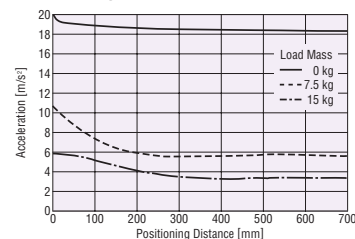
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

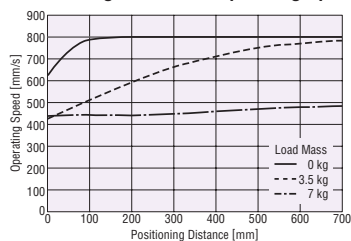
Stroke [mm]	Maximum Speed [mm/s]
50~500	800
510~550	650
560~600	550
610~650	460
660~700	400

• Positioning Distance – Acceleration



◇ Vertical Installation

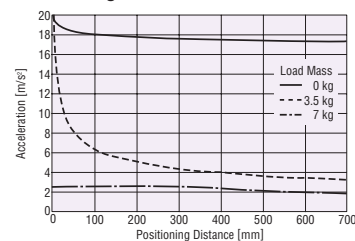
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~500	800
510~550	650
560~600	550
610~650	460
660~700	400

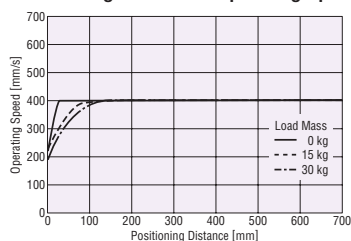
• Positioning Distance – Acceleration



● **EZS4E□-A/EZS4E□-C** (Lead 6 mm, Single-Phase 100-115 VAC/Single-Phase 200-230 VAC)

◇ Horizontal Installation

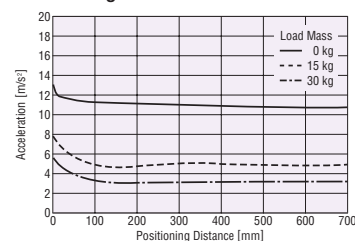
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

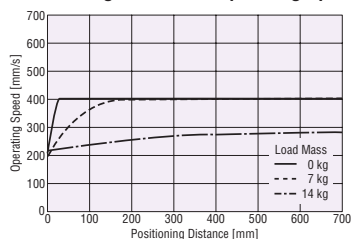
Stroke [mm]	Maximum Speed [mm/s]
50~500	400
510~550	320
560~600	270
610~650	220
660~700	200

• Positioning Distance – Acceleration



◇ Vertical Installation

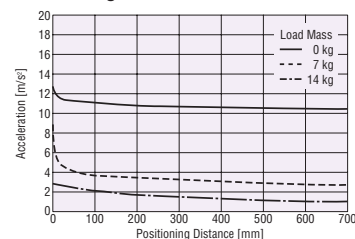
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~500	400
510~550	320
560~600	270
610~650	220
660~700	200

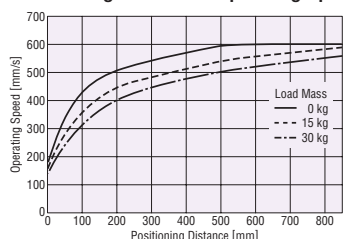
• Positioning Distance – Acceleration



● **EZS6D□-K** (Lead 12 mm, 24 VDC)

◇ Horizontal Installation

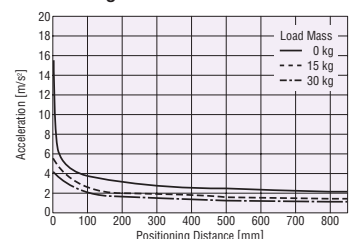
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

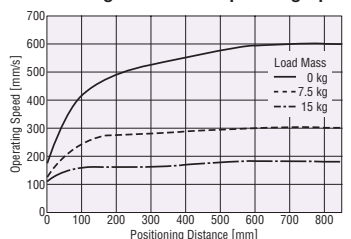
Stroke [mm]	Maximum Speed [mm/s]
50~650	600
660~700	550
710~750	470
760~800	420
810~850	360

• Positioning Distance – Acceleration



◇ Vertical Installation

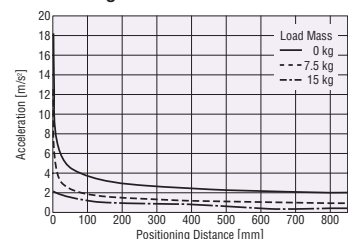
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~650	600
660~700	550
710~750	470
760~800	420
810~850	360

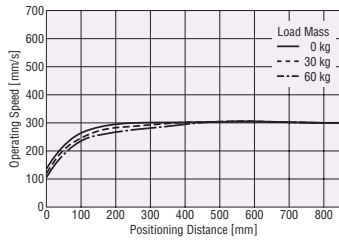
• Positioning Distance – Acceleration



● **EZS6E□-K** (Lead 6 mm, 24 VDC)

◇ Horizontal Installation

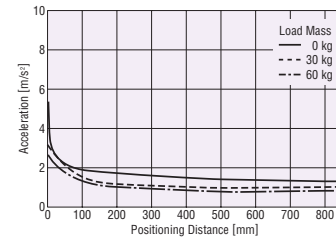
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

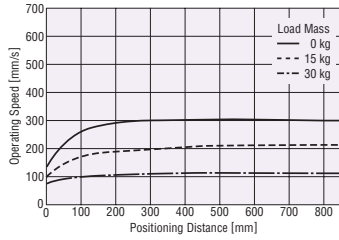
Stroke [mm]	Maximum Speed [mm/s]
50~650	300
660~700	260
710~750	230
760~800	200
810~850	180

• Positioning Distance – Acceleration



◇ Vertical Installation

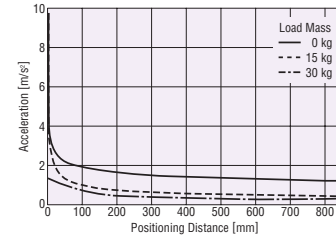
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~650	300
660~700	260
710~750	230
760~800	200
810~850	180

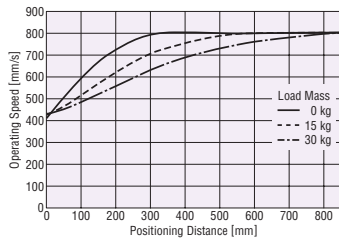
• Positioning Distance – Acceleration



● **EZS6D□-A/EZS6D□-C** (Lead 12 mm, Single-Phase 100-115 VAC/Single-Phase 200-230 VAC)

◇ Horizontal Installation

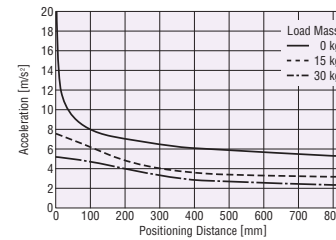
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

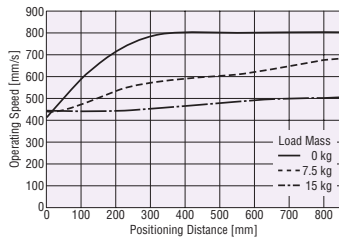
Stroke [mm]	Maximum Speed [mm/s]
50~600	800
610~650	640
660~700	550
710~750	470
760~800	420
810~850	360

• Positioning Distance – Acceleration



◇ Vertical Installation

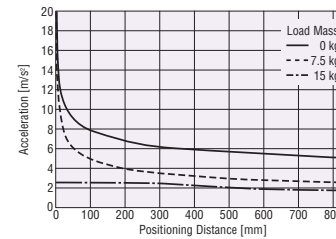
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~600	800
610~650	640
660~700	550
710~750	470
760~800	420
810~850	360

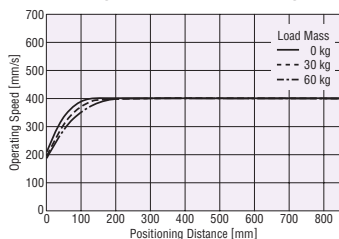
• Positioning Distance – Acceleration



● **EZS6E□-A/EZS6E□-C** (Lead 6 mm, Single-Phase 100-115 VAC/Single-Phase 200-230 VAC)

◇ Horizontal Installation

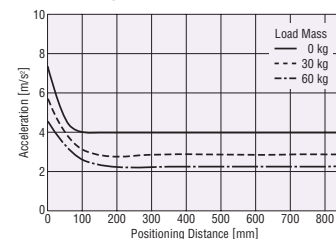
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

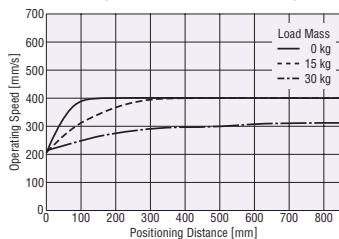
Stroke [mm]	Maximum Speed [mm/s]
50~550	400
560~600	350
610~650	300
660~700	260
710~750	230
760~800	200
810~850	180

• Positioning Distance – Acceleration



◇ Vertical Installation

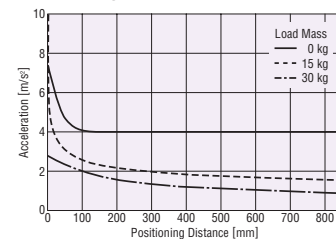
• Positioning Distance – Operating Speed



Maximum Speed by Stroke

Stroke [mm]	Maximum Speed [mm/s]
50~550	400
560~600	350
610~650	300
660~700	260
710~750	230
760~800	200
810~850	180

• Positioning Distance – Acceleration



Overview

Selection

System  
Configuration

Product Line

Specifications

Connection  
and Operations

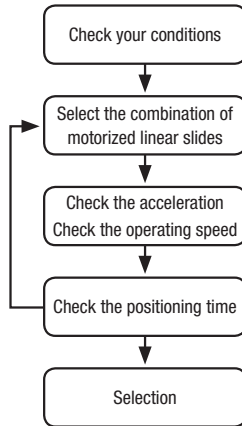
Accessories

Selection Calculations

# Selection Calculations (Using a dual axes mounting bracket)

The following explains the calculation when using a dual axes mounting bracket dedicated to the **EZSII** Series. Required dual axes mounting bracket is determined by selecting any dual axes combination of the **EZSII** Series based on your conditions. You can select an optimum combination by following the procedure.

## Selection Procedure



Select the combination of motorized linear slides using the table of transportable mass per acceleration. Once the combination is determined, you can figure out required dual axes mounting bracket.

Find an acceleration from the table of transportable mass per acceleration, and check a speed of each axis in the speed – transportable mass characteristics graph.

Calculate a positioning time. Check if your preferred positioning time can be met.

## Example of Selection

Follow the procedure for selection based on the following conditions.

### Conditions

- Load 3 kg mass in X-Y mounting with 100 mm in 0.5 s.
- Operating range is 500 mm in X-axis and 250 mm in Y-axis.
- The center of gravity for work in Y-axis:  $(G_1, G_2, G_3) = (45, 20, 25)$
- Power supply voltage: 24 VDC input

### (1) Select the Combination of Motorized Linear Slides and Dual Axes Mounting Bracket

Check the combination of motorized linear slides using the "transportable mass per acceleration" table (Refer to page 66). Find the maximum absolute value within  $G_1, G_2, G_3$ . As the conditions state  $|G_1| = 45$  is the maximum value, check the table for center of gravity conditions of  $30 < |G_n| \leq 50$ . The following combination of linear slides can bear a mass of 3 kg with a 250 mm stroke.

[Combination 1] X-axis: **EZS6D** Y-axis: **EZS3D**  
or

[Combination 2] X-axis: **EZS6D** Y-axis: **EZS4D**

Select [Combination 1] as the smaller product size.

The following products are tentatively selected.

X-axis: **EZS6D050-K**

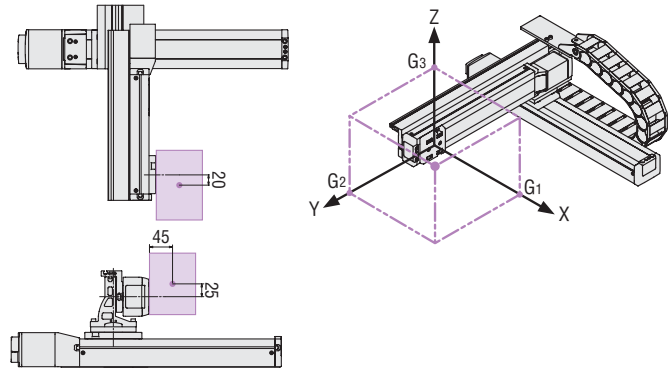
Y-axis: **EZS3D025-K**

**EZS6D** is tentatively selected for the first axis, and **EZS3D** for the second. As the second axis stroke is 250 mm, and the combination pattern (Refer to page 45) is **R**-type, the required dual axes mounting bracket can be determined as **PAB-S6S3R025**.

### (2) Check the Acceleration of Linear Slides

Check an acceleration from the "transportable mass per acceleration" table.

The maximum acceleration is  $2.5 \text{ m/s}^2$  when a transportable mass is 3 kg.



## Transportable Mass per Acceleration

### ● X-Y Mounting Y-axis transportable mass [kg]

		30 <  G <sub>n</sub>   ≤ 50					
		Stroke [mm]					
X-axis: <b>EZS4D</b> Y-axis: <b>EZS3D</b>	Acceleration	50	100	150	200	250	300
	1.0 m/s <sup>2</sup>	2.0	1.6	1.3	1.0	0.7	0.4
	2.5 m/s <sup>2</sup>	1.1	0.8	0.5	0.2	—	—
	5.0 m/s <sup>2</sup>	0.3	—	—	—	—	—
X-axis: <b>EZS6D</b> Y-axis: <b>EZS3D</b>	Acceleration	50	100	150	200	250	300
	1.0 m/s <sup>2</sup>	4.1	4.1	4.1	4.1	4.1	4.1
	2.5 m/s <sup>2</sup>	3.3	3.3	3.3	3.3	3.3	3.3
	5.0 m/s <sup>2</sup>	2.6	2.6	2.6	2.6	2.6	2.6
X-axis: <b>EZS6D</b> Y-axis: <b>EZS4D</b>	Acceleration	50	100	150	200	250	300
	1.0 m/s <sup>2</sup>	8.7	8.7	8.7	8.1	7.0	6.0
	2.5 m/s <sup>2</sup>	7.0	7.0	7.0	6.3	5.3	4.5
	5.0 m/s <sup>2</sup>	5.3	5.3	5.2	4.3	3.6	2.9

### ● X-Y Mounting Y-axis transportable mass [kg]

		30 <  G <sub>n</sub>   ≤ 50					
		Stroke [mm]					
X-axis: <b>EZS6D</b> Y-axis: <b>EZS3D</b>	Acceleration	50	100	150	200	250	300
	1.0 m/s <sup>2</sup>	4.1	4.1	4.1	4.1	4.1	4.1
	2.5 m/s <sup>2</sup>	3.3	3.3	3.3	3.3	3.3	3.3
	5.0 m/s <sup>2</sup>	2.6	2.6	2.6	2.6	2.6	2.6



### (3) Check the Speed of Linear Slides

Check the "speed – transportable mass characteristics" graph (Refer to page 66).

Draw a horizontal line for 3 kg mass in Y-axis.

The speed at which the acceleration 2.5 m/s<sup>2</sup> line intersects with the above-mentioned line is the maximum speed (upper limit) for dual axes combination.

- X-axis speed: 460 mm/s or less
- Y-axis speed: 560 mm/s or less

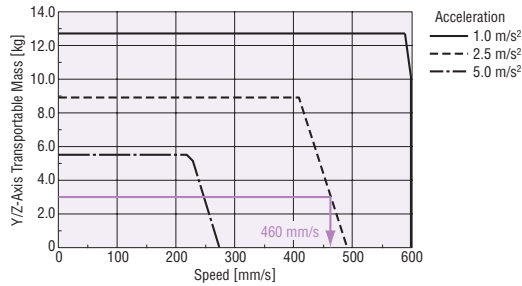
Speed and acceleration can be increased for the same mass, by replacing the power supply input with single-phase 100-115 VAC, 200-230 VAC and/or by using linear slides with greater size.

### Speed – Transportable Mass

#### ● X-Axis Speed

◇ 24 VDC

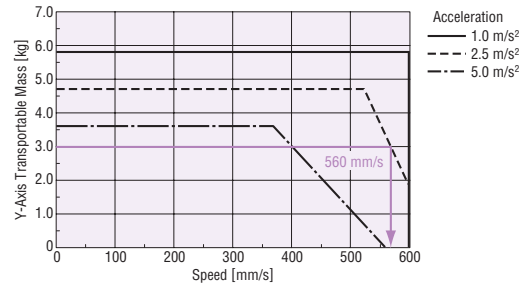
**EZS6D□(M)-K**



#### ● Y-Axis Speed

◇ 24 VDC

**EZS3D□(M)-K**



### (4) Check the Positioning Time

Make a simple calculation of the positioning time to verify if your preferred positioning time can be met.

The simple formulas are as follows:

#### • Check the Operating Pattern

$$V_{Rmax} = \sqrt{L \cdot a \times 10^3}$$

$L$  : Positioning distance [mm]  
 $a$  : Acceleration [m/s<sup>2</sup>]  
 $V_R$  : Operating speed [mm/s]  
 $V_{Rmax}$  : Maximum speed for triangular drive [mm/s]  
 $T$  : Positioning time [s]

$V_{Rmax} \leq V_R \rightarrow$  Triangular drive  
 $V_{Rmax} > V_R \rightarrow$  Trapezoidal drive

#### • Calculate the Positioning Time

Triangular drive

$$T = \frac{2 \cdot V_{Rmax}}{a \times 10^3} \quad \text{or} \quad T = \sqrt{\frac{L}{a \times 10^3}} \times 2$$

Trapezoidal drive

$$T = \frac{L}{V_R} + \frac{V_R}{a \times 10^3}$$

#### ● Example of Calculation

Check if the combination on page 64 can move 100 mm in 0.5 s.

X-axis: **EZS6D050-K**

Conditions  
 Speed  $V_R$  : 460 mm/s  
 Acceleration  $a$  : 2.5 m/s<sup>2</sup>  
 Positioning distance  $L$  : 100 mm

Check the operating pattern

$$V_{Rmax} = \sqrt{100 \times 2.5 \times 10^3} = 500 > V_R \quad \text{Trapezoidal drive}$$

Calculate the positioning time

$$T = \frac{100}{460} + \frac{460}{2.5 \times 10^3} = 0.401 \text{ s}$$

Y-axis: **EZS3D025-K**

Conditions  
 Speed  $V_R$  : 560 mm/s  
 Acceleration  $a$  : 2.5 m/s<sup>2</sup>  
 Positioning distance  $L$  : 100 mm

Check the operating pattern

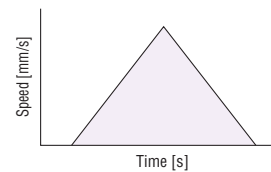
$$V_{Rmax} = \sqrt{100 \times 2.5 \times 10^3} = 500 \leq V_R \quad \text{Triangular drive}$$

Calculate the positioning time

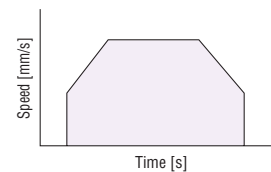
$$T = \frac{2 \times 100}{2.5 \times 10^3} = 0.400 \text{ s}$$

Calculation revealed that the preferred positioning time can be met.

Triangular drive



Trapezoidal drive



## Transportable Mass per Acceleration

### X-Y Mounting Y-axis transportable mass [kg]

		Gn   ≤ 30 [mm]						30 <   Gn   ≤ 50 [mm]						50 <   Gn   ≤ 100 [mm]					
		Stroke [mm]						Stroke [mm]						Stroke [mm]					
X-axis: <b>EZS4D</b> Y-axis: <b>EZS3D</b>	Acceleration	50	100	150	200	250	300	50	100	150	200	250	300	50	100	150	200	250	300
	1.0 m/s <sup>2</sup>	2.3	1.9	1.5	1.1	0.7	0.4	2.0	1.6	1.3	1.0	0.7	0.4	1.5	1.2	1.0	0.7	0.5	0.3
	2.5 m/s <sup>2</sup>	1.3	0.9	0.6	0.2	—	—	1.1	0.8	0.5	0.2	—	—	0.8	0.6	0.4	0.2	—	—
	5.0 m/s <sup>2</sup>	0.3	—	—	—	—	—	0.3	—	—	—	—	—	0.2	—	—	—	—	—
X-axis: <b>EZS6D</b> Y-axis: <b>EZS3D</b>	Acceleration	50	100	150	200	250	300	50	100	150	200	250	300	50	100	150	200	250	300
	1.0 m/s <sup>2</sup>	5.8	5.8	5.8	5.8	5.8	5.8	4.1	4.1	4.1	4.1	4.1	4.1	2.3	2.3	2.3	2.3	2.3	2.3
	2.5 m/s <sup>2</sup>	4.8	4.8	4.8	4.8	4.8	4.8	3.3	3.3	3.3	3.3	3.3	3.3	1.9	1.9	1.9	1.9	1.9	1.9
	5.0 m/s <sup>2</sup>	3.6	3.6	3.6	3.6	3.6	3.6	2.6	2.6	2.6	2.6	2.6	2.6	1.5	1.5	1.5	1.5	1.5	1.5
X-axis: <b>EZS6D</b> Y-axis: <b>EZS4D</b>	Acceleration	50	100	150	200	250	300	50	100	150	200	250	300	50	100	150	200	250	300
	1.0 m/s <sup>2</sup>	12.7	12.4	10.4	8.9	7.6	6.5	8.7	8.7	8.7	8.1	7.0	6.0	4.8	4.8	4.8	4.8	4.8	4.8
	2.5 m/s <sup>2</sup>	10.1	9.8	8.2	6.9	5.8	4.9	7.0	7.0	7.0	6.3	5.3	4.5	3.9	3.9	3.9	3.9	3.9	3.8
	5.0 m/s <sup>2</sup>	7.5	7.1	5.8	4.7	3.9	3.1	5.3	5.3	5.2	4.3	3.6	2.9	3.0	3.0	3.0	3.0	3.0	2.5

### X-Z Mounting Z-axis transportable mass [kg]

		Gn   ≤ 30 [mm]						30 <   Gn   ≤ 50 [mm]						50 <   Gn   ≤ 100 [mm]					
		Stroke [mm]						Stroke [mm]						Stroke [mm]					
X-axis: <b>EZS4D</b> Z-axis: <b>EZS3D</b>	Acceleration	50	100	150	200	250	300	50	100	150	200	250	300	50	100	150	200	250	300
	1.0 m/s <sup>2</sup>	3.5	3.3	3.0	2.7	2.5	2.2	2.6	2.6	2.5	2.3	2.0	1.8	1.6	1.6	1.6	1.6	1.5	1.3
	2.5 m/s <sup>2</sup>	2.1	1.7	1.4	1.0	0.7	0.4	1.7	1.4	1.2	0.9	0.6	0.4	1.2	1.0	0.8	0.7	0.5	0.3
	5.0 m/s <sup>2</sup>	0.7	0.3	—	—	—	—	0.5	0.3	—	—	—	—	0.4	0.2	—	—	—	—
X-axis: <b>EZS6D</b> Z-axis: <b>EZS3D</b>	Acceleration	50	100	150	200	250	300	50	100	150	200	250	300	50	100	150	200	250	300
	1.0 m/s <sup>2</sup>	3.5	3.5	3.5	3.5	3.5	3.5	2.6	2.6	2.6	2.6	2.6	2.6	1.6	1.6	1.6	1.6	1.6	1.6
	2.5 m/s <sup>2</sup>	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3	2.3	2.3	2.3	1.4	1.4	1.4	1.4	1.4	1.4
	5.0 m/s <sup>2</sup>	2.2	2.2	2.2	2.2	2.2	2.2	1.9	1.9	1.9	1.9	1.9	1.9	1.1	1.1	1.1	1.1	1.1	1.1
X-axis: <b>EZS6D</b> Z-axis: <b>EZS4D</b>	Acceleration	50	100	150	200	250	300	50	100	150	200	250	300	50	100	150	200	250	300
	1.0 m/s <sup>2</sup>	6.7	6.7	6.7	6.7	6.7	6.7	4.9	4.9	4.9	4.9	4.9	4.9	3.0	3.0	3.0	3.0	3.0	3.0
	2.5 m/s <sup>2</sup>	5.9	5.9	5.9	5.9	5.9	5.9	4.3	4.3	4.3	4.3	4.3	4.3	2.6	2.6	2.6	2.6	2.6	2.6
	5.0 m/s <sup>2</sup>	4.9	4.9	4.9	4.9	4.9	4.9	3.6	3.6	3.6	3.6	3.6	3.6	2.2	2.2	2.2	2.2	2.2	2.2

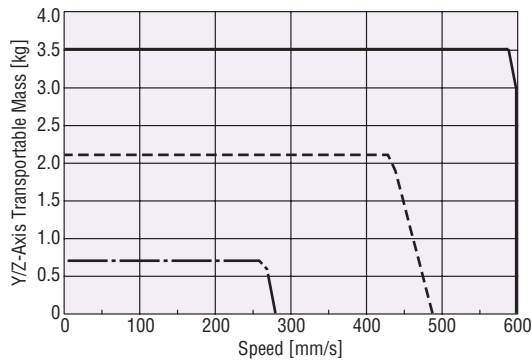
● Gn represents the distance from table to center of gravity of the work (unit: mm).

## Speed – Transportable Mass Characteristics

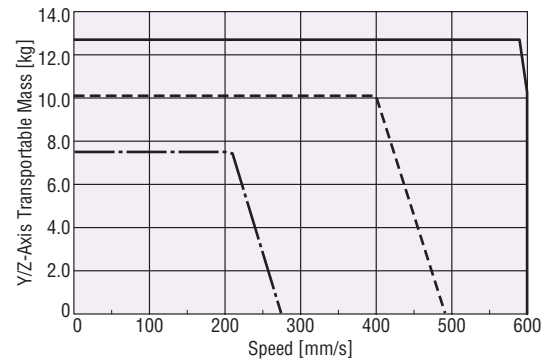
### X-Axis Speed (Common to electromagnetic brake type)

◇ 24 VDC

**EZS4D**□(M)-K

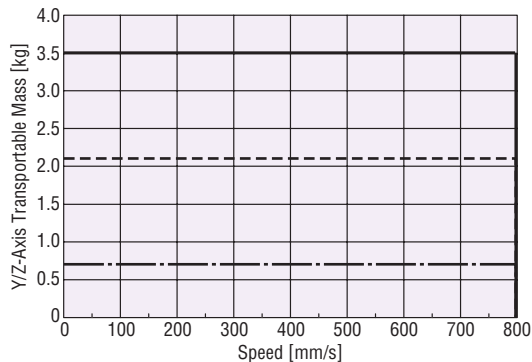


**EZS6D**□(M)-K

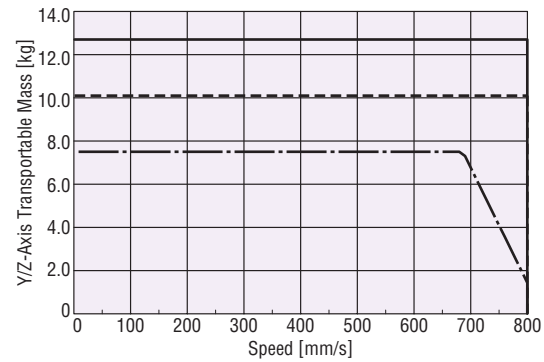


◇ Single-Phase 100-115 VAC/Single-Phase 200-230 VAC

**EZS4D**□(M)-A/**EZS4D**□(M)-C



**EZS6D**□(M)-A/**EZS6D**□(M)-C



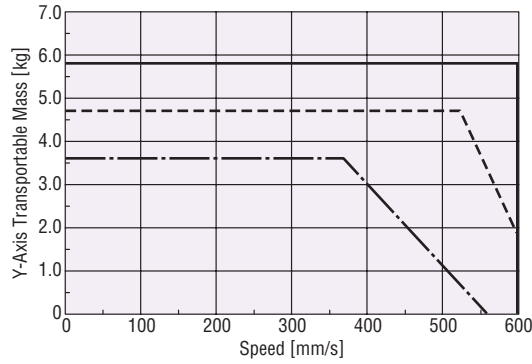
● Enter the stroke length in the box (□) within the model name.

● For X-axis, the maximum speed read from the graph is limited by the stroke. Check the maximum speed for each stroke in **EZSII** Series products.

● Y-Axis Speed (Common to electromagnetic brake type)

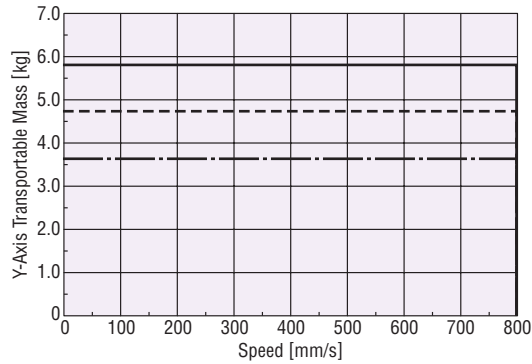
◇ 24 VDC

**EZS3D□(M)-K**

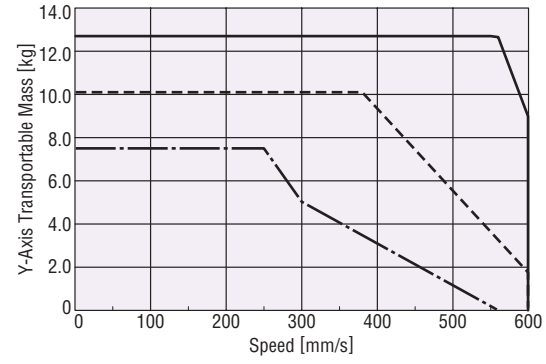


◇ Single-Phase 100-115 VAC/Single-Phase 200-230 VAC

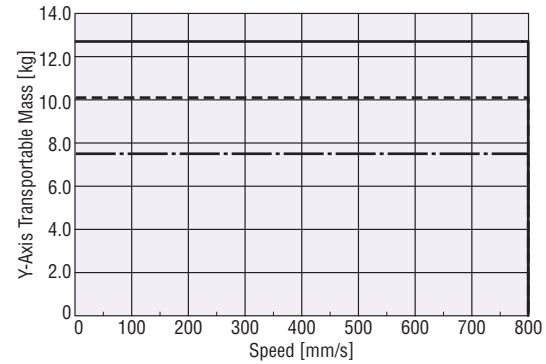
**EZS3D□(M)-A/EZS3D□(M)-C**



**EZS4D□(M)-K**



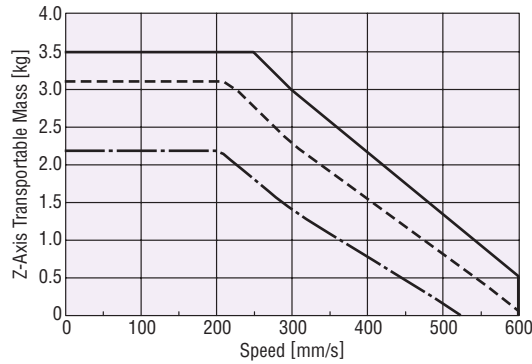
**EZS4D□(M)-A/EZS4D□(M)-C**



● Z-Axis Speed (Common to electromagnetic brake type)

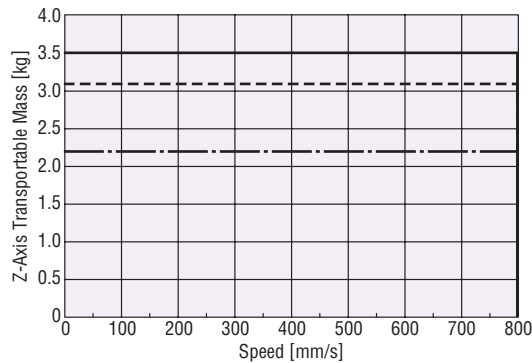
◇ 24 VDC

**EZS3D□(M)-K**

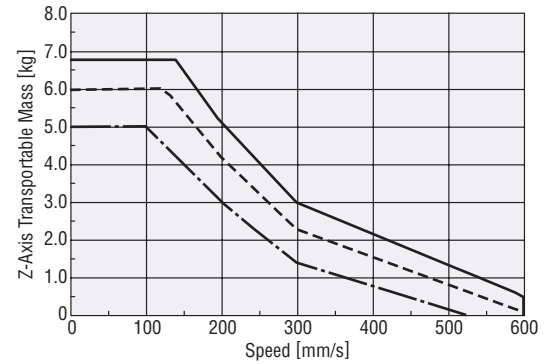


◇ Single-Phase 100-115 VAC/Single-Phase 200-230 VAC

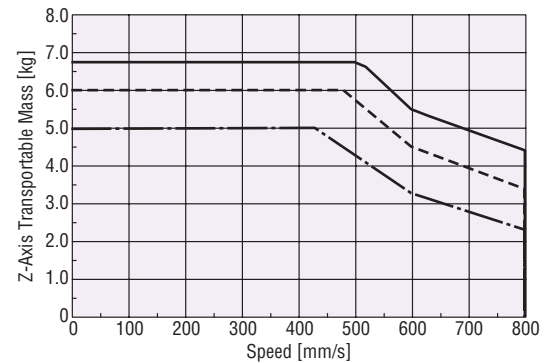
**EZS3D□(M)-A/EZS3D□(M)-C**



**EZS4D□(M)-K**



**EZS4D□(M)-A/EZS4D□(M)-C**



● Enter the stroke length in the box (□) within the model name.

This product is manufactured at a plant certified with the international standards **ISO 9001** (for quality assurance) and **ISO 14001** (for systems of environmental management).

Specifications are subject to change without notice.

This catalogue was published in Apr, 2008.

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