Linear and Rotary Actuators

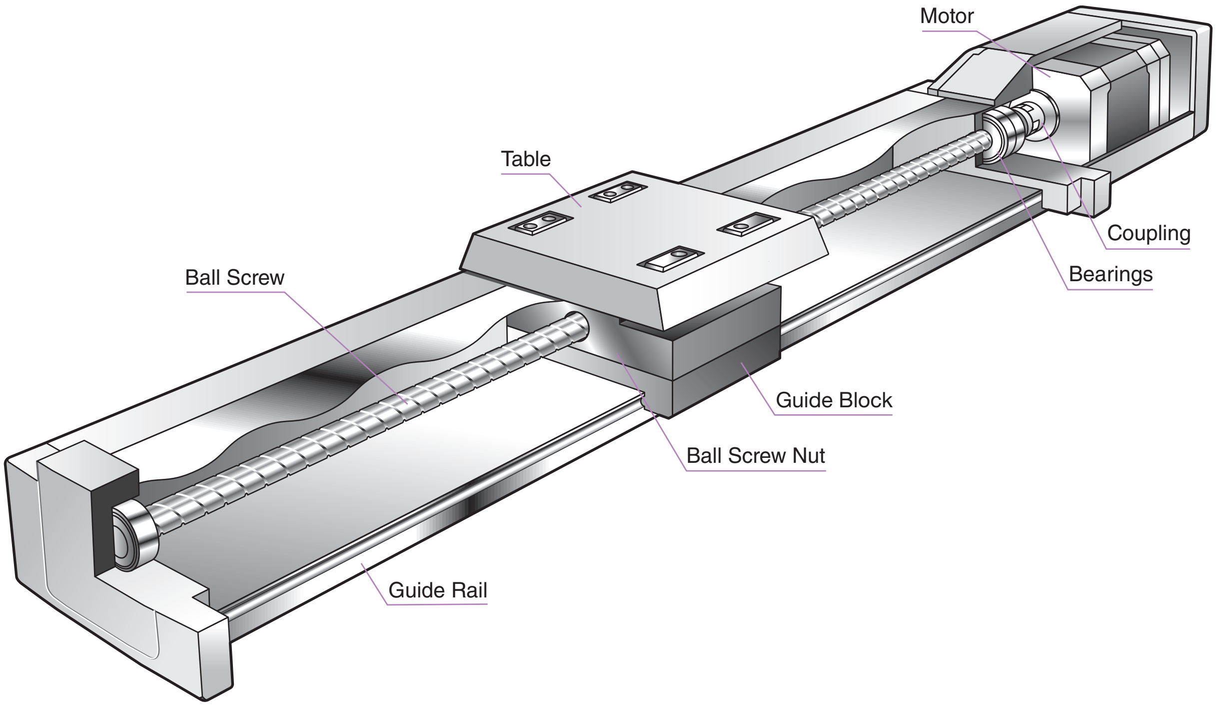
Motorized Linear Slides

Features of Motorized Linear Slides

A motorized linear slide is a positioning linear slide consisting of a stepping motor, frame, guide rail, guide block and ball screw. It can drive a load linearly in a precise, accurate manner through the rotation of the ball screw and the guide mechanism.

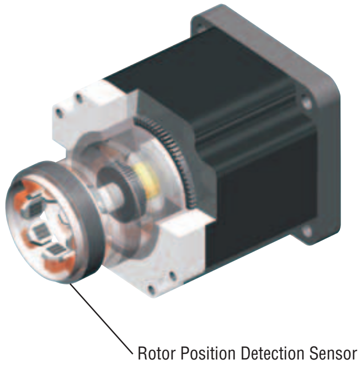
■High Accuracy Positioning Operation

The ball screw is rotated by a closed loop *αSTEP* stepping motor to position a table fixed to a ball screw nut with high accuracy.
A guide rail fixed to the table can provide accurate linear motion and support the weight of the load. Precise positioning of a large inertial load is also possible.



■Uses a Control Motor to Achieve Accurate, Multi-Functional Positioning

The **EZSⅡ** and **SPV** Series use an *αSTEP* motor. The *αSTEP* motor utilizes our unique closed loop control to maintain positioning operation even during abrupt load fluctuations and accelerations.

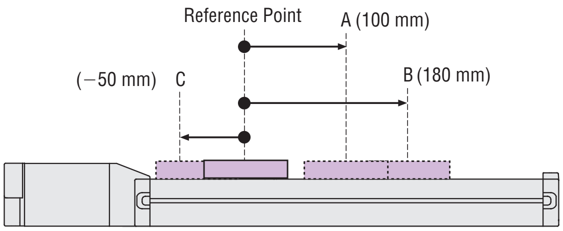


Offering Features That Add Greater Convenience to Positioning Functions

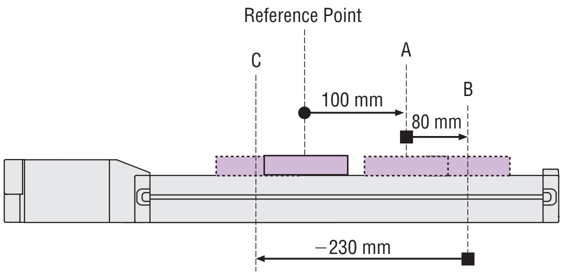
This controller is capable of controlling a linear slide without tuning. It lets you use high-performance functions through simple operations.

●Two Modes to Set Positioning Data Setting

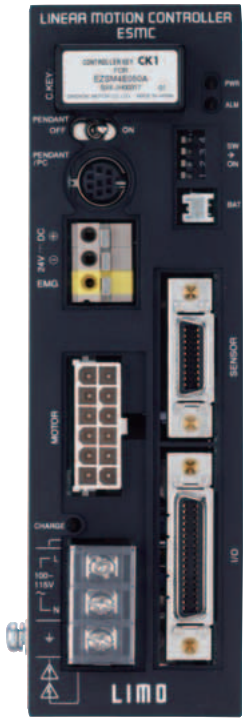
Data can be set in the absolute mode (absolute-position specification) or the incremental mode (incremental-position specification).



Absolute Mode:
The absolute position (distance) from the reference point is set.



Incremental Mode:
The position achieved by the motor after the last movement (= current position) is defined as the starting point for the next movement.



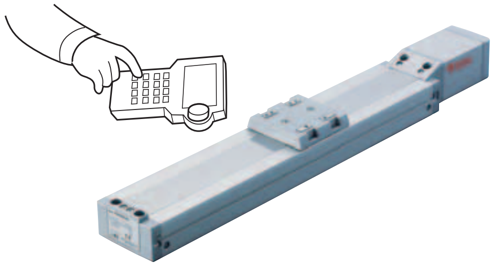
You can easily perform all tasks from data setting to actual operation by using our teaching pendant or data editing software.

●Teaching Pendant
(Sold separately)
EZT1

●Data Editing Software
(Sold separately)
EZED2

●Teaching Function

You can directly move the table to a desired position and store the position obtained, or use a teaching pendant to move the table to a desired position and then store it.

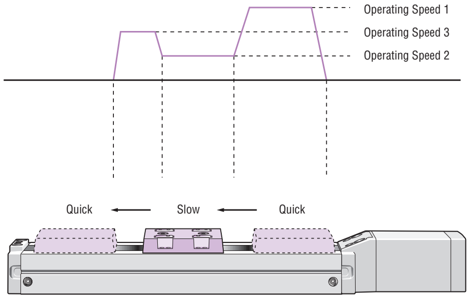


●Function to Select Home Detection Methods

You can select sensorless return to home or return to home using sensors.

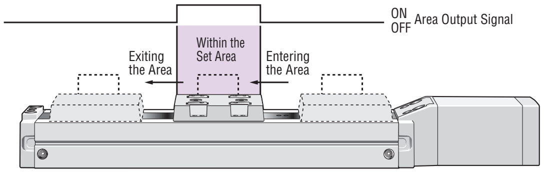
●Linked Operation

By linking multiple sets of operation data, all you need is to input a start signal. You can then change the linear slide speed without physically stopping the linear slide.



●Area Output Signal

A signal is output when the linear slide table enters a set area.



●Function for Automatic Control of an Electromagnetic Brake

The controller automatically controls the electromagnetic brake during operation and when stopping.

Features and Types of Motorized Linear Slides

EZSII Series

A compact, lightweight linear slide using an LM Guide® as a frame.
Because an accurate LM Guide® is used as a reference when the linear slide is installed, an excellent traveling parallelism of 0.03 mm or below can be achieved.

● LM Guide is registered trademark of THK Co., Ltd.

EZSII Series (Using an αSTEP)

Drive Method: Ball screw	
Maximum Stroke	850 mm
Maximum Speed	800 mm/s
Maximum Transportable Mass	Horizontal 60 kg/Vertical 30 kg
Repetitive Positioning Accuracy	±0.02 mm

The above figures are representative values. For details, refer to the product information page.

SPV Series

By employing an aluminum frame structure and a belt-and-pulley mechanism, the **SPV6** and **SPV8** support long strokes up to 1000 mm and 1500 mm respectively.
All models are capable of high-speed operation, achieving a maximum speed of 1500 mm/s.

SPV Series (Using an αSTEP)

Drive Method: Belt	
Maximum Stroke	1500 mm
Maximum Speed	1500 mm/s
Maximum Transportable Mass	Horizontal 20 kg
Repetitive Positioning Accuracy	±0.05 mm

The above figures are representative values. For details, refer to the product information page.

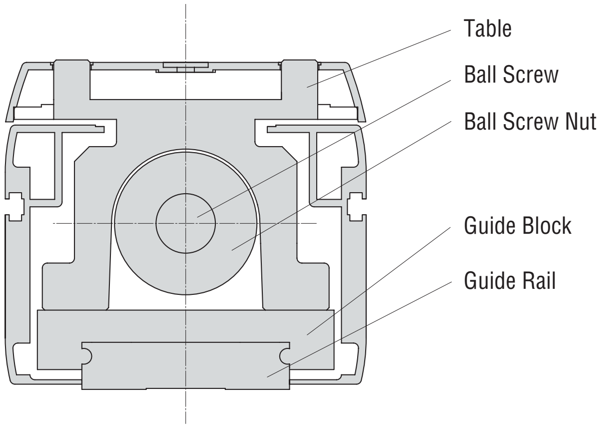


Table
Ball Screw
Ball Screw Nut
Guide Block
Guide Rail

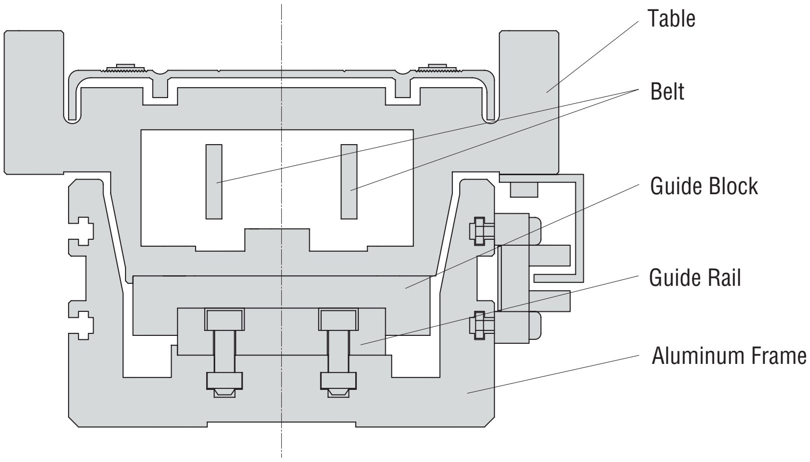


Table
Belt
Guide Block
Guide Rail
Aluminum Frame

Selection of Motorized Linear Slides

Series	Linear Slide Size [Width×Height]	Power Supply Voltage	Lead [mm]	Maximum Load Moment [N·m]			Maximum Transportable Mass in Horizontal Direction [kg]	Maximum Transportable Mass in Vertical Direction [kg]
				MP	MY	MR		
EZS II Series Drive Method: Ball screw 	**EZS3** [54 mm×50 mm]	24 VDC	12	4.2	4.2	10.5	7.5	3.5
			6				15	7
		Single-Phase 100-115 VAC Single-Phase 200-230 VAC	12				7.5	3.5
			6				15	7
	EZS4 [74 mm×50 mm]	24 VDC	12	8	8	27.8	15	7
			6				30	14
		Single-Phase 100-115 VAC Single-Phase 200-230 VAC	12				15	7
			6				30	14
	EZS6 [74 mm×66.5 mm]	24 VDC	12	45.7	37.5	55.6	30	15
			6				60	30
		Single-Phase 100-115 VAC Single-Phase 200-230 VAC	12				30	15
			6				60	30
SPV Series Drive Method: Belt 	**SPV6** [60 mm×67 mm]	24 VDC	75	18	16	9	10	
		Single-Phase 100-115 VAC Single-Phase 200-230 VAC	75				10	
	SPV8 [86 mm×80 mm]	Single-Phase 100-115 VAC Single-Phase 200-230 VAC	90	33	29	40	20	

Maximum Speed [mm/s]	Repetitive Positioning Accuracy [mm]	Stroke [mm]	Electromagnetic Brake Not Equipped	Electromagnetic Brake Equipped	Page
600	±0.02	50~700 (50 mm increments)	●	●	E-24
300		50~700 (50 mm increments)	●	●	
800		50~700 (50 mm increments)	●	●	E-26
400		50~700 (50 mm increments)	●	●	
600		50~700 (50 mm increments)	●	●	E-28
300		50~700 (50 mm increments)	●	●	
800		50~700 (50 mm increments)	●	●	E-30
400		50~700 (50 mm increments)	●	●	
600		50~850 (50 mm increments)	●	●	E-32
300		50~850 (50 mm increments)	●	●	
800		50~850 (50 mm increments)	●	●	E-34
400		50~850 (50 mm increments)	●	●	
400	±0.05	100~1000 (100 mm increments)	●	–	E-40
1500		100~1000 (100 mm increments)	●	–	E-42
1500		100~1500 (100 mm increments)	●	–	E-44

How to Read Specifications

Specifications of Linear Slide RoHS

①	Drive Method	Ball Screw
②	Repetitive Positioning Accuracy [mm]	±0.02
③	Resolution [mm]	0.01
④	Traveling Parallelism [mm]	0.03
⑤	Dynamic Permissible Moment [N·m]	M_P: 4.2 M_Y: 4.2 M_R: 10.5
⑥	Static Permissible Moment [N·m]	M_P: 26.4 M_Y: 26.4 M_R: 52.0

Model	⑦ Lead [mm]	⑧ Transportable Mass [kg]		⑨ Thrust [N]	⑩ Push Force [N]	⑪ Holding Force [N]	⑫ Maximum Speed (Stroke) [mm/s]			
		Horizontal	Vertical				50~550 mm	600 mm	650 mm	700 mm
EZS3D□-K	12	~7.5	–	~43	100	70	600	550	460	400
EZS3D□M-K			~3.5							
EZS3E□-K	6	~15	–	~86	200	140	300	270	220	200
EZS3E□M-K			~7							

① Drive Method

Mechanism used to convert motor rotation to linear motion.

② Repetitive Positioning Accuracy

A value indicating the amount of error that generates when positioning is performed repeatedly to the same position in the same direction.

③ Resolution

Distance the table moves with one pulse input.

④ Traveling Parallelism

Runout widths in the height and lateral directions between the mounting surface of the linear slide and the top surface of the table.

⑤ Dynamic Permissible Moment

When a load is placed in a position away from the center (center of gravity) of the linear slide table, a load moment acts to the linear guide. The moment acts to a pitching direction (M_P), yawing direction (M_Y) or rolling direction (M_R) according to the load position.
Dynamic permissible moment is the moment that acts during operation.

⑥ Static Permissible Moment

When a load is placed in a position away from the center (center of gravity) of the linear slide table, a load moment acts to the linear guide. The moment acts to a pitching direction (M_P), yawing direction (M_Y) or rolling direction (M_R) according to the load position.
Static permissible moment is the moment that acts static conditions.

⑦ Lead

Distance the table moves in one motor shaft rotation.

⑧ Transportable Mass

- Horizontal Direction
  Mass that can be moved under rated conditions in the horizontal direction.

- Vertical Direction
  Mass that can be moved under rated conditions in the vertical direction.

⑨ Thrust

Thrust force at constant speed with no load.

⑩ Push Force

Maximum push force during a push operation in which a load is pressed continuously.

⑪ Holding Force

Holding force at motor standstill during power is ON or the holding force when the electromagnetic brake is operating.

⑫ Maximum Speed

Maximum speed allowed to be moved with the maximum transportable mass.