Motorized Actuators

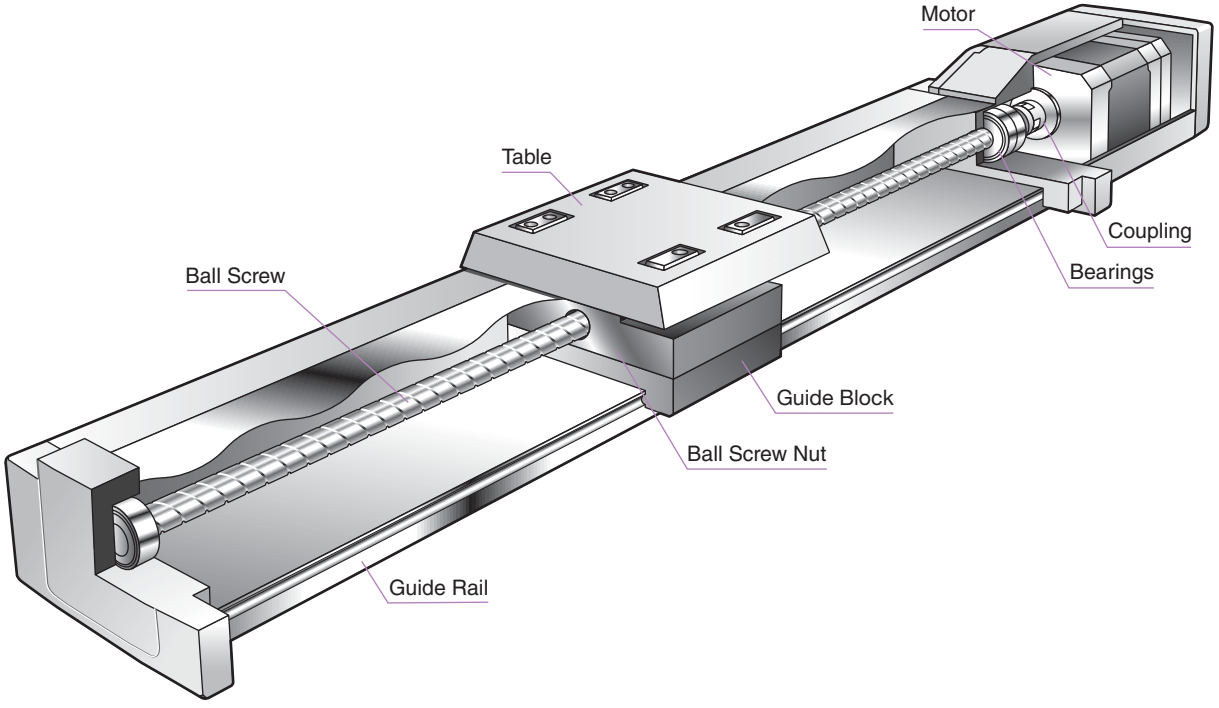
Motorized Linear Slides

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 provided by the guide.

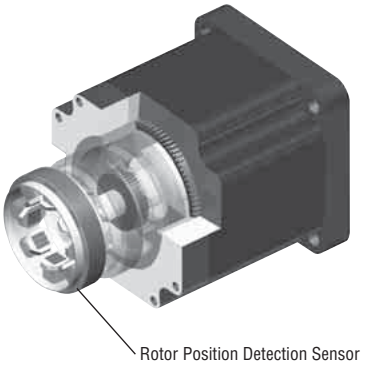
High Accuracy Positioning Operation

The ball screw is rotated by a closed loop α_{STEP} stepping motor to position even table fixed to a ball screw nut with high accuracy. Guide rail fixed to the table can guide an accurate linear motion and support a weight of the load, precise positioning of a large inertial load can be also possible.



Adopting a Control Motor to Achieve Accurate, Multi-Functional Positioning

The **EZSII** Series adopts an α_{STEP}. The α_{STEP} utilizes our unique closed loop control to maintain positioning operation even during abrupt load fluctuations and accelerations.

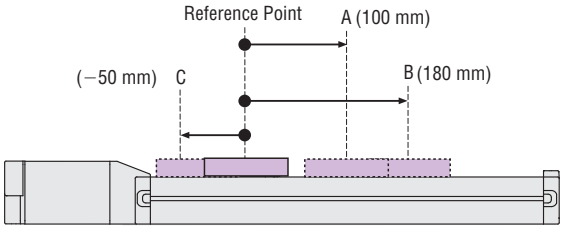


Offering Features That Add Greater Convenience to Positioning Functions

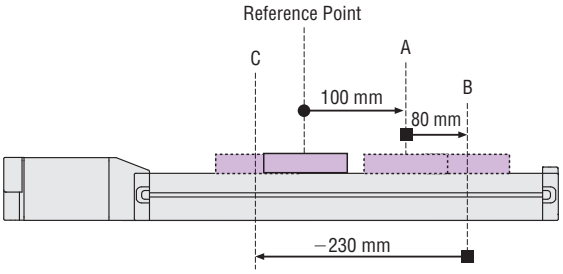
This controller is capable of controlling a linear slide, without tuning. It lets you use high-performance functions through simple operations.

Two Modes to Set Positioning Data Setting

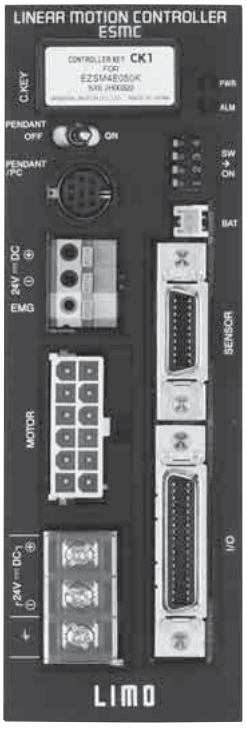
Data can be set in the absolute mode (absolute-position specification) or the incremental mode (incremental-position specification).



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

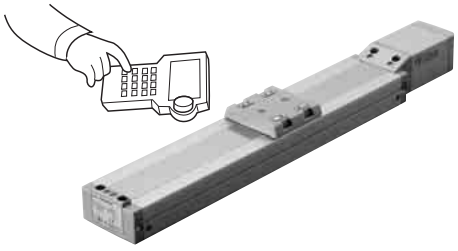


Incremental Mode:
The position achieved by the motor after the last movement (= current position) is defined as the starting point for the next movement.



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.

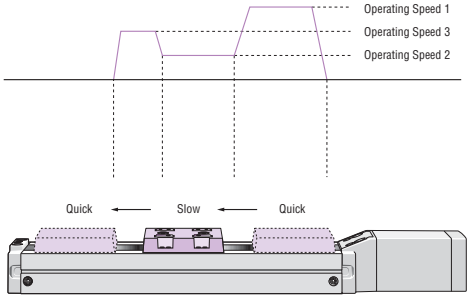


Function to Select Home Detection Methods

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.



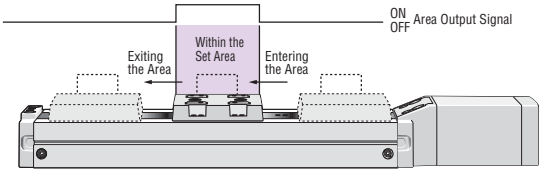
You can easily perform all tasks from data setting to actual operation by using our teaching pendant or data editing software.

●Teaching Pendant
(Sold separately)
EZT1

●Data Editing Software
(Sold separately)
EZED2

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.

How to Read Specifications

① Drive Method	Ball Screw	② Repetitive Positioning Accuracy [mm]	±0.02	③ Resolution [mm]	0.01	④ Traveling Parallelism [mm]	0.03	⑤ Maximum Load Moment [N·m]	MP: 4.2 MY: 4.2 MR: 10.5

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

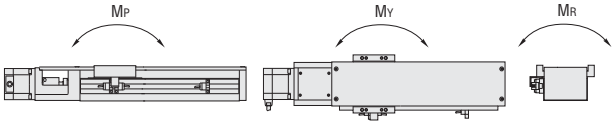
①Drive Method
Mechanism used to convert motor rotation to linear motion.

②Repetitive Positioning Accuracy
A value indicating the amount of error that generates when positioning is performed repeatedly to the same position in the same direction.

③Resolution
Distance the table moves with one pulse input.

④Traveling Parallelism
Runout widths in the height and lateral directions between the mounting surface of the linear slide and the top surface of the table.

⑤Maximum Load Moment
When a load is placed in a position away from the center (center of gravity) of the linear slide table, the linear slide receives a torsional force. The maximum load moment indicates the maximum force applied to the table in this condition.



⑥Lead
Distance the table moves in one motor shaft rotation.

⑦Transportable 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.

⑧Thrust
Thrust force at constant speed with no load.

⑨Electromagnetic Brake Holding Force
Holding force when the electromagnetic brake is operating.

⑩Maximum Speed
Maximum speed allowed to be moved with the maximum transportable mass.

⑪Stroke
Maximum distance the load can be moved.

Glossary

Linear Slide

Acceleration/Deceleration Rate

Acceleration rate indicates the change in speed per unit time. Acceleration rate is expressed in "m/s^{2}" when the international system of units (SI) is followed, or in the gravitational unit of "G" based on gravitational acceleration rate. The conversion formula is as follows:

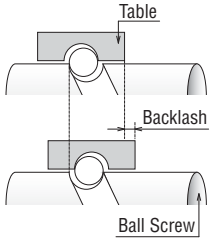
1 G ≒ 9.807 m/s^{2}

With Oriental Motor's controllers (except for linear motion controllers), acceleration rate is referred to as "acceleration/deceleration rate." The unit of acceleration/deceleration rate is ms/kHz. The conversion formula is as follows:

$$\text{Acceleration/deceleration rate [ms/kHz]} = \frac{\text{Resolution [mm]} \times 10^{3}}{\text{Acceleration rate [m/s}^{2}\text{]}}$$

Backlash

A play along the ball within the raceways of the ball screw and screw nut.



Ball Retainer® (Manufactured by THK)

The Ball Retainer® holds individual balls in a manner preventing contact between adjacent balls and thereby allowing smooth rotation of balls. The LM Guide® adopting Ball Retainer® is structured so that the balls move along a circular path while being held by Ball Retainer®.

This structure provides the following benefits:

①The balls do not make contact with each other and thus grease lasts longer, resulting in a longer life and maintenance-free period. Since grease does not splash much, less dust is produced.

②The balls move smoothly and generate less noise without clashing with each other.

③The balls do not make contact with each other and thus less heat is generated, which makes this structure ideally suited for high-speed operation.

● Ball Retainer and LM Guide are registered trademarks of THK Co., Ltd.

Grease

The class of lubricants applied to smoothen the movement of guides and moving parts of the ball screw.

Grease forms an oil film on metal surface to reduce wear and friction, thereby prolonging the life and preventing rust. Linear slides require periodic maintenance of grease according to their use conditions.

Life

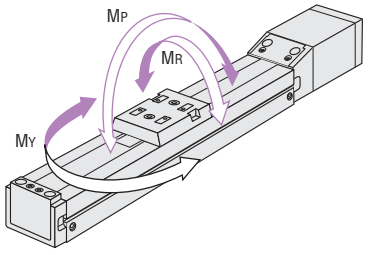
The life of a linear slide is generally affected by the rolling fatigue life of its ball screw or linear guide. When stress is applied repeatedly to the raceways and rolling elements of the ball, flaking (a phenomenon in which the metal surface turns into small scale-like pieces to separate from the base metal) occurs due to material fatigue caused by rolling fatigue. The rolling fatigue life refers to the time until the flaking occurs.

Since the life of each linear guide or ball screw is varied, a rated life is calculated for each product based on its maximum ratings (maximum transportable mass, maximum speed, etc.) as a reference for calculating the product's life.

The life values specified for our products are not guaranteed. A reference traveling life of the **EZSII** Series is 5000 km (3000 km for **EZS□E**).

Load Moment

When the load acting upon the table extends beyond the table in the longitudinal, lateral or vertical direction, the linear slide receives a torsional force. This torsional force is referred to as "load moment." Moment applies in the three directions of pitching (MP), yawing (MY) and rolling (MR), as shown below. In a condition where moment is not applied in two of these three directions, the permissible moment applied only in one direction is defined as the maximum value of moment. Permissible moments in respective directions are specified for each product.



Long-Term Maintenance-Free

Here, "maintenance" specifically refers to maintenance of grease. The maintenance interval can be extended considerably through the use of a lubrication system QZ™.

Lost Motion

The difference between positions achieved by repeated positioning operations to the same positioning point performed in the positive and negative directions.

Lubrication System QZ™ (Manufactured by THK)

A lubrication system that supplies an appropriate amount of lubricating oil to the raceways of the ball screw. An oil film is maintained between the rolling element and raceways, which extends the maintenance interval considerably.

Maximum Load Moment (Pitching direction, yawing direction, rolling direction)

The life of each linear slide is defined as a corresponding travel distance, which is affected by the moment that can be tolerated by the table. The maximum load moment indicates the maximum value of moment with which the linear slide can reach its specified life.

●Mounting Reference Surface

Reference surfaces used for mounting are provided on the body of the linear slide. These reference surfaces are used to install the linear slide in the same position after removal for maintenance, etc.

●Operation Duty

The ratio of the time spent by the linear slide to perform one operation to the time during which it is stopped (= operating ratio of the motor).
Oriental Motor's linear slides should be used at an operation duty of not more than 50%. If the operation duty exceeds 50%, the motor surface temperature may rise to 100˚C or above and the motor life will be reduced as a result.
If the ambient temperature remains at or below the maximum allowable ambient temperature specified for each product +40˚C, the motor surface temperature should not exceed 100˚C as long as the operation duty remains 50% or below. If the operation duty will exceed 50%, take appropriate measures to keep the motor surface temperature under 100˚C.

●Positioning Time Coefficient

Multiplying the positioning time coefficient by the positioning time needed when the linear slide is operated at the maximum ratings provides the positioning time required at the maximum speed corresponding to the applicable stroke. The longer the stroke, the lower the maximum drivable speed becomes in order to prevent the ball screw from reaching a critical speed. (For the positioning time coefficient of each product, refer to "Positioning distance – positioning time.")

●Repetitive Positioning Accuracy

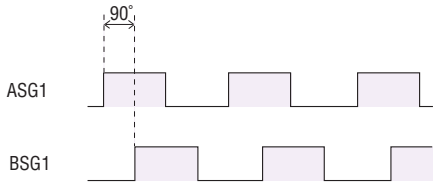
A value indicating the amount of error that generates when positioning is performed repeatedly to the same position in the same direction.

■Linear Motion Controller

●A-Phase/B-Phase Output

While the linear slide table is moving, A-phase and B-phase pulses are output continuously.
•A-phase output: The table position can be monitored by counting the number of output pulses.
•B-phase output: The B-phase output has a 90˚ phase difference compared with the A-phase output.

The traveling direction of the table can be identified from the B-phase output level at the leading edge of the A-phase output pulse.



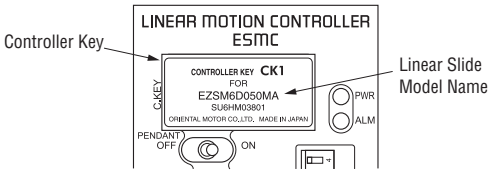
DIR.-A Pulse Input (2-pulse input)

ASG1 output: Pulses corresponding to linear slide operation are output.
BSG1 output: This output is used to identify the traveling direction of the table. There is a 90˚ phase difference compared with the ASG1 output. The traveling direction of the table can be identified from the BSG1 output level at the leading edge of the ASG1 output pulse.

●Controller Key

The controller key is used with linear motion controllers.
The controller key stores parameters relating to linear slide control. The following parameters are automatically set in accordance with the specifications of the linear slide combined with the controller:
•I/O parameter: Enable or disable LS detection
•Home parameter: Return to home method
•Speed parameters: Starting speed, acceleration, deceleration, common operating speed
•Common parameter: Upper soft limit
•Internal settings (cannot be changed): Resolution, maximum operating speed, maximum acceleration/deceleration, motor control settings

Always confirm that the linear slide model name shown on the controller key matches the linear slide model physically connected. If the two do not match, the linear slide cannot be operated according to its specifications.



●Controller Mode, Driver Mode

•Controller mode: A mode in which data stored in the linear motion controller is used to operate the linear slide.
•Driver mode: A mode in which pulse signals output from user's controller are used to operate the linear slide.

●Control Power Supply

This power supply is needed to use the linear motion controller's control functions such as data setting and operation execution. Always connect a control power supply.

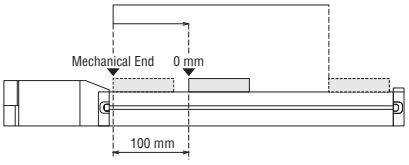
●HOMELS (Home sensor)

This sensor is used to determine the reference point in positioning operation. It is used during return to home operation in 3-sensor mode.

●Home Offset

A home offset is used to define the home (current position = 0 mm) at a position away by a certain distance from the position detected in return to home operation (mechanical end or ±LS or HOMELS position).
When a home offset is set, the linear slide will complete return to home operation and then automatically move to the home offset position before stopping.
This setting is useful when you wish to set the home at a position away from a mechanical end or when a sensor cannot be installed in the position you wish to set as the home.

(Example) Home offset = 100 mm
Return to home operation = Sensorless mode



A position 100 mm away from the mechanical end is set as the home.

●I/O Power Supply

This power supply is needed to use I/O signals such as START input and END output. Always connect an I/O power supply.

●+LS/−LS

These are limit sensors in the positive and negative directions. They are used to prevent the linear slide table from exceeding the table limit position.
When a +LS or −LS sensor signal is detected, the operation will stop and an alarm will generate. During return to home operation in 2-sensor mode, the position at which a +LS or −LS sensor signal is detected can be used as the home.

●Main Power Supply

This power supply is needed to drive the motor. Always connect a main power supply.
The required current to be supplied from the main power supply of each linear motion controller varies depending on the linear slide connected to the controller.

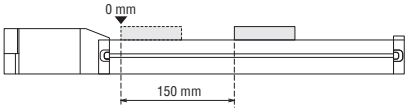
●Positioning Completion Area

A band around the position specified in the positioning command, within which the positioning is deemed completed. When the linear slide table enters this positioning completion area (specified in mm), the END output (positioning completion output) will turn ON.

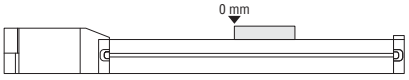
●Preset

A preset is used to change the predefined current position. You can enter a desired preset position.

(Example) When the preset position is set to 0 mm
①Stop the linear slide table at the 150 mm position, and then turn the preset input ON.



②In each positioning operation performed after ①, the position achieved in ① is used as the 0 mm position.



●Return to Home Operation

An operation to confirm the home (current position = 0 mm) for positioning operation. Return to home operation is performed in one of the following three modes:

- Sensorless mode: The position at which the table contacts a mechanical end of the linear slide is set as the home. Since no sensor is used, it is also called "sensorless return to home operation."
- 2-sensor mode: A return to home operation that uses sensors. The position at which a +LS or −LS sensor signal is detected is set as the home. Which sensor is used as the home is set in the linear motion controller.
- 3-sensor mode: Three sensors, namely +LS, −LS and HOMELS, are used. In this return to home operation, the position at which a HOMELS sensor signal is detected is set as the home.

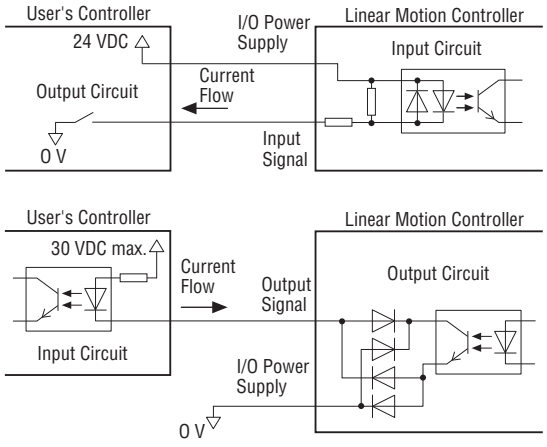
●Sensor Power Supply

This power supply is needed when sensors such as ±LS and HOMELS are connected to the linear motion controller. Always connect a sensor power supply when sensors are used.

●Sink Logic (NPN) Specification

When the output circuit turns ON, current flows into the output circuit.

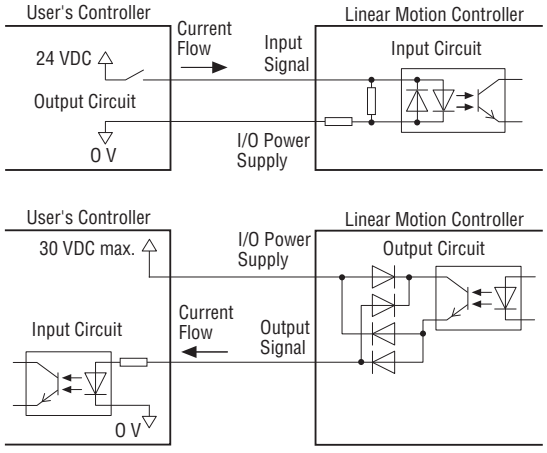
(Example) Connection of the Controllers



●Source Logic (PNP) Specification

When the output circuit turns ON, current flows out of the output circuit.

(Example) Connection of the Controllers



EZSII Series linear motion controllers adopt an I/O specification that allows the controller to be used with either the NPN or PNP specification by changing the wiring.

●Soft Limits

The traveling range corresponding to the stroke is predefined in the controller. The upper limit and lower limit of the traveling range set in the linear motion controller are referred to as "+ soft limit" and "− soft limit," respectively. If the linear slide table is operated to a position beyond a soft limit, the table will stop at the soft limit position and an alarm will generate.

■Safety and Standards

●Category

A classification into five levels of B and 1 to 4 of the ability to maintain safe function should a safety control system fail.
[Refer to EN 954-1 (ISO 13849-1:1999) for details.]

●Emergency Stop

A function to stop the machine with a single human action in order to avoid or reduce potential dangers to the man or damage to the machine or load in process.

In general, an emergency stop circuit is configured by combining mechanical parts such as relays and switches to cut off the power source (or cut off the motor power in the case of a linear slide). Stopping the motor while it is still excited, stopping the motor by controller's stopping function or stopping the motor using a software-operated device such as a programmable controller or personal computer can cause malfunction due to a programming error or noise. By cutting off the motor power by non-software means, an emergency stop can be actuated more reliably.
[Refer to EN 418 (ISO 13850) for details.]

●Risk Assessment

A method to enable systematic assessment of potential dangers associated with the machine.
[Refer to EN 1050 (ISO 14121) for details.]

Estimate risks based on the usage of the machine or potential dangers associated with machine itself, and determine the necessary countermeasures. Use the risk assessment result to select the required emergency stop category and control system category.

Machines using the same linear slide may have different risk assessment results depending on the design, installation condition of safety covers over exterior surface and other conditions of each machine. You must conduct risk assessment of your specific machine to select appropriate categories.

●Stop Category

Functions to stop a machine are classified into three categories as specified below:

Stop category 0: Stop the machine by directly cutting off the power to the machine's actuator. (In the case of a linear slide, the motor power is cut off.)
Stop category 1: A controlled stop where power is supplied to stop the machine's actuator, and then the power is cut off once the actuator has stopped. (This method is used in situations where suddenly cutting off the motor power may cause other dangers.)
Stop category 2: A controlled stop where power remains supplied to the machine's actuator. (In the case of a linear slide, the linear slide is stopped while the motor is still excited.)

An emergency stop must conform to stop category 0 or 1.
Which category should be selected is determined based on risk assessment of user's equipment.
[Refer to EN 60204-1 (IEC 60204-1) for details.]

RoHS RoHS-Compliant
Motorized Linear Slides

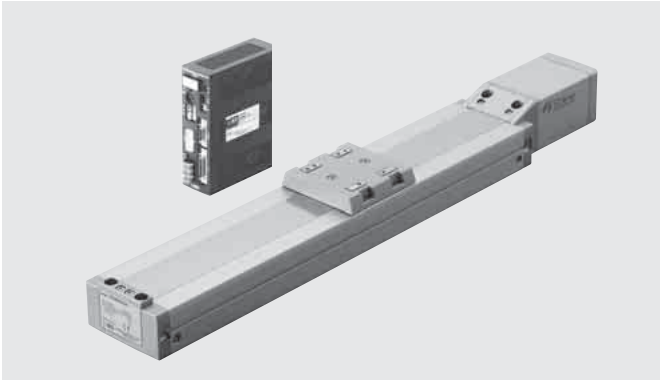
EZ limo EZS II Series

●Additional Information●
Technical reference ➜ Page F-1
Safety standards ➜ Page G-2

The high-precision, compact body was made possible by adopting a rolled ball screw and guide frame structure. The compact design facilitates easy installation and wiring into your system for added convenience.

CE

●List of safety standard approved products (Model, Standards, File No., Certification Body)
➜ Page G-11



Features

●Adopting a Closed Loop αSTEP Stepping Motor, This Linear Slide Eliminates Hunting, while Attaining High-Speed and High-Response Operation.

The linear slide has no hunting problem upon stopping. The vibration and noise levels have been lowered by employing advanced technology that produces smoothness comparable to a microstep driver.

●High-Speed Positioning Carrying a Heavy Load

EZS6 (lead: 6 mm): Maximum transportable mass **60** kg

EZS3, **EZS4**, **EZS6** (lead: 12 mm): Maximum speed **800** mm/s
(single-phase 100-115 VAC/200-230 VAC Input)

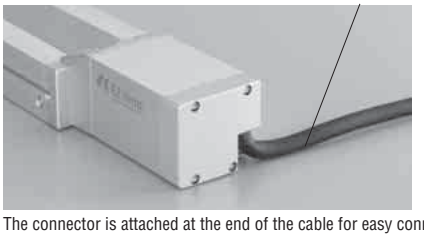
●The Total Length of Linear Slide is Short for Every Stroke and Model.

EZS3, **EZS4**: Total length of linear slide = Stroke + 209.5 mm
Since the space outside the linear slide's operating range is minimized, the overall system size can be reduced.

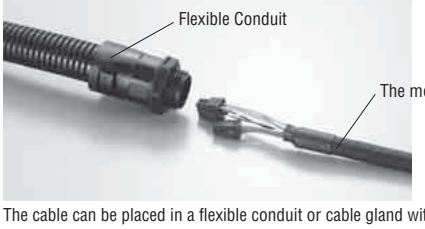
●Easy Wiring between the Linear Slide and Controller

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 connector is attached at the end of the cable for easy connection.



The cable can be placed in a flexible conduit or cable gland with an inner diameter of ϕ16.5 mm.

General Specifications of Motor

● General specifications of linear motion controller ➜ Page D-39

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 and 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 and 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.

●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 and 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 and sensor windings **EZS3**, **EZS4**: 1.0 kVAC 50 Hz **EZS6**: 1.5 kVAC 50 Hz · Motor case – Windings of electromagnetic brake (Only for electromagnetic brake type) 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.

●Maintenance-Free for Long-Term Performance

The drive method uses a ball screw, while the guide mechanism adopts the LM Guide®. The ball screw employs the QZ™ lubrication system, while the LM Guide® uses the Ball Retainer® to retain the coupled rolling elements. These mechanisms give the system a considerable duration of maintenance-free performance.

● QZ™ lubrication system (THK): High-density fiber net supplies appropriate amounts of oil, thereby preventing oil waste and reducing environmental burden.

● Ball Retainer®: Individual balls are retained in a manner allowing smooth rotation while preventing contact with adjacent balls. Use of the Ball Retainer® provides long-term, maintenance-free operating conditions and other benefits.

● Ball Retainer and LM Guide are registered trademarks of THK Co., Ltd.

●Order Your Linear Slide with the Necessary Stroke

Range of selectable strokes: **50**~**850** mm

EZS3, **EZS4**: 50～700 mm

EZS6: 50～850 mm

Each model is available with strokes in 50 mm increments.

●(RoHS) RoHS-Compliant

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

● Details of RoHS Directive ➜ Page G-38

Combining all functions needed to operate a linear slide in positioning mode

Features

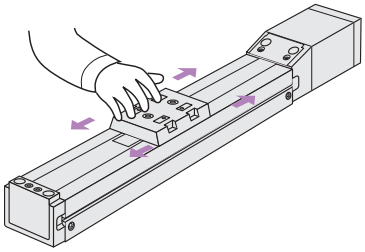
●Up to 63 Points of Positioning Data Can be Set with Ease

Positioning data can be set in one of three methods, as specified below (when the controller is used in the controller mode).

①Enter the desired travel amount (mm) directly.

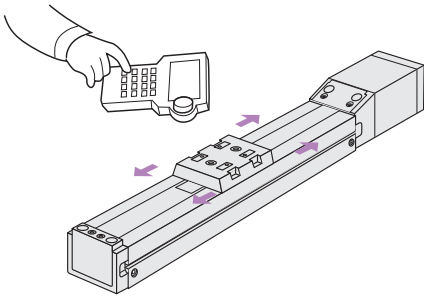
②Direct teaching

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



③Remote teaching

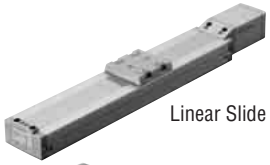
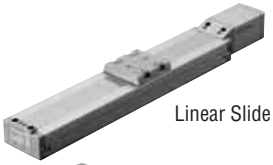
Move the table to the target position using a teaching pendant or data editing software, and store the achieved position as positioning data.



●Choice of Incremental or Absolute Option

The controller can be used as an absolute system by connecting an optional battery set (sold separately).

Choose the absolute option if you want to start operation from the current position rather than the home position, when the power is turned on, or in the event of a power failure.

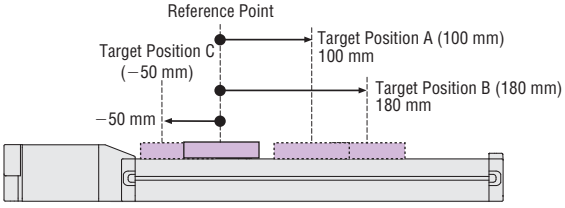
Incremental Option	Absolute Option
 Linear Slide  Linear Motion Controller (Mode switch 3: OFF)	 Linear Slide  Linear Motion Controller (Mode switch 3: ON) +  Battery Set (Sold separately)

●Two Positioning Data Settings

You can set positioning data in the absolute mode or incremental mode, depending on your preferred movement of the equipment.

◇Absolute Mode (Absolute-position specification):

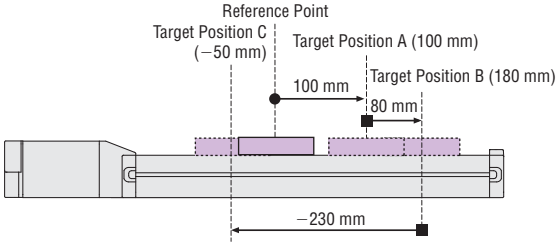
Each position is set as the absolute position with respect to the reference point. This is suitable when you want to move the work directly from an arbitrary position to a specified position.



◇Incremental Mode (Relative-position specification):

Each position is relative, being set as an amount of travel from the current position or another target position for the work.

This is done in a regular feed or other operation where the same pattern is used repeatedly.



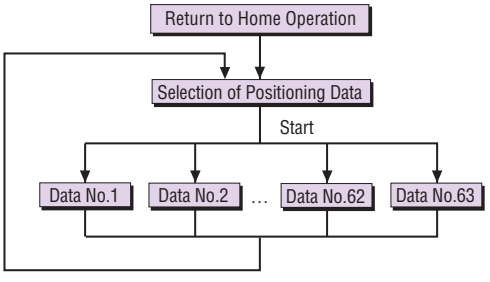
●Travel Amount Setting (Example)

Target Position	Travel Amount Setting	
	Absolute Mode	Incremental Mode
A	100	100
B	180	80
C	−50	−230

●Selective Positioning and Sequential Positioning Two Data Execution Modes

◇Selective Positioning Mode

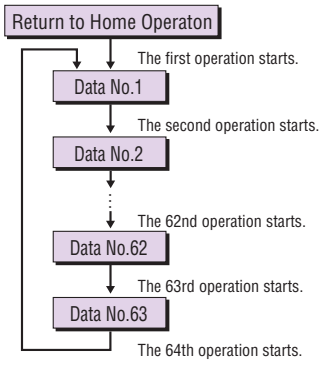
The set data can be selected at random.



Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

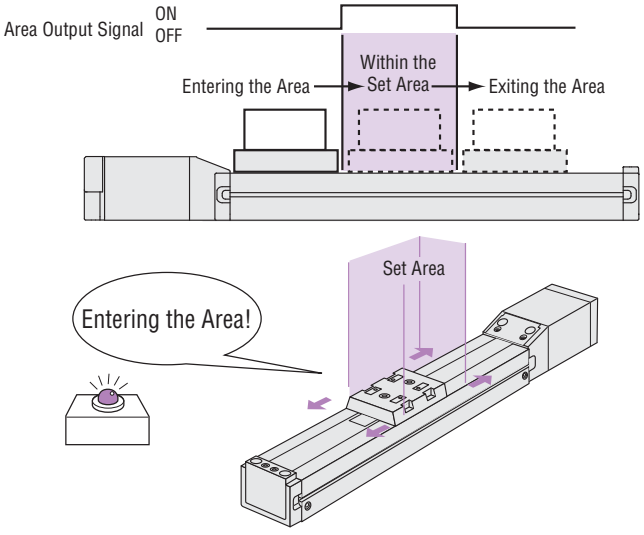
◇Sequential Positioning Mode

Positioning operation is performed sequentially from the desired data.



●Area Output Function

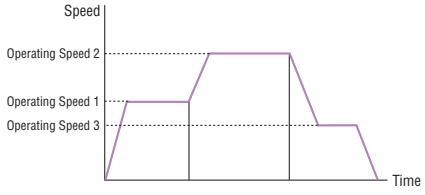
A signal is output when the linear slide table enters a set area arbitrarily set along the stroke. One set area can be set.



●Linked Operation

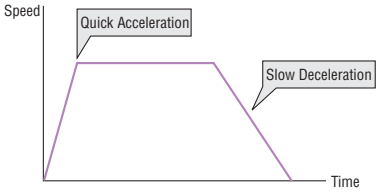
Up to four operation data can be linked, thereby allowing the linear slide to change speeds without stopping.

• Data with the same operation direction can be linked.



●Separate Acceleration and Deceleration Settings

Acceleration and deceleration can be set separately.



●Choice of Two Return to Home Methods

◇Sensorless Return to Home

Return to home is performed without the use of external sensors. The home position 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. The sensors are available as accessories (sold separately).

●Sensor set ➜ Page D-49

●Operation Using External Pulse Input

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	●	×
Area Output Function	●	×
Absolute Specification	●	●
Sensorless Return to Home	●	●
Return to Home Using Sensor	●	●※

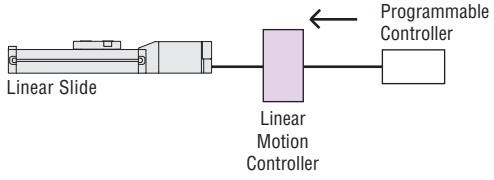
●: Available ×: Not available

※Data must be set from the teaching pendant or data editing software.

●Normal System Configuration

Controller Mode

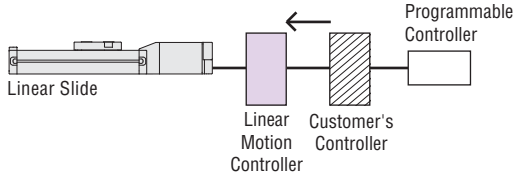
The linear slide is controlled by selecting positioning data preset in the linear motion controller.



●When Combined with the Customer's Controller

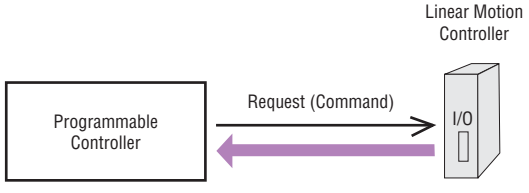
Driver Mode

The linear slide is controlled by inputting pulse signals.



●Output of Current Position and Error Code

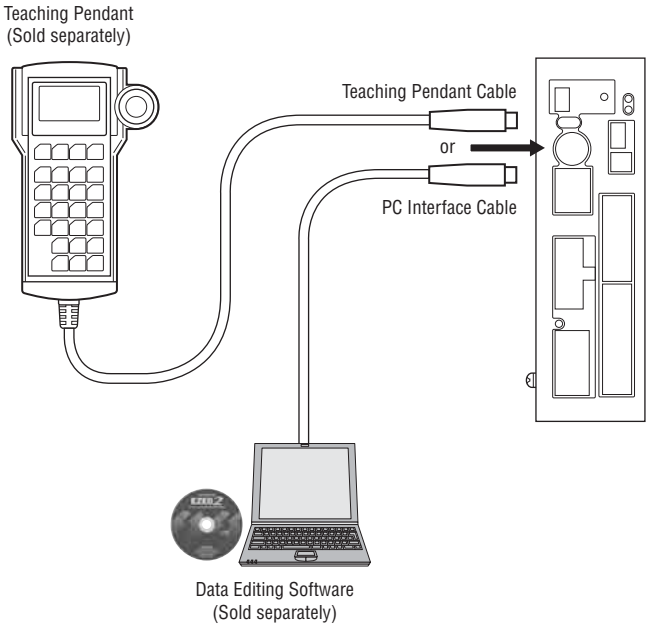
The current position, error code and certain other data can be output to an external device.



Output the current position or error code, etc.

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

A teaching pendant and data editing software are available.
Choose the appropriate accessory based on the required functions.



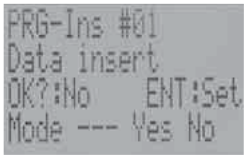
Teaching Pendant (EZT1)/Data Editing Software (EZED2) Function Comparison Table

Function	Item	
	Teaching Pendant (Model: **EZT1**)	Data Editing Software (Model: **EZED2**)
Cable Length	5 m	5 m※1
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 & Alarm History Monitoring	○	○
Waveform Monitoring	×	○
Test Operation	○	○
Data Copy	×	○
Printing Function	×	○※2

○: Available ×: Not available
※1 PC interface cable (included) is used.
※2 The printing function is not available on computers running Windows®98, Me.

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.
- A 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.



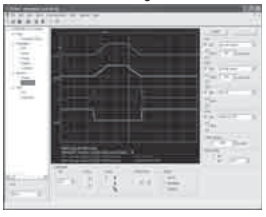
Data Editing Software (Sold separately) Model: EZED2

- 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, 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.
- You can also access waveform monitoring, data copy and other features not available on the teaching pendant.

Data Editing

Test Operation

Waveform Monitoring



Status Monitoring

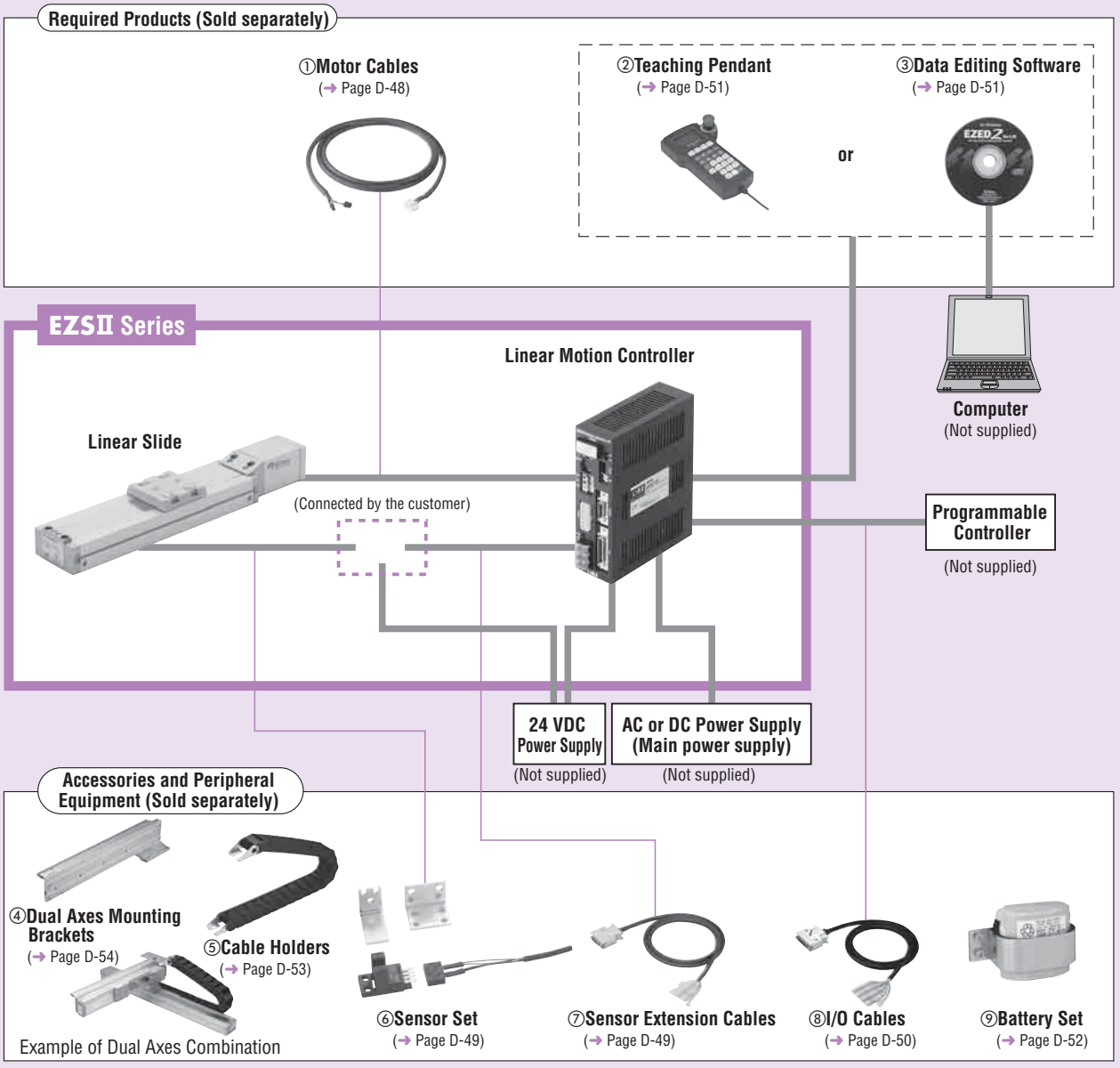
Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

Selection of EZSII Series Motorized Linear Slides

Linear Slide Size		EZS3				EZS4				EZS6			
Linear Slide Width × Height		54 mm × 50 mm				74 mm × 50 mm				74 mm × 66.5 mm			
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]	MP	4.2				8				45.7			
	MY	4.2				8				37.5			
	MR	10.5				27.8				55.6			
Maximum Transportable Mass in Horizontal Direction [kg]		7.5	15	7.5	15	15	30	15	30	30	60	30	60
Maximum Transportable Mass in Vertical Direction [kg]		3.5	7	3.5	7	7	14	7	14	15	30	15	30
Maximum Speed [mm/s]		600	300	800	400	600	300	800	400	600	300	800	400
Repetitive Positioning Accuracy [mm]		±0.02											
Stroke [mm] Available in 50 mm Increments		50 ~ 700	50 ~ 700	50 ~ 700	50 ~ 700	50 ~ 700	50 ~ 700	50 ~ 700	50 ~ 700	50 ~ 850	50 ~ 850	50 ~ 850	50 ~ 850
Electromagnetic Brake		With electromagnetic brake or without electromagnetic brake versions are available											

System Configuration

Controller Mode



No.	Product Name	Overview	Page
①	Motor Cables	Dedicated cable for connecting the linear slide and linear motion controller (1 to 20 m). Be sure to purchase this cable.	D-48
②	Teaching Pendant	This pendant (**EZT1**) lets you set and operate various data at your fingertips. Comes with a 5 m cable.	D-51
③	Data Editing Software	This software (**EZED2**) lets you set and edit various data on a computer. Comes with a dedicated PC interface cable (5 m).	D-51
④	Dual Axes Mounting Brackets	Bracket that makes dual axes combination easy.	D-54
⑤	Cable Holders	This cable holder protects and guides cables in dual or three axes combinations.	D-53
⑥	Sensor Set	Three sets of sensors, sensor mounting brackets and cables with connector (2 m), as well as a shielding plate.	D-49
⑦	Sensor Extension Cables	Cable for connecting the linear motion controller and sensor (1 m, 2 m).	D-49
⑧	I/O Cables	Cable for connecting the linear motion controller and host controller (1 m, 2 m).	D-50
⑨	Battery Set	This battery set (**PAEZ-BT2H**) is needed to use the linear motion controller in the absolute mode.	D-52

Example of System Configuration

(Sold separately)

EZSⅡ Series	Motor Cable (2 m)	Teaching Pendant
EZS3E005-A	CC020ES-2	EZT1

+

(Sold separately)

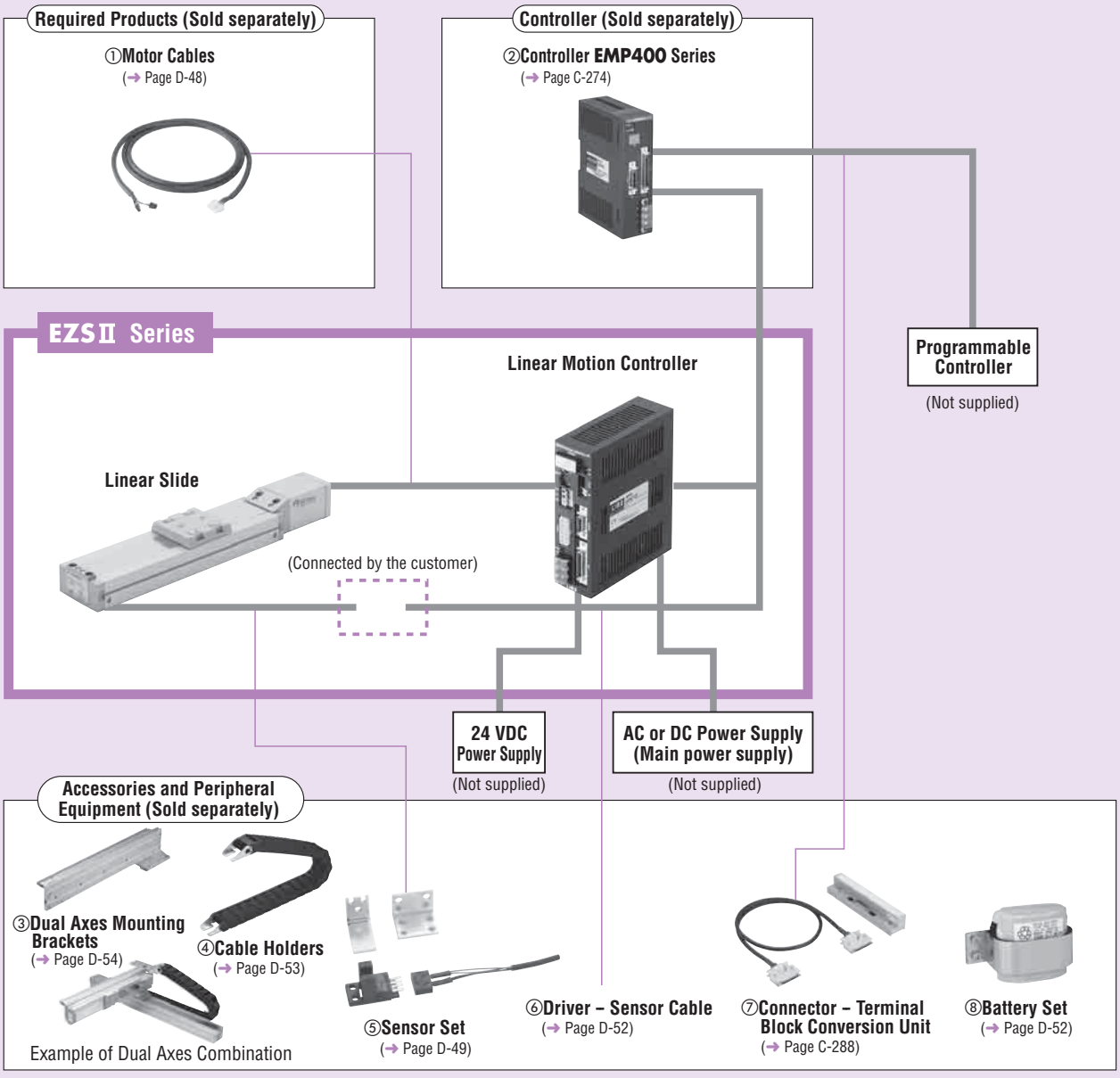
I/O Cable (1 m)	Sensor Extension Cable* (2 m)	Sensor Set*
CC36D1-1	CC20D2-1	PAES-S

*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 D-22.
Teaching pendant or data editing software is required to change parameters (I/O logic, velocity filter, etc.) of the linear motion controller.



No.	Product Name	Overview	Page
①	Motor Cables	Dedicated cable for connecting the linear slide and linear motion controller (1 to 20 m). Be sure to purchase this cable.	D-48
②	Controller	This controller gives commands needed to drive the linear slide.	C-274
③	Dual Axes Mounting Brackets	Bracket that makes dual axes combination easy.	D-54
④	Cable Holders	This cable holder protects and guides cables in dual or three axes combinations.	D-53
⑤	Sensor Set	Three sets of sensors, sensor mounting brackets and cables with connector (2 m), as well as a shielding plate.	D-49
⑥	Driver – Sensor Cable	Cable for connecting the linear motion controller and **EMP** Series controller (0.5 m).	D-52
⑦	Connector – Terminal Block Conversion Unit	Set of terminal block and cable for connecting the **EMP** Series controller and host controller (1 m).	C-288
⑧	Battery Set	This battery set (**PAEZ-BT2H**) is needed to use the linear motion controller in the absolute mode.	D-52

●Example of System Configuration

(Sold separately)			(Sold separately)			
EZSⅡ Series	Motor Cable (2 m)	+	Controller	Driver – Sensor Cable (0.5 m)	Sensor Set	Connector – Terminal Block Conversion Unit (1 m)
EZS3E005-A	CC020ES-2		EMP401-1	CC005EZ6-EMPD	PAES-S	CC50T1

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

Product Number Code

EZS 3 D 050 M - K

① ② ③ ④ ⑤ ⑥

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

Product Line

EZS3

Stroke	Without Electromagnetic Brake			With Electromagnetic Brake		
	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC
	Model	Model	Model	Model	Model	Model
50 mm	**EZS3□005-K**	**EZS3□005-A**	**EZS3□005-C**	**EZS3□005M-K**	**EZS3□005M-A**	**EZS3□005M-C**
100 mm	**EZS3□010-K**	**EZS3□010-A**	**EZS3□010-C**	**EZS3□010M-K**	**EZS3□010M-A**	**EZS3□010M-C**
150 mm	**EZS3□015-K**	**EZS3□015-A**	**EZS3□015-C**	**EZS3□015M-K**	**EZS3□015M-A**	**EZS3□015M-C**
200 mm	**EZS3□020-K**	**EZS3□020-A**	**EZS3□020-C**	**EZS3□020M-K**	**EZS3□020M-A**	**EZS3□020M-C**
250 mm	**EZS3□025-K**	**EZS3□025-A**	**EZS3□025-C**	**EZS3□025M-K**	**EZS3□025M-A**	**EZS3□025M-C**
300 mm	**EZS3□030-K**	**EZS3□030-A**	**EZS3□030-C**	**EZS3□030M-K**	**EZS3□030M-A**	**EZS3□030M-C**
350 mm	**EZS3□035-K**	**EZS3□035-A**	**EZS3□035-C**	**EZS3□035M-K**	**EZS3□035M-A**	**EZS3□035M-C**
400 mm	**EZS3□040-K**	**EZS3□040-A**	**EZS3□040-C**	**EZS3□040M-K**	**EZS3□040M-A**	**EZS3□040M-C**
450 mm	**EZS3□045-K**	**EZS3□045-A**	**EZS3□045-C**	**EZS3□045M-K**	**EZS3□045M-A**	**EZS3□045M-C**
500 mm	**EZS3□050-K**	**EZS3□050-A**	**EZS3□050-C**	**EZS3□050M-K**	**EZS3□050M-A**	**EZS3□050M-C**
550 mm	**EZS3□055-K**	**EZS3□055-A**	**EZS3□055-C**	**EZS3□055M-K**	**EZS3□055M-A**	**EZS3□055M-C**
600 mm	**EZS3□060-K**	**EZS3□060-A**	**EZS3□060-C**	**EZS3□060M-K**	**EZS3□060M-A**	**EZS3□060M-C**
650 mm	**EZS3□065-K**	**EZS3□065-A**	**EZS3□065-C**	**EZS3□065M-K**	**EZS3□065M-A**	**EZS3□065M-C**
700 mm	**EZS3□070-K**	**EZS3□070-A**	**EZS3□070-C**	**EZS3□070M-K**	**EZS3□070M-A**	**EZS3□070M-C**

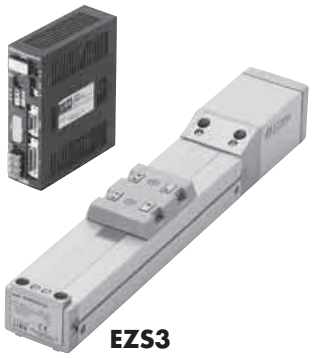
● Enter **D** (12 mm) or **E** (6 mm) (lead length) in the box (□) within the model name.

EZS4

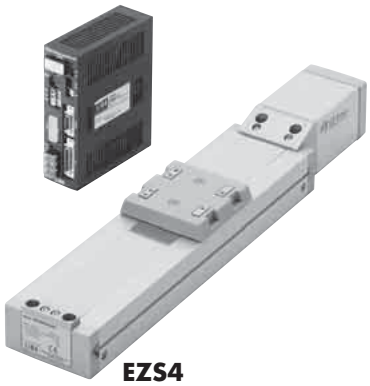
Stroke	Without Electromagnetic Brake			With Electromagnetic Brake		
	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC
	Model	Model	Model	Model	Model	Model
50 mm	**EZS4□005-K**	**EZS4□005-A**	**EZS4□005-C**	**EZS4□005M-K**	**EZS4□005M-A**	**EZS4□005M-C**
100 mm	**EZS4□010-K**	**EZS4□010-A**	**EZS4□010-C**	**EZS4□010M-K**	**EZS4□010M-A**	**EZS4□010M-C**
150 mm	**EZS4□015-K**	**EZS4□015-A**	**EZS4□015-C**	**EZS4□015M-K**	**EZS4□015M-A**	**EZS4□015M-C**
200 mm	**EZS4□020-K**	**EZS4□020-A**	**EZS4□020-C**	**EZS4□020M-K**	**EZS4□020M-A**	**EZS4□020M-C**
250 mm	**EZS4□025-K**	**EZS4□025-A**	**EZS4□025-C**	**EZS4□025M-K**	**EZS4□025M-A**	**EZS4□025M-C**
300 mm	**EZS4□030-K**	**EZS4□030-A**	**EZS4□030-C**	**EZS4□030M-K**	**EZS4□030M-A**	**EZS4□030M-C**
350 mm	**EZS4□035-K**	**EZS4□035-A**	**EZS4□035-C**	**EZS4□035M-K**	**EZS4□035M-A**	**EZS4□035M-C**
400 mm	**EZS4□040-K**	**EZS4□040-A**	**EZS4□040-C**	**EZS4□040M-K**	**EZS4□040M-A**	**EZS4□040M-C**
450 mm	**EZS4□045-K**	**EZS4□045-A**	**EZS4□045-C**	**EZS4□045M-K**	**EZS4□045M-A**	**EZS4□045M-C**
500 mm	**EZS4□050-K**	**EZS4□050-A**	**EZS4□050-C**	**EZS4□050M-K**	**EZS4□050M-A**	**EZS4□050M-C**
550 mm	**EZS4□055-K**	**EZS4□055-A**	**EZS4□055-C**	**EZS4□055M-K**	**EZS4□055M-A**	**EZS4□055M-C**
600 mm	**EZS4□060-K**	**EZS4□060-A**	**EZS4□060-C**	**EZS4□060M-K**	**EZS4□060M-A**	**EZS4□060M-C**
650 mm	**EZS4□065-K**	**EZS4□065-A**	**EZS4□065-C**	**EZS4□065M-K**	**EZS4□065M-A**	**EZS4□065M-C**
700 mm	**EZS4□070-K**	**EZS4□070-A**	**EZS4□070-C**	**EZS4□070M-K**	**EZS4□070M-A**	**EZS4□070M-C**

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

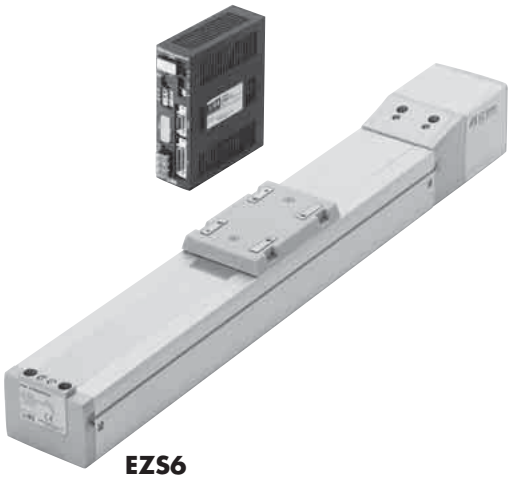
Features D-16 / General Specifications of Motor D-17 / System Configuration D-22



EZS3



EZS4



EZS6

●EZS6

Stroke	Without Electromagnetic Brake			With Electromagnetic Brake		
	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC	24 VDC	Single-Phase 100-115 VAC	Single-Phase 200-230 VAC
	Model	Model	Model	Model	Model	Model
50 mm	**EZS6□005-K**	**EZS6□005-A**	**EZS6□005-C**	**EZS6□005M-K**	**EZS6□005M-A**	**EZS6□005M-C**
100 mm	**EZS6□010-K**	**EZS6□010-A**	**EZS6□010-C**	**EZS6□010M-K**	**EZS6□010M-A**	**EZS6□010M-C**
150 mm	**EZS6□015-K**	**EZS6□015-A**	**EZS6□015-C**	**EZS6□015M-K**	**EZS6□015M-A**	**EZS6□015M-C**
200 mm	**EZS6□020-K**	**EZS6□020-A**	**EZS6□020-C**	**EZS6□020M-K**	**EZS6□020M-A**	**EZS6□020M-C**
250 mm	**EZS6□025-K**	**EZS6□025-A**	**EZS6□025-C**	**EZS6□025M-K**	**EZS6□025M-A**	**EZS6□025M-C**
300 mm	**EZS6□030-K**	**EZS6□030-A**	**EZS6□030-C**	**EZS6□030M-K**	**EZS6□030M-A**	**EZS6□030M-C**
350 mm	**EZS6□035-K**	**EZS6□035-A**	**EZS6□035-C**	**EZS6□035M-K**	**EZS6□035M-A**	**EZS6□035M-C**
400 mm	**EZS6□040-K**	**EZS6□040-A**	**EZS6□040-C**	**EZS6□040M-K**	**EZS6□040M-A**	**EZS6□040M-C**
450 mm	**EZS6□045-K**	**EZS6□045-A**	**EZS6□045-C**	**EZS6□045M-K**	**EZS6□045M-A**	**EZS6□045M-C**
500 mm	**EZS6□050-K**	**EZS6□050-A**	**EZS6□050-C**	**EZS6□050M-K**	**EZS6□050M-A**	**EZS6□050M-C**
550 mm	**EZS6□055-K**	**EZS6□055-A**	**EZS6□055-C**	**EZS6□055M-K**	**EZS6□055M-A**	**EZS6□055M-C**
600 mm	**EZS6□060-K**	**EZS6□060-A**	**EZS6□060-C**	**EZS6□060M-K**	**EZS6□060M-A**	**EZS6□060M-C**
650 mm	**EZS6□065-K**	**EZS6□065-A**	**EZS6□065-C**	**EZS6□065M-K**	**EZS6□065M-A**	**EZS6□065M-C**
700 mm	**EZS6□070-K**	**EZS6□070-A**	**EZS6□070-C**	**EZS6□070M-K**	**EZS6□070M-A**	**EZS6□070M-C**
750 mm	**EZS6□075-K**	**EZS6□075-A**	**EZS6□075-C**	**EZS6□075M-K**	**EZS6□075M-A**	**EZS6□075M-C**
800 mm	**EZS6□080-K**	**EZS6□080-A**	**EZS6□080-C**	**EZS6□080M-K**	**EZS6□080M-A**	**EZS6□080M-C**
850 mm	**EZS6□085-K**	**EZS6□085-A**	**EZS6□085-C**	**EZS6□085M-K**	**EZS6□085M-A**	**EZS6□085M-C**

● Enter **D** (12 mm) or **E** (6 mm) (lead length) 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, Linear Motion Controller, Mounting Bracket for Linear Motion Controller, User I/O Connector, Sensor I/O Connector, Operating Manual

EZSII Series Using an α_{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 MY: 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			50~550 mm	600 mm	650 mm	700 mm
EZS3D□-K	12	~7.5	–	~43	–	600	550	460	400
EZS3D□M-K			~3.5		43				
EZS3E□-K	6	~15	–	~86	–	300	270	220	200
EZS3E□M-K			~7		86				

● Enter the stroke length in the box (□) within the model name.
* This applies when a parallelism is 0.05 mm or less along the mounting plate, per 200 mm of guide length.

Product Number Code

EZS 3 D 050 M - K
① ② ③ ④ ⑤ ⑥

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

List of Linear Slide and Controller Combinations

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

Electromagnetic Brake	Model	Linear Slide Model	Linear Motion Controller Model
Not equipped	**EZS3D□-K**	EZSM3D□K	ESMC-K2
	EZS3E□-K	EZSM3E□K	
Equipped	**EZS3D□M-K**	EZSM3D□MK	
	EZS3E□M-K	EZSM3E□MK	

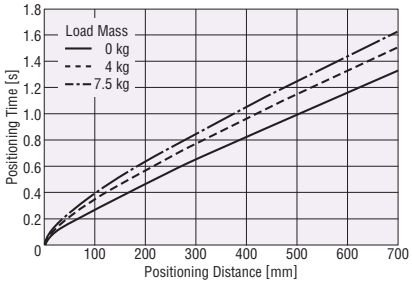
● Enter the stroke length in the box (□) within the model name.

Positioning Distance – Positioning Time

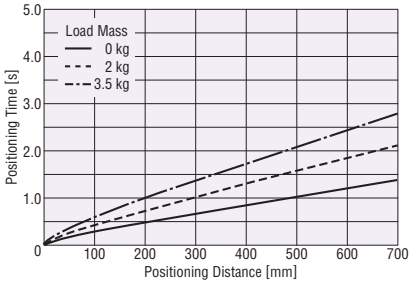
Check the (approximate) positioning time from the positioning distance.
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.
See page F-15 for operating speed and acceleration.

●EZS3D (Lead: 12 mm)

◇Horizontal Installation



◇Vertical Installation

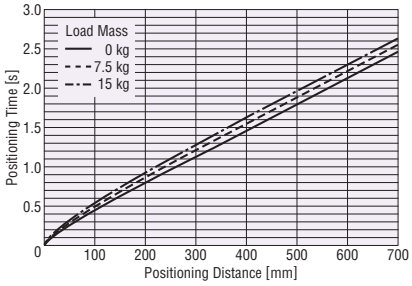


Positioning Time Coefficient

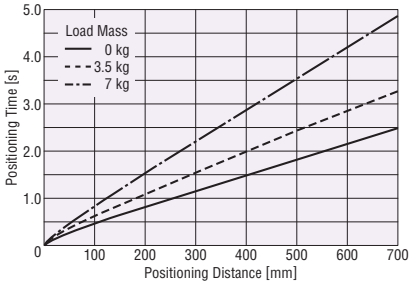
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	4 kg	7.5 kg	0 kg	2 kg	3.5 kg
50~550	1.0	1.0	1.0	1.0	1.0	1.0
600	1.0	1.0	1.0	1.0	1.0	1.0
650	1.2	1.1	1.1	1.2	1.0	1.0
700	1.4	1.2	1.2	1.3	1.0	1.0

●EZS3E (Lead: 6 mm)

◇Horizontal Installation



◇Vertical Installation



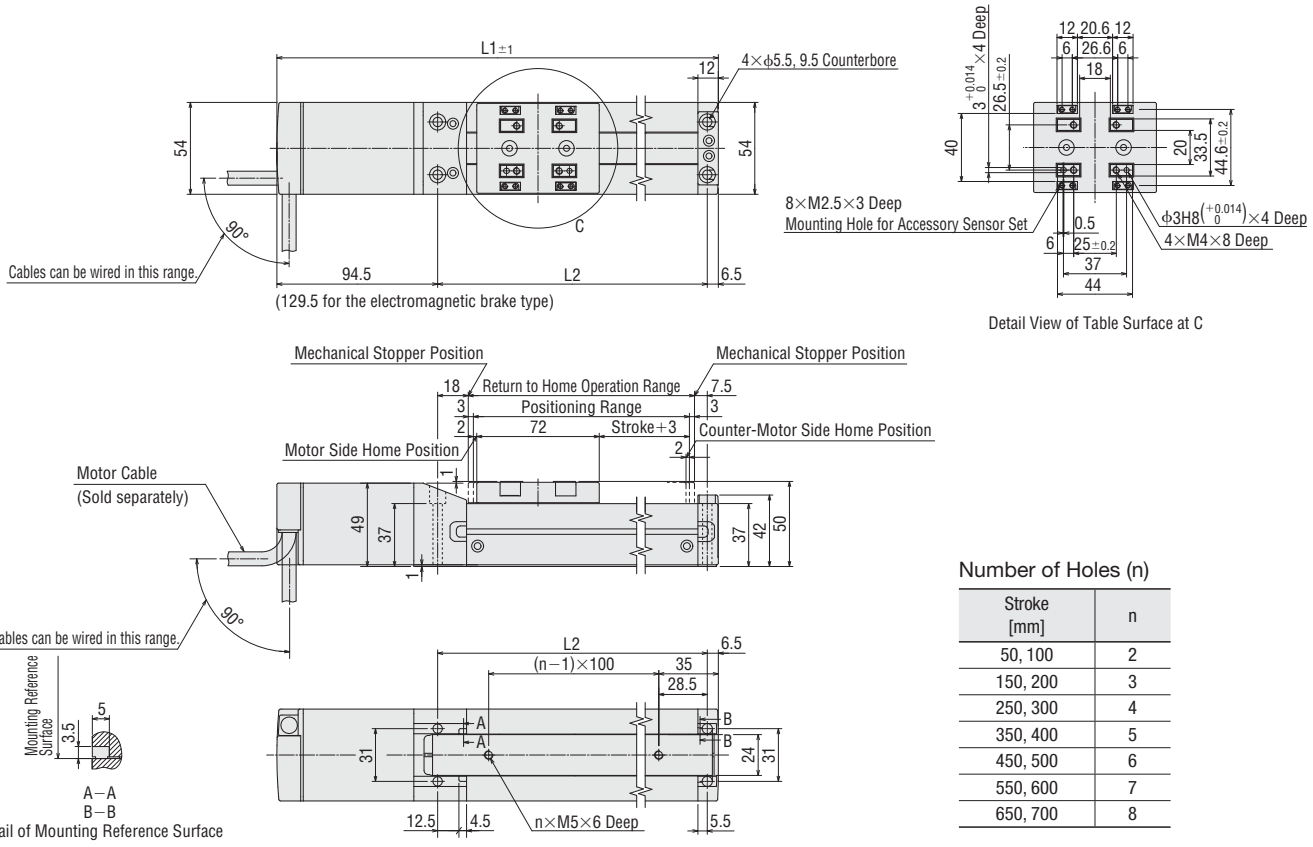
Positioning Time Coefficient

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
600	1.1	1.1	1.1	1.1	1.0	1.0
650	1.3	1.3	1.2	1.3	1.0	1.0
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 sec as a reference (settling time is adjustable by velocity filter function).
● The starting speed should be 6 mm/s or less.

Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

Dimensions of Linear Slide Unit = mm



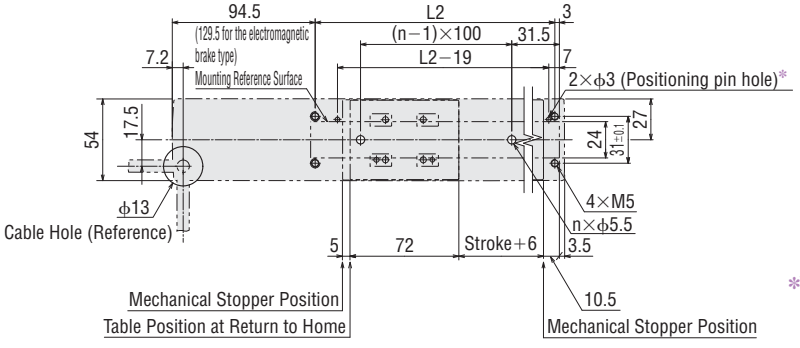
Number of Holes (n)

Stroke [mm]	n
50, 100	2
150, 200	3
250, 300	4
350, 400	5
450, 500	6
550, 600	7
650, 700	8

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
DXF	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



*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 α_{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 MY: 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	550 mm	600 mm	650 mm	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 a parallelism is 0.05 mm or less along the mounting plate, per 200 mm of guide length.

Product Number Code

EZS 3 D 050 M - A
① ② ③ ④ ⑤ ⑥

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

List of Linear Slide and Controller Combinations

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

Electromagnetic Brake	Model	Linear Slide Model	Linear Motion Controller Model
Not equipped	**EZS3D□-A**	EZSM3D□A	ESMC-A2
	EZS3D□-C	EZSM3D□C	ESMC-C2
	EZS3E□-A	EZSM3E□A	ESMC-A2
	EZS3E□-C	EZSM3E□C	ESMC-C2
Equipped	**EZS3D□M-A**	EZSM3D□MA	ESMC-A2
	EZS3D□M-C	EZSM3D□MC	ESMC-C2
	EZS3E□M-A	EZSM3E□MA	ESMC-A2
	EZS3E□M-C	EZSM3E□MC	ESMC-C2

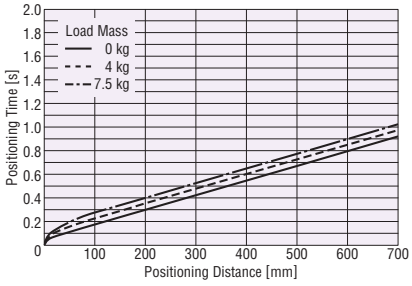
● Enter the stroke length in the box (□) within the model name.

Positioning Distance – Positioning Time

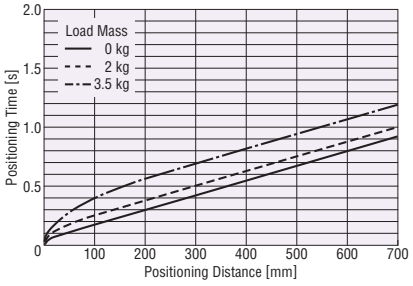
Check the (approximate) positioning time from the positioning distance.
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.
See page F-15 for operating speed and acceleration.

●EZS3D (Lead: 12 mm)

◇Horizontal Installation



◇Vertical Installation

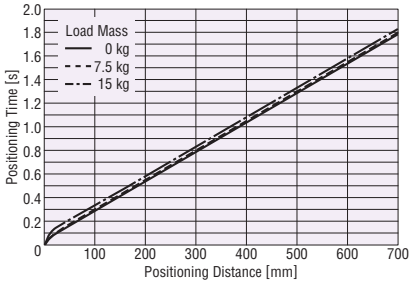


Positioning Time Coefficient

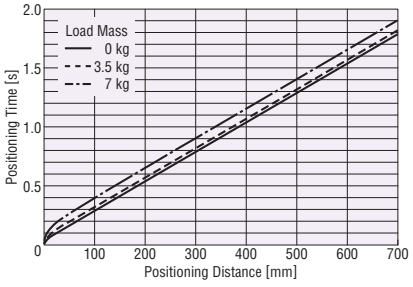
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	4 kg	7.5 kg	0 kg	2 kg	3.5 kg
50~500	1.0	1.0	1.0	1.0	1.0	1.0
550	1.2	1.2	1.2	1.2	1.2	1.1
600	1.4	1.4	1.3	1.4	1.3	1.2
650	1.7	1.6	1.4	1.7	1.6	1.4
700	1.9	1.8	1.6	1.9	1.8	1.6

●EZS3E (Lead: 6 mm)

◇Horizontal Installation



◇Vertical Installation



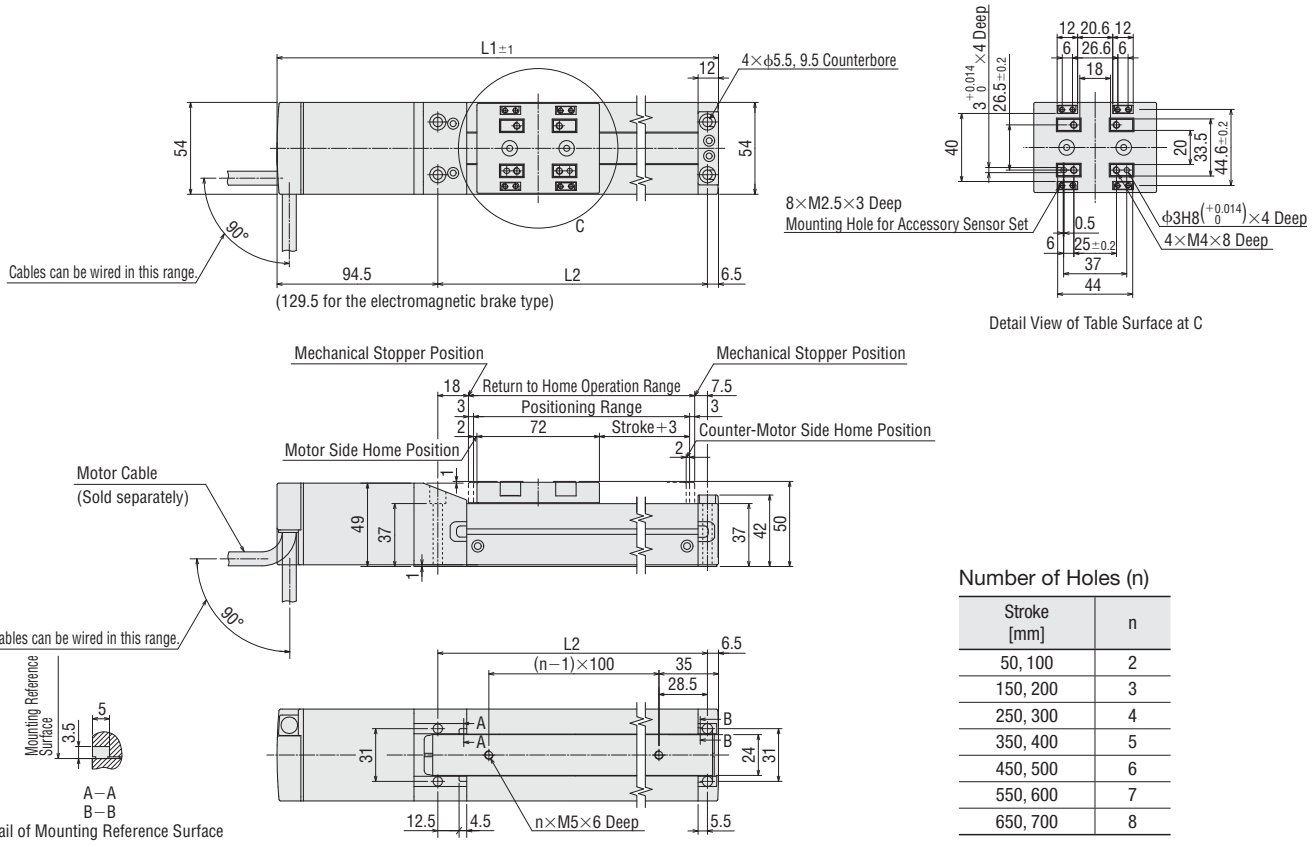
Positioning Time Coefficient

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
550	1.2	1.2	1.2	1.2	1.2	1.2
600	1.5	1.4	1.4	1.5	1.4	1.4
650	1.8	1.8	1.8	1.8	1.8	1.7
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 sec as a reference (settling time is adjustable by velocity filter function).
● The starting speed should be 6 mm/s or less.

Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

Dimensions of Linear Slide Unit = mm



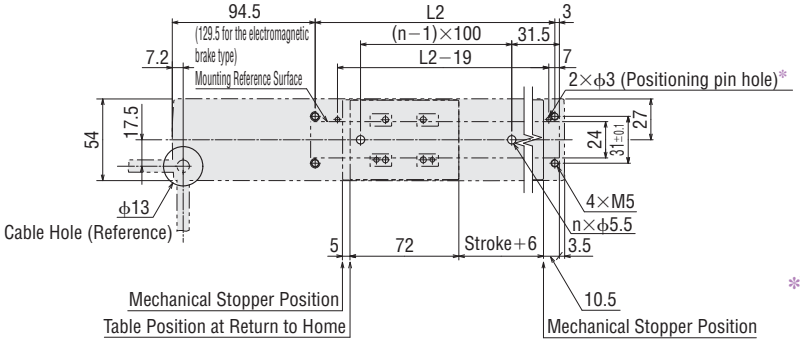
Number of Holes (n)

Stroke [mm]	n
50, 100	2
150, 200	3
250, 300	4
350, 400	5
450, 500	6
550, 600	7
650, 700	8

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
DXF	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



*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 α_{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]	MP: 8 MY: 8 MR: 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	600 mm	650 mm	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 a parallelism is 0.06 mm or less along the mounting plate, per 200 mm of guide length.

Product Number Code

EZS 4 D 050 M - K
① ② ③ ④ ⑤ ⑥

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

List of Linear Slide and Controller Combinations

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

Electromagnetic Brake	Model	Linear Slide Model	Linear Motion Controller Model
Not equipped	**EZS4D□-K**	EZSM4D□K	ESMC-K2
	EZS4E□-K	EZSM4E□K	
Equipped	**EZS4D□M-K**	EZSM4D□MK	
	EZS4E□M-K	EZSM4E□MK	

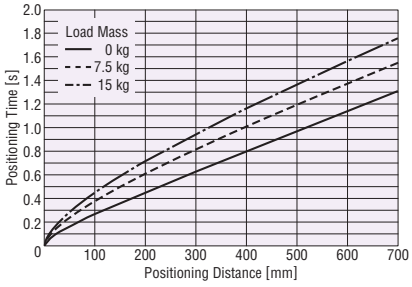
● Enter the stroke length in the box (□) within the model name.

Positioning Distance – Positioning Time

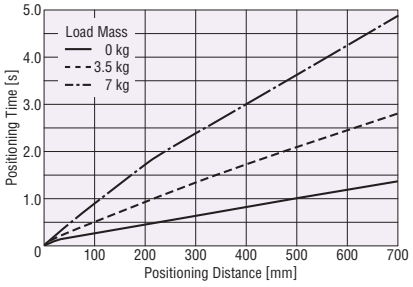
Check the (approximate) positioning time from the positioning distance.
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.
See page F-16 for operating speed and acceleration.

●EZS4D (Lead: 12 mm)

◇Horizontal Installation



◇Vertical Installation

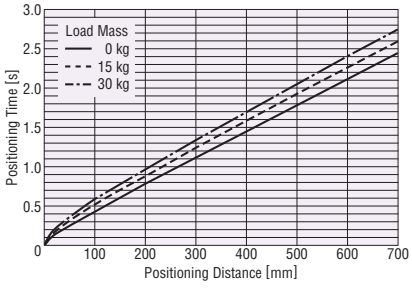


Positioning Time Coefficient

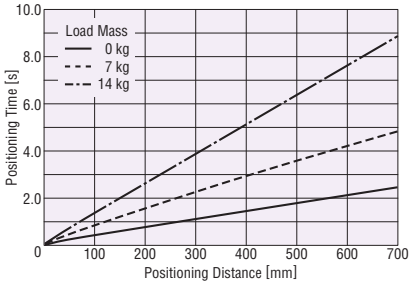
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50~550	1.0	1.0	1.0	1.0	1.0	1.0
600	1.0	1.0	1.0	1.0	1.0	1.0
650	1.2	1.1	1.0	1.2	1.0	1.0
700	1.4	1.1	1.1	1.3	1.0	1.0

●EZS4E (Lead: 6 mm)

◇Horizontal Installation



◇Vertical Installation



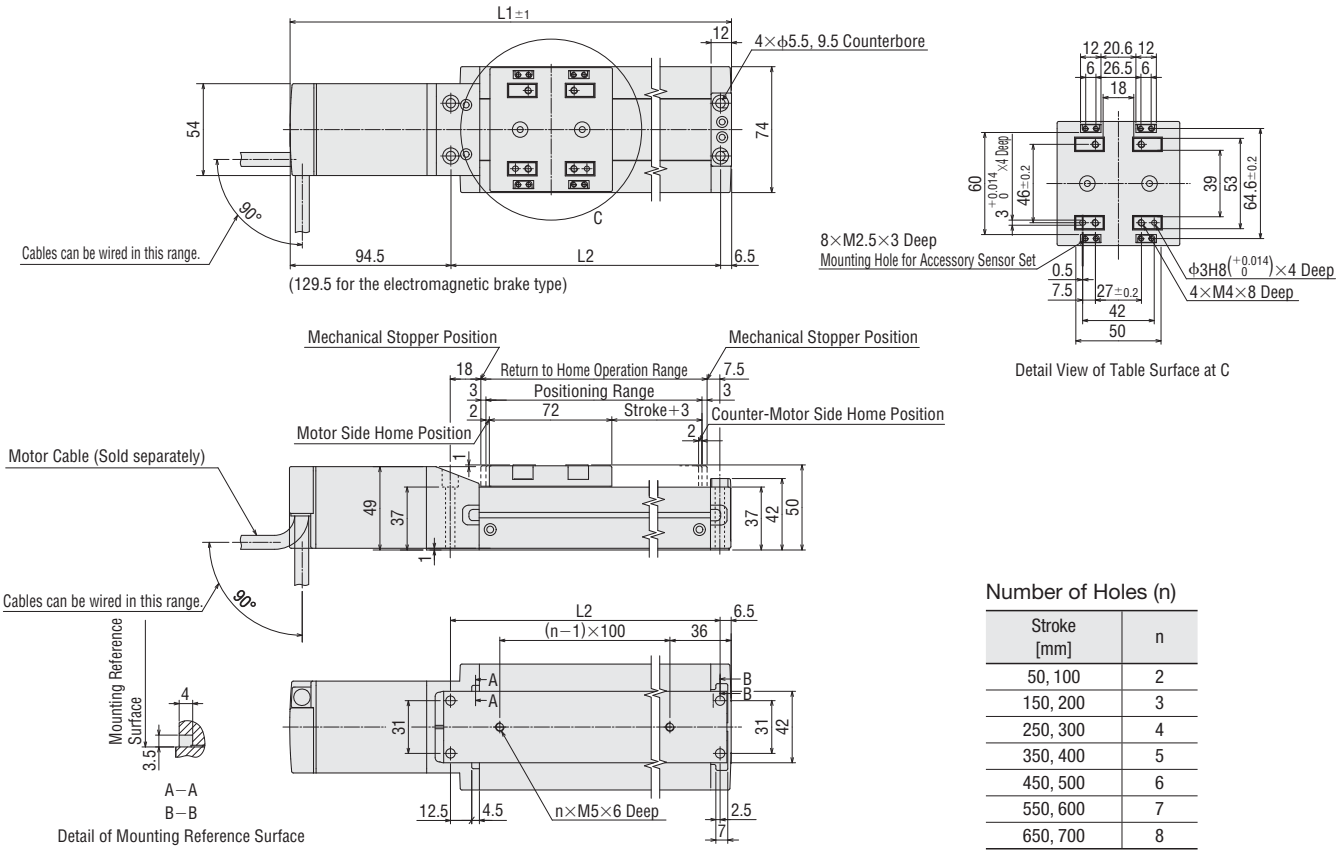
Positioning Time Coefficient

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
600	1.1	1.1	1.0	1.1	1.0	1.0
650	1.3	1.3	1.2	1.3	1.0	1.0
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 sec as a reference (settling time is adjustable by velocity filter function).
● The starting speed should be 6 mm/s or less.

Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

Dimensions of Linear Slide Unit = mm



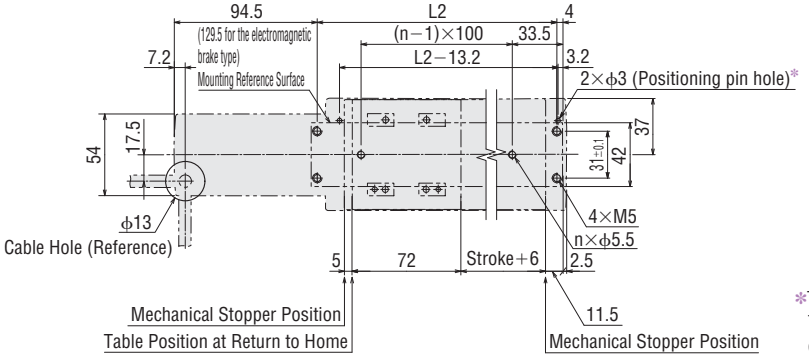
Number of Holes (n)

Stroke [mm]	n
50, 100	2
150, 200	3
250, 300	4
350, 400	5
450, 500	6
550, 600	7
650, 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
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
DXF	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 αSTEP 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]	MP: 8 MY: 8 MR: 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	550 mm	600 mm	650 mm	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 a parallelism is 0.06 mm or less along the mounting plate, per 200 mm of guide length.

Product Number Code

EZS 4 D 050 M - A
① ② ③ ④ ⑤ ⑥

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

List of Linear Slide and Controller Combinations

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

Electromagnetic Brake	Model	Linear Slide Model	Linear Motion Controller Model
Not equipped	**EZS4D□-A**	EZSM4D□A	ESMC-A2
	EZS4D□-C	EZSM4D□C	ESMC-C2
	EZS4E□-A	EZSM4E□A	ESMC-A2
	EZS4E□-C	EZSM4E□C	ESMC-C2
Equipped	**EZS4D□M-A**	EZSM4D□MA	ESMC-A2
	EZS4D□M-C	EZSM4D□MC	ESMC-C2
	EZS4E□M-A	EZSM4E□MA	ESMC-A2
	EZS4E□M-C	EZSM4E□MC	ESMC-C2

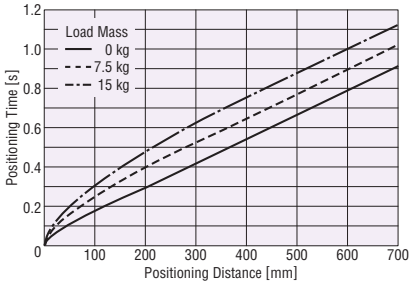
● Enter the stroke length in the box (□) within the model name.

Positioning Distance – Positioning Time

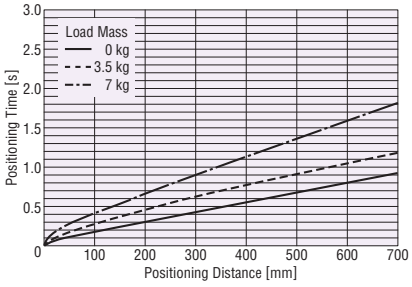
Check the (approximate) positioning time from the positioning distance.
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.
See page F-17 for operating speed and acceleration.

●EZS4D (Lead: 12 mm)

◇Horizontal Installation



◇Vertical Installation

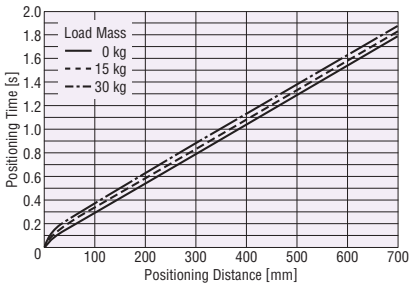


Positioning Time Coefficient

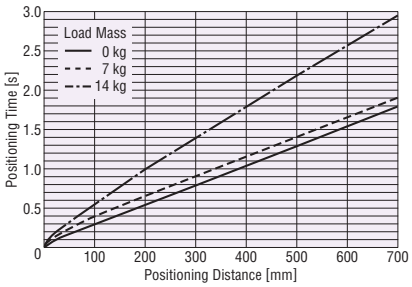
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	7.5 kg	15 kg	0 kg	3.5 kg	7 kg
50~500	1.0	1.0	1.0	1.0	1.0	1.0
550	1.2	1.1	1.1	1.2	1.0	1.0
600	1.4	1.3	1.2	1.4	1.1	1.0
650	1.7	1.5	1.4	1.7	1.3	1.0
700	1.9	1.8	1.6	1.9	1.5	1.0

●EZS4E (Lead: 6 mm)

◇Horizontal Installation



◇Vertical Installation



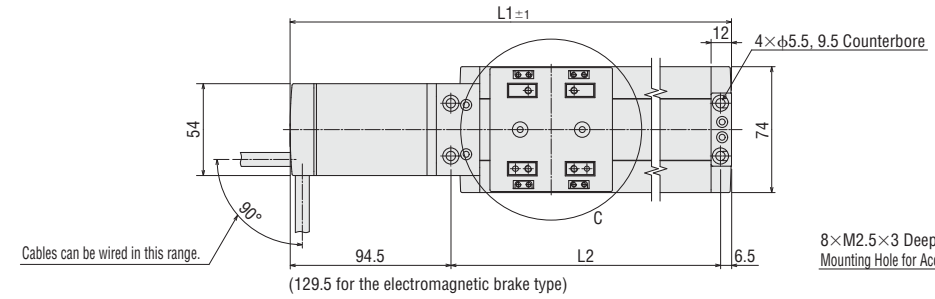
Positioning Time Coefficient

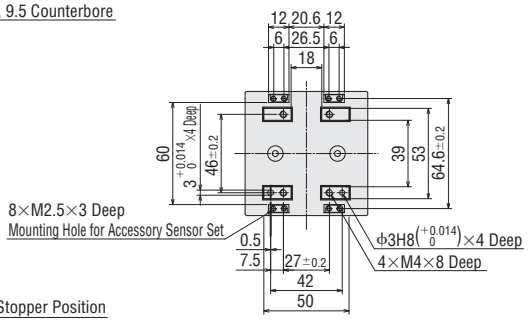
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	15 kg	30 kg	0 kg	7 kg	14 kg
50~500	1.0	1.0	1.0	1.0	1.0	1.0
550	1.2	1.2	1.2	1.2	1.2	1.0
600	1.5	1.4	1.4	1.5	1.4	1.0
650	1.8	1.7	1.7	1.8	1.7	1.1
700	2.0	1.9	1.9	2.0	1.9	1.2

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

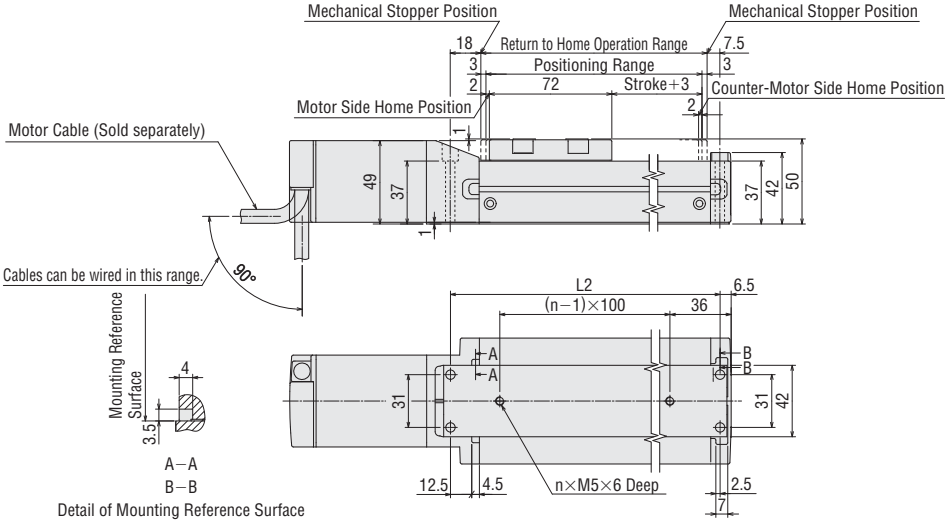
Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

Dimensions of Linear Slide Unit = mm





Detail View of Table Surface at C



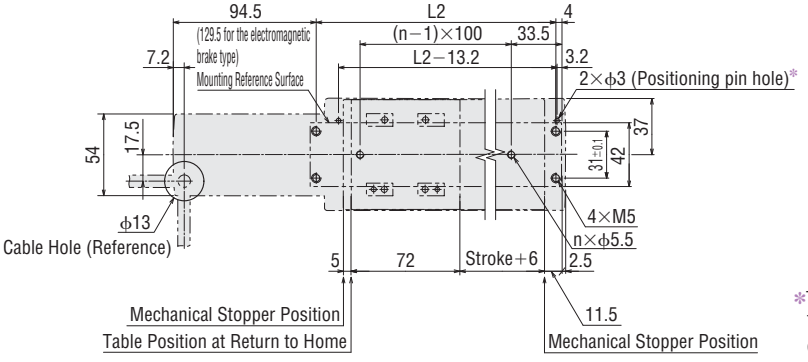
Number of Holes (n)

Stroke [mm]	n
50, 100	2
150, 200	3
250, 300	4
350, 400	5
450, 500	6
550, 600	7
650, 700	8

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
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
DXF	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 α_{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]	MP: 45.7 MY: 37.5 MR: 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	700 mm	750 mm	800 mm	850 mm
EZS6D□-K	12	~30	–	~184	–	600	550	470	420	360
EZS6D□M-K			~15		184					
EZS6E□-K	6	~60	–	~369	–	300	260	230	200	180
EZS6E□M-K			~30		369					

● Enter the stroke length in the box (□) within the model name.
* This applies when a parallelism is 0.06 mm or less along the mounting plate, per 200 mm of guide length.

Product Number Code

EZS 6 D 050 M - K
① ② ③ ④ ⑤ ⑥

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

List of Linear Slide and Controller Combinations

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

Electromagnetic Brake	Model	Linear Slide Model	Linear Motion Controller Model
Not equipped	**EZS6D□-K**	EZSM6D□K	ESMC-K2
	EZS6E□-K	EZSM6E□K	
Equipped	**EZS6D□M-K**	EZSM6D□MK	
	EZS6E□M-K	EZSM6E□MK	

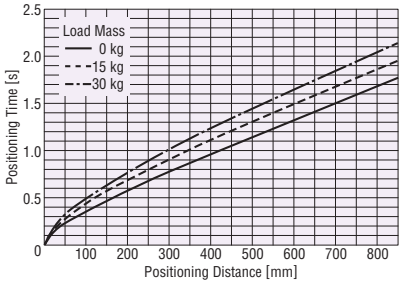
● Enter the stroke length in the box (□) within the model name.

Positioning Distance – Positioning Time

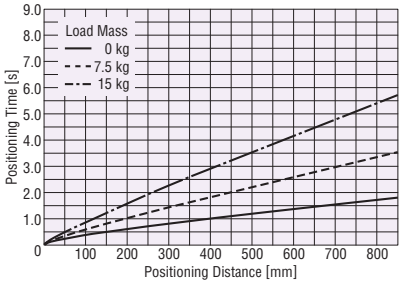
Check the (approximate) positioning time from the positioning distance.
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.
See page F-18 for operating speed and acceleration.

●EZS6D (Lead: 12 mm)

◇Horizontal Installation



◇Vertical Installation

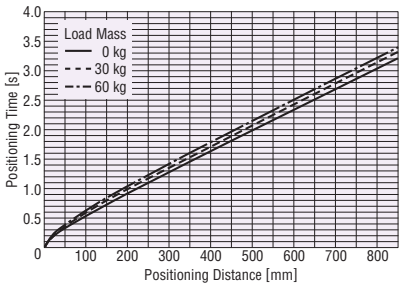


Positioning Time Coefficient

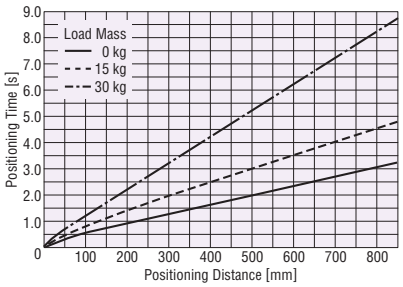
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	15 kg	30 kg	0 kg	7.5 kg	15 kg
50~650	1.0	1.0	1.0	1.0	1.0	1.0
700	1.0	1.0	1.0	1.0	1.0	1.0
750	1.1	1.1	1.0	1.1	1.0	1.0
800	1.2	1.1	1.1	1.2	1.0	1.0
850	1.4	1.3	1.2	1.4	1.0	1.0

●EZS6E (Lead: 6 mm)

◇Horizontal Installation



◇Vertical Installation



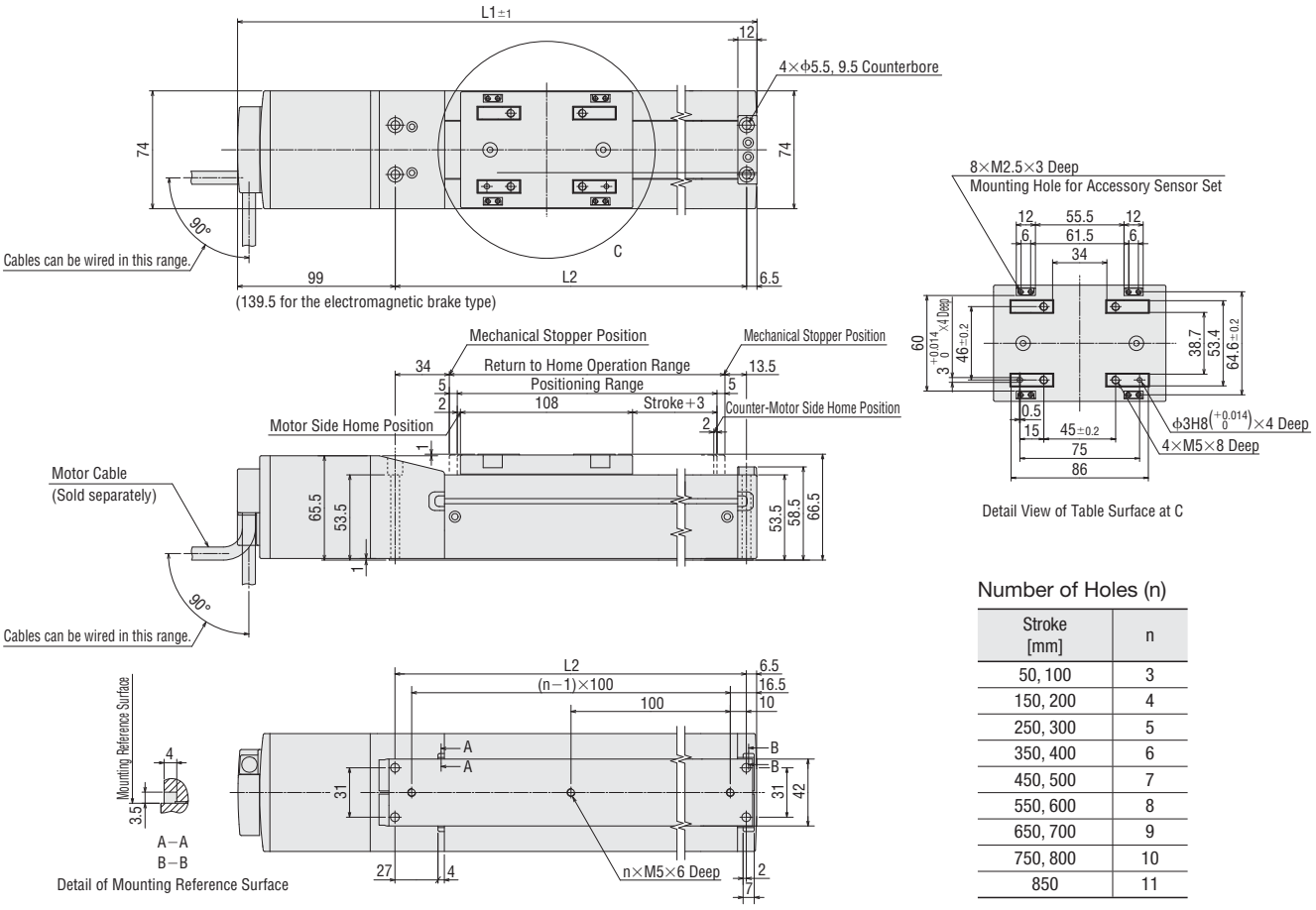
Positioning Time Coefficient

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
700	1.1	1.0	1.0	1.1	1.0	1.0
750	1.2	1.2	1.1	1.2	1.0	1.0
800	1.3	1.3	1.3	1.4	1.0	1.0
850	1.5	1.5	1.4	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 sec as a reference (settling time is adjustable by velocity filter function).
● The starting speed should be 6 mm/s or less.

Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

Dimensions of Linear Slide Unit = mm



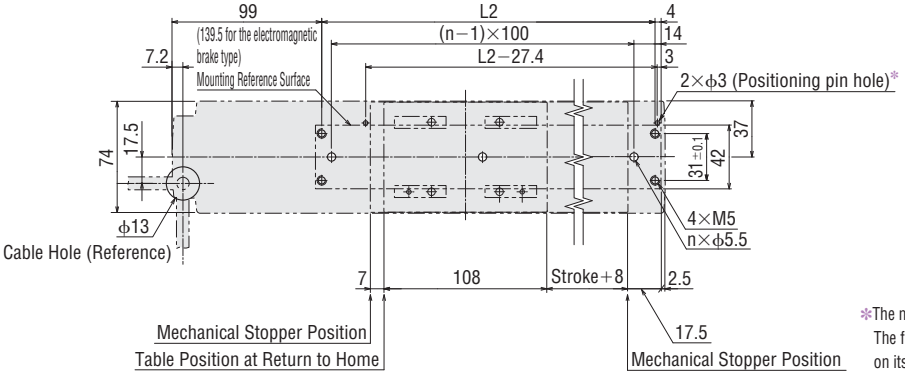
Number of Holes (n)

Stroke [mm]	n
50, 100	3
150, 200	4
250, 300	5
350, 400	6
450, 500	7
550, 600	8
650, 700	9
750, 800	10
850	11

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
L1	Not Equipped	326	376	426	476	526	576	626	676	726	776	826	876	926	976	1026	1076	1126
	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
L2	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
DXF	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



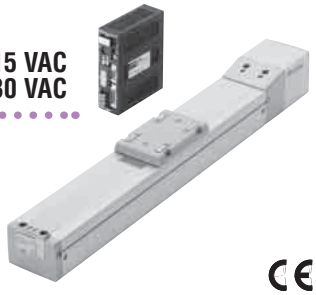
*The mounting reference surface can be set on either side. The figure assumes that the linear slide is mounted on its top surface.

EZSII Series Using an α_{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]	MP: 45.7 MY: 37.5 MR: 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	600 mm	650 mm	700 mm	750 mm	800 mm	850 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	180
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 a parallelism is 0.06 mm or less along the mounting plate, per 200 mm of guide length.

Product Number Code

EZS 6 D 050 M - A
① ② ③ ④ ⑤ ⑥

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

List of Linear Slide and Controller Combinations

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

Electromagnetic Brake	Model	Linear Slide Model	Linear Motion Controller Model
Not equipped	**EZS6D□-A**	EZSM6D□A	ESMC-A2
	EZS6D□-C	EZSM6D□C	ESMC-C2
	EZS6E□-A	EZSM6E□A	ESMC-A2
	EZS6E□-C	EZSM6E□C	ESMC-C2
Equipped	**EZS6D□M-A**	EZSM6D□MA	ESMC-A2
	EZS6D□M-C	EZSM6D□MC	ESMC-C2
	EZS6E□M-A	EZSM6E□MA	ESMC-A2
	EZS6E□M-C	EZSM6E□MC	ESMC-C2

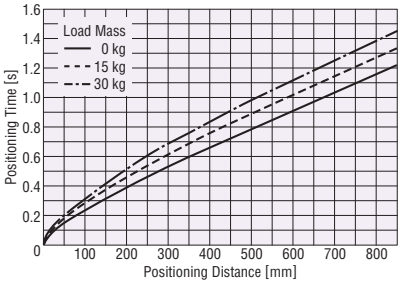
● Enter the stroke length in the box (□) within the model name.

Positioning Distance – Positioning Time

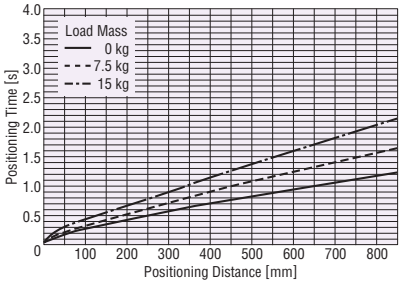
Check the (approximate) positioning time from the positioning distance.
As a rough guideline, the positioning time by the linear slide corresponds to the positioning time calculated from the graph, multiplied by the positioning time coefficient corresponding to the applicable stroke.
See page F-19 for operating speed and acceleration.

●EZS6D (Lead: 12 mm)

◇Horizontal Installation



◇Vertical Installation

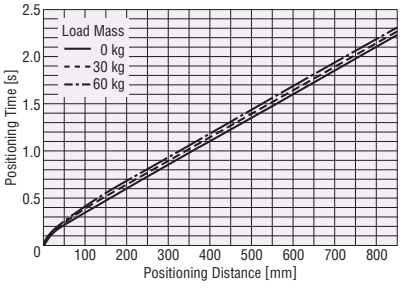


Positioning Time Coefficient

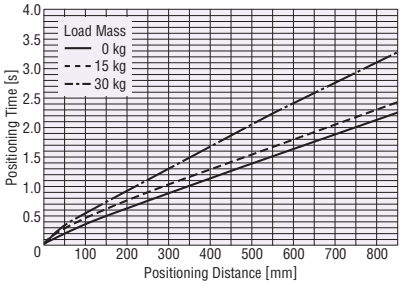
Stroke [mm]	Load Mass					
	Horizontal Installation			Vertical Installation		
	0 kg	15 kg	30 kg	0 kg	7.5 kg	15 kg
50~600	1.0	1.0	1.0	1.0	1.0	1.0
650	1.1	1.1	1.0	1.1	1.0	1.0
700	1.3	1.2	1.1	1.3	1.0	1.0
750	1.5	1.4	1.3	1.5	1.2	1.0
800	1.7	1.5	1.4	1.7	1.3	1.1
850	2.0	1.8	1.7	2.4	1.5	1.2

●EZS6E (Lead: 6 mm)

◇Horizontal Installation



◇Vertical Installation



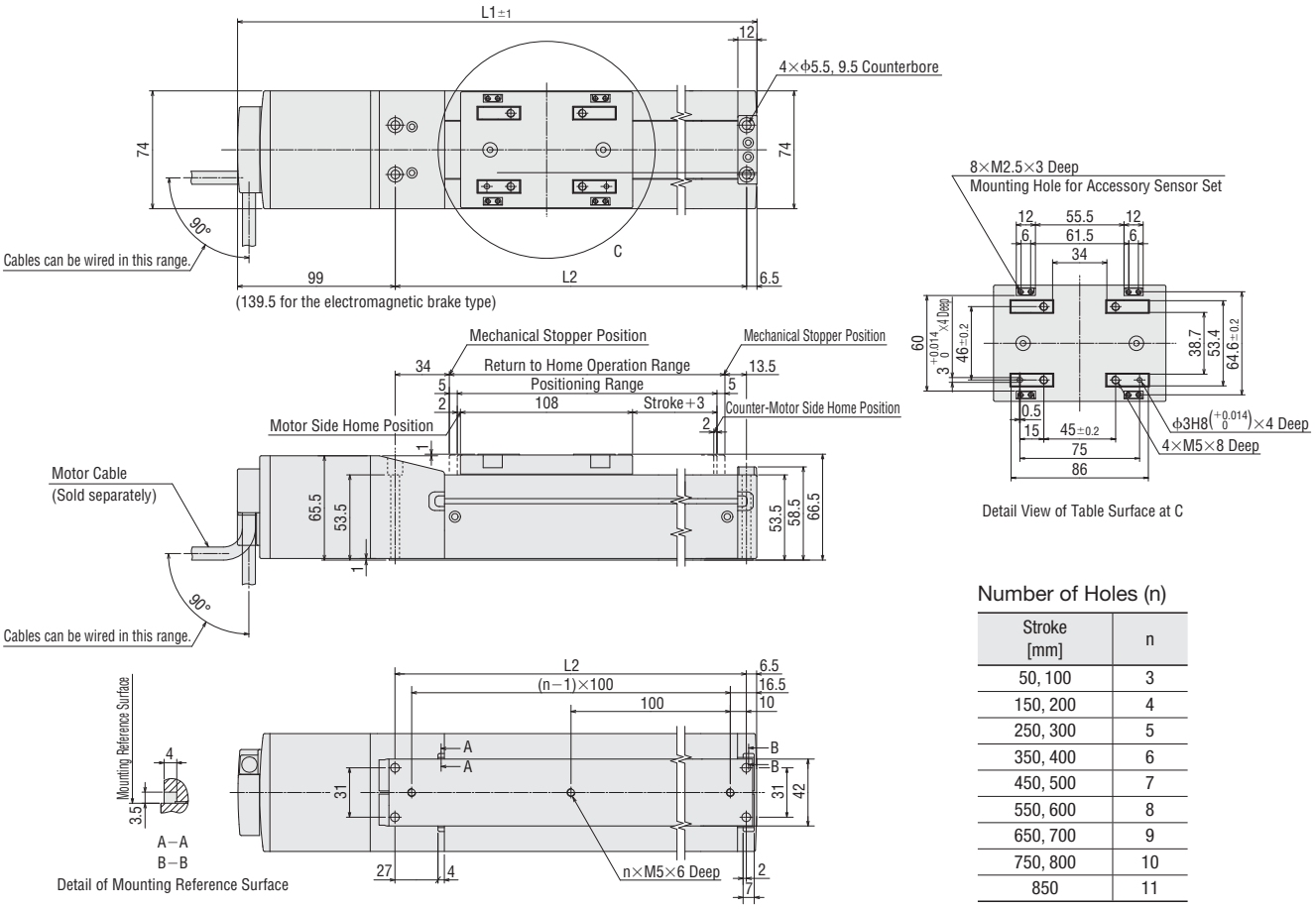
Positioning Time Coefficient

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
650	1.1	1.1	1.1	1.1	1.1	1.0
700	1.3	1.3	1.3	1.3	1.2	1.0
750	1.5	1.5	1.4	1.5	1.4	1.0
800	1.7	1.6	1.6	1.7	1.5	1.2
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 sec as a reference (settling time is adjustable by velocity filter function).
● The starting speed should be 6 mm/s or less.

Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

Dimensions of Linear Slide Unit = mm



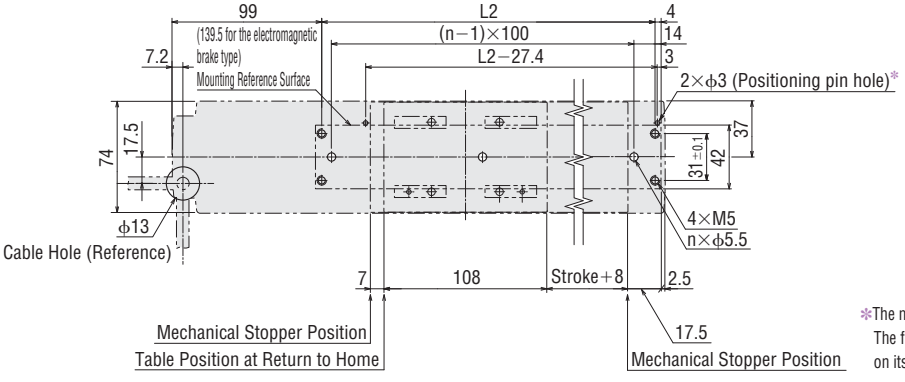
Number of Holes (n)

Stroke [mm]	n
50, 100	3
150, 200	4
250, 300	5
350, 400	6
450, 500	7
550, 600	8
650, 700	9
750, 800	10
850	11

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
L1	Not Equipped	326	376	426	476	526	576	626	676	726	776	826	876	926	976	1026	1076	1126
	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
L2	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
DXF	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



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

Specifications of Linear Motion Controller

Controller Mode

Item			Linear Motion 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※1	6.4 A※1	3.9 A※1
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 (**EZT1**) or data editing software (**EZED2**) (Stored in EEPROM).		
Positioning Control	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		0.01～1500.00 mm/s (value set in units of 0.01 mm/s)		
	Acceleration/Deceleration Rate Setting Range		0.01～20.00 m/s^2 (value set in units of 0.01 m/s^2)		
Control Modes			・External input mode (EXT): In this mode, operation by external signal, command position, I/O condition and alarm condition can be monitored. ・Program mode (PRG): In this mode, operation data can be created, changed or cleared. ・Parameter mode (PAR): In this mode, operation parameters and function setting parameters can be set or changed. ・Test mode (TST): In this mode, manual operation and I/O check can be performed.		
Operation Modes			Positioning operation, Return to home operation, Linked operation (a maximum of 4 data), Continuous operation		
Input Signals/Input Modes			START, STOP, HOME/PRESET, FREE, M0～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 Signals/Output Modes			ALM, END/OUTR, MOVE, AREA/OUT0, OUT1 Photocoupler, Open-collector output (24 VDC, 10 mA or less) ASG1, BSG1 Photocoupler, Open-collector output (24 VDC, 15 mA or less)※2 ASG2, BSG2 Line driver output※2		
Protective Functions			Excessive position deviation, Overcurrent protection, Overvoltage protection, Overheat protection, Overload, Sensor error, Overspeed, Nonvolatile memory error, etc.		
Indicators (LED)			Control power supply, Alarm	Control power supply, Alarm, Main power supply	
Cooling Method			Natural ventilation		
Mass			0.44 kg	0.77 kg	

Driver Mode

Item			Linear Motion 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※1	6.4 A※1	3.9 A※1
Maximum Response Frequency			1-pulse input mode, 2-pulse input mode: 80 kHz, Phase difference input mode: 20 kHz		
Operation Modes			Return to home operation, Pulse input operation (1-pulse input mode, 2-pulse input mode, phase difference input mode)		
Input Signals/Input Modes			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 Signals/Output Modes			MOVE, END/OUTR, ALM, TIM/OUT0, OUT1 Photocoupler, Open-collector output (24 VDC, 10 mA or less) ASG1, BSG1 Photocoupler, Open-collector output (24 VDC, 15 mA or less)※2 ASG2, BSG2 Line driver output※2		
Protective Functions			Excessive position deviation, Overcurrent protection, Overvoltage protection, Overheat protection, Overload, Sensor error, Overspeed, Nonvolatile memory error, etc.		
Indicators (LED)			Control power supply, Alarm	Control power supply, Alarm, Main power supply	
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 These signals are ony for positioning verification when the linear slide has stopped. There is a 10 msec (maximum) time lag between real linear slide motion and the output signals.

Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

General Specifications of Linear Motion 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 linear motion controller are connected.

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

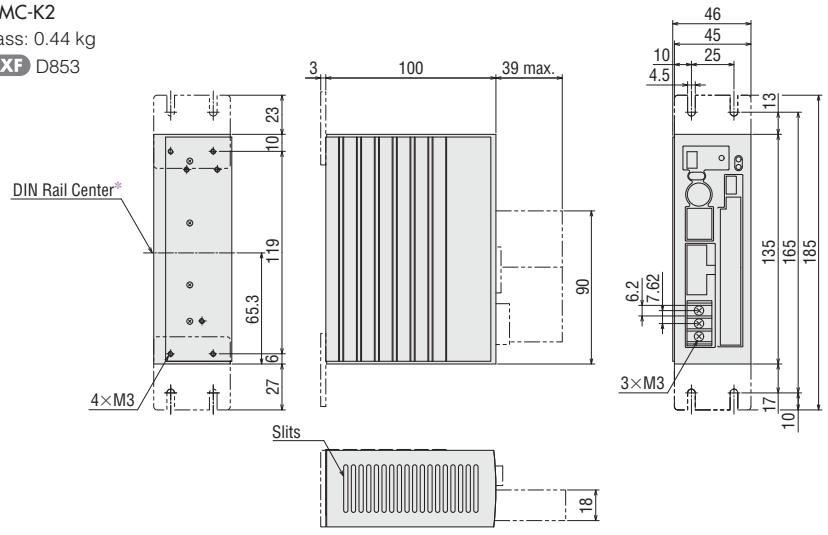
Item	Specification
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the following places: · I/O connector – Main power supply terminal, Motor connector, Battery connector · Control power supply terminal – Main power supply terminal, Motor connector, Battery connector · PE – 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 kVAC · Signal I/O, Control power supply – Motor output 1.8 kVAC · Signal I/O, Control power supply – Battery input 1.8 kVAC · PE – Main power supply 1.5 kVAC · PE – Motor output 1.5 kVAC · PE – Battery input 1.5 kVAC
Ambient Temperature	0～+40˚C (non-freezing)
Ambient Humidity	85% or less (non-condensing)

Note:

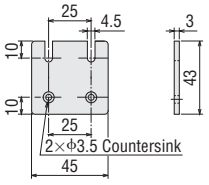
● Do not measure insulation resistance or perform the dielectric strength test while the linear slide and linear motion controller are connected.

Linear Motion Controller Dimensions Unit = mm

ESMC-K2
Mass: 0.44 kg
DXF D853



● Mounting Bracket
(2 pieces, included)

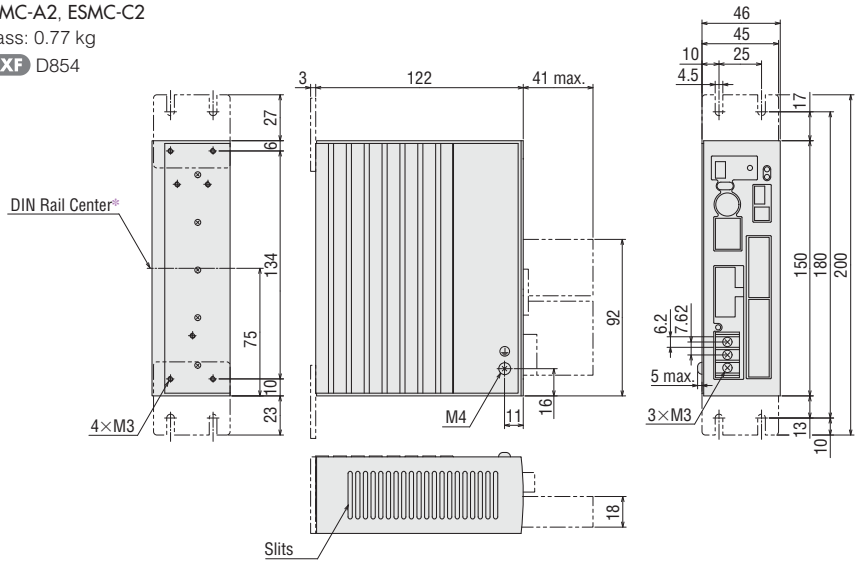


● Control I/O Connector (Included)
Case: 54331-1361 (MOLEX)
Connector: 54306-3619 (MOLEX)

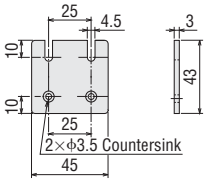
● I/O Connector for Sensor (Included)
Case: 54331-1201 (MOLEX)
Connector: 54306-2019 (MOLEX)

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

ESMC-A2, ESMC-C2
Mass: 0.77 kg
DXF D854



● Mounting Bracket
(2 pieces, included)



● Control I/O Connector (Included)
Case: 54331-1361 (MOLEX)
Connector: 54306-3619 (MOLEX)

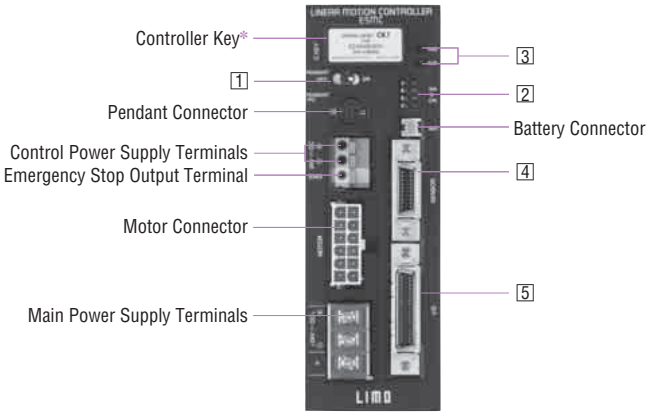
● I/O Connector for Sensor (Included)
Case: 54331-1201 (MOLEX)
Connector: 54306-2019 (MOLEX)

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

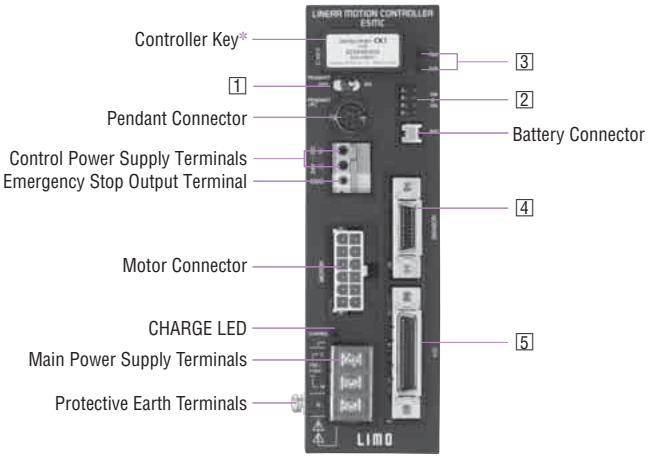
Connection and Operation

Names and Functions of Linear Motion Controller Parts

ESMC-K2



ESMC-A2, ESMC-C2



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 Switches

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 Indicators

Indication	Color	Function
PWR	Green	Control power supply indication
ALM	Red	Alarm indication

4 Sensor I/O Connector

Indication	Input/Output	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.

Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

5 I/O Connector

◇Controller Mode

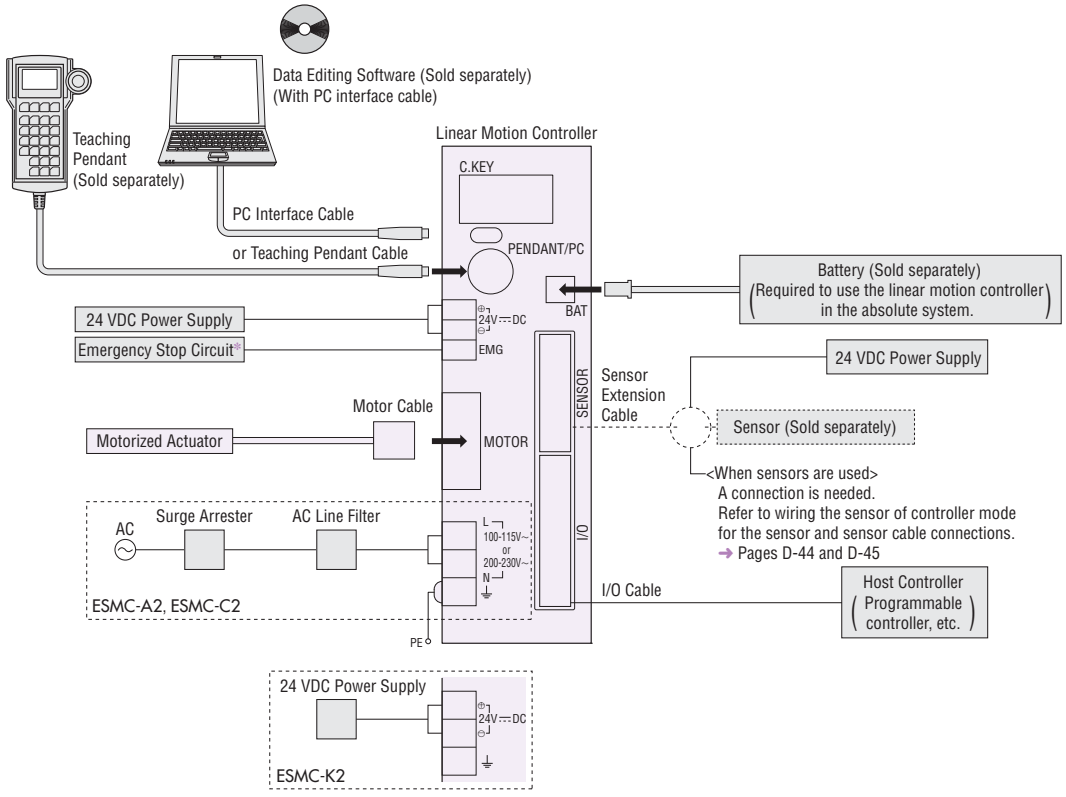
Indication	Input/Output	Pin No.	Signal Name	Function
I/O	Input	18	IN-COM1※1※2	Power supply for input signals
		19	GND	Power supply for I/O signals
		1	OUT-COM※3	Power supply for output signals
	Output	2	ALM	This signal is output when a protective function has been activated.
		3	MOVE	This signal is output 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	$\overline{\text{ASG2}}$	
		24	BSG2	B-phase pulse output (Line driver)
		25	$\overline{\text{BSG2}}$	
	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	Input/Output	Pin No.	Signal Name	Function
I/O	Input	18	IN-COM1※1※2	Power supply for input signals
		19	GND	Power supply for I/O signals
		1	OUT-COM※3	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	$\overline{\text{ASG2}}$	
		24	BSG2	B-phase pulse output (Line driver)
		25	$\overline{\text{BSG2}}$	
	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※4	HOME: Start return to home operation PRESET: Preset the current position
		30	REQ	Request the current position output
		31	FP+	Operation command pulse input (The operation command pulse input in the + coordinate direction in the 2-pulse input mode)
		32	FP−	
		33	P24-FP	
		34	RP+	Direction of movement input (The operation command pulse input in the − coordinate direction in the 2-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.

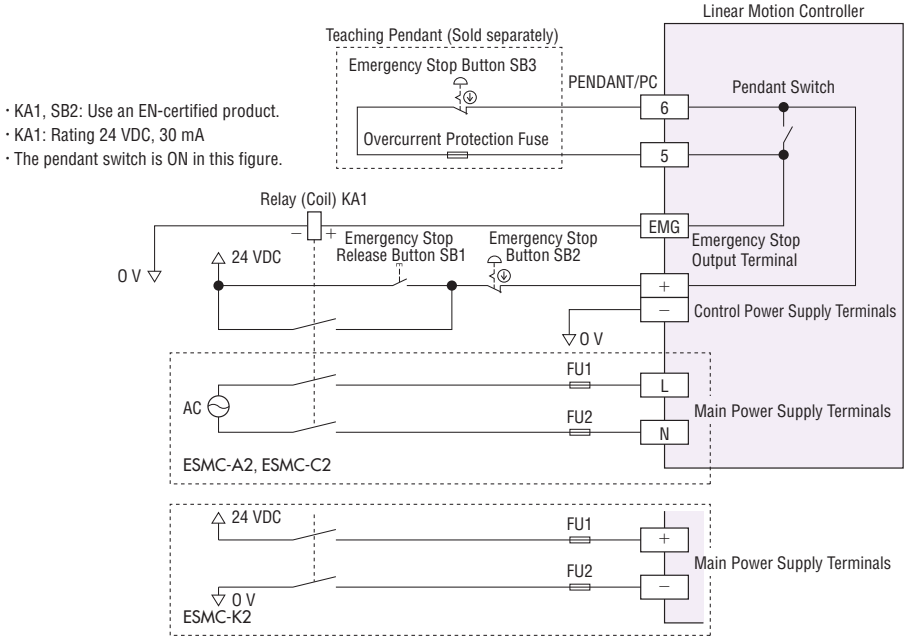
●Emergency Stop Circuit

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, consider an appropriate circuit configuration based on the result of the 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.

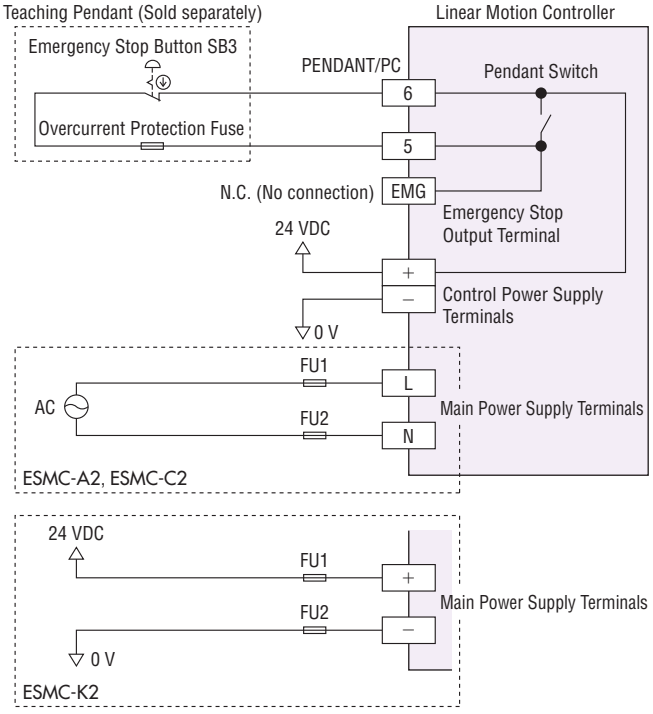
◇Connection Example When an Emergency Stop Function is Used

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.



Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

◇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 Supply

- Two types of power supply, main power and control power are required. Both power supplies must at least have the specified capacity.
  Specifications of linear motion controller ➜ Page D-38
- If the power capacity is insufficient, motor output may drop, which may cause the linear slide to malfunction (due to lack of thrust force).

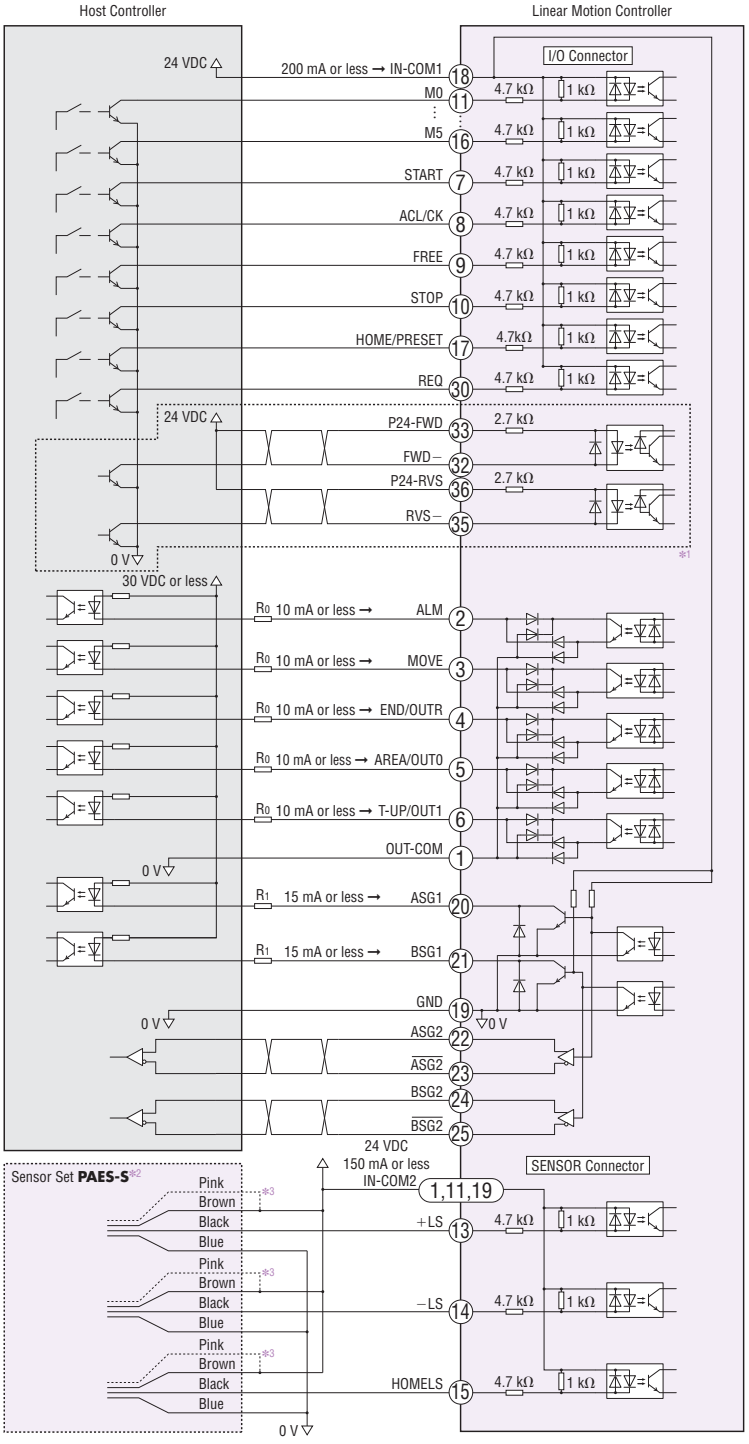
◇Notes on Wiring

- Wire the control I/O signal lines over as short a distance as possible, using a shielded cable (AWG28 or thicker).
- Be sure to use an accessory motor cable to wire the linear slide and linear motion 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

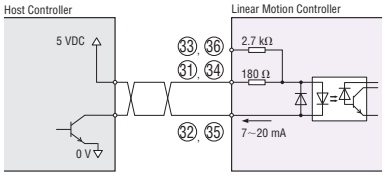
· Sink Logic (NPN) Specification



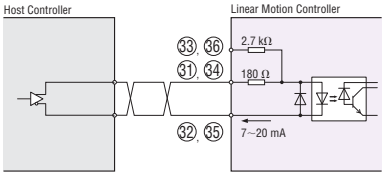
*1 For connection of 31 to 36 pins, refer to "FWD (FP) and RVS (RP) signals" shown below.
*2 An accessory sensor set is also available (sold separately).
*3 Connect this line if the normally closed (NC) logic is used.

◇FWD (FP) and RVS (RP) Signals

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

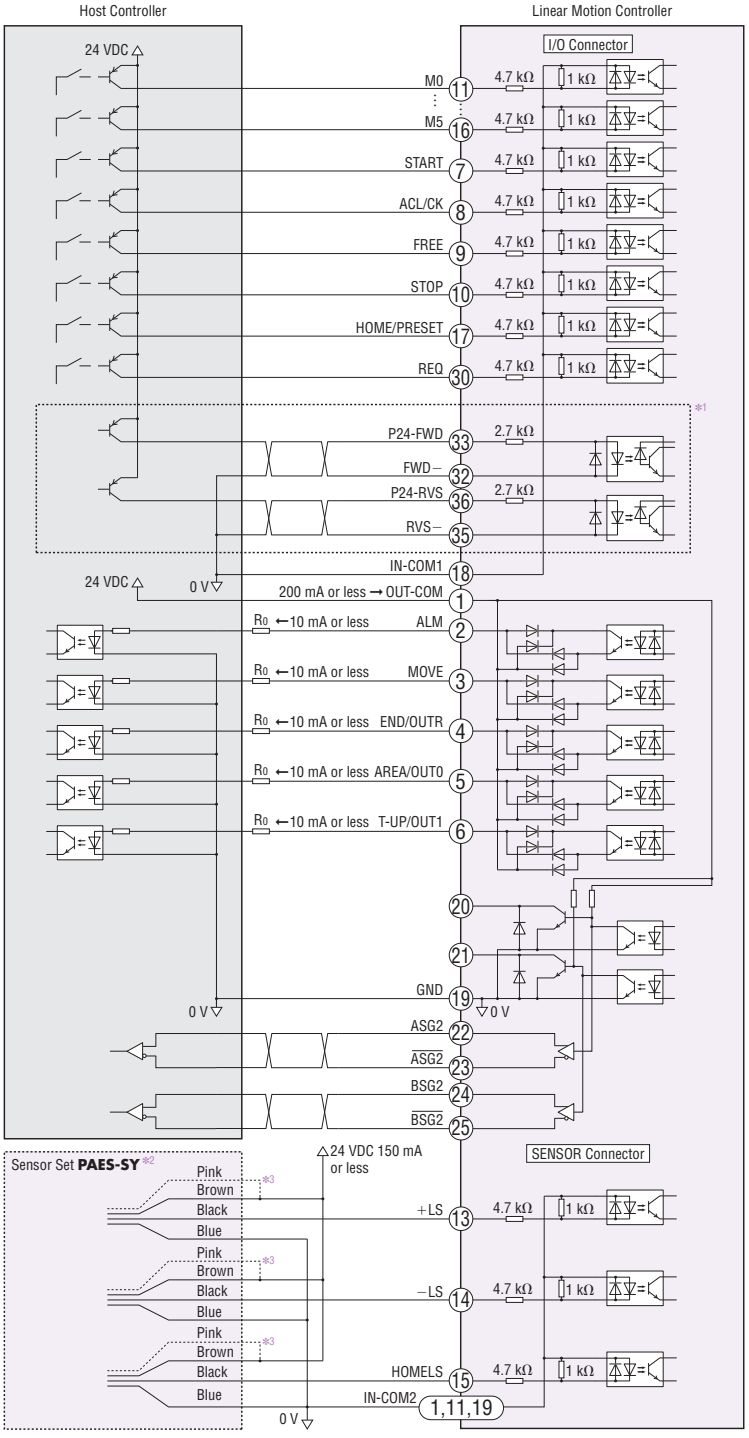


When connecting to a line driver output circuit



◇Controller Mode

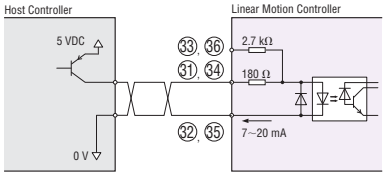
· Source Logic (PNP) Specification



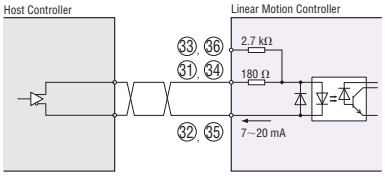
*1 For connection of 31 to 36 pins, refer to "FWD (FP) and RVS (RP) signals" shown below.
*2 An accessory sensor set is also available (sold separately).
*3 Connect this line if the normally closed (NC) logic is used.

◇FWD (FP) and RVS (RP) Signals

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

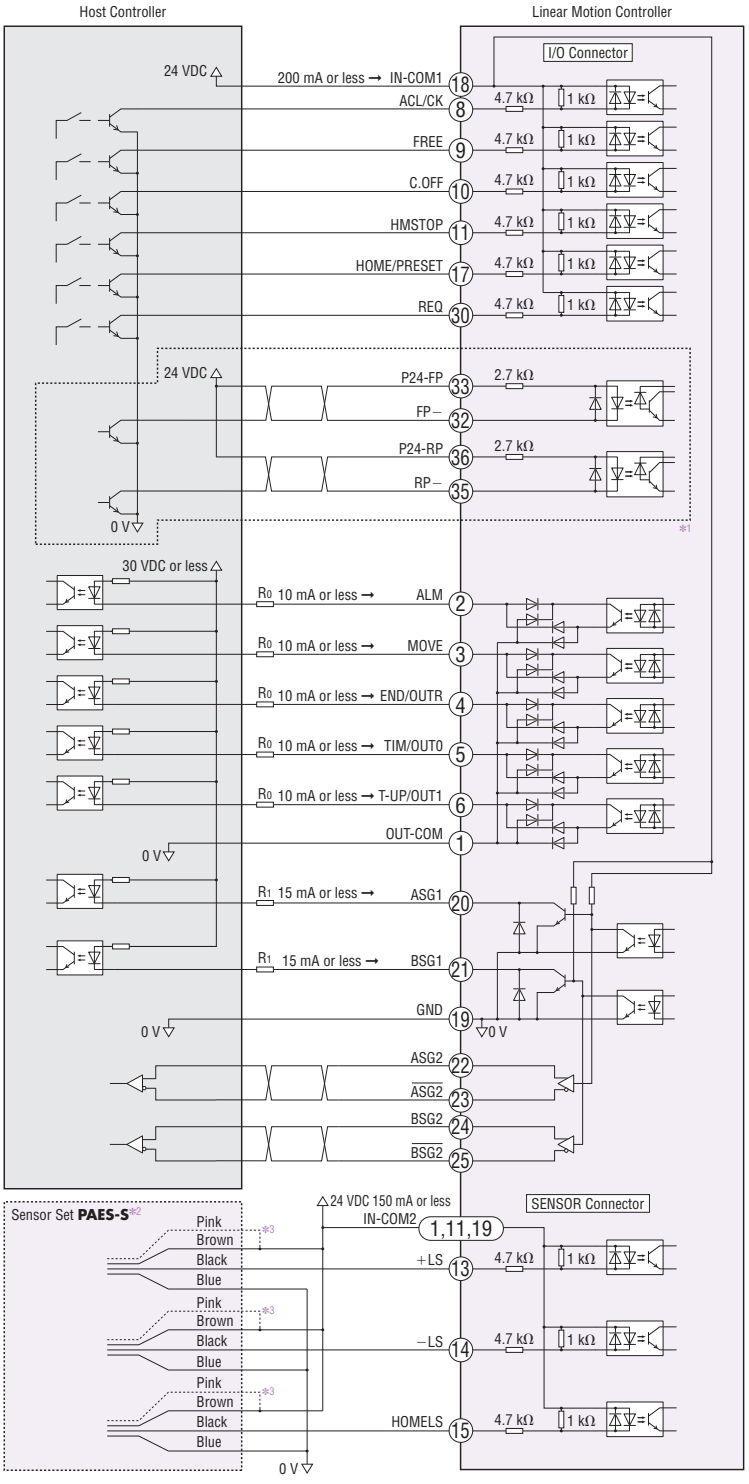


When connecting to a line driver output circuit



◇Driver Mode

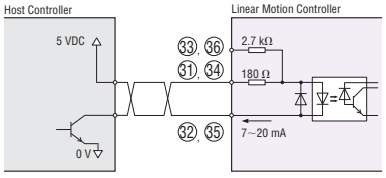
・Sink Logic (NPN) Specification



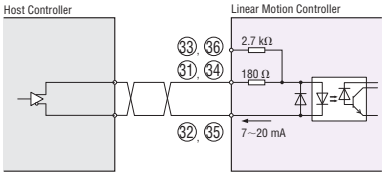
※1 For connection of 31 to 36 pins, refer to "FWD (FP) and RVS (RP) signals" shown below.
※2 An accessory sensor set is also available (sold separately).
※3 Connect this line if the normally closed (NC) logic is used.

◇FWD (FP) and RVS (RP) Signals

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

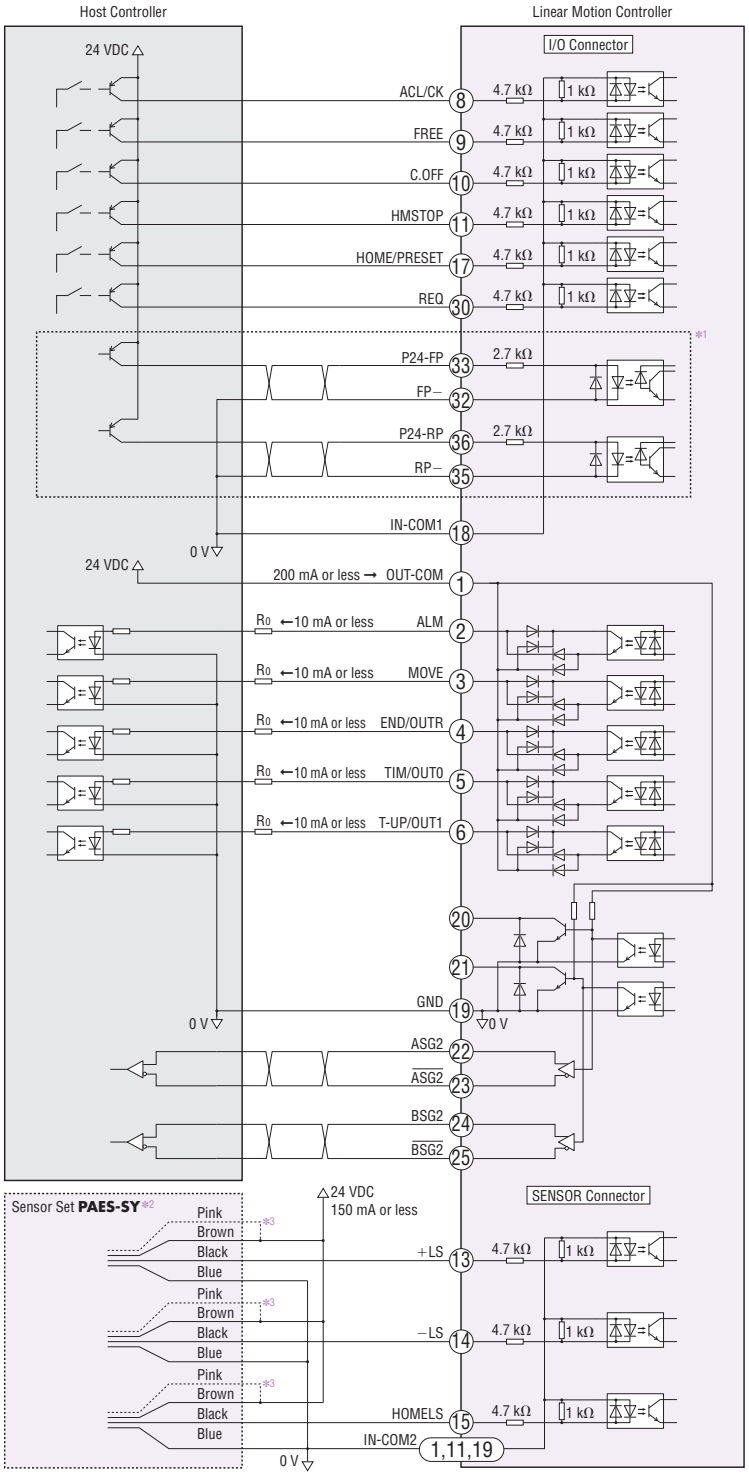


When connecting to a line driver output circuit



◇Driver Mode

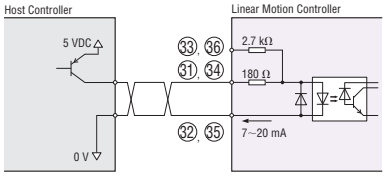
· Source Logic (PNP) Specification



*1 For connection of 31 to 36 pins, refer to "FWD (FP) and RVS (RP) signals" shown below.
*2 An accessory sensor set is also available (sold separately).
*3 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