Electric Actuator

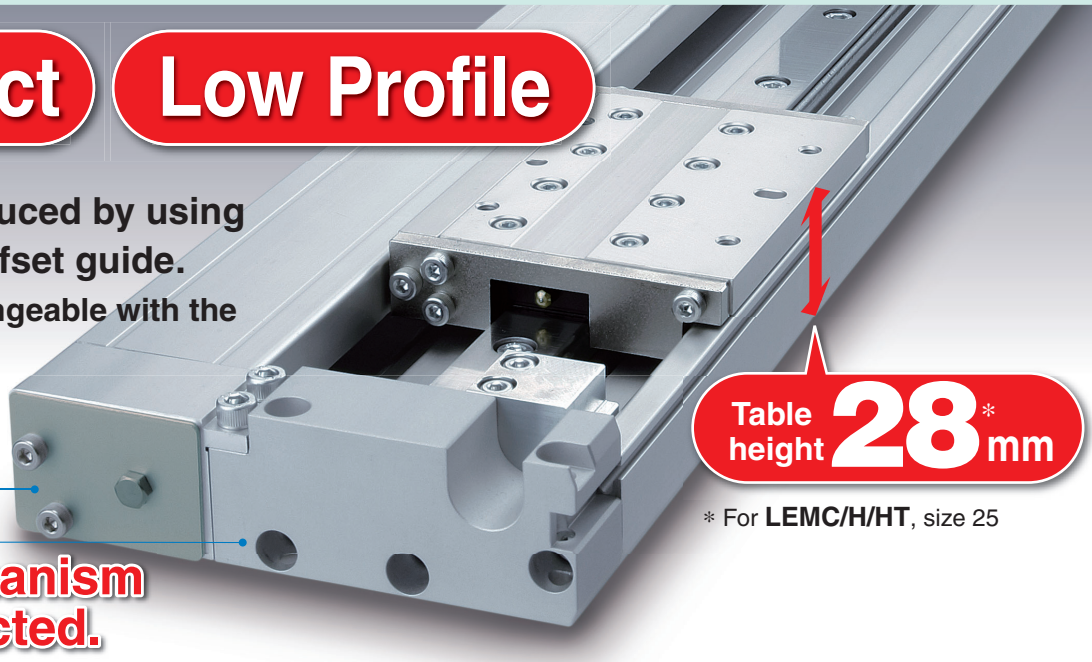
Low profile **Slider type** Step Motor (Servo/24 VDC)

RoHS

Compact Low Profile

Table height reduced by using belt drive and offset guide.

Mounting interchangeable with the E-MY series



* For **LEMC/H/HT**, size 25

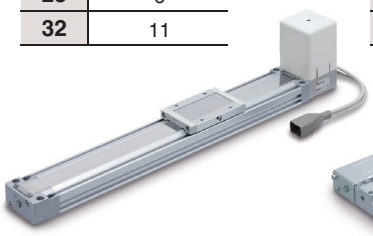
Guide mechanism can be selected.

Basic type

Series LEMB

- Light load transfer
- Combining with external guide
- Long stroke

Size	Work load [kg]
25	6
32	11



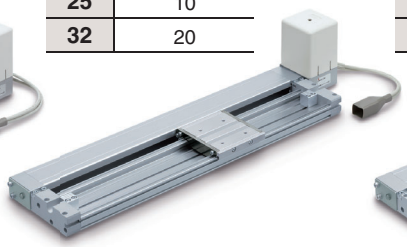
	Size	
	25	32
Stroke [mm]	2000	2000
Table height [mm]	40	40
Speed [mm/s]	1000	1000

Cam follower guide type

Series LEMC

- Workpiece direct mounting
- Long stroke

Size	Work load [kg]
25	10
32	20



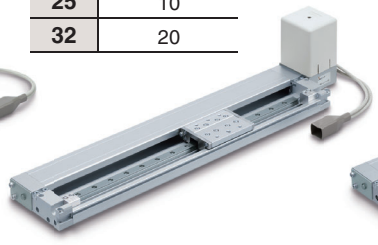
	Size	
	25	32
Stroke [mm]	2000	2000
Table height [mm]	28	37
Speed [mm/s]	1000	1000

Linear guide single axis type

Series LEMH

- Workpiece direct mounting
- Provide more moment resistance than the cam follower guide type.
- High speed transfer

Size	Work load [kg]
25	10
32	20



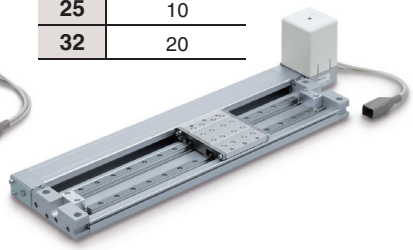
	Size	
	25	32
Stroke [mm]	1000	1500
Table height [mm]	28	37
Speed [mm/s]	2000	2000

Linear guide double axis type

Series LEMHT

- Workpiece direct mounting
- Provides more moment resistance than the linear guide single axis type.
- High speed transfer

Size	Work load [kg]
25	10
32	20



	Size	
	25	32
Stroke [mm]	1000	1500
Table height [mm]	28	37
Speed [mm/s]	2000	2000

Step Motor (Servo/24 VDC) **Controller**

▶Programless type
(With stroke study)
Series LECP2

- **End to end operation similar to an air cylinder**

Specialized for Series LEM

▶Programless type
Series LECP1

▶Step data input type
Series LECP6

▶Fieldbus compatible Network
Series JXC□1

Series LEM

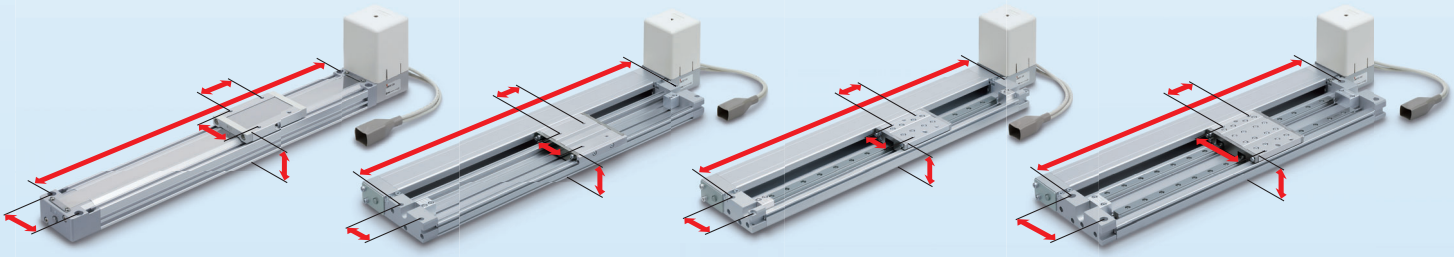
SMC

CAT.EUS100-98Aaa-UK

• Mounting interchangeable with the conventional E-MY series

Series E-MY	E-MY□16
	E-MY□25

→ New Series LEM: LEM□25, LEM□32

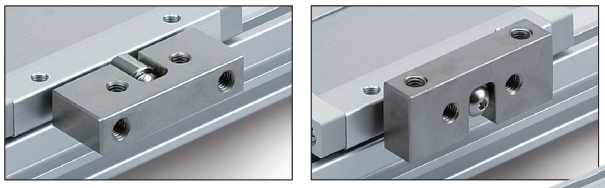


Basic type/ LEMB | Cam follower guide type/ LEMC | Linear guide single axis type/ LEMH | Linear guide double axis type/ LEMHT

• Can be connected to various types of guide. (Series LEMB)

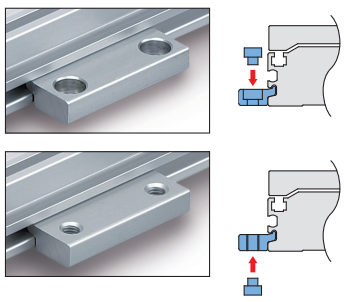
Floating bracket (Option)

Easy connection to an external guide. Two mounting directions are available.



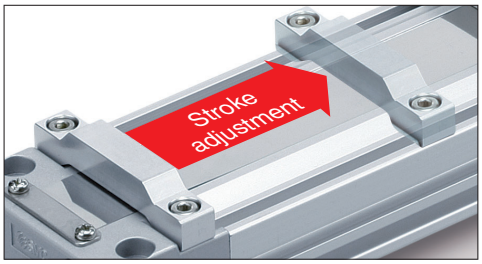
Side support (Option)

The body can be fixed from upward or downward.



Stroke adjustment unit (Option)

To adjust the stroke end like an air cylinder, use the LECP2 controller and the stroke adjustment unit.

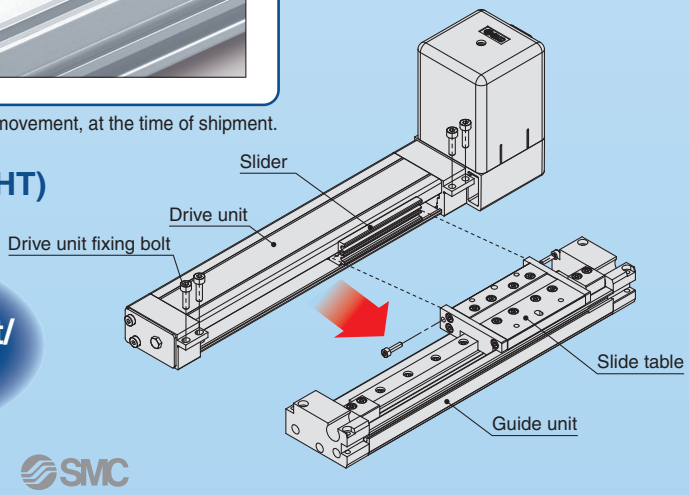


* The movable length of the LEM is the stroke + 6 mm of table movement, at the time of shipment.

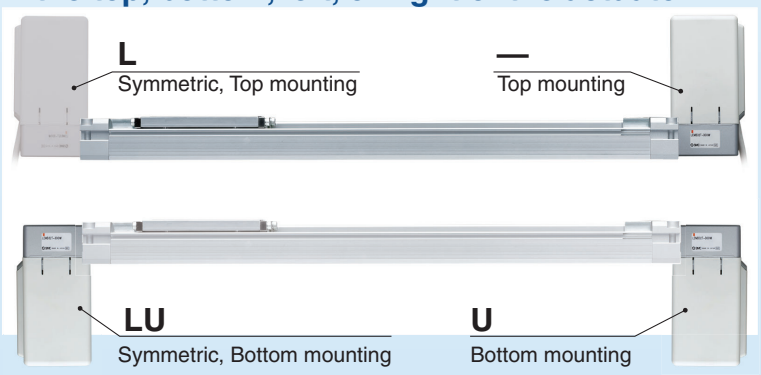
• Easy maintenance (Series LEMC/H/HT)

The drive unit and the guide unit are separable.

Easy attachment/ detachment



• Motor Placement: Mounting position of the motor is user selectable and can either be on the top, bottom, left, or right of the actuator.

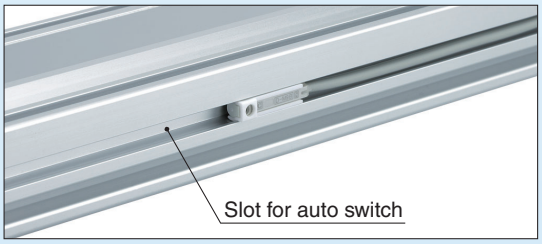


Motor mounting position

—	Top mounting
U	Bottom mounting
L*	Symmetric, Top mounting
LU*	Symmetric, Bottom mounting

* Can be selected only for the LEMC, LEMH, LEMHT.

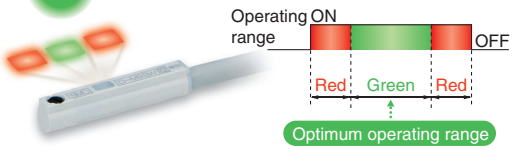
• Solid state auto switch can be mounted for checking the limit and intermediate signal.



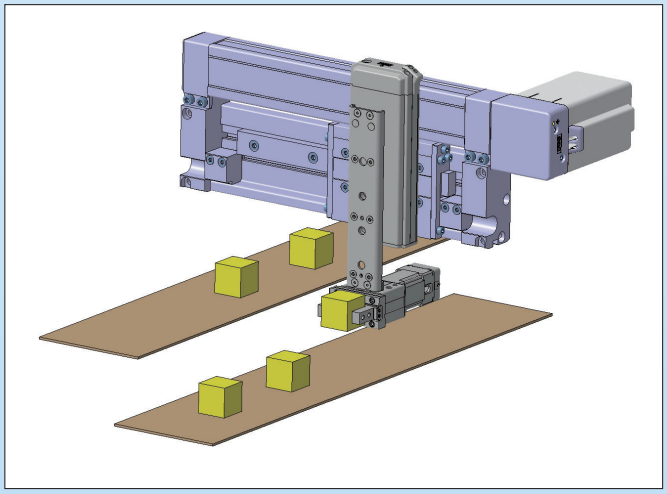
2-colour indication solid state auto switch

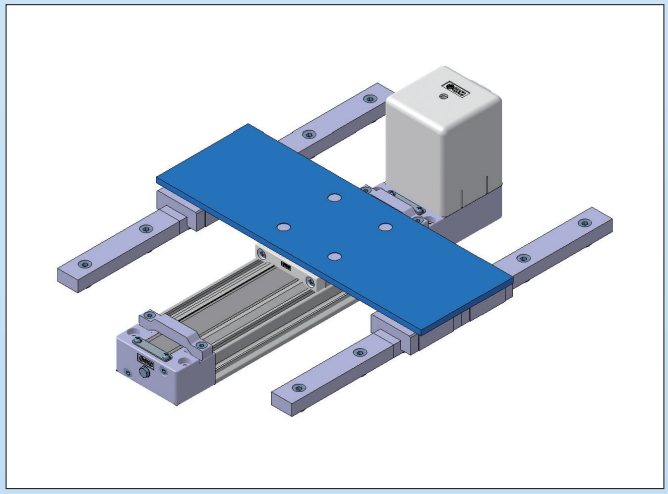
Appropriate setting of the mounting position can be performed without mistakes.

A green light lights up at the optimum operating range.



Application Examples





Variations

Belt Drive

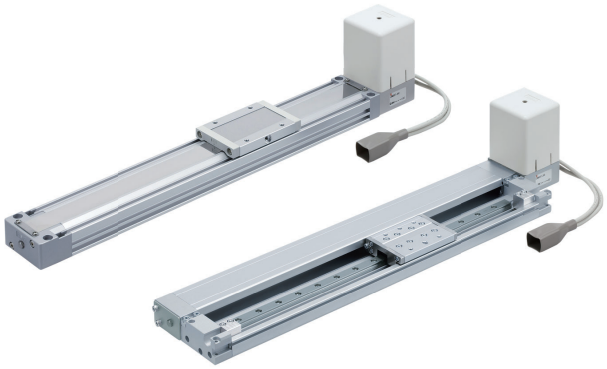
Note) Cannot be used for vertical transfer.

Series	Size	Equivalent lead [mm]	Stroke [mm]*	Work load: Horizontal [kg]	Speed [mm/s]	Page
LEMB Basic type	25	48	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000, (1100), 1200, (1300), (1400), 1500, (1600), (1700), (1800), (1900), 2000	6 (10)**	1000	Page 9
	32			11 (20)**	1000	Page 9
LEMC Cam follower guide type	25	48	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 700, 800, 900, 1000, (1100), 1200, (1300), (1400), 1500, (1600), (1700), (1800), (1900), 2000	10	1000	Page 17
	32			20	1000	Page 17
LEMH Linear guide single axis type	25	48	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, (700), (800), (900), (1000)	10	2000	Page 27
	32		50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, (700), (800), (900), (1000), (1100), (1200), (1300), (1400), (1500)	20	2000	Page 27
LEMHT Linear guide double axis type	25	48	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, (700), (800), (900), (1000)	10	2000	Page 27
	32		50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, (700), (800), (900), (1000), (1100), (1200), (1300), (1400), (1500)	20	2000	Page 27

* Strokes shown in ( ) are produced upon receipt of order. Please consult with SMC for the manufacture of intermediate strokes other than those specified on the above.
** ( ): Using an external guide (Provided by customer).

Controller Variations

Type	Number of positioning	Minimum number of wiring	How to command to drive	How to register stop positions			
				Means		Registering of position	Stroke study (Actuator end position can be set using one button operation.)
Programless type (With stroke study)  Series **LECP2** Specialized for Series LEM	14 points (2 stroke end points, 12 intermediate points)	Reduced wiring depending on the number of positions. Requires 2 inputs for up to 3 positions. (IN0, IN3)	Command the position number. (IN0 to IN3)	No programming (Controller button operation. PC or teaching box is not required.)	Position registration only. Simple operation	· JOG input · Direct input	Available (Both ends of the stroke are automatically registered.)
Programless type  Series **LECP1**	14 points	Requires 4 inputs minimum regardless of the number of position. (IN0 to IN3)			· Position registration · Operating method registration (Selection of positioning operation or pushing operation) * Pushing operation not available for the LEM series		Not available
Step data input type  Series **LECP6**	64 points	The number of inputs depends on the number of position. Requires 4 inputs minimum for up to 2 positions. (SVON, SETUP, IN0, DRIVE)	Command the position number. (IN0 to IN5) + DRIVE signal/ON	Settings by PC or teaching box		· JOG input · Direct input · Step data input	Not available

	Position data saving	Compatible actuators
	Inside of the controller	Low profile slider type Series LEM 
	Inside of the controller	Low profile slider type Series LEM Slider type Series LEF Guide rod slider type Series LEL Rod type Series LEY Guide rod type Series LEYG  Compact type Series LES High rigidity type Series LESH Miniature type Series LEPY/LEPS Electric rotary table Series LER Electric gripper Series LEH 
	· Inside of the controller · PC · Teaching box * Data backup available	Low profile slider type Series LEM Slider type Series LEF Guide rod slider type Series LEL Rod type Series LEY Guide rod type Series LEYG  Compact type Series LES High rigidity type Series LESH Miniature type Series LEPY/LEPS Electric rotary table Series LER Electric gripper Series LEH 

Programless Type (With Stroke Study) Series LECP2

Stroke end operation similar to an air cylinder is possible.

(using the 1 stroke study and 2 reduced wiring below)

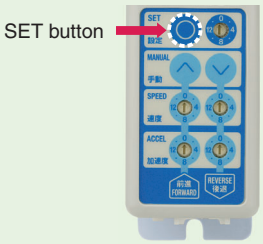
1 Stroke study (Simple registration of both stroke end positions)

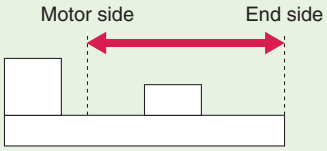
After the stroke adjustment unit has travelled, both stroke ends are automatically registered by the stroke study function!

1 Setting position number → **2 The stroke study begins** → **Automatic registration of both end positions**

Set the position selecting switch to 15(F).

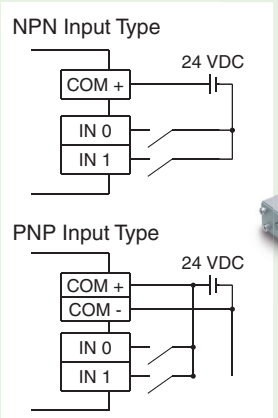
Press the SET button for 3 seconds or longer.



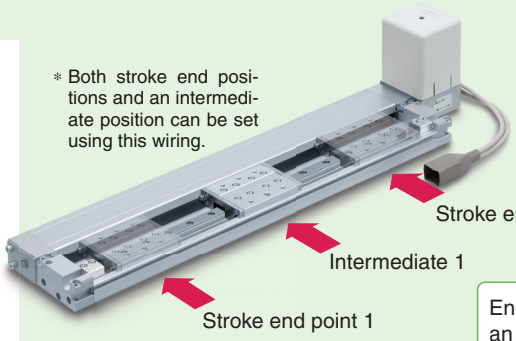


2 Wiring (Reduced wiring)

2-wire input signals*

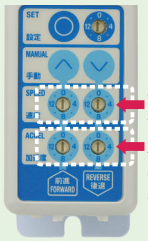


* Both stroke end positions and an intermediate position can be set using this wiring.

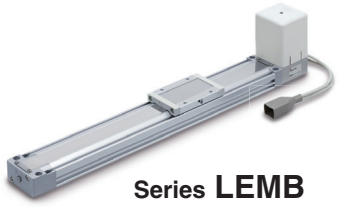


End point operation like an air cylinder by turning on input IN0 or IN1.

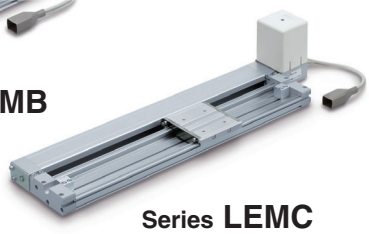
Speed/Acceleration 16-level adjustment



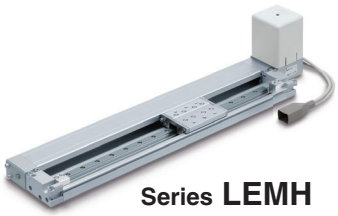
Compatible Actuators



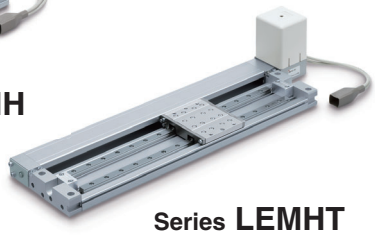
Series LEMB



Series LEMC



Series LEMH



Series LEMHT

SMC

Programless Type *Series LECP1*

Step motor
(Servo/24 VDC)
LECP1

No Programming

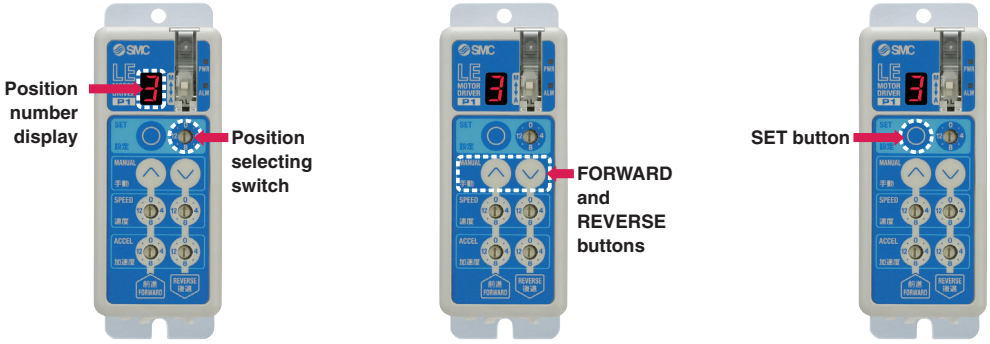
Capable of setting up an electric actuator operation without using a PC or teaching box

① Setting position number → **② Setting a stop position** → **③ Registration**

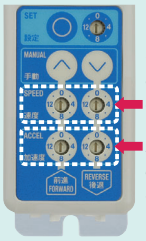
Setting a registered number for the stop position
Maximum 14 points

Moving the actuator to a stop position using FORWARD and REVERSE buttons

Registering the stop position using SET button



Speed/Acceleration 16-level adjustment



Step Data Input Type *Series LECP6*

Step motor
(Servo/24 VDC)
LECP6

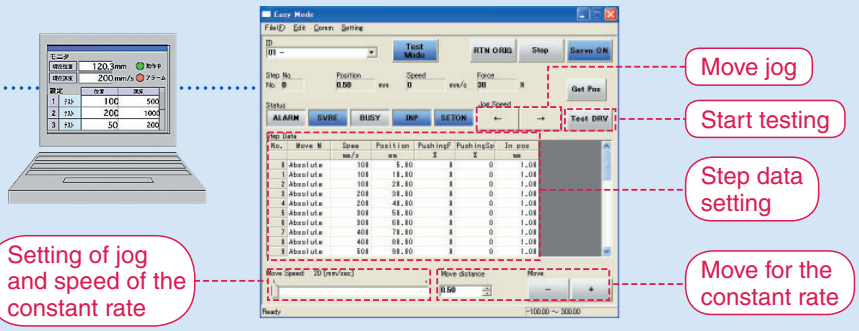
Simple Setting to Use Straight Away

◎Easy Mode for Simple Setting

If you want to use it right away, select "Easy Mode."

<When a PC is used>
Controller setting software

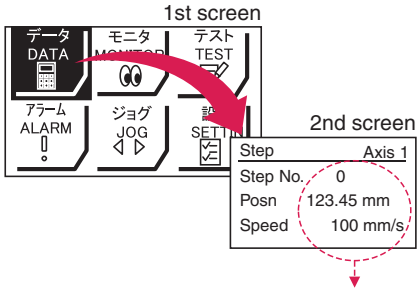
- Step data setting, test operation, move jog and move for the constant rate can be set and operated on one screen.



<When a TB (teaching box) is used>

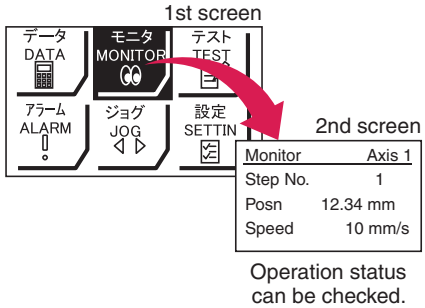
- Simple screen without scrolling promotes ease of setting and operating.
- Pick up an icon from the first screen to select a function.
- Set up the step data and check the monitor on the second screen.

Example of setting the step data



It can be registered by "SET" after entering the values.

Example of checking the operation status



Operation status can be checked.

◎Normal Mode for Detailed Setting

Select normal mode when detailed setting is required.

- Step data can be set in detail.
- Signals and terminal status can be monitored.
- Parameters can be set.
- JOG and constant rate movement, return to origin, test operation and testing of forced output can be performed.

Function

Item	Step data input type LECP6	Programless type LECP1	Programless type (With stroke study) LECP2
Step data and parameter setting	• Input from controller setting software (PC). • Input from teaching box.	• Select using controller operation buttons.	• Select using controller operation buttons.
Step data "position" setting	• Input the numerical value from controller setting software (PC) or teaching box. • Input the numerical value. • Direct teaching • JOG teaching	• Direct teaching • JOG teaching	• Stroke end: Automatic measurement • Intermediate position: Direct teaching JOG teaching
Number of step data	64 points	14 points	2 stroke end points + 12 intermediate points (14 points in total)
Operation command (I/O signal)	Step No. [IN*] input ⇒ [DRIVE] input	Step No. [IN*] input only	Step No. [IN*] input only
Completion signal	[INP] output	[OUT*] output	[OUT*] output

Setting Items

TB: Teaching box PC: Controller setting software

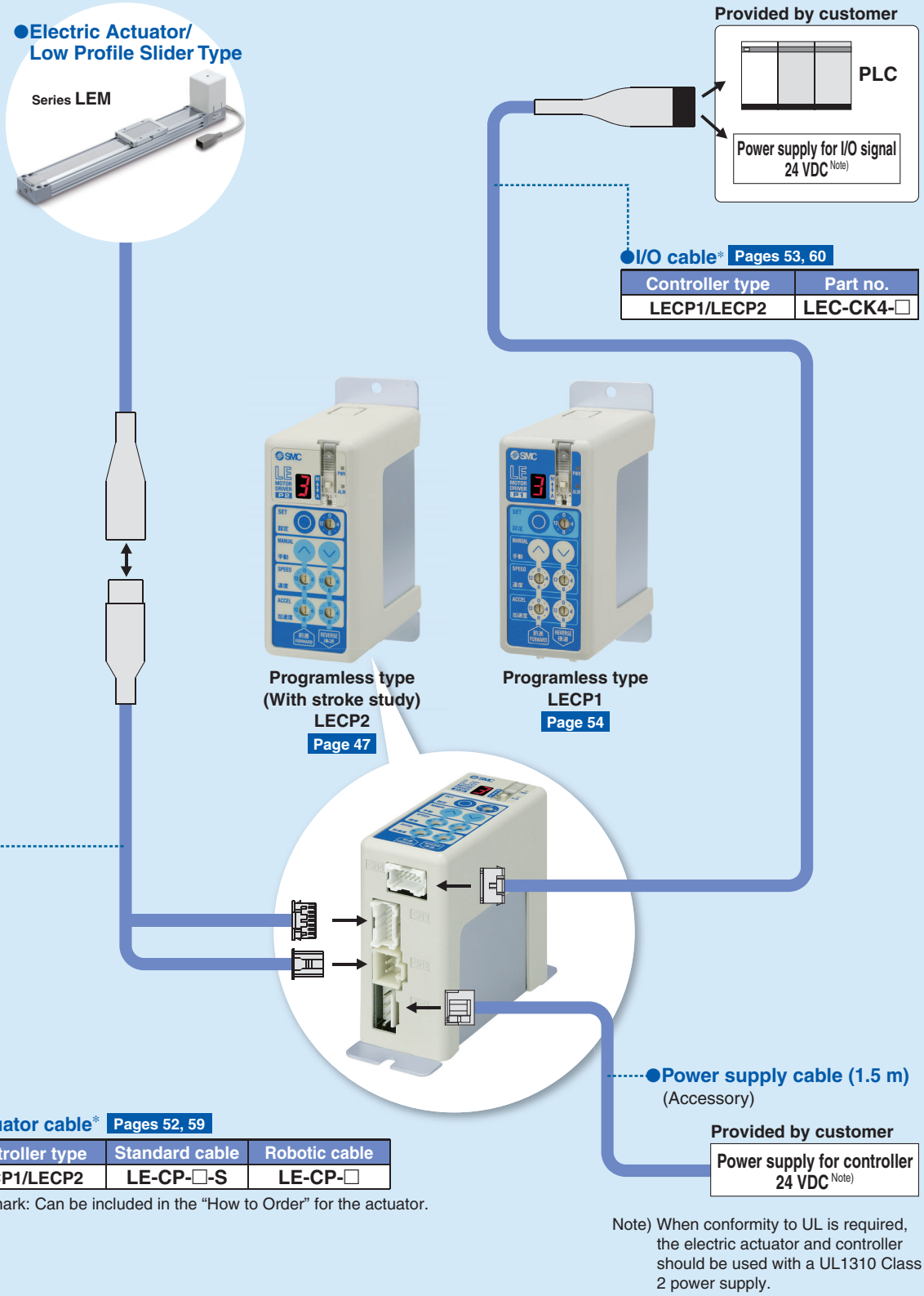
Item		Contents	Easy mode TB	Easy mode PC	Normal mode TB/PC	Step data input type LECP6	Programless type LECP1*	Programless type (With stroke study) LECP2
Step data setting (Outline)	Movement MOD	Selection of "absolute position" and "relative position"	△	●	●	Set at ABS/INC.	Fixed value (ABS)	Fixed value (ABS)
	Speed	Transfer speed	●	●	●	Set in units of 1 mm/s.	Select from 16-level.	Select from 16-level.
	Position	[Position]: Target position [Pushing]: Pushing start position **	●	●	●	Set in units of 0.01 mm.	Direct teaching JOG teaching	Stroke end: Automatic measurement Intermediate position: Direct teaching JOG teaching
	Acceleration/Deceleration	Acceleration/deceleration during movement	●	●	●	Set in units of 1 mm/s².	Select from 16-level.	Select from 16-level.
	Pushing force**	Rate of force during pushing operation	●	●	●	Set in units of 1 %.	Select from 3-level (weak, medium, strong)	No setting required
	Trigger LV	Target force during pushing operation	△	●	●	Set in units of 1 %.	No setting required (same value as pushing force)	
	Pushing speed **	Speed during pushing operation	△	●	●	Set in units of 1 mm/s.	No setting required	
	Moving force	Force during positioning operation	△	●	●	Set to 100 %.		
	Area output	Conditions for area output signal to turn ON	△	●	●	Set in units of 0.01 mm.		
	In position	[Position]: Width to the target position [Pushing]: How much it moves during pushing	△	●	●	Set to 0.5 mm or more. (Units: 0.01 mm)		
Parameter setting (Outline)	Stroke (+)	+ side limit of position	×	×	●	Set in units of 0.01 mm.		
	Stroke (–)	– side limit of position	×	×	●	Set in units of 0.01 mm.		
	ORIG direction	Direction of the return to origin can be set.	×	×	●	Compatible	Compatible	
	ORIG speed	Speed during return to origin	×	×	●	Set in units of 1 mm/s.	No setting required	
	ORIG ACC	Acceleration during return to origin	×	×	●	Set in units of 1 mm/s².		
Test	JOG		●	●	●	Continuous operation at the set speed can be tested while the switch is being pressed.	Hold down MANUAL button (⌃⌄) for uniform sending. (Speed is specified value.)	Hold down MANUAL button (⌃⌄) for uniform sending. (Speed is specified value.)
	MOVE		×	●	●	Operation at the set distance and speed from the current position can be tested.	Press MANUAL button (⌃⌄) once for sizing operation. (Speed, sizing amount are specified values.)	Press MANUAL button (⌃⌄) once for sizing operation. (Speed, sizing amount are specified values.)
	Return to ORIG		●	●	●	Compatible	Compatible	Performed by the stroke endpoint operation when power is turned ON.
	Test drive	Operation of the specified step data	●	●	● (Continuous operation)	Compatible	Compatible	Compatible
	Forced output	ON/OFF of the output terminal can be tested.	×	×	●	Compatible	Not compatible	Not compatible
Monitor	DRV mon	Current position, speed, force and the specified step data can be monitored.	●	●	●	Compatible		
	In/Out mon	Current ON/OFF status of the input and output terminal can be monitored.	×	×	●	Compatible		
ALM	Status	Alarm currently being generated can be confirmed.	●	●	●	Compatible	Compatible (Display alarm group)	Compatible (Display alarm group)
	ALM Log record	Alarm generated in the past can be confirmed.	×	×	●	Compatible	Not compatible	Not compatible
File	Save/Load	Step data and parameter can be saved, forwarded and deleted.	×	×	●	Compatible		
Other	Language	Can be changed to Japanese or English.	●	●	●	Compatible		

△Can be set from TB Ver. 2. (The version information is displayed on the initial screen)

** "Pushing Mode" is not available for LEM series.

* Programless type LECP1 cannot be used with the teaching box and controller setting kit.

System Construction/Programless Type

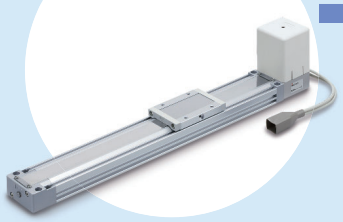


The ∗ mark: Can be included in the "How to Order" for the actuator.

Note) When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

System Construction/General Purpose I/O

●Electric Actuator/
Low Profile Slider Type



Provided by customer

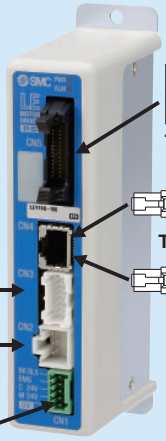
PLC

Power supply for I/O signal
24 VDC Note)

●I/O cable Pages 60, 68

Controller type	Part no.
LECP6	LEC-CN5-□
LECP1 (Programless)	LEC-CK4-□

●Controller* Page 46



To CN5

To CN4

To CN3

To CN2

To CN1

Programless type Page 54
LECP1

Note) The teaching box, controller setting kit and Touch Operator Interface cannot be connected.

Provided by customer

Power supply for controller
24 VDC Note)

Note) When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Step data input type
LECP6
Page 51

●Power supply plug
(Accessory)
<Applicable cable size>
AWG20 (0.5 mm²)

●Actuator cable* Pages 59, 67

Controller type	Standard cable	Robotic cable
LECP6 (Step data input type)	LE-CP-□-S	LE-CP-□
LECP1 (Programless type)	LE-CP-□-S	LE-CP-□

●Touch Operator Interface (Provided by customer)
GP4501T/GP3500T
Manufactured by Digital Electronics Corp.

Pro-face
for the best interface

Cockpit parts can be downloaded free via the Pro-face website. Using cockpit parts makes adjustment from the Touch Operator Interface possible.

GOT2000 Series
Mitsubishi Electric Corporation

GOT2000
Graphic Operation Terminal

Sample screens for monitoring and changing the current value and the set value of the electric actuator can be downloaded free via the Mitsubishi Electric website.

The * mark: Can be included in the "How to Order" for the actuator.

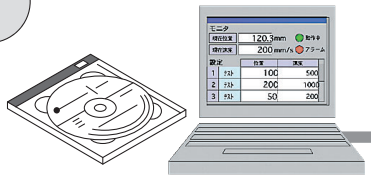
Options

●Teaching box Page 70
(With 3 m cable)
LEC-T1-3EG□

Or

●Controller setting kit Page 69
Controller setting kit
(Communication cable, conversion unit and USB cable are included.)
LEC-W2

Communication cable●
(3 m)



●USB cable
(A-mini B type)
(0.3 m)

PC

Note) Cannot be used with the programless type (LECP1).

System Construction/Fieldbus Network

PLC
(Provided by customer)

Power supply for gateway unit 24 VDC Note 1)

Power supply

Fieldbus network

Gateway (GW) unit Page 72

Applicable Fieldbus protocols
CC-Link Ver. 2.0
DeviceNet™
PROFIBUS DP
EtherNet/IP™

●Power supply connector (Accessory) — To CN4

●Communication connector (Accessory)* — To CN3

* CC-Link Ver. 2.0
DeviceNet™

To CN2

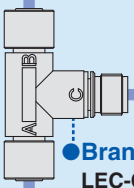
To CN1

Page 72

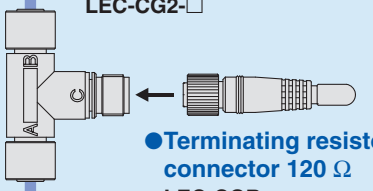
●Communication cable
LEC-CG1-□

Page 72

●Cable between branches
LEC-CG2-□



●Branch connector Page 72
LEC-CGD



●Terminating resistor connector 120 Ω
LEC-CGR

●Communication cable Page 72
LEC-CG1-□

Options

●Controller setting software Page 69
(Communication cable and USB cable are included.)
LEC-W2

●Communication cable

USB cable●
(A-mini B type)

PC
(Provided by customer)

Or

●Teaching box Page 70
(With 3 m cable)
LEC-T1-3JG□

●Controller Page 46

To CN4

●Power supply connector (Accessory)

To CN1

Controller input power supply Note 1)

●Controller Page 46

●Power supply connector (Accessory)

To CN1

Controller input power supply Note 1)

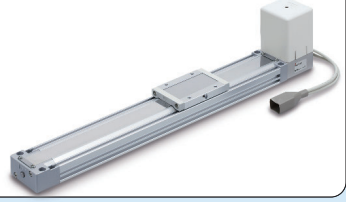
Applicable Fieldbus protocols	Max. number of connectable controllers
CC-Link Ver. 2.0	12
DeviceNet™	8
PROFIBUS DP	5
EtherNet/IP™	12

Compatible Controller

Step motor controller (Servo/24 VDC)	*Series* ***LECP6***

Note 1) Connect the 0 V terminals for both the controller input power supply and gateway unit power supply.
When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

●Electric Actuator/
Low Profile Slider Type



SMC Electric Actuators

Slider Type
Step Motor (Servo/24 VDC) | Servo Motor (24 VDC) | AC Servo Motor

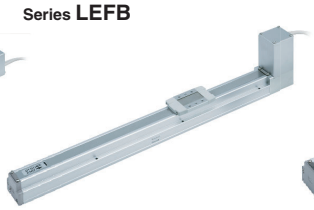
Ball screw drive
Series LEFS

Clean room compatible

Series LEFS

Size	Max. work load [Kg]	Stroke [mm]
16	10	Up to 400
25	20	Up to 600
32	45	Up to 800
40	60	Up to 1000

Belt drive
Series LEFB

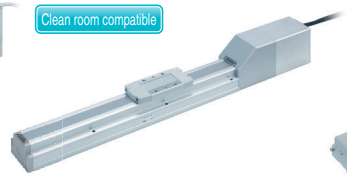


Series LEFB

Size	Max. work load [Kg]	Stroke [mm]
16	1	Up to 1000
25	5	Up to 2000
32	14	Up to 2000

Ball screw drive
Series LEFS

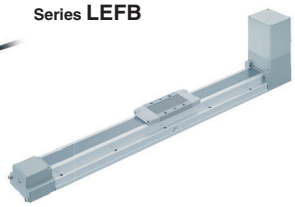
Clean room compatible



Series LEFS

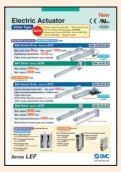
Size	Max. work load [Kg]	Stroke [mm]
25	20	Up to 600
32	45	Up to 800
40	60	Up to 1000

Belt drive
Series LEFB



Series LEFB

Size	Max. work load [Kg]	Stroke [mm]
25	5	Up to 2000
32	15	Up to 2500
40	25	Up to 3000

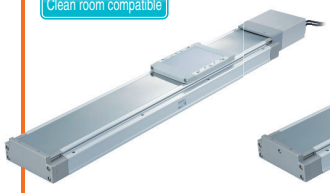


CAT.ES100-87

High Rigidity Slider Type
AC Servo Motor

Ball screw drive
Series LEJS

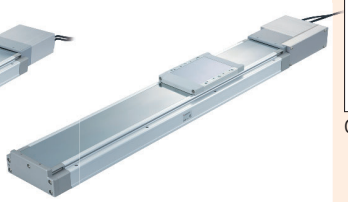
Clean room compatible



Series LEJS

Size	Max. work load [Kg]	Stroke [mm]
40	55	200 to 1200
63	85	300 to 1500

Belt drive
Series LEJB



Series LEJB

Size	Max. work load [Kg]	Stroke [mm]
40	20	200 to 2000
63	30	300 to 3000

CAT.ES100-104

Guide Rod Slider
Step Motor (Servo/24 VDC)

Belt drive
Series LEL

Series LEL25M
Sliding bearing

Size	Max. work load [Kg]	Stroke [mm]
25	3	Up to 1000

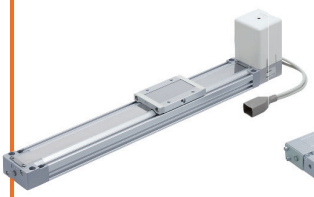
Series LEL25L
Ball bushing bearing

Size	Max. work load [Kg]	Stroke [mm]
25	5	Up to 1000

CAT.E102

Low Profile Slider Type
Step Motor (Servo/24 VDC)

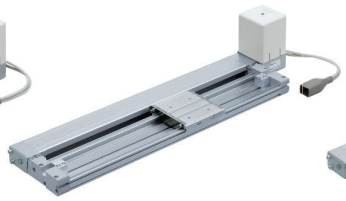
Basic type
Series LEMB



Series LEMB

Size	Max. work load [Kg]	Stroke [mm]
25	6	Up to 2000
32	11	Up to 2000

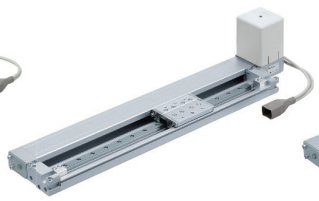
Cam follower guide type
Series LEMC



Series LEMC

Size	Max. work load [Kg]	Stroke [mm]
25	10	Up to 2000
32	20	Up to 2000

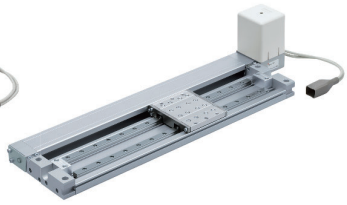
Linear guide single axis type
Series LEMH



Series LEMH

Size	Max. work load [Kg]	Stroke [mm]
25	10	Up to 1000
32	20	Up to 1500

Linear guide double axis type
Series LEMHT



Series LEMHT

Size	Max. work load [Kg]	Stroke [mm]
25	10	Up to 1000
32	20	Up to 1500

CAT.ES100-98

SMC Electric Actuators

Rod Type Step Motor (Servo/24 VDC) Servo Motor (24 VDC)

Basic type
Series LEY

Dust/Drip proof compatible

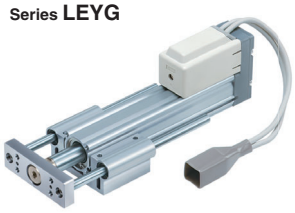
Series LEY

Size	Pushing force [N]	Stroke [mm]
16	141	Up to 300
25	452	Up to 400
32	707	Up to 500
40	1058	Up to 500

In-line motor type
Series LEY□D

Dust/Drip proof compatible

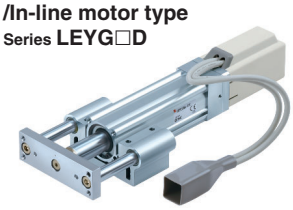
Guide rod type
Series LEYG



Series LEYG

Size	Pushing force [N]	Stroke [mm]
16	141	Up to 200
25	452	Up to 300
32	707	Up to 300
40	1058	Up to 300

Guide rod type /In-line motor type
Series LEYG□D

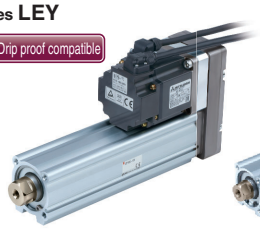


CAT.E102

AC Servo Motor

Basic type
Series LEY

Dust/Drip proof compatible



Series LEY

Size	Pushing force [N]	Stroke [mm]
25	485	Up to 400
32	588	Up to 500

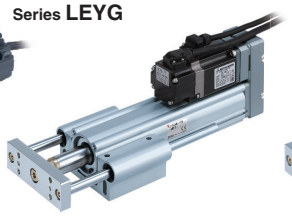
In-line motor type
Series LEY□D

Dust/Drip proof compatible

Series LEY

Size	Pushing force [N]	Stroke [mm]
25	485	Up to 400
32	736	Up to 500
63	1910	Up to 800

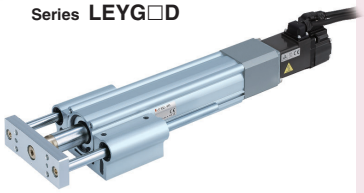
Guide rod type
Series LEYG



Series LEYG

Size	Pushing force [N]	Stroke [mm]
25	485	300
32	588	

Guide rod type /In-line motor type
Series LEYG□D



Series LEYG

Size	Pushing force [N]	Stroke [mm]
25	485	300
32	736	

Slide Table Step Motor (Servo/24 VDC) Servo Motor (24 VDC)

Series LES

Basic type/R type
Series LES□R

Size	Max. work load [Kg]	Stroke [mm]
8	1	30, 50, 75
16	3	30, 50 75, 100
25	5	30, 50, 75 100, 125, 150

Symmetrical type/L type
Series LES□L

In-line motor type/D type
Series LES□D

Series LESH

Basic type/R type
Series LESH□R

Size	Max. work load [Kg]	Stroke [mm]
8	2	50, 75
16	6	50, 100
25	9	50, 100 150

Symmetrical type/L type
Series LESH□L

In-line motor type/D type
Series LESH□D

CAT.E102

Miniature Step Motor (Servo/24 VDC)

Rod type
Series LEPY

Series LEPY

Size	Max. work load [Kg]	Stroke [mm]
6	1	25, 50, 75
10	2	

Slide table type
Series LEPS

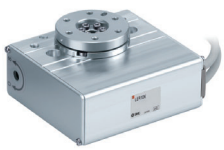
Series LEPS

Size	Max. work load [Kg]	Stroke [mm]
6	1	25
10	2	50

CAT.E102

Rotary Table Step Motor (Servo/24 VDC)

Basic type
Series LER



High precision type
Series LERH

Series LER

Size	Rotating torque (N·m)		Max. speed (°/s)	
	Basic	High torque	Basic	High torque
10	0.22	0.32	420	280
30	0.8	1.2		
50	6.6	10		

CAT.E102

SMC Electric Actuators

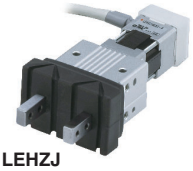
Gripper Step Motor (Servo/24 VDC)

2-finger type
Series **LEHZ**

Series **LEHZ**

Size	Max. gripping force [N]		Stroke/both sides [mm]
	Basic	Compact	
10	14	6	4
16		8	6
20	40	28	10
25			14
32	130	—	22
40	210	—	30

2-finger type
With dust cover
Series **LEHZJ**



Series **LEHZJ**

Size	Max. gripping force [N]		Stroke/both sides [mm]
	Basic	Compact	
10	14	6	4
16		8	6
20	40	28	10
25			14

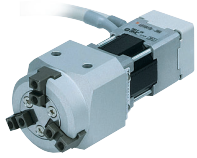
2-finger type
Long stroke
Series **LEHF**

Series **LEHF**

Size	Max. gripping force [N]	Stroke/both sides [mm]
10	7	16 (32)
20	28	24 (48)
32	120	32 (64)
40	180	40 (80)

Note) ( ): Long stroke

3-finger type
Series **LEHS**



Series **LEHS**

Size	Max. gripping force [N]		Stroke/ diameter [mm]
	Basic	Compact	
10	5.5	3.5	4
20	22	17	6
32	90	—	8
40	130	—	12

CAT.E102

Controllers/Driver

Step Motor (Servo/24 VDC)
Servo Motor (24 VDC)

Step Data Input Type
Series LECP6
Series LECA6

- 64 points positioning
- Input using controller setting kit or teaching box

Step Data Input Type
Series JXC73/83

Step Motor (Servo/24 VDC)

Programless Type
Series LECP1

- 14 points positioning
- Control panel setting (PC is not required.)

Programless Type (With Stroke Study)
Series LECP2

- End to end operation similar to an air cylinder
- 2 stroke end points + 12 intermediate points positioning

Specialized for Series LEM

Step Motor (Servo/24 VDC)

Pulse Input Type
Series LECPA

Fieldbus-compatible Network Controller/Gateway Unit

Series JXC□1

PROFIBUS
EtherCAT
DeviceNet
EtherNet/IP
IO-Link

Series JXC93

EtherNet/IP

Series LEC-G

PROFIBUS
CC-Link V2
DeviceNet
EtherNet/IP

AC Servo Motor

Pulse Input Type
Series LECSA
Series LECSB

- Absolute encoder (LECSB)
- Built-in positioning function (LECSA)

Series LECSA ***Series LECSB***

CC-Link Direct Input Type
Series LECSC

CC-Link

SSCNETⅢ Type
Series LECSS

SSCNETⅢ
SERVO SYSTEM CONTROLLER NETWORK

MECHATROLINKⅡ Type
Series LECYM

MECHATROLINK-Ⅱ

MECHATROLINKⅢ Type
Series LECYU

MECHATROLINK-Ⅲ

SSCNETⅢ/H Type
Series LECSS-T

SSCNETⅢ/H
SERVO SYSTEM CONTROLLER NETWORK

Series Variations

Electric Actuator Low profile Slider type *Series* LEM

Actuation type	Specifications		Model	Stroke [mm]	Work load/ Horizontal [kg]	Speed [mm/s]	Lead [mm]	Positioning repeatability [mm]	Controller series	Page
Belt drive	Step motor (Servo/24 VDC)	Basic type	LEMB25	100 to 2000	6	1000	48	±0.1	Series LECP2 Series LECP1 Series LECP6	Page 9
			LEMB32	100 to 2000	11	1000				
		Cam follower guide type	LEMC25	100 to 2000	10	1000				Page 17
			LEMC32	100 to 2000	20	1000				
		Linear guide single axis type	LEMH25	100 to 1000	10	2000				Page 27
			LEMH32	100 to 1500	20	2000				
		Linear guide double axis type	LEMHT25	100 to 1000	10	2000				Page 27
			LEMHT32	100 to 1500	20	2000				

Controller *Series* LEC

LECP2 LECP1 LECP6

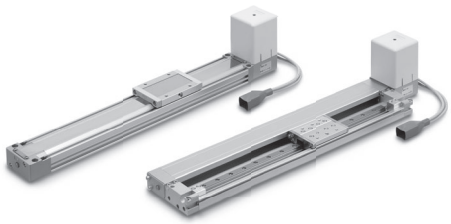
Type	Series	Compatible motor	Power supply voltage	Parallel I/O		Number of positioning pattern points	Reference page
				Input	Output		
Programless type (With stroke study)	LECP2	Step motor (Servo/24 VDC)	24 VDC ±10 %	6 inputs (Photo-coupler isolation)	6 outputs (Photo-coupler isolation)	14 (Stroke end: 2 points Intermediate: 12 points)	Page 46
Programless type	LECP1	Step motor (Servo/24 VDC)	24 VDC ±10 %	6 inputs (Photo-coupler isolation)	6 outputs (Photo-coupler isolation)	14	
Step data input type	LECP6	Step motor (Servo/24 VDC)	24 VDC ±10 %	11 inputs (Photo-coupler isolation)	13 outputs (Photo-coupler isolation)	64	

INDEX

Step Motor (Servo/24 VDC) Type

Electric Actuator/Low Profile Slider Type Step Motor (Servo/24 VDC)

Series LEM
Model Selection



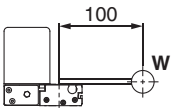
Selection Procedure

Step 1 Tentative Selection of Guide Mechanism. Check the speed–work load, work load–acceleration/deceleration. → **Step 2** Check the dynamic allowable moment. → **Step 3** Check the cycle time.

Selection Example

Operating conditions

- Work load: 10 [kg]
- Speed: 1000 [mm/s]
- Acceleration/Deceleration: 2500 [mm/s^2]
- Stroke: 600 [mm]
- Mounting orientation: Horizontal upward
- Workpiece mounting condition



Step 1 Tentative Selection of Guide Mechanism

Series	Type	Guideline for tentative model selection							Note
		Use of external guide	Direct loaded (Horizontal)	Table accuracy Note)	Direct mount (Wall mounting)	Moment resistance	Max. stroke [mm]	Max. speed [mm/s]	
LEMB	Basic type	◎	○	△	△	△	2000	1000	● Light load transfer ● Combining with external guide ● Long stroke
LEMC	Cam follower guide type	×	◎	◎	○	○	2000	1000	● Workpiece direct mounting ● Long stroke
LEMH	Linear guide single axis type	×	◎	◎	◎	◎	Size 25: 1000 Size 32: 1500	2000	● Workpiece direct mounting ● Provides more moment resistance than the cam follower guide type. ● High speed transfer
LEMHT	Linear guide double axis type	×	◎	◎	◎	◎	Size 25: 1000 Size 32: 1500	2000	● Workpiece direct mounting ● Provides more moment resistance than the linear guide single axis type. ● High speed transfer

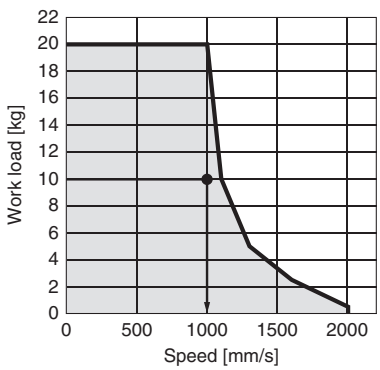
◎: Most suitable ○: Suitable △: Usable ×: Not recommended
Note) The table accuracy means the amount of table deflection when a moment is applied.

In conditions where a moment is generated, tentatively select the LEMH series.

<Speed–Work Load Graph>

Select the target model based on the workpiece mass and speed with reference to the <Speed–Work Load Graph>.

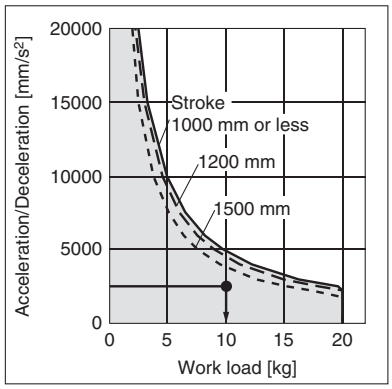
LEMH32/Step Motor



<Work Load–Acceleration/Deceleration Graph>

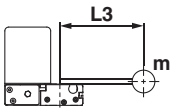
Check that the set acceleration/deceleration of the work load is within the allowable range, with reference to the <Work Load–Acceleration/Deceleration Graph>.

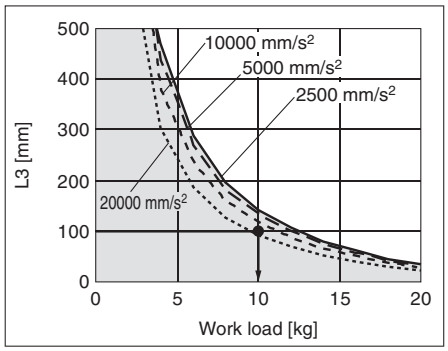
LEMH32



SMC

Step 2 Check the dynamic allowable moment.





Based on the above calculation result, the LEMH32T-500 is selected.

Step 3 Check the cycle time.

Refer to method 1 for a rough estimate, and method 2 for a more precise value.
Method 1: Check the cycle time graph. (Page 3)
Method 2: Calculation

Calculate the **cycle time** using the following calculation method.

Cycle time:
T can be found from the following equation.

$$T = T1 + T2 + T3 + T4 \text{ [s]}$$

- T1: Acceleration time and T3: Deceleration time can be obtained by the following equation.

$$T1 = V/a1 \text{ [s]} \qquad T3 = V/a2 \text{ [s]}$$

- T2: Constant speed time can be found from the following equation.

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \text{ [s]}$$

- T4: Settling time varies depending on the conditions such as motor types, load and in positioning of the step data. Therefore, calculate the settling time with reference to the following value.

$$T4 = 0.3 \text{ [s]}$$

Calculation example)
T1 to T4 can be calculated as follows.

$T1 = V/a1 = 1000/2500 = 0.4$ [s],

$T3 = V/a2 = 1000/2500 = 0.4$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V}$$

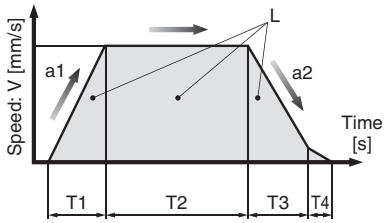
$$= \frac{600 - 0.5 \cdot 1000 \cdot (0.4 + 0.4)}{1000}$$

$= 0.2$ [s]

$T4 = 0.3$ [s]

Therefore, the **cycle time** can be obtained as follows.

$T = T1 + T2 + T3 + T4$
$= 0.4 + 0.2 + 0.4 + 0.3$
$= 1.3$ [s]



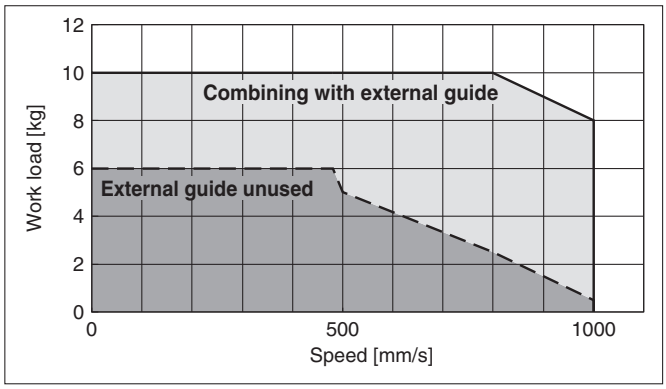
L: Stroke [mm]···(Operating condition)
V: Speed [mm/s]···(Operating condition)
a1: Acceleration [mm/s²]···(Operating condition)
a2: Deceleration [mm/s²]···(Operating condition)

T1: Acceleration time [s]
Time until reaching the set speed
T2: Constant speed time [s]
Time while the actuator is operating at a constant speed
T3: Deceleration time [s]
Time from the beginning of the constant speed operation to stop
T4: Settling time [s]
Time until in position is completed

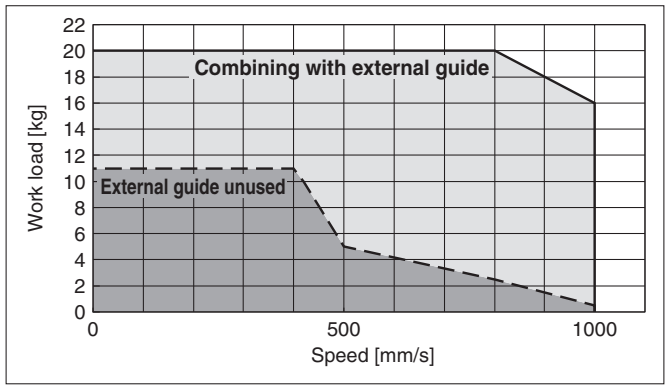
Speed–Work Load Graph (Guide)
Step Motor (Servo/24 VDC)

∗ The following graph shows the values when moving force is 100 %.

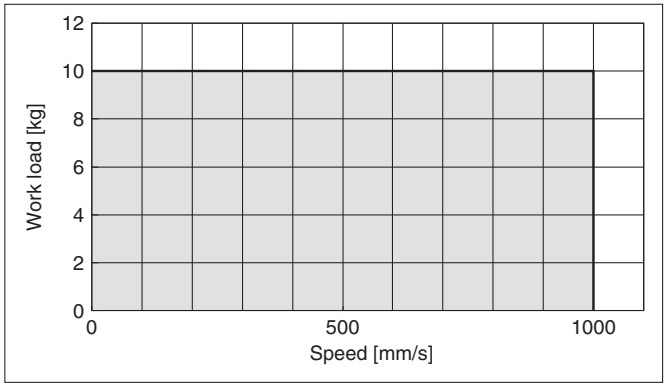
LEMB25



LEMB32



LEMC25



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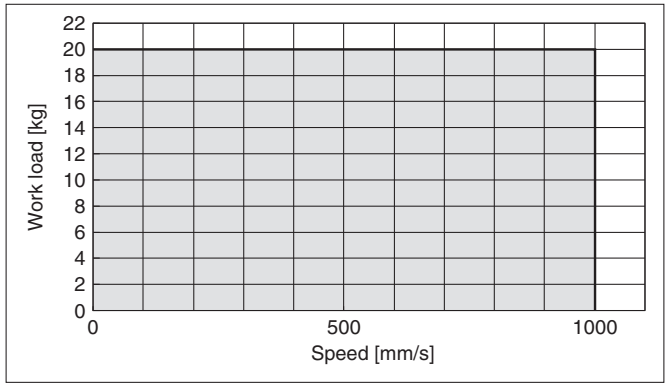
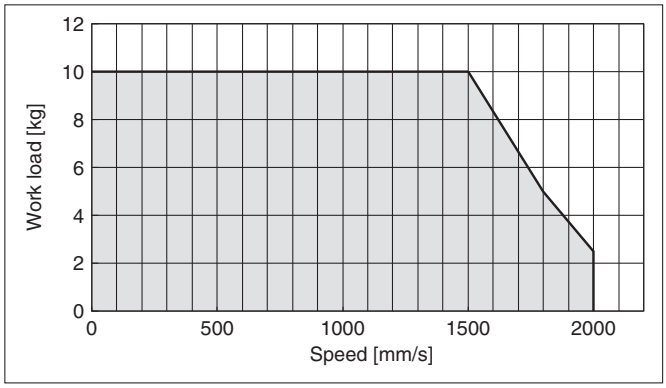
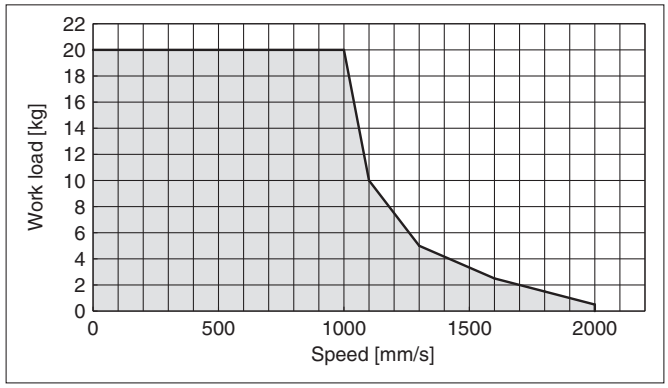


LEMH/HT25

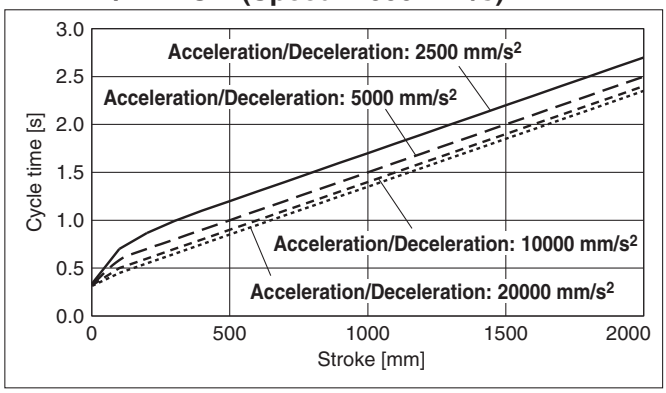


LEMH/HT32

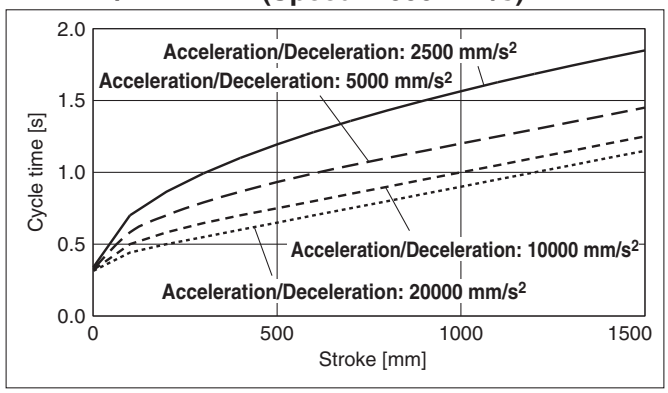


Cycle Time Graph (Guide)

LEMB□/LEMC□ (Speed: 1000 mm/s)

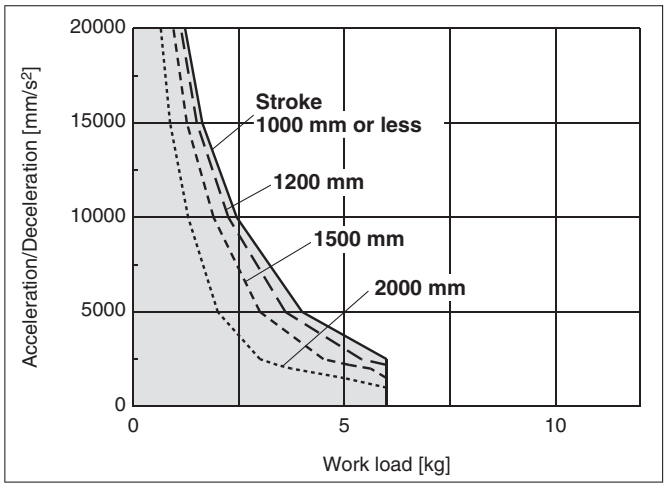


LEMH□/LEMHT□ (Speed: 2000 mm/s)

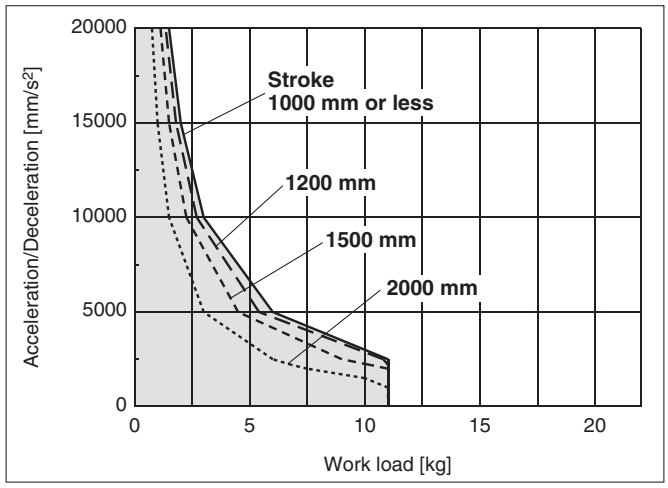


Work Load–Acceleration/Deceleration Graph (Guide)

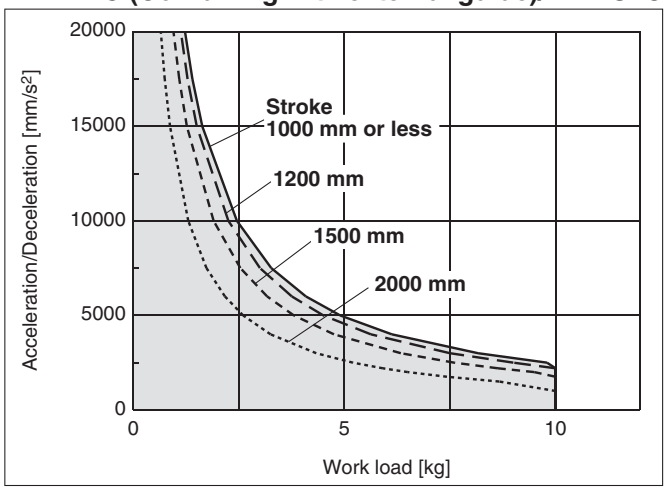
LEMB25



LEMB32

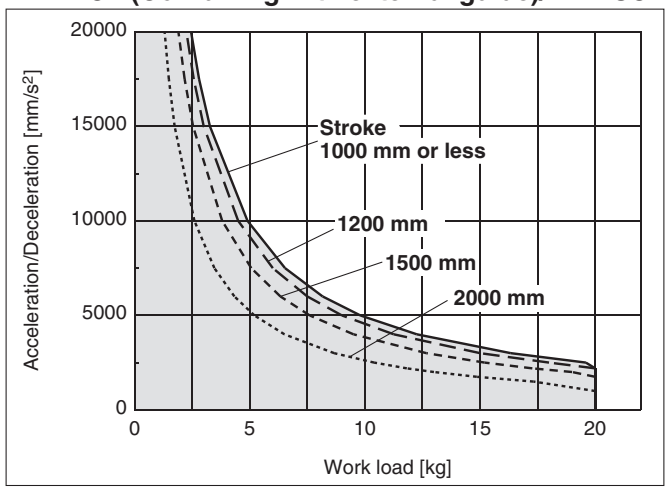


LEMB25 (Combining with external guide)/LEMC25



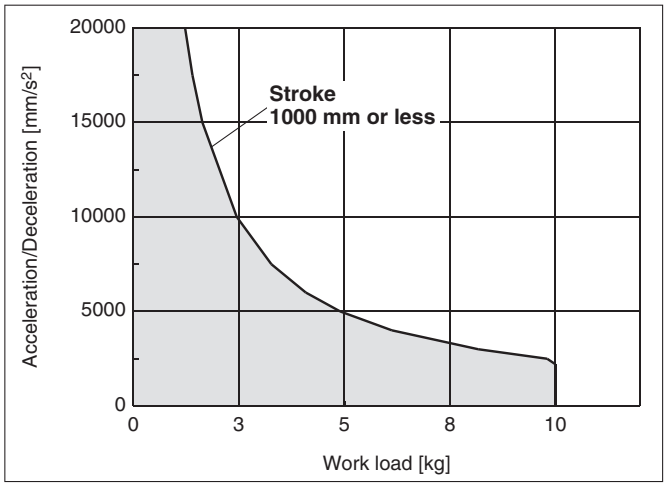
∗ Friction coefficient for combining with external guide is 0.1 or less.

LEMB32 (Combining with external guide)/LEMC32

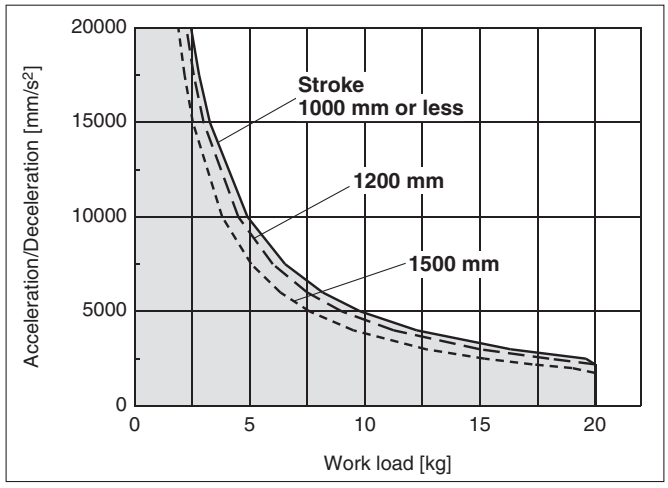


∗ Friction coefficient for combining with external guide is 0.1 or less.

LEMH25/LEMHT25



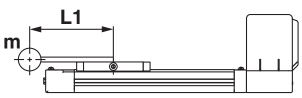
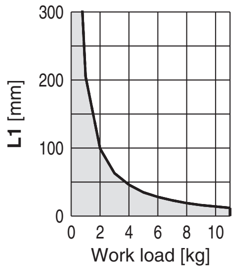
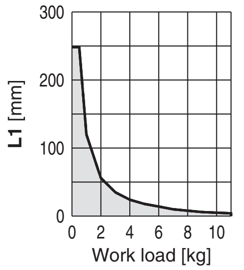
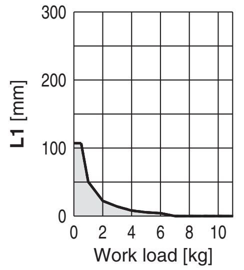
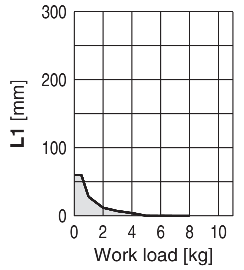
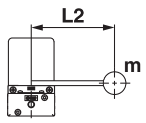
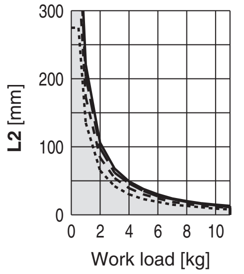
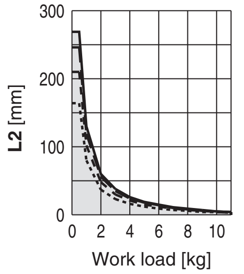
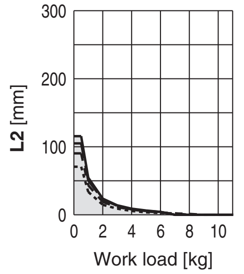
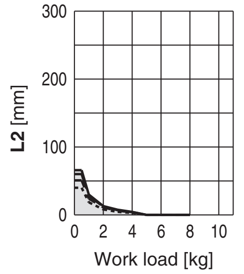
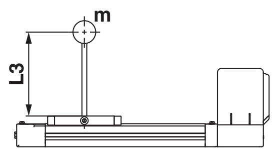
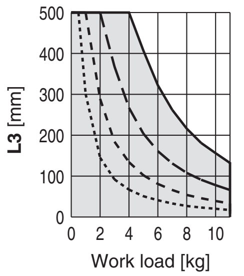
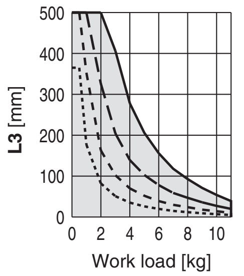
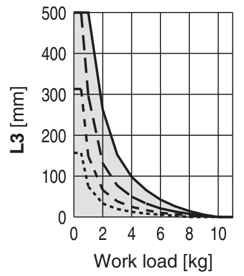
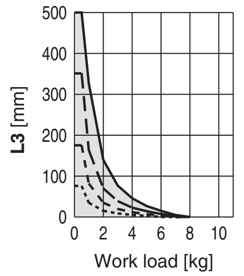
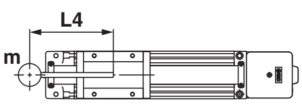
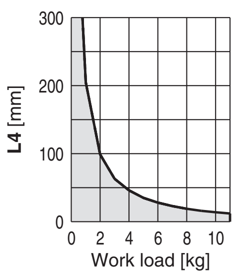
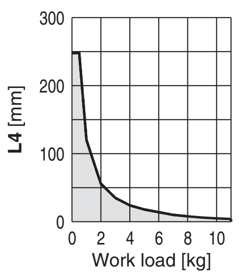
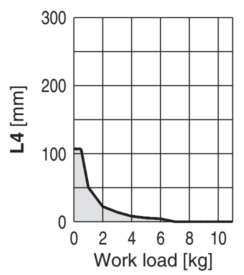
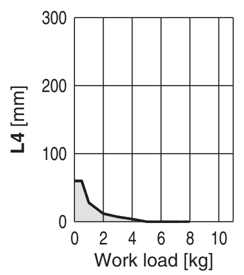
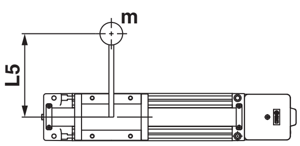
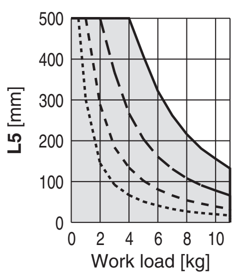
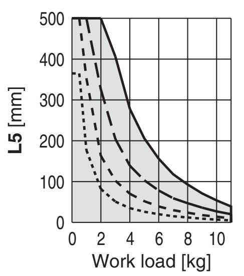
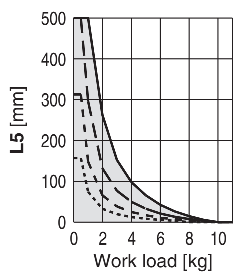
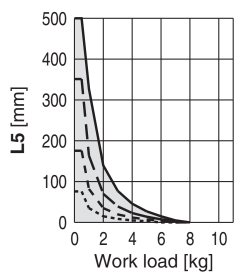
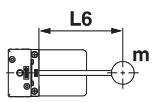
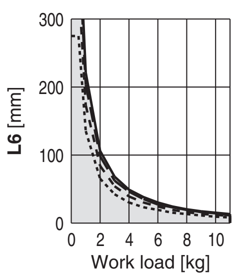
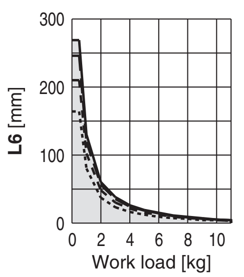
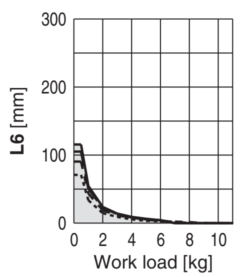
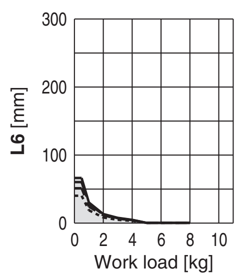
LEMH32/LEMHT32



Dynamic Allowable Moment (Series LEMB)

∗ This graph shows the amount of allowable overhang when the centre of gravity of the workpiece overhangs in one direction.

Acceleration/Deceleration —— 2500 mm/s² — — — 5000 mm/s² - - - - 10000 mm/s² ········ 20000 mm/s²

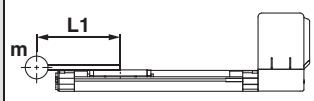
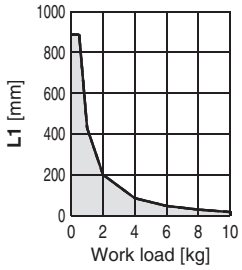
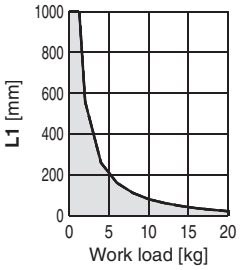
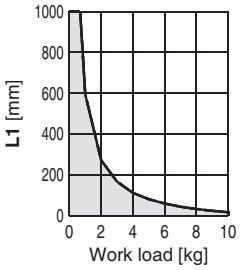
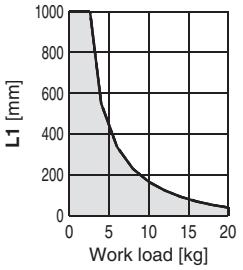
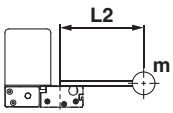
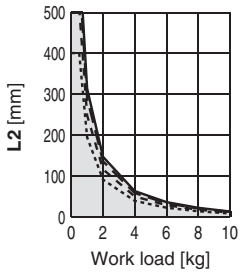
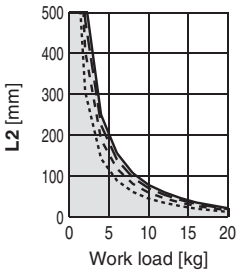
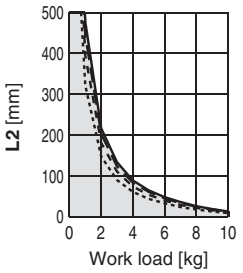
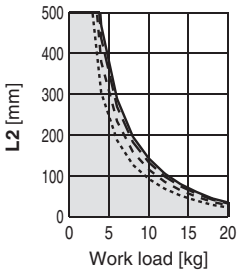
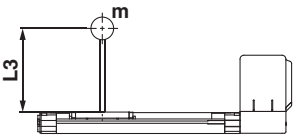
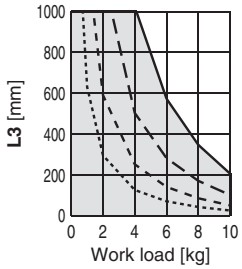
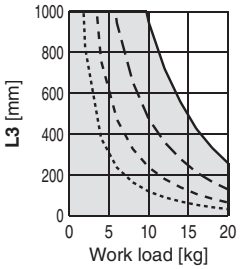
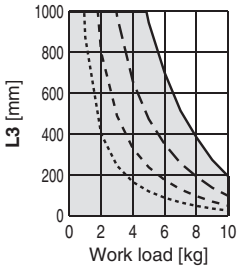
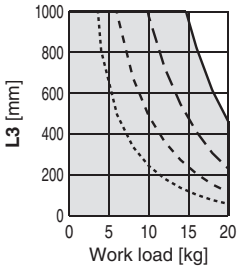
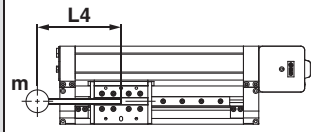
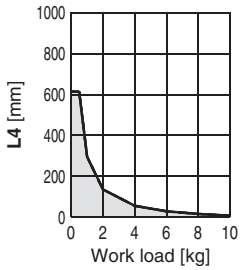
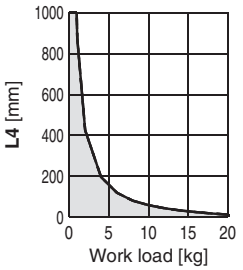
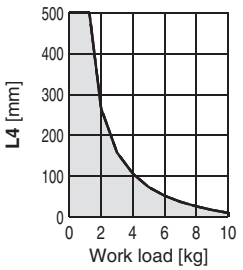
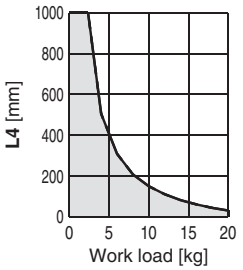
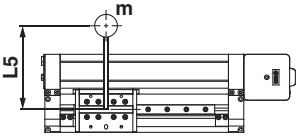
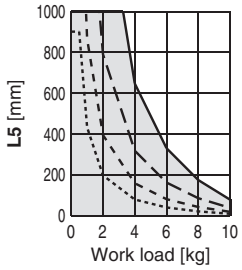
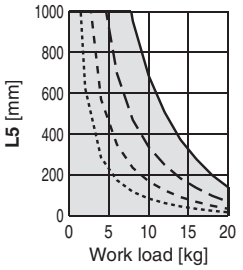
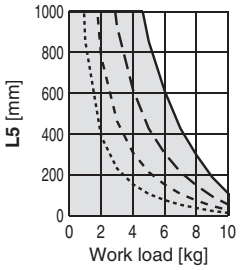
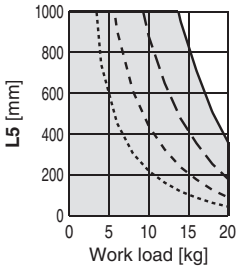
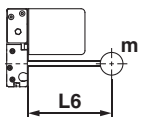
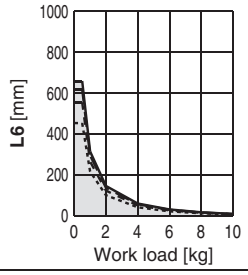
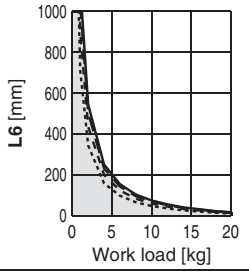
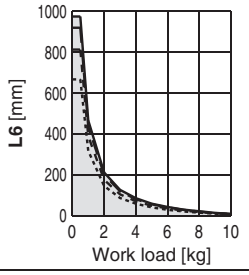
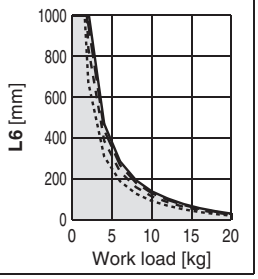
Orientation	Load overhanging direction **m**: Work load [mm] **Me**: Dynamic allowable moment [N·m] **L**: Overhang to the work load centre of gravity [mm]	Model: **LEMB25/LEMB32**			
		Speed: 300 mm/s or less	Speed: 500 mm/s	Speed: 800 mm/s	Speed: 1000 mm/s
Horizontal / Ceiling mounting					
Horizontal / Ceiling mounting					
Horizontal / Ceiling mounting					
Wall mounting					
Wall mounting					
Wall mounting					

∗ Vertical mounting is not available.

Dynamic Allowable Moment (Series LEMC/LEMH)

∗ This graph shows the amount of allowable overhang when the centre of gravity of the workpiece overhangs in one direction.

Acceleration/Deceleration —— 2500 mm/s² – – – 5000 mm/s² - - - - 10000 mm/s² ····· 20000 mm/s²

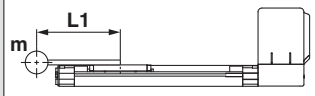
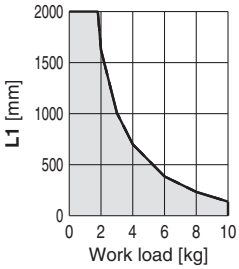
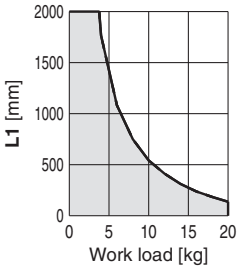
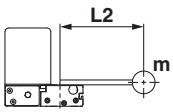
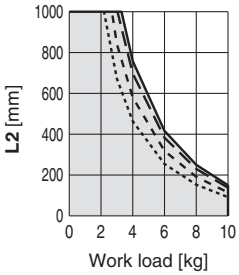
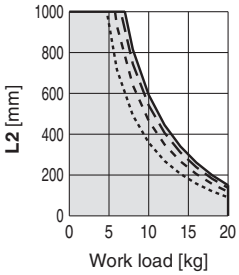
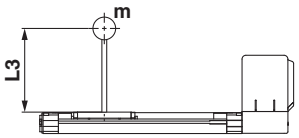
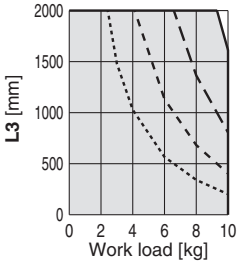
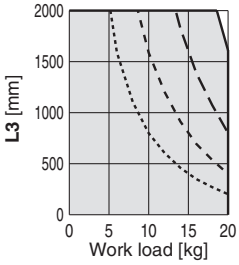
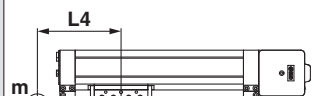
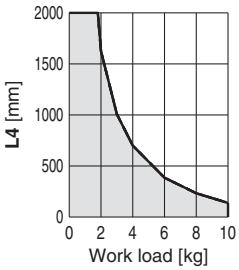
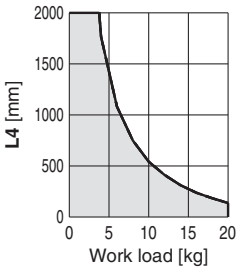
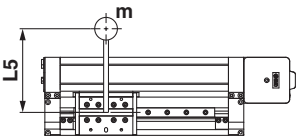
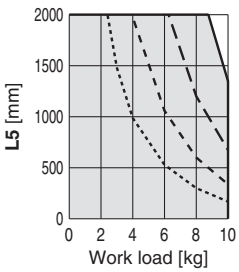
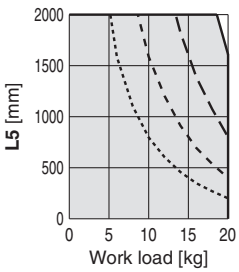
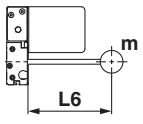
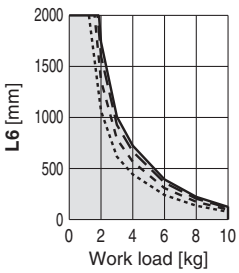
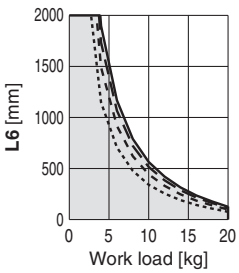
Orientation	Load overhanging direction **m**: Work load [mm] **Me**: Dynamic allowable moment [N·m] **L**: Overhang to the work load centre of gravity [mm]	Model			
		LEMC25	**LEMC32**	**LEMH25**	**LEMH32**
Horizontal / Ceiling mounting					
					
					
Wall mounting					
					
					

∗ Vertical mounting is not available.

Dynamic Allowable Moment (Series LEMHT)

∗ This graph shows the amount of allowable overhang when the centre of gravity of the workpiece overhangs in one direction.

Acceleration/Deceleration —— 2500 mm/s² — — — 5000 mm/s² - - - - 10000 mm/s² ····· 20000 mm/s²

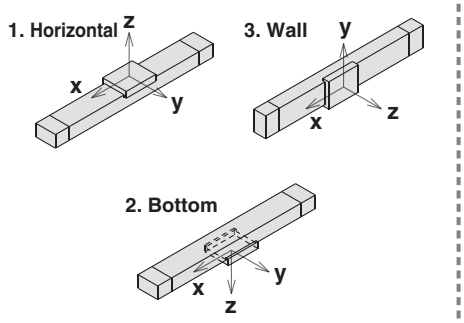
Orientation	Load overhanging direction **m**: Work load [mm] **Me**: Dynamic allowable moment [N·m] **L**: Overhang to the work load centre of gravity [mm]	Model LEMHT25	Model LEMHT32
Horizontal / Ceiling mounting			
			
			
Wall mounting			
			
			

∗ Vertical mounting is not available.

Calculation of Guide Load Factor

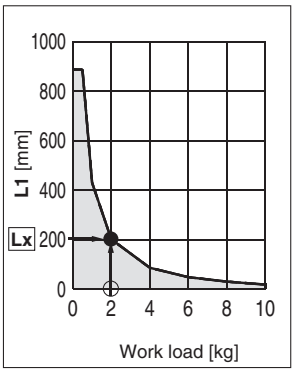
1. Decide operating conditions.
   Model: LEM
   Size: 25/32
   Mounting orientation: Horizontal/Bottom/Wall/Vertical
   Acceleration [mm/s²]: **a**
   Work load [kg]: **m**
   Work load centre position [mm]: **Xc/Yc/Zc**
2. Select the target graph with reference to the model, size and mounting orientation.
3. Based on the acceleration and work load, obtain the overhang [mm]: **Lx/Ly/Lz** from the graph.
4. Calculate the load factor for each direction.
   α**x = Xc/Lx**, α**y = Yc/Ly**, α**z = Zc/Lz**
5. Confirm the total of α**x**, α**y** and α**z** is 1 or less.
   α**x** + α**y** + α**z** ≤**1**
   When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load centre position and series.

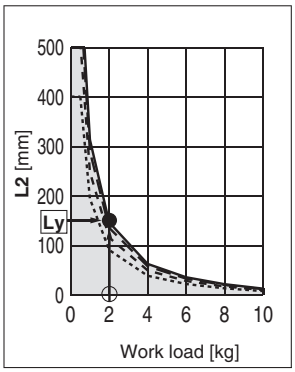
Mounting orientation

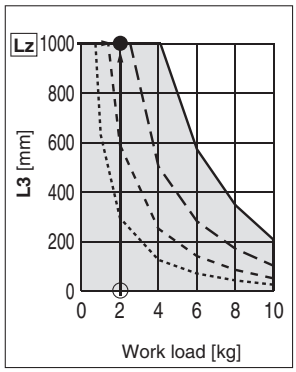


Example

1. Operating conditions
   Model: LEMC25
   Mounting orientation: Horizontal
   Acceleration [mm/s²]: 2500
   Work load [kg]: 2
   Work load centre position [mm]: **Xc = 0**, **Yc = 75**, **Zc = 100**
2. Select the graph on page 6, top and left side first row.
3. **Lx = 200 mm**, **Ly = 145 mm**, **Lz = 1000 mm**
4. The load factor for each direction can be obtained as follows.
   α**x = 0/200 = 0**
   α**y = 75/145 = 0.52**
   α**z = 100/1000 = 0.1**
5. α**x** + α**y** + α**z = 0.62** ≤**1**







Electric Actuator/Low Profile Slider Type
Basic Type Step Motor (Servo/24 VDC)

Series LEMB
LEMB25, 32

EtherNet/IP™ DeviceNet™ PROFINET IO-Link EtherCAT®

Compatible ▶ Page 76

⚠ Caution

Series E-MY: E-MY□16, E-MY□25 → New Series LEM: LEM□25, LEM□32

How to Order

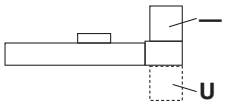
LEMB 25 ❶ □ ❷ T ❸ – 300 ❹ □ ❺ □ ❻ – S ❼ 1 ❽ 2P ❾ 1 ❿ □ ⓫

❶ Size

25
32

❷ Motor mounting position

—	Top mounting
U	Bottom mounting



❸ Equivalent lead

T	48 mm

❺ Motor option

—	Without lock
B	With lock

❻ Stroke adjustment unit (Included)

—	None
M	Motor side only
E	End side only
W	Both sides

❹ Stroke

●Standard/○Produced upon receipt of order

Model \ Stroke	50	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
LEMB25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●
LEMB32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●

∗ Please consult with SMC as all non-standard and non-made-to-order strokes are produced as special orders.

⚠ Caution

[CE-compliant products]

EMC compliance was tested by combining the electric actuator LEM series and the controller LEC series.

The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.

[UL-compliant products]

When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Refer to pages 42 and 43 for auto switches.

The actuator and controller are sold as a package.

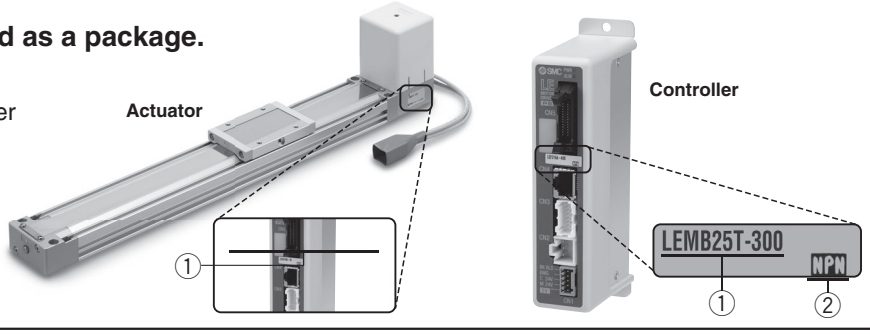
(They can be ordered separately.)

Confirm that the combination of the controller and the actuator is correct.

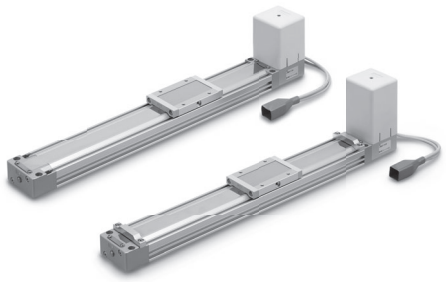
<Check the following before use.>

① Check the actuator label for model number. This matches the controller.

② Check Parallel I/O configuration matches (NPN or PNP).



SMC



❼ Actuator cable type

—	Without cable
S	Standard cable*
R	Robotic cable (Flexible cable)

* The standard cable should be used on fixed parts. For using on moving parts, select the robotic cable.

❽ Actuator cable length

—	Without cable	8	8 m*
1	1.5 m	A	10 m*
3	3 m	B	15 m*
5	5 m	C	20 m*

* Produced upon receipt of order (Robotic cable only)

❾ Controller type

—	Without controller	
6N	**LECP6** (Step data input type)	NPN
6P		PNP
2N	**LECP2*** (Programless type (With stroke study))	NPN
2P		PNP
1N	**LECP1** (Programless type)	NPN
1P		PNP

* Select the LECP2 when setting the stroke range using the stroke adjustment unit or an external stop.

❿ I/O cable length*

—	Without cable
1	1.5 m
3	3 m
5	5 m

* When "Without controller" is selected for controller types, I/O cable cannot be selected. Refer to page 53 (For LECP2), page 60 (For LECP1) or page 68 (For LECP6) if I/O cable is required.

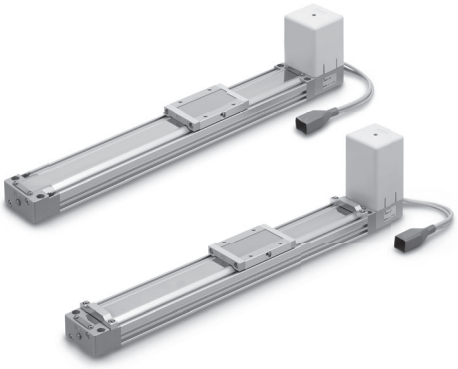
⓫ Controller mounting

—	Screw mounting
D	DIN rail mounting*

* DIN rail is not included. Order it separately.

Compatible Controllers

Type	Programless type (With stroke study)	Programless type	Step data input type
			
Series	**LECP2**	**LECP1**	**LECP6**
Features	End to end operation similar to an air cylinder using the stroke study function	Capable of setting up operation (step data) without using a PC or teaching box	Value (Step data) input Standard controller
Compatible motor	Step motor (Servo/24 VDC)		
Maximum number of step data	14 points (2 stroke end points + 12 intermediate points)	14 points	64 points
Power supply voltage	24 VDC		
Reference page	Page 47	Page 54	Page 61



Speed/Acceleration (Set values for LECP1/2)

Table 1 Switch and Speed Note)

Switch no.	Speed [mm/s]
0	48
1	75
2	100
3	150
4	200
5	250
6	300
7	350
8	400
9	450
10	500
11	600
12	700
13	800
14	900
15	1000

Table 2 Switch and Acceleration Note)

Switch no.	Acceleration [mm/s^2]
0	250
1	500
2	1000
3	1500
4	2000
5	2500
6	3000
7	4000
8	5000
9	6000
10	7500
11	10000
12	12500
13	15000
14	17500
15	20000

Note) The factory default setting for the switch is No.0.

Specifications

Step Motor (Servo/24 VDC)

Model			LEMB25	LEMB32
Stroke [mm] Note 1)			100, 200, 300, 400, 500 600, 700, 800, 900 1000, (1100), 1200 (1300), (1400), 1500 (1600), (1700), (1800) (1900), 2000	100, 200, 300, 400, 500 600, 700, 800, 900 1000, (1100), 1200 (1300), (1400), 1500 (1600), (1700), (1800) (1900), 2000
Actuator specifications	**Work load [kg]** Note 2)	**Horizontal**	6 (10)	11 (20)
	Speed [mm/s] Note 2)		48 to 1000 (Refer to **Table 1** for set values when LECP1 or 2 is selected.)	
	Max. acceleration/deceleration [mm/s^2] Note 9)		20000 (Depends on the work load.)(Refer to **Table 2** for set values when LECP1 or 2 is selected.)	
	Positioning repeatability [mm]		±0.1	
	Lost motion [mm] Note 10)		0.1 or less	
	Lead [mm]		48	
	Actuation type		Belt	
	Guide type		Sliding bearing	
	Operating temperature range [°C]		5 to 40	
	Operating humidity range [%RH]		90 or less (No condensation)	
	Allowable external force [N] Note 8)		10	20
Electric specifications	**Motor size**		□56.4	
	Motor type		Step motor (Servo/24 VDC)	
	Encoder		Incremental A/B phase (800 pulse/rotation)	
	Rated voltage [V]		24 VDC±10 %	
	Power consumption [W] Note 3)		50	52
	Standby power consumption when operating [W] Note 4)		44	44
	Max. instantaneous power consumption [W] Note 5)		123	127
Lock unit specifications	**Type** Note 6)		Non-magnetizing lock	
	Holding force [N]		36	
	Power consumption [W] Note 7)		5	
	Rated voltage [V]		24 VDC±10 %	

Note 1) Please consult with SMC as all non-standard and non-made-to-order strokes are produced as special orders.

Note 2) Speed changes according to the work load. Check “Speed–Work Load Graph (Guide)” on page 3. The work load is changed by the work load mounting condition. Check “Dynamic Allowable Moment” on page 5.
Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10 % for each 5 m.
( ): When combined with another guide and the friction coefficient is 0.1 or less.

Note 3) The power consumption (including the controller) is for when the actuator is operating.

Note 4) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during operation.

Note 5) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.

Note 6) With lock only

Note 7) For an actuator with lock, add the power consumption for the lock.

Note 8) The resistance value of the attached equipment should be within the allowable external resistance value.

Note 9) Maximum acceleration is limited by the work load and the stroke. Refer to "Work Load–Acceleration/Deceleration Graph (Guide)" on page 4.

Note 10) A reference valve for correcting an error in reciprocal operation.

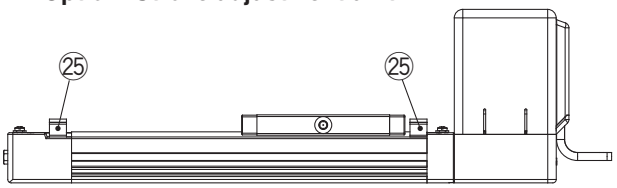
Weight

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	(1100)	1200	(1300)	(1400)	1500	(1600)	(1700)	(1800)	(1900)	2000
Product weight [kg]	**LEMB25**	1.66	1.75	1.84	1.92	2.01	2.10	2.19	2.27	2.37	2.45	2.54	2.62	2.80	2.97	3.15	3.33	3.50	3.68	3.85	4.03	4.20	4.38	4.55	4.73	4.90	5.08
	LEMB32	2.02	2.11	2.20	2.11	2.38	2.11	2.55	2.11	2.73	2.82	2.91	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82
Additional weight with lock [kg]		0.60																									

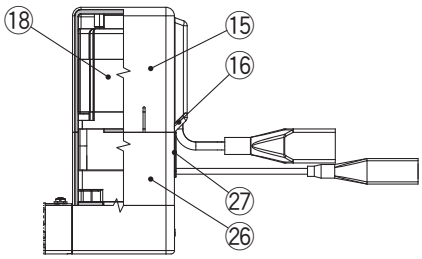
Construction

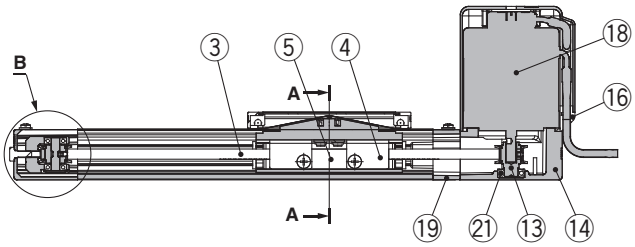
LEMB

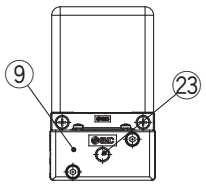
Option: Stroke adjustment unit



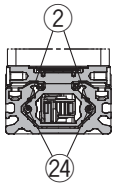
Motor option: With lock

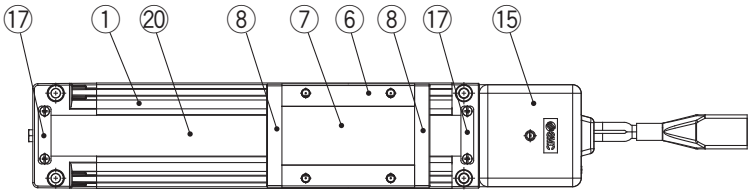




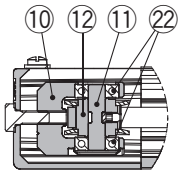


A-A





B



Component Parts

No.	Description	Material	Note
1	**Body**	Alumnium alloy	Anodised
2	**Guide plate**	Synthetic resin	
3	**Belt**	—	
4	**Belt holder**	Carbon steel	Chromated
5	**Belt stopper**	Alumnium alloy	
6	**Table**	Alumnium alloy	Anodised
7	**Blanking plate**	Alumnium alloy	Anodised
8	**Seal band stopper**	Synthetic resin	
9	**End block**	Alumnium die-casted	Painting
10	**Pulley holder**	Alumnium alloy	
11	**Pulley shaft**	Stainless steel	Heat treatment + Special treatment
12	**Pulley**	Alumnium alloy	Anodised
13	**Motor pulley**	Alumnium alloy	Anodised
14	**Motor mount**	Alumnium die-casted	Painting
15	**Motor cover**	Synthetic resin	

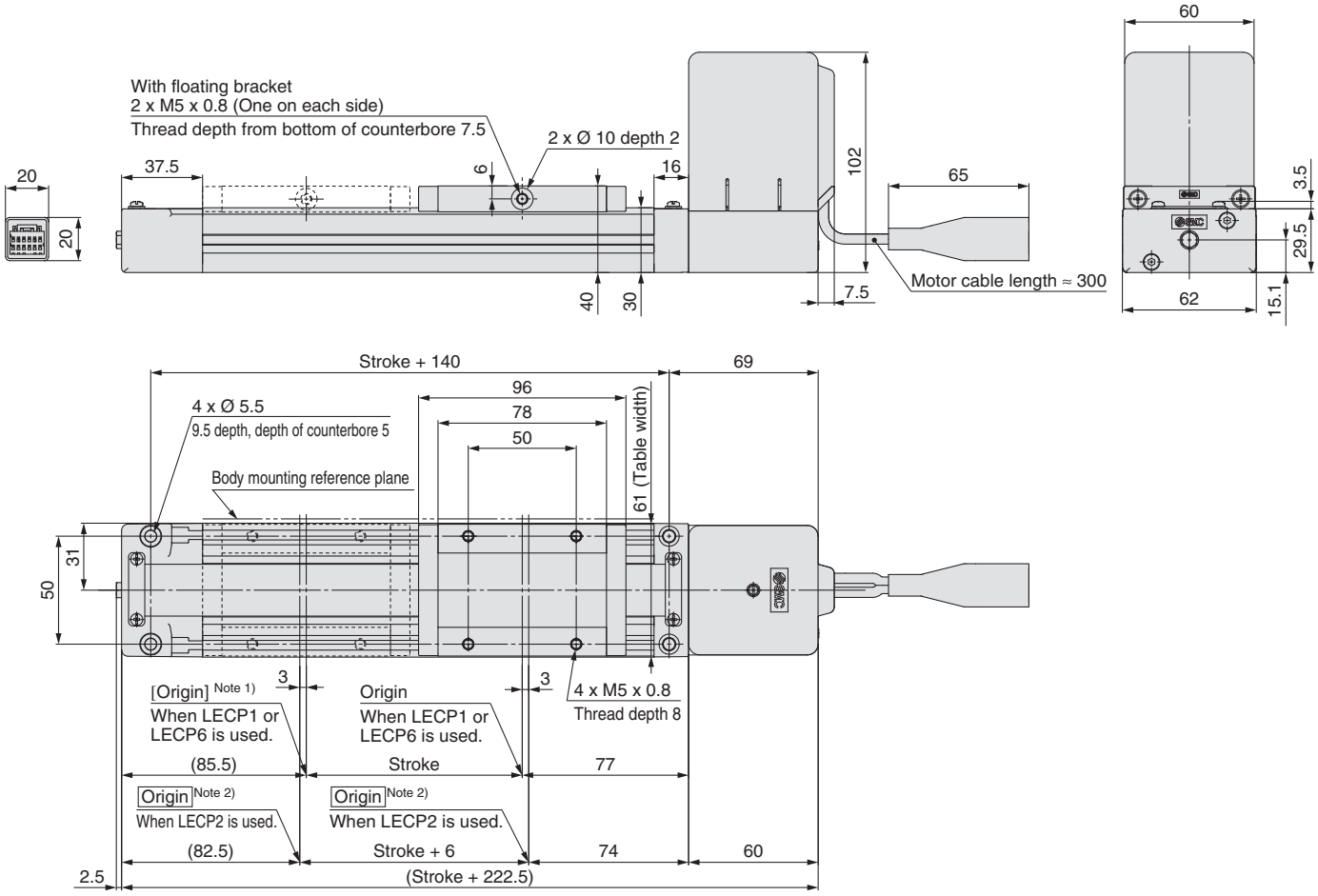
Component Parts

No.	Description	Material	Note
16	**Grommet**	Synthetic resin	
17	**Band stopper**	Stainless steel	
18	**Motor**	—	
19	**Motor end block**	Alumnium die-casted	Painting
20	**Dust seal band**	Stainless steel	
21	**Bearing**	—	
22	**Bearing**	—	
23	**Hexagon bolt**	Carbon steel	Chromated
24	**Magnet**	—	
25	**Stroke adjuster**	Alumnium alloy	Anodised (Optional)
26	**Motor cover for lock**	Alumnium alloy	Anodised Only “with lock”
27	**Grommet**	CR	Chloroprene rubber Only “with lock”

Dimensions Size 25

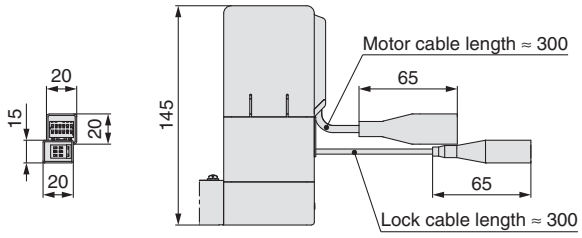
Refer to page 46 and after for dimensions of the controllers.

Top mounting
LEMB25T-□□-□□□□□

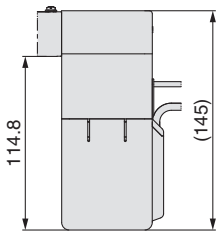


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

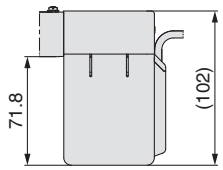
Top mounting
With lock
LEMB25T-□B□-□□□□□



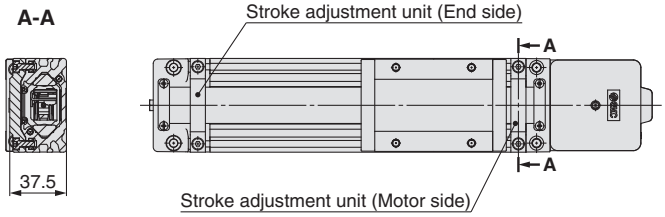
Bottom mounting
With lock
LEMB25UT-□B□-□□□□□



Bottom mounting
LEMB25UT-□□-□□□□□



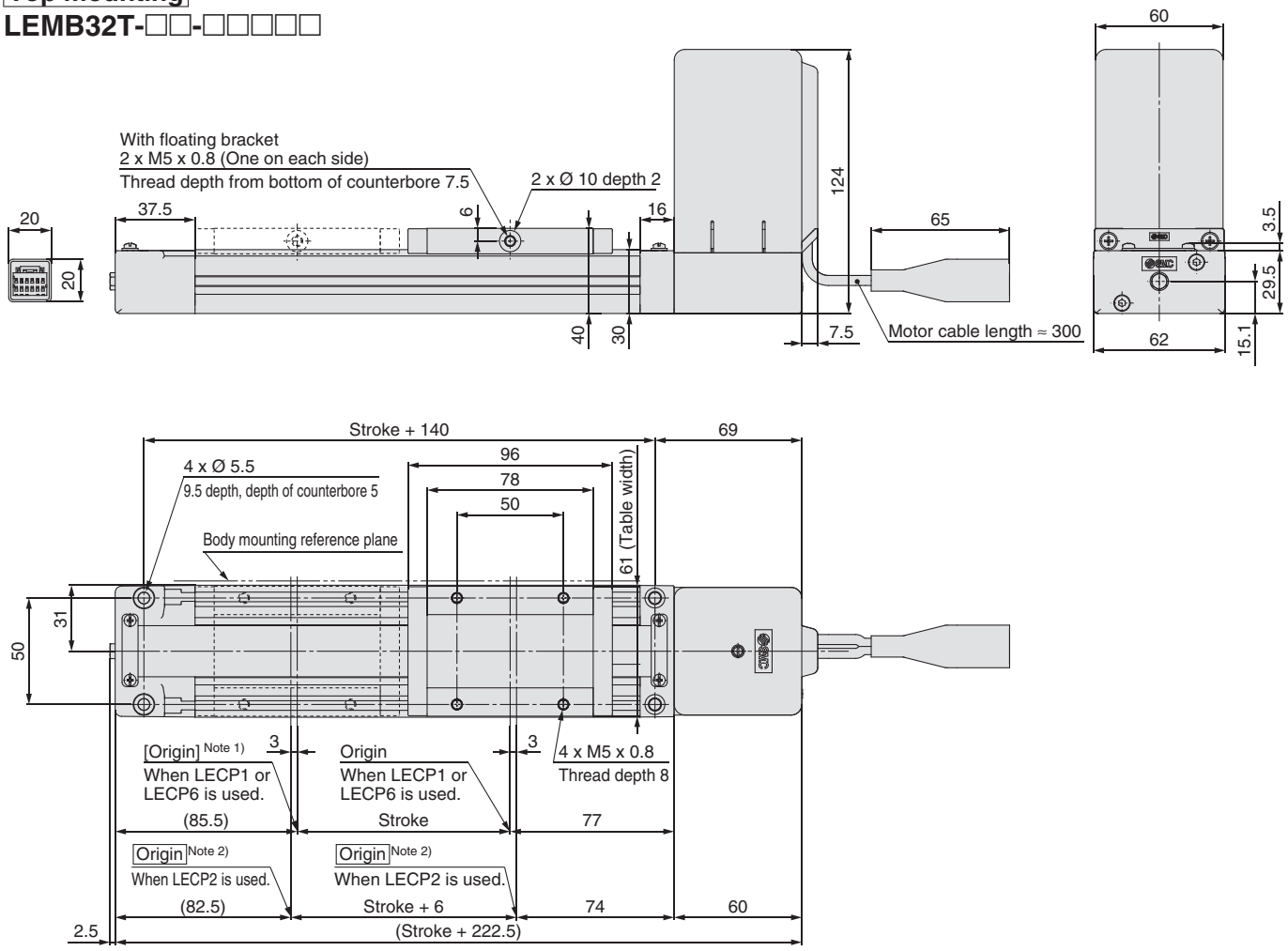
Stroke adjustment unit mounting position
LEMB25□T-□□$^{M}_{E}$-□□□□□



Dimensions Size 32

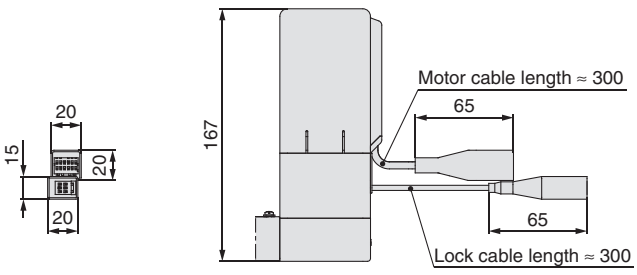
Refer to page 46 and after for dimensions of the controllers.

Top mounting
LEMB32T-□□-□□□□□

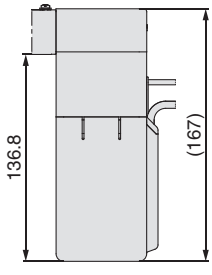


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

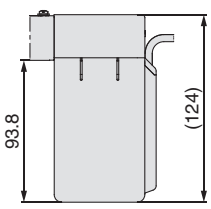
Top mounting
With lock
LEMB32T-□B□-□□□□□



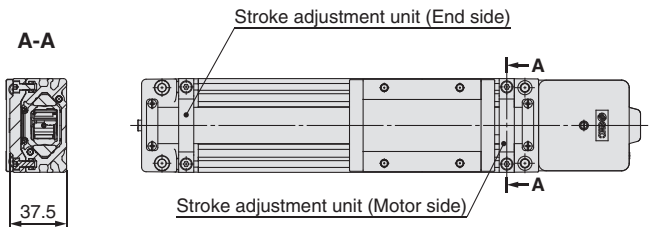
Bottom mounting
With lock
LEMB32UT-□B□-□□□□□



Bottom mounting
LEMB32UT-□□-□□□□□

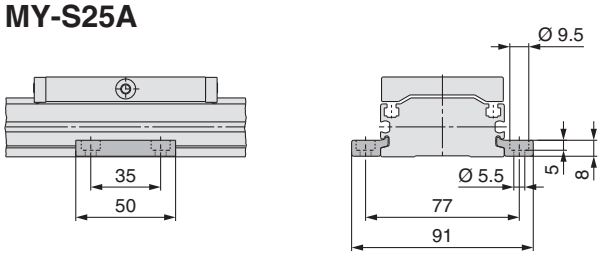


Stroke adjustment unit mounting position
LEMB32□T-□□$^{M}_{E}$-□□□□□

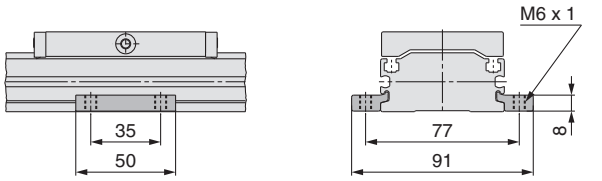


Side Support

Side support A
MY-S25A



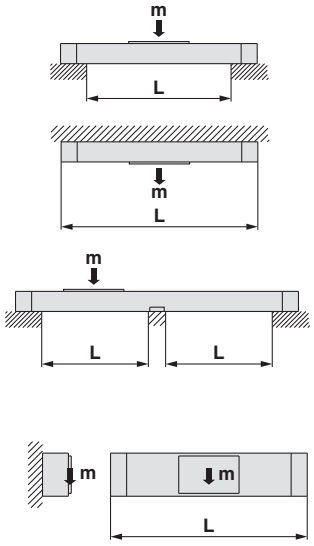
Side support B
MY-S25B

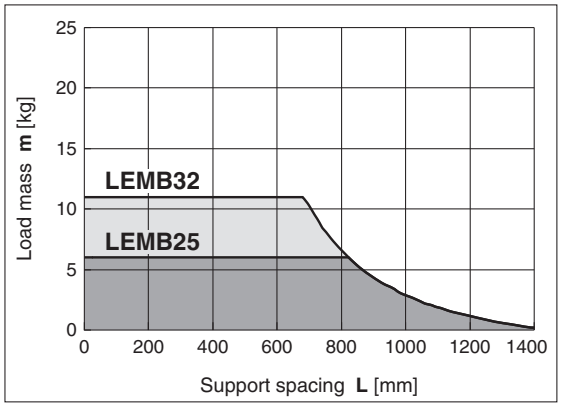


∗ A set of side supports consists of a left support and a right support.
∗∗ The side supports are the same for sizes LEMB25 and LEMB32.

Recommended spacing for side supports

When using actuator with longer stroke, implement intermediate support to prevent frame deflection or deflection caused by vibration or external impacts. The spacing (**L**) of the intermediate supports must be no more than the values shown in the following graph.





⚠ Caution

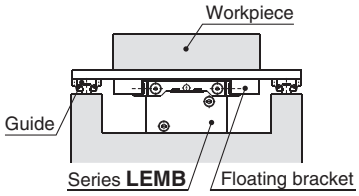
1. If the actuator mounting surfaces are not measured accurately, using the intermediate support may cause poor operation. Make sure to level the mounting surface when mounting the actuator. For long stroke operation involving overhang of workpiece, implement intermediate support as recommended even if the support spacing is within the allowable limits shown in the graph. For the intermediate support, order a side support separately.
2. The side supports are not suitable for mounting the actuator. Use the side supports to prevent deflection, vibration deflection and external impacts for long stroke actuators.

Floating Bracket

MYAJ25 Note) Mounting direction ① and ② are available for this model.

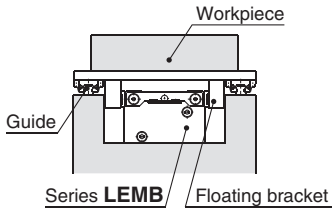
Application Example

Mounting direction ❶ (to minimise the installation height)

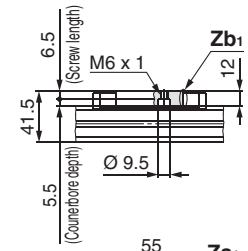


Application Example

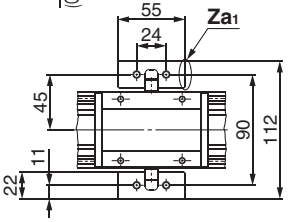
Mounting direction ❷ (to minimise the installation width)

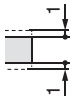


Mounting Example



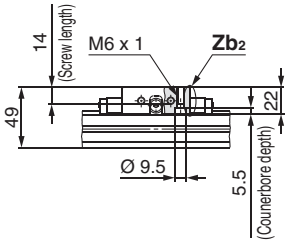
Zb1 Detail drawing of (adjustable range)

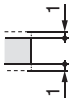




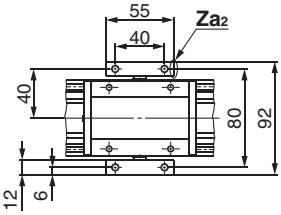
Za1 Detail drawing of (adjustable range)

Mounting Example



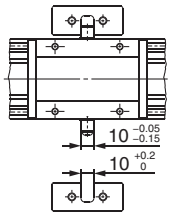


Zb2 Detail drawing of (adjustable range)

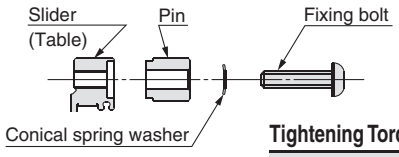


Za2 Detail drawing of (adjustable range)

Floating Parts Dimensions



Installation of Fixing Bolts



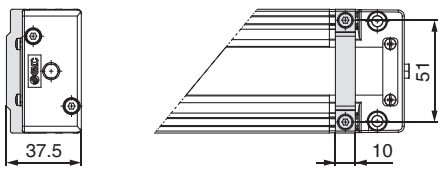
Tightening Torque for Fixing Bolts [N·m]

Model	Tightening torque
MYAJ25	3

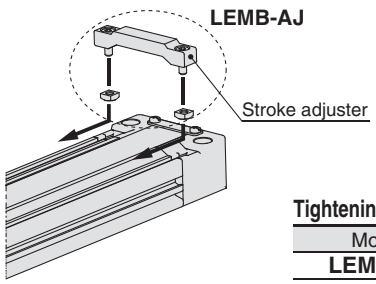
Stroke Adjustment Unit

LEMB-AJ

∗ Stroke adjustment unit includes the stroke adjuster and mounting bolts.



Mounting



Tightening Torque for Fixing Bolts [N·m]

Model	Tightening torque
LEMB-AJ	1.5

Electric Actuator/Low Profile Slider Type
Cam Follower Guide Type
Step Motor (Servo/24 VDC)

Series LEMC
LEMC25, 32

EtherNet/IP™ DeviceNet™ PROFINET® IO-Link EtherCAT®

Compatible ▶ Page 76

⚠ Caution

Series E-MY: E-MY□16, E-MY□25 → New Series LEM: LEM□25, LEM□32

How to Order

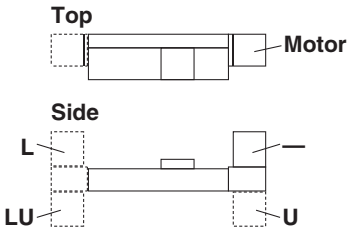
LEMC 25 ❶ □ ❷ T ❸ – 300 ❹ □ ❺ – S ❻ 1 ❼ 2P ❽ 1 ❾ □ ❿

❶ Size

25
32

❷ Motor mounting position

—	Top mounting
U	Bottom mounting
L	Symmetric, Top mounting
LU	Symmetric, Bottom mounting



❸ Equivalent lead

T	48 mm

❺ Motor option

—	Without lock
B	With lock

❹ Stroke

●Standard/○Produced upon receipt of order

Model \ Stroke	50	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100	1200	1300	1400
LEMC25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	●	○	○
LEMC32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	●	○	○

Model \ Stroke	1500	1600	1700	1800	1900	2000
LEMC25	●	○	○	○	○	●
LEMC32	●	○	○	○	○	●

∗ Please consult with SMC as all non-standard and non-made-to-order strokes are produced as special orders.

⚠ Caution

[CE-compliant products]

EMC compliance was tested by combining the electric actuator LEM series and the controller LEC series.

The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.

[UL-compliant products]

When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Refer to pages 42 and 43 for auto switches.

The actuator and controller are sold as a package.

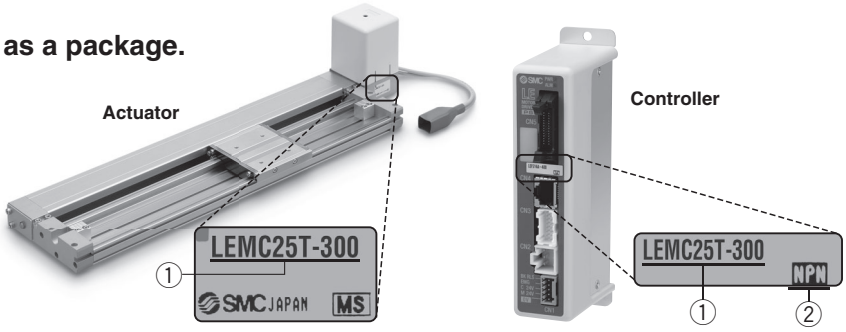
(They can be ordered separately.)

Confirm that the combination of the controller and the actuator is correct.

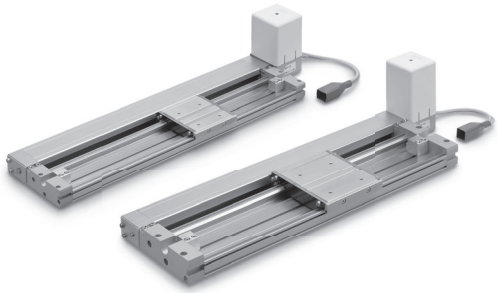
<Check the following before use.>

① Check the actuator label for model number. This matches the controller.

② Check Parallel I/O configuration matches (NPN or PNP).



SMC



⑥ Actuator cable type

—	Without cable
S	Standard cable*
R	Robotic cable (Flexible cable)

* The standard cable should be used on fixed parts. For using on moving parts, select the robotic cable.

⑦ Actuator cable length

—	Without cable	8	8 m*
1	1.5 m	A	10 m*
3	3 m	B	15 m*
5	5 m	C	20 m*

* Produced upon receipt of order (Robotic cable only)

⑧ Controller type

—	Without controller	
6N	**LECP6** (Step data input type)	NPN
6P		PNP
2N	**LECP2*** (Programless type (With stroke study))	NPN
2P		PNP
1N	**LECP1** (Programless type)	NPN
1P		PNP

* Select the LECP2 when setting the stroke range using the stroke adjustment unit or an external stop.

⑨ I/O cable length*

—	Without cable
1	1.5 m
3	3 m
5	5 m

* When "Without controller" is selected for controller types, I/O cable cannot be selected. Refer to page 53 (For LECP2), page 60 (For LECP1) or page 68 (For LECP6) if I/O cable is required.

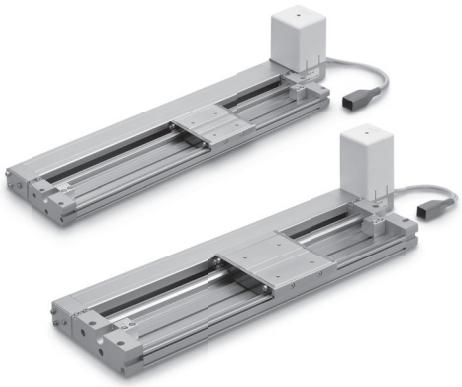
⑩ Controller mounting

—	Screw mounting
D	DIN rail mounting*

* DIN rail is not included. Order it separately.

Compatible Controllers

Type	Programless type (With stroke study)	Programless type	Step data input type
			
Series	**LECP2**	**LECP1**	**LECP6**
Features	End to end operation similar to an air cylinder using the stroke study function	Capable of setting up operation (step data) without using a PC or teaching box	Value (Step data) input Standard controller
Compatible motor	Step motor (Servo/24 VDC)		
Maximum number of step data	14 points (2 stroke end points + 12 intermediate points)	14 points	64 points
Power supply voltage	24 VDC		
Reference page	Page 47	Page 54	Page 61



Speed/Acceleration (Set values for LECP1/2)

Table 1 Switch and Speed Note)

Switch no.	Speed [mm/s]
0	48
1	75
2	100
3	150
4	200
5	250
6	300
7	350
8	400
9	450
10	500
11	600
12	700
13	800
14	900
15	1000

Table 2 Switch and Acceleration Note)

Switch no.	Acceleration [mm/s²]
0	250
1	500
2	1000
3	1500
4	2000
5	2500
6	3000
7	4000
8	5000
9	6000
10	7500
11	10000
12	12500
13	15000
14	17500
15	20000

Note) The factory default setting for the switch is No.0.

Specifications

Step Motor (Servo/24 VDC)

Model			LEMC25	LEMC32
Stroke [mm] Note 1)			100, 200, 300, 400, 500 600, 700, 800, 900 1000, (1100), 1200 (1300), (1400), 1500 (1600), (1700), (1800) (1900), 2000	100, 200, 300, 400, 500 600, 700, 800, 900 1000, (1100), 1200 (1300), (1400), 1500 (1600), (1700), (1800) (1900), 2000
Actuator specifications	Work load [kg] Note 2)	Horizontal	10	20
	Speed [mm/s] Note 2)		48 to 1000 (Refer to Table 1 for set values when LECP1 or 2 is selected.)	
	Max. acceleration/deceleration [mm/s²] Note 9)		20000 (Depends on the work load.)(Refer to Table 2 for set values when LECP1 or 2 is selected.)	
	Positioning repeatability [mm]	Intermediate stopping position	±0.1	
	Lost motion [mm] Note 10)		0.1 or less	
	Lead [mm]		48	
	Actuation type		Belt	
	Guide type		Cam follower guide	
	Operating temperature range [°C]		5 to 40	
	Operating humidity range [%RH]		90 or less (No condensation)	
	Allowable external force [N] Note 8)		10	20
Electric specifications	Motor size		□56.4	
	Motor type		Step motor (Servo/24 VDC)	
	Encoder		Incremental A/B phase (800 pulse/rotation)	
	Rated voltage [V]		24 VDC±10 %	
	Power consumption [W] Note 3)		50	52
	Standby power consumption when operating [W] Note 4)		44	44
	Max. instantaneous power consumption [W] Note 5)		123	127
Lock unit specifications	Type Note 6)		Non-magnetizing lock	
	Holding force [N]		36	
	Power consumption [W] Note 7)		5	
	Rated voltage [V]		24 VDC±10 %	

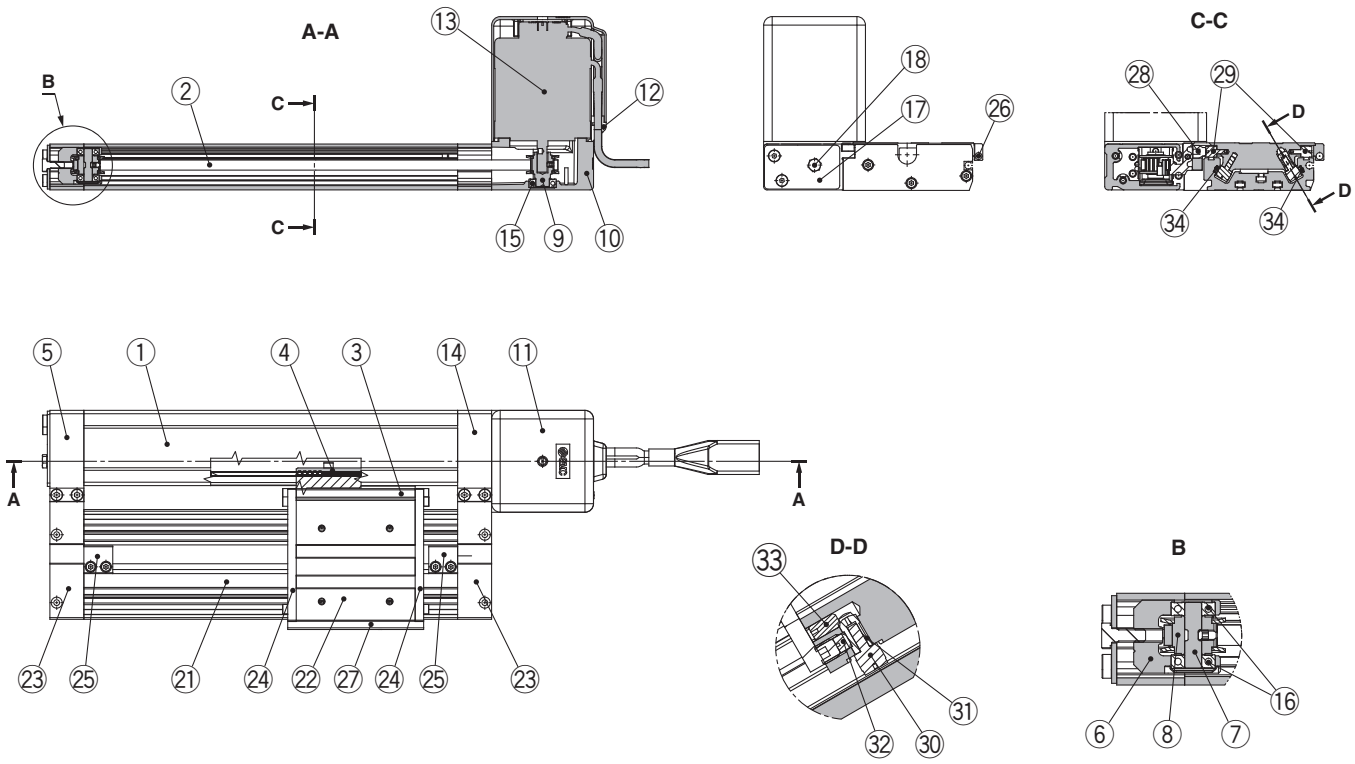
Note 1) Please consult with SMC as all non-standard and non-made-to-order strokes are produced as special orders.
Note 2) Speed changes according to the work load.
Check "Speed–Work Load Graph (Guide)" on page 3.
The work load is changed by the work load mounting condition.
Check "Dynamic Allowable Moment" on page 6.
Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10 % for each 5 m.
Note 3) The power consumption (including the controller) is for when the actuator is operating.
Note 4) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during operation.
Note 5) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.
Note 6) With lock only
Note 7) For an actuator with lock, add the power consumption for the lock.
Note 8) The resistance value of the attached equipment should be within the allowable external resistance value.
Note 9) Maximum acceleration is limited by the work load and the stroke.
Refer to "Work Load–Acceleration/Deceleration Graph (Guide)" on page 4.
Note 10) A reference valve for correcting an error in reciprocal operation.

Weight

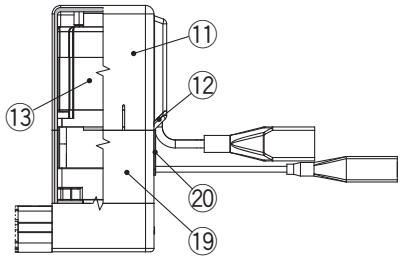
Stroke		50	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	(1100)	1200	(1300)	(1400)	1500	(1600)	(1700)	(1800)	(1900)	2000
Product weight [kg]	LEMC25	2.04	2.18	2.32	2.46	2.60	2.74	2.88	3.01	3.15	3.29	3.43	3.57	3.85	4.12	4.40	4.68	4.95	5.23	5.51	5.79	6.06	6.34	6.62	6.90	7.17	7.45
	LEMC32	3.85	4.06	4.27	4.49	4.70	4.91	5.12	5.33	5.55	5.76	5.97	6.18	6.61	7.03	7.45	7.88	8.30	8.72	9.15	9.57	10.00	10.42	10.84	11.27	11.69	12.11
Additional weight with lock [kg]		0.60																									

Construction

LEMC



Motor option: With lock



Component Parts

No.	Description	Material	Note
1	**Body**	Alumnium alloy	Anodised
2	**Belt**	—	
3	**L-type bracket**	Alumnium alloy	Anodised
4	**Belt stopper**	Alumnium alloy	
5	**End block**	Alumnium alloy	Anodised
6	**Pulley holder**	Alumnium alloy	
7	**Pulley shaft**	Stainless steel	Heat treatment + Special treatment
8	**Pulley**	Alumnium alloy	Anodised
9	**Motor pulley**	Alumnium alloy	Anodised
10	**Motor mount**	Alumnium die-casted	Painting
11	**Motor cover**	Synthetic resin	
12	**Grommet**	Synthetic resin	
13	**Motor**	—	
14	**Motor end block**	Alumnium alloy	Anodised
15	**Bearing**	—	
16	**Bearing**	—	
17	**Tension plate**	Alumnium alloy	Anodised
18	**Hexagon bolt**	Carbon steel	Chromated

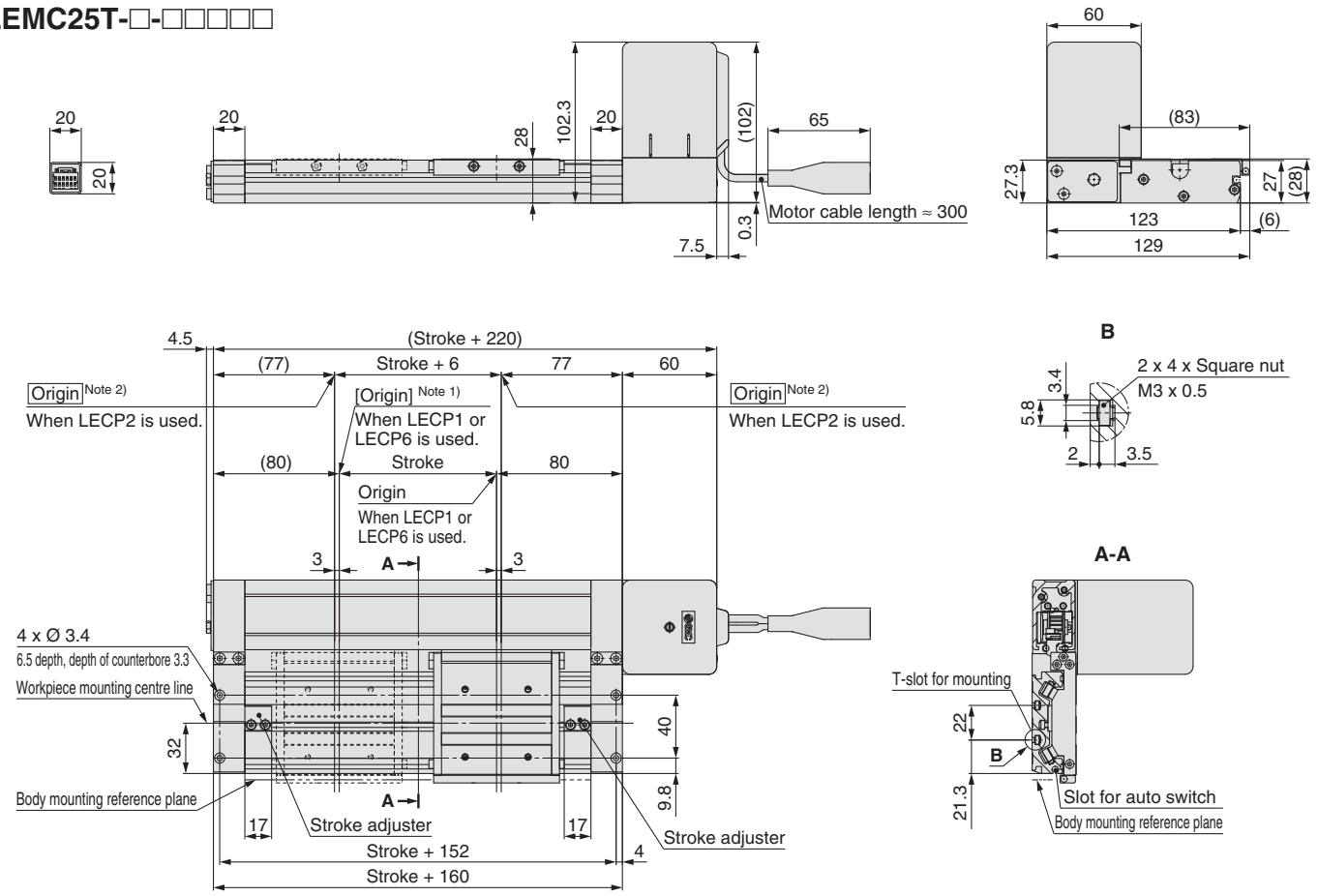
Component Parts

No.	Description	Material	Note
19	**Motor cover for lock**	Alumnium alloy	Anodised Only “with lock”
20	**Grommet**	CR	Chloroprene rubber Only “with lock”
21	**Guide unit body**	Alumnium alloy	Anodised
22	**Slide table**	Alumnium alloy	Anodised
23	**End plate**	Alumnium alloy	Anodised
24	**Stopper**	Carbon steel	Nickel plating
25	**Stroke adjuster**	Alumnium alloy	Anodised
26	**Magnet**	—	
27	**Side cover**	Alumnium alloy	Anodised
28	**Cam follower cap**	Alumnium alloy	Anodised
29	**Cam follower**	—	
30	**Cam follower**	—	
31	**Eccentric gear**	Stainless steel	
32	**Gear bracket**	Stainless steel	
33	**Adjustment gear**	Stainless steel	
34	**Rail**	Hard steel wire material	

Dimensions Size 25

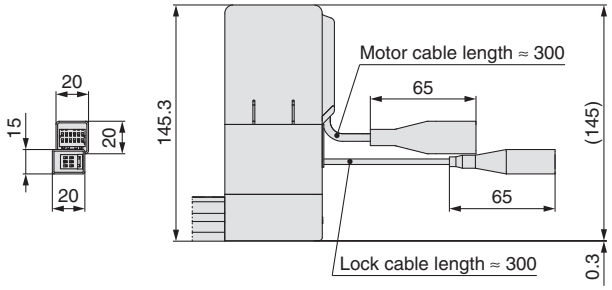
Refer to page 46 and after for dimensions of the controllers.

Top mounting
LEMC25T-□-□□□□□

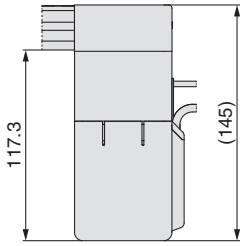


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

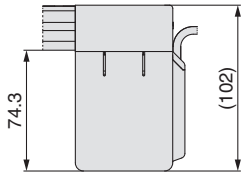
Top mounting
With lock
LEMC25T-□B-□□□□□



Bottom mounting
With lock
LEMC25UT-□B-□□□□□



Bottom mounting
LEMC25UT-□-□□□□□



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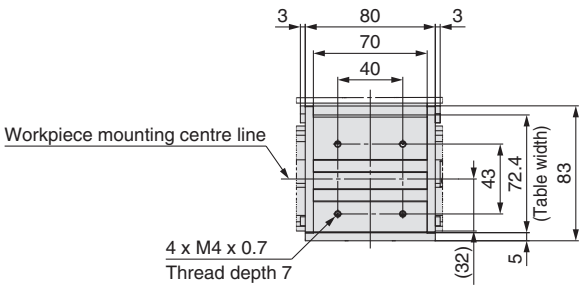
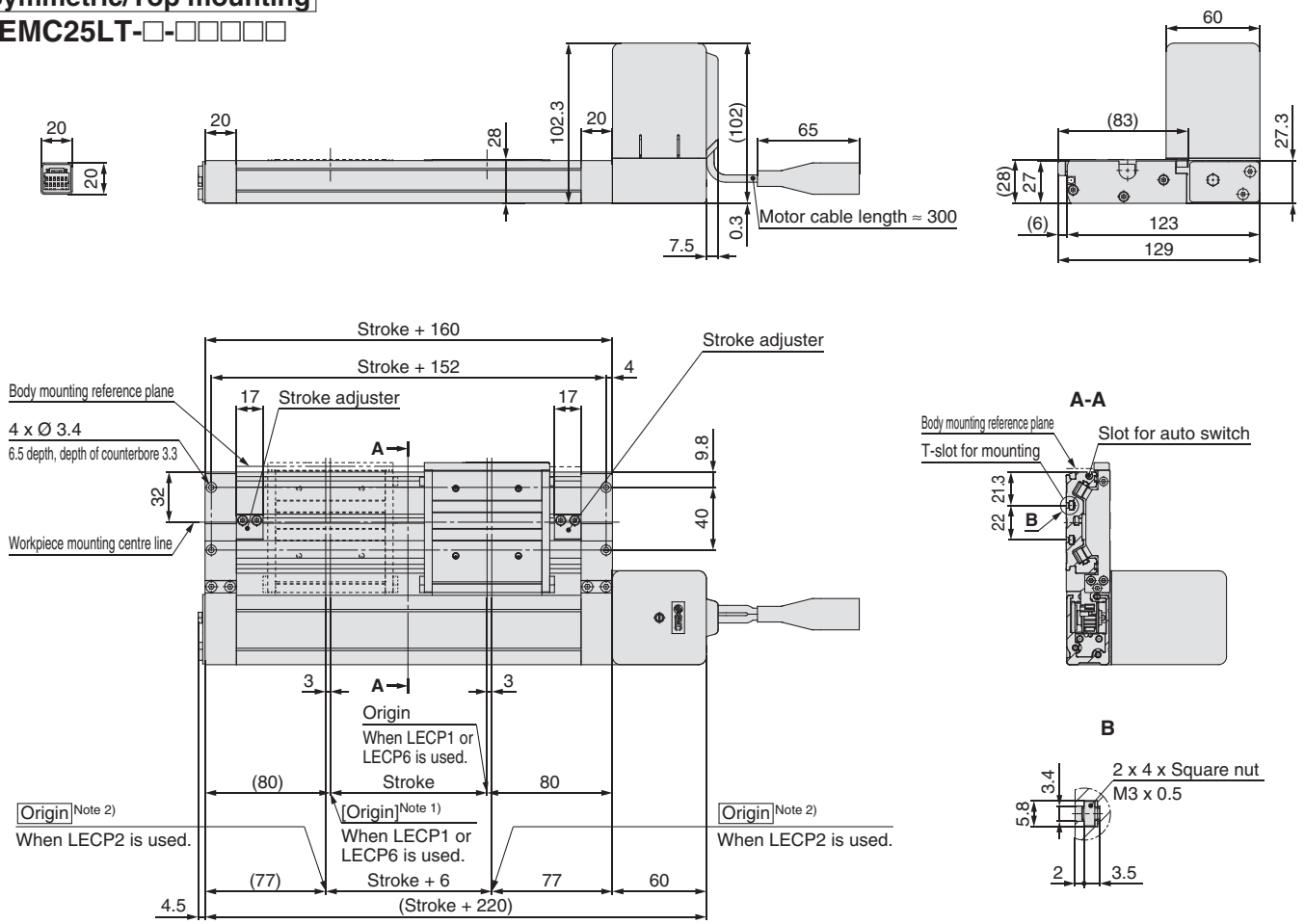


Dimensions Size 25

Refer to page 46 and after for dimensions of the controllers.

Symmetric/Top mounting

LEMC25LT-□-□□□□□

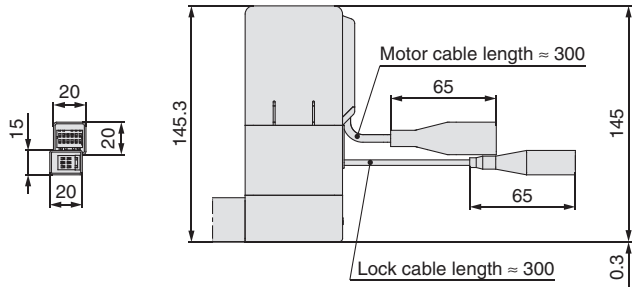


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

Top mounting

With lock

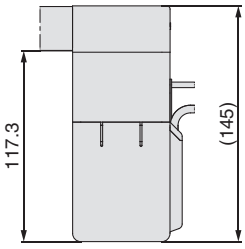
LEMC25LT-□B-□□□□□



Bottom mounting

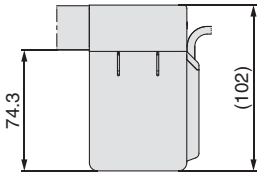
With lock

LEMC25LUT-□B-□□□□□



Bottom mounting

LEMC25LUT-□-□□□□□



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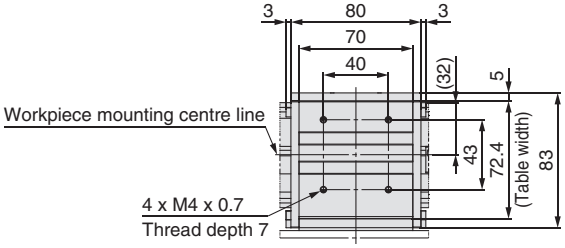
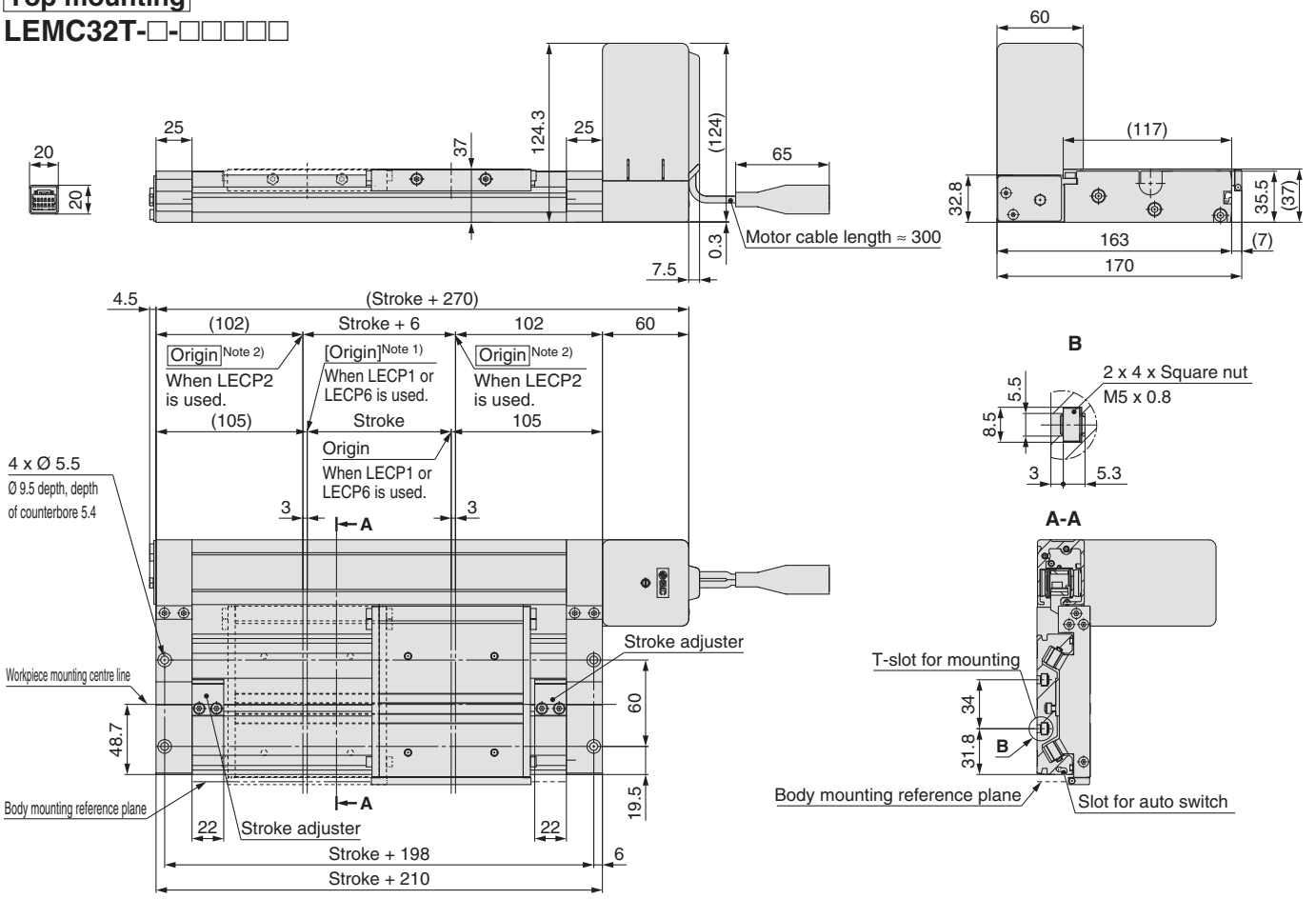


Dimensions Size 32

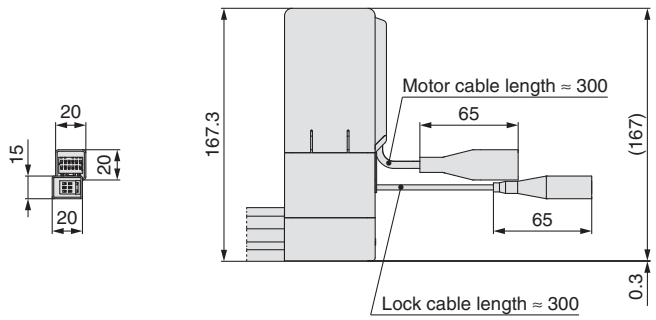
Refer to page 46 and after for dimensions of the controllers.

Top mounting
LEMC32T-□-□□□□□

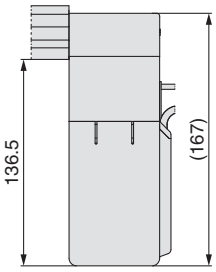


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

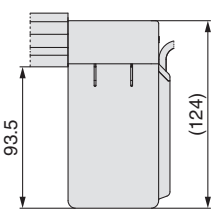
Top mounting
With lock
LEMC32T-□B-□□□□□



Bottom mounting
With lock
LEMC32UT-□B-□□□□□



Bottom mounting
LEMC32UT-□-□□□□□



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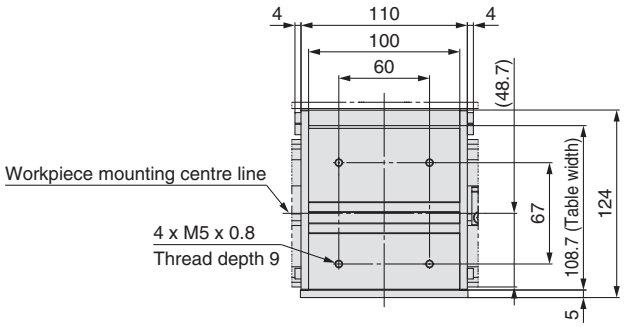
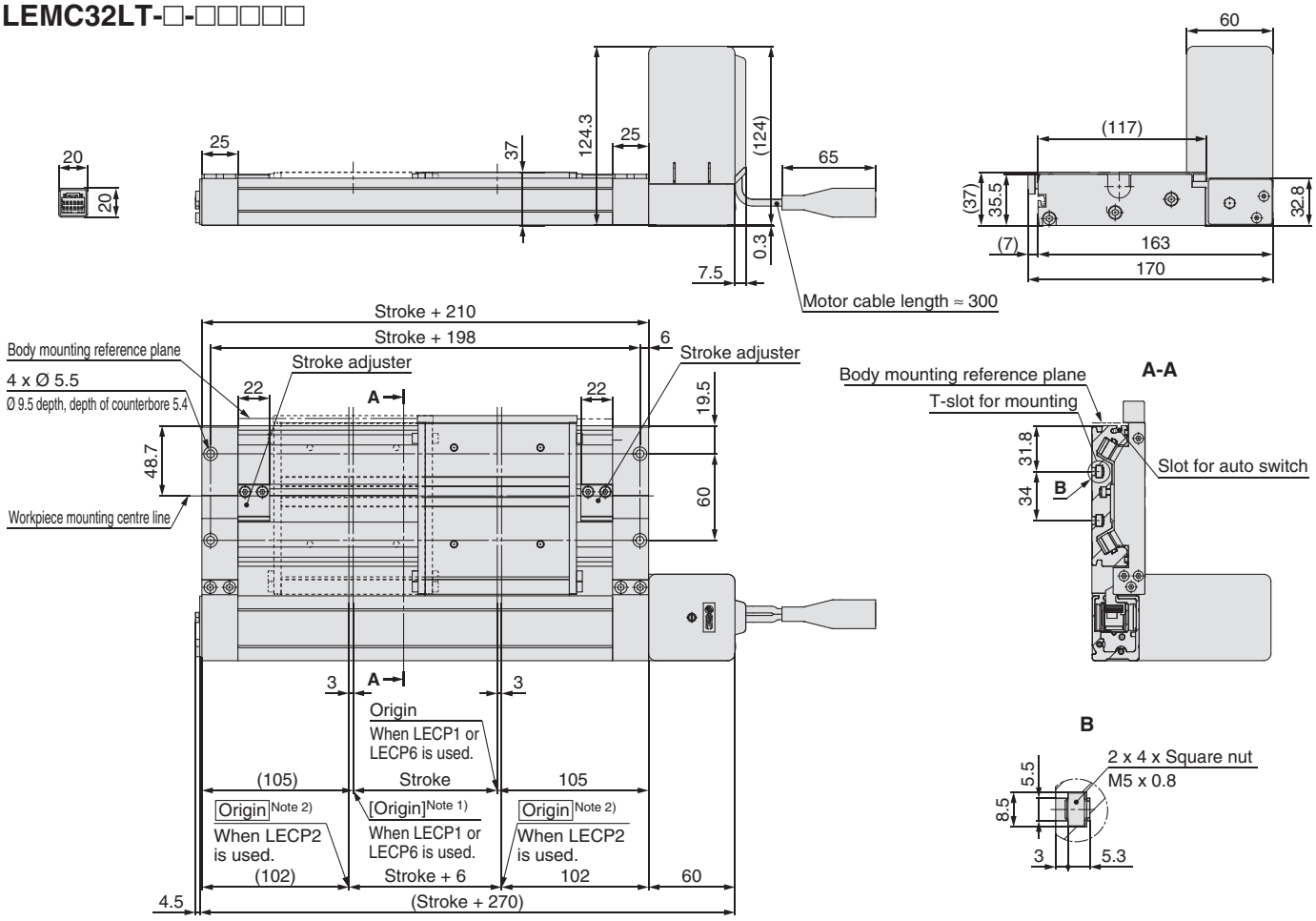


Dimensions Size 32

Refer to page 46 and after for dimensions of the controllers.

Symmetric/Top mounting

LEMC32LT-□-□□□□□

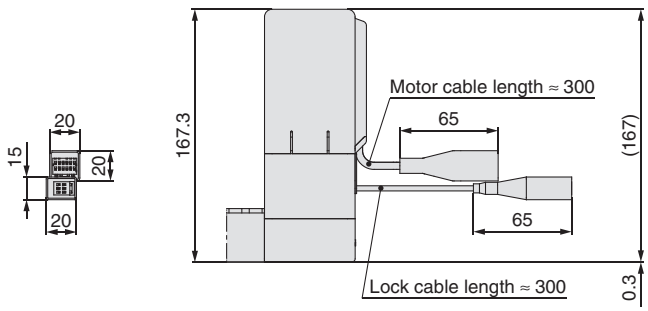


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

Top mounting

With lock

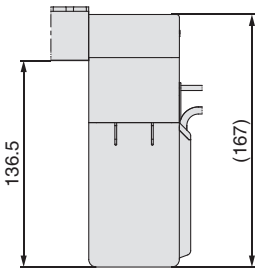
LEMC32LT-□B-□□□□□



Bottom mounting

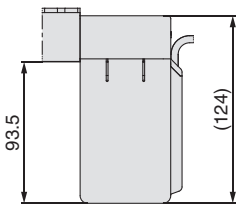
With lock

LEMC32LUT-□B-□□□□□



Bottom mounting

LEMC32LUT-□-□□□□□



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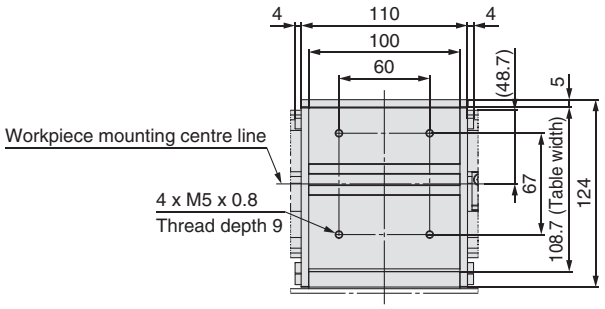
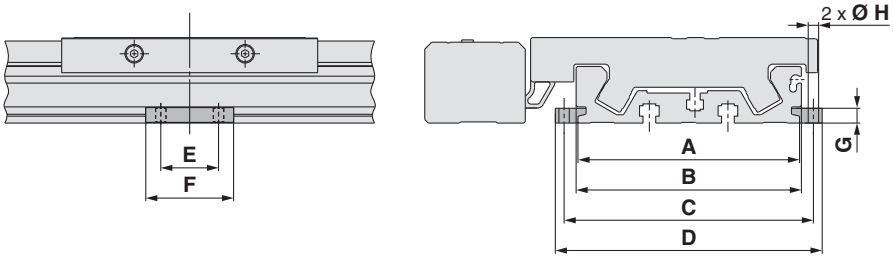


Side Support

Side support
MYC-S□A

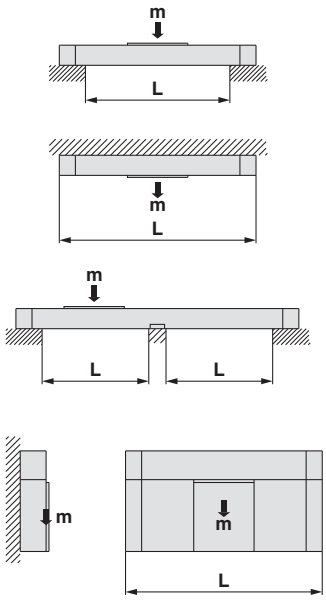


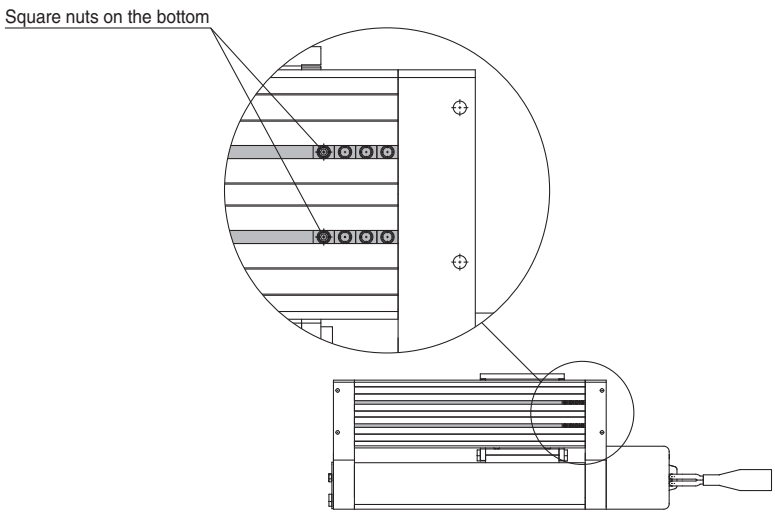
Model	Applicable actuator	A	B	C	D	E	F	G	Ø H
MYC-S16A	**LEMC25**	60.6	64.6	70.6	77.2	15	26	4.9	3.4
MYC-S25A	**LEMC32**	95.9	97.5	107.9	115.5	25	38	6.4	4.5

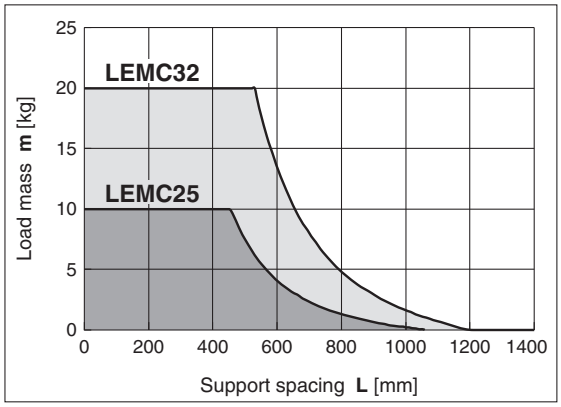
∗ A set of side supports consists of a left support and a right support.

Recommended spacing for side supports

When using actuator with longer stroke, implement intermediate support to prevent frame deflection or deflection caused by vibration or external impacts. The spacing (**L**) of the intermediate supports must be no more than the values shown in the following graph.







⚠ Caution

1. If the actuator mounting surfaces are not measured accurately, using the intermediate support may cause poor operation. Make sure to level the mounting surface when mounting the actuator. For long stroke operation involving overhang of workpiece, implement intermediate support as recommended even if the support spacing is within the allowable limits shown in the graph. For the intermediate support, use the square nuts at the bottom of the body or order a side support separately.
2. The side supports are not suitable for mounting the actuator. Use the side supports to prevent deflection, vibration deflection and external impacts for long stroke actuators.

Electric Actuator/Low Profile Slider Type

Linear Guide Single Axis Type/Double Axis Type Step Motor (Servo/24 VDC)

Series LEMH/HT

LEMH/LEMHT25, 32

EtherNet/IP™ DeviceNet™ PROFINET IO-Link EtherCAT®

Compatible ▶ Page 76

RoHS

⚠ Caution

New Series LEM: LEM□25, LEM□32

Series E-MY: E-MY□16, E-MY□25

How to Order

Linear guide single axis type LEMH 25 □ T – 300 □ – S 1 2P 1 □

Linear guide double axis type LEMHT 25 □ T – 300 □ – S 1 2P 1 □

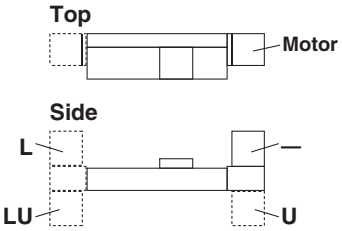
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Size

25
32

❷ Motor mounting position

—	Top mounting
U	Bottom mounting
L	Symmetric, Top mounting
LU	Symmetric, Bottom mounting



❸ Equivalent lead

T	48 mm

❺ Motor option

—	Without lock
B	With lock

❹ Stroke

●Standard/○Produced upon receipt of order

Model \ Stroke	50	100	150	200	250	300	350	400	450	500	550	600	700	800	900
LEMH25	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○
LEMH32	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○

Model \ Stroke	1000	1100	1200	1300	1400	1500
LEMH25	○					
LEMH32	○	○	○	○	○	○

∗ Please consult with SMC as all non-standard and non-made-to-order strokes are produced as special orders.

⚠ Caution

[CE-compliant products]

EMC compliance was tested by combining the electric actuator LEM series and the controller LEC series.

The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.

[UL-compliant products]

When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Refer to pages 42 and 43 for auto switches.

The actuator and controller are sold as a package.

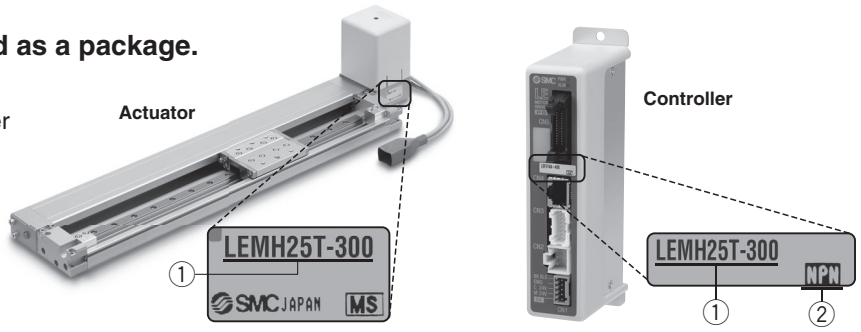
(They can be ordered separately.)

Confirm that the combination of the controller and the actuator is correct.

<Check the following before use.>

① Check the actuator label for model number. This matches the controller.

② Check Parallel I/O configuration matches (NPN or PNP).



❻ Actuator cable type

—	Without cable
S	Standard cable*1
R	Robotic cable (Flexible cable)*2

*1 The standard cable should be used on fixed parts. For using on moving parts, select the robotic cable.

*2 Fix the motor cable protruding from the actuator to keep it unmovable. For details about fixing method, refer to Wiring/Cables in the Electric Actuators Precautions.

❼ Actuator cable length

—	Without cable	8	8 m*
1	1.5 m	A	10 m*
3	3 m	B	15 m*
5	5 m	C	20 m*

* Produced upon receipt of order (Robotic cable only)

❽ Controller type

—	Without controller	
6N	LECP6 (Step data input type)	NPN
6P		PNP
2N	LECP2* (Programless type (With stroke study))	NPN
2P		PNP
1N	LECP1 (Programless type)	NPN
1P		PNP

* Select the LECP2 when setting the stroke range using the stroke adjustment unit or an external stop.

❾ I/O cable length*

—	Without cable
1	1.5 m
3	3 m
5	5 m

* When "Without controller" is selected for controller types, I/O cable cannot be selected. Refer to page 53 (For LECP2), page 60 (For LECP1) or page 68 (For LECP6) if I/O cable is required.

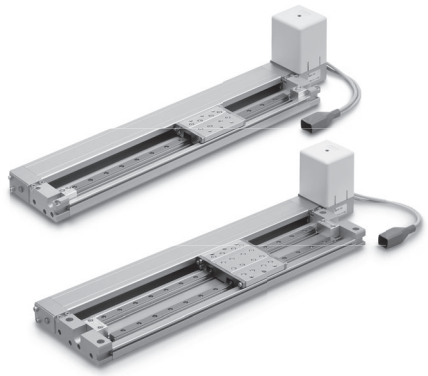
❿ Controller mounting

—	Screw mounting
D	DIN rail mounting*

* DIN rail is not included. Order it separately.

Compatible Controllers

Type	Programless type (With stroke study)	Programless type	Step data input type
			
Series	**LECP2**	**LECP1**	**LECP6**
Features	End to end operation similar to an air cylinder using the stroke study function	Capable of setting up operation (step data) without using a PC or teaching box	Value (Step data) input Standard controller
Compatible motor	Step motor (Servo/24 VDC)		
Maximum number of step data	14 points (2 stroke end points + 12 for intermediate points)	14 points	64 points
Power supply voltage	24 VDC		
Reference page	Page 47	Page 54	Page 61



Speed/Acceleration (Set values for LECP1/2)

Table 1 Switch and Speed Note)

Switch no.	Speed [mm/s]
0	48
1	75
2	100
3	150
4	200
5	300
6	400
7	500
8	600
9	800
10	1000
11	1200
12	1400
13	1600
14	1800
15	2000

Table 2 Switch and Acceleration Note)

Switch no.	Acceleration [mm/s²]
0	250
1	500
2	1000
3	1500
4	2000
5	2500
6	3000
7	4000
8	5000
9	6000
10	7500
11	10000
12	12500
13	15000
14	17500
15	20000

Note) The factory default setting for the switch is No.0.

Specifications

Step Motor (Servo/24 VDC)

Model			LEMH25/LEMHT25	LEMH32/LEMHT32
Stroke [mm] Note 1)			100, 200, 300, 400, 500 600, (700), (800), (900) (1000)	100, 200, 300, 400, 500 600, (700), (800), (900) (1000), (1100), (1200) (1300), (1400), (1500)
Actuator specifications	**Work load [kg]** Note 2)	Horizontal	10	20
	Speed [mm/s] Note 2)		48 to 2000 (Refer to **Table 1** for set values when LECP1 or 2 is selected.)	
	Max. acceleration/deceleration [mm/s²] Note 9)		20000 (Depends on the work load.)(Refer to **Table 2** for set values when LECP1 or 2 is selected.)	
	Positioning repeatability [mm]	Intermediate stopping position	±0.1	
	Lost motion [mm] Note 10)		0.1 or less	
	Lead [mm]		48	
	Actuation type		Belt	
	Guide type		Linear guide	
	Operating temperature range [°C]		5 to 40	
	Operating humidity range [%RH]		90 or less (No condensation)	
	Allowable external force [N] Note 8)		10	20
Electric specifications	**Motor size**		□56.4	
	Motor type		Step motor (Servo/24 VDC)	
	Encoder		Incremental A/B phase (800 pulse/rotation)	
	Rated voltage [V]		24 VDC ±10 %	
	Power consumption [W] Note 3)		50	52
	Standby power consumption when operating [W] Note 4)		44	44
	Max. instantaneous power consumption [W] Note 5)		123	127
Lock unit specifications	**Type** Note 6)		Non-magnetizing lock	
	Holding force [N]		36	
	Power consumption [W] Note 7)		5	
	Rated voltage [V]		24 VDC ±10 %	

Note 1) Please consult with SMC as all non-standard and non-made-to-order strokes are produced as special orders.
Note 2) Speed changes according to the work load.
Check "Speed–Work Load Graph (Guide)" on page 3.
The work load is changed by the work load mounting condition. Check "Dynamic Allowable Moment" on pages 6 and 7.
Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10 % for each 5 m.
Note 3) The power consumption (including the controller) is for when the actuator is operating.
Note 4) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during operation.
Note 5) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.
Note 6) With lock only
Note 7) For an actuator with lock, add the power consumption for the lock.
Note 8) The resistance value of the attached equipment should be within the allowable external resistance value.
Note 9) Maximum acceleration is limited by the work load and the stroke. Refer to "Work Load–Acceleration/Deceleration Graph (Guide)" on page 4.
Note 10) A reference valve for correcting an error in reciprocal operation.

Weight

Linear Guide Single Axis Type

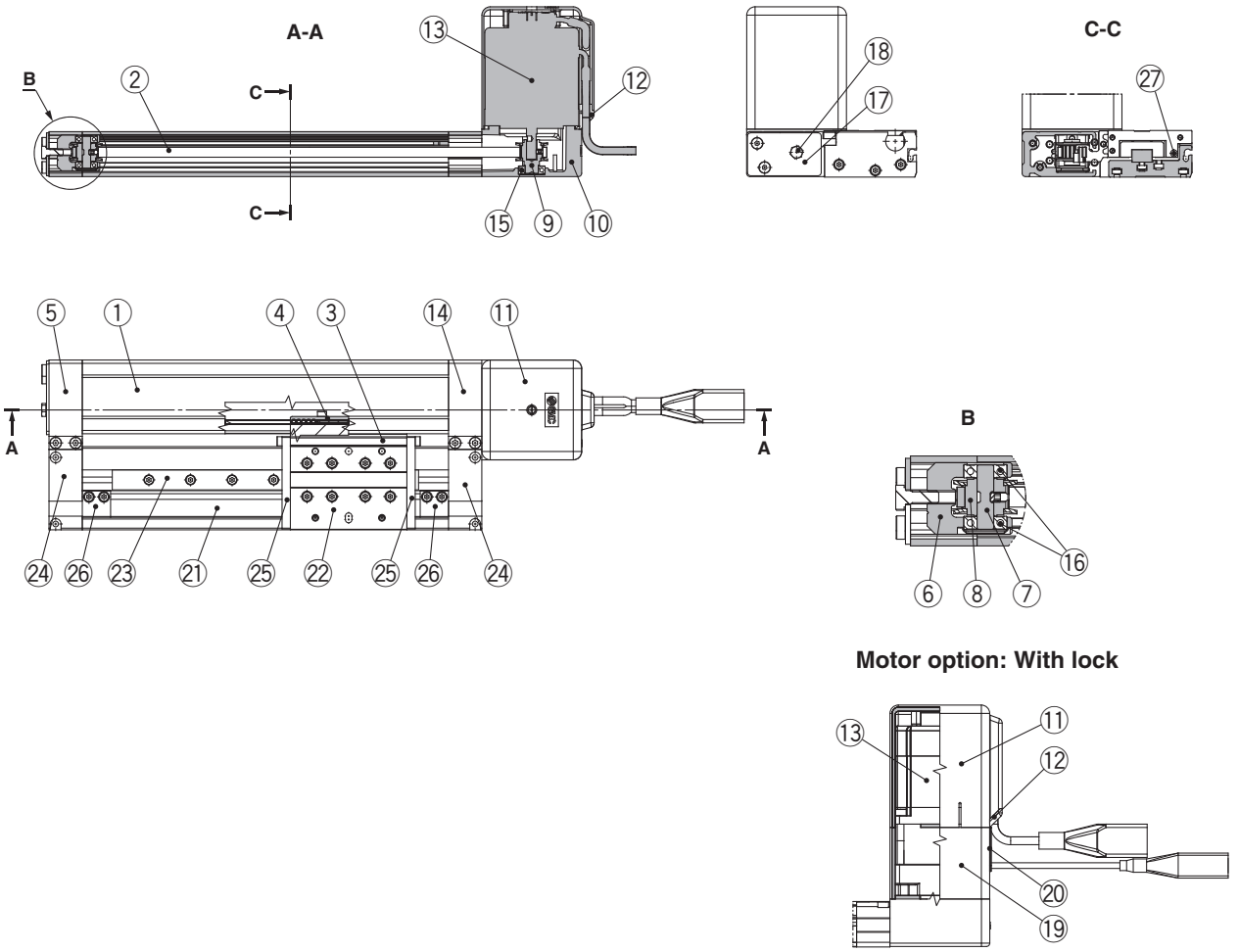
Stroke		50	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	(1100)	1200	(1300)	(1400)	1500
Product weight [kg]	**LEMH25**	1.91	2.05	2.18	2.32	2.46	2.59	2.73	2.87	3.00	3.14	3.28	3.42	3.69	3.96	4.24	4.51	—	—	—	—	—
	LEMH32	3.47	3.70	3.93	4.17	4.40	4.63	4.87	5.10	5.33	5.57	5.80	6.03	6.50	6.97	7.44	7.90	8.37	8.84	9.30	9.77	10.24
Additional weight with lock [kg]		0.60																				

Linear Guide Double Axis Type

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	(1100)	1200	(1300)	(1400)	1500
Product weight [kg]	**LEMHT25**	2.40	2.61	2.82	3.03	3.24	3.45	3.66	3.87	4.08	4.29	4.50	4.71	5.13	5.55	5.97	6.38	—	—	—	—	—
	LEMHT32	4.82	5.20	5.58	5.97	6.35	6.73	7.12	7.50	7.88	8.27	8.65	9.04	9.80	10.57	11.34	12.10	12.87	13.64	14.41	15.17	15.94
Additional weight with lock [kg]		0.60																				

Construction

LEMH



Component Parts

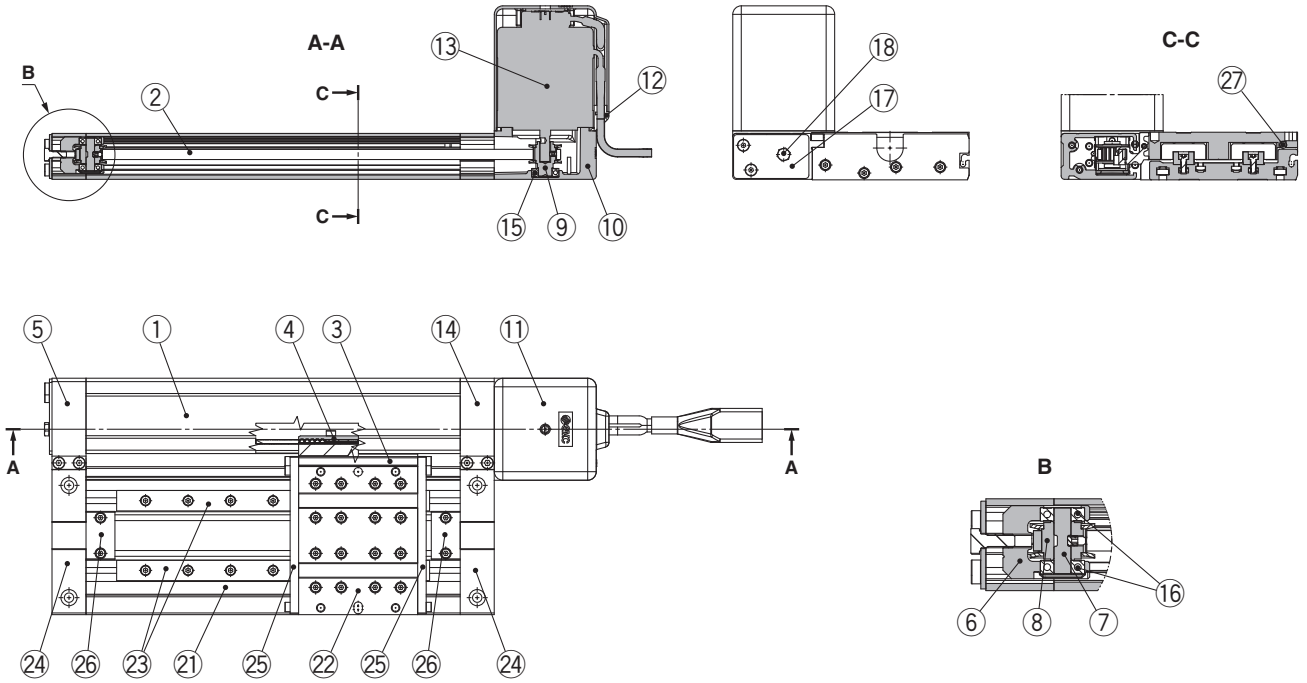
No.	Description	Material	Note
1	**Body**	Aluminium alloy	Anodised
2	**Belt**	—	
3	**L-type bracket**	Aluminium alloy	Anodised
4	**Belt stopper**	Aluminium alloy	
5	**End block**	Aluminium alloy	Anodised
6	**Pulley holder**	Aluminium alloy	
7	**Pulley shaft**	Stainless steel	Heat treatment + Special treatment
8	**Pulley**	Aluminium alloy	Anodised
9	**Motor pulley**	Aluminium alloy	Anodised
10	**Motor mount**	Aluminium die-casted	Painting
11	**Motor cover**	Synthetic resin	
12	**Grommet**	Synthetic resin	
13	**Motor**	—	
14	**Motor end block**	Aluminium alloy	Anodised
15	**Bearing**	—	

Component Parts

No.	Description	Material	Note
16	**Bearing**	—	
17	**Tension plate**	Aluminium alloy	Anodised
18	**Hexagon bolt**	Carbon steel	Chromated
19	**Motor cover for lock**	Aluminium alloy	Anodised Only “with lock”
20	**Grommet**	CR	Chloroprene rubber Only “with lock”
21	**Guide unit body**	Aluminium alloy	Anodised
22	**Slide table**	Aluminium alloy	Anodised
23	**Guide**	—	
24	**End plate**	Aluminium alloy	Anodised
25	**Stopper**	Carbon steel	Nickel plating
26	**Stroke adjuster**	Aluminium alloy	Anodised
27	**Magnet**	—	

Construction

LEMHT



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminium alloy	Anodised
2	**Belt**	—	
3	**L-type bracket**	Aluminium alloy	Anodised
4	**Belt stopper**	Aluminium alloy	
5	**End block**	Aluminium alloy	Anodised
6	**Pulley holder**	Aluminium alloy	
7	**Pulley shaft**	Stainless steel	Heat treatment + Special treatment
8	**Pulley**	Aluminium alloy	Anodised
9	**Motor pulley**	Aluminium alloy	Anodised
10	**Motor mount**	Aluminium die-casted	Painting
11	**Motor cover**	Synthetic resin	
12	**Grommet**	Synthetic resin	
13	**Motor**	—	
14	**Motor end block**	Aluminium alloy	Anodised
15	**Bearing**	—	

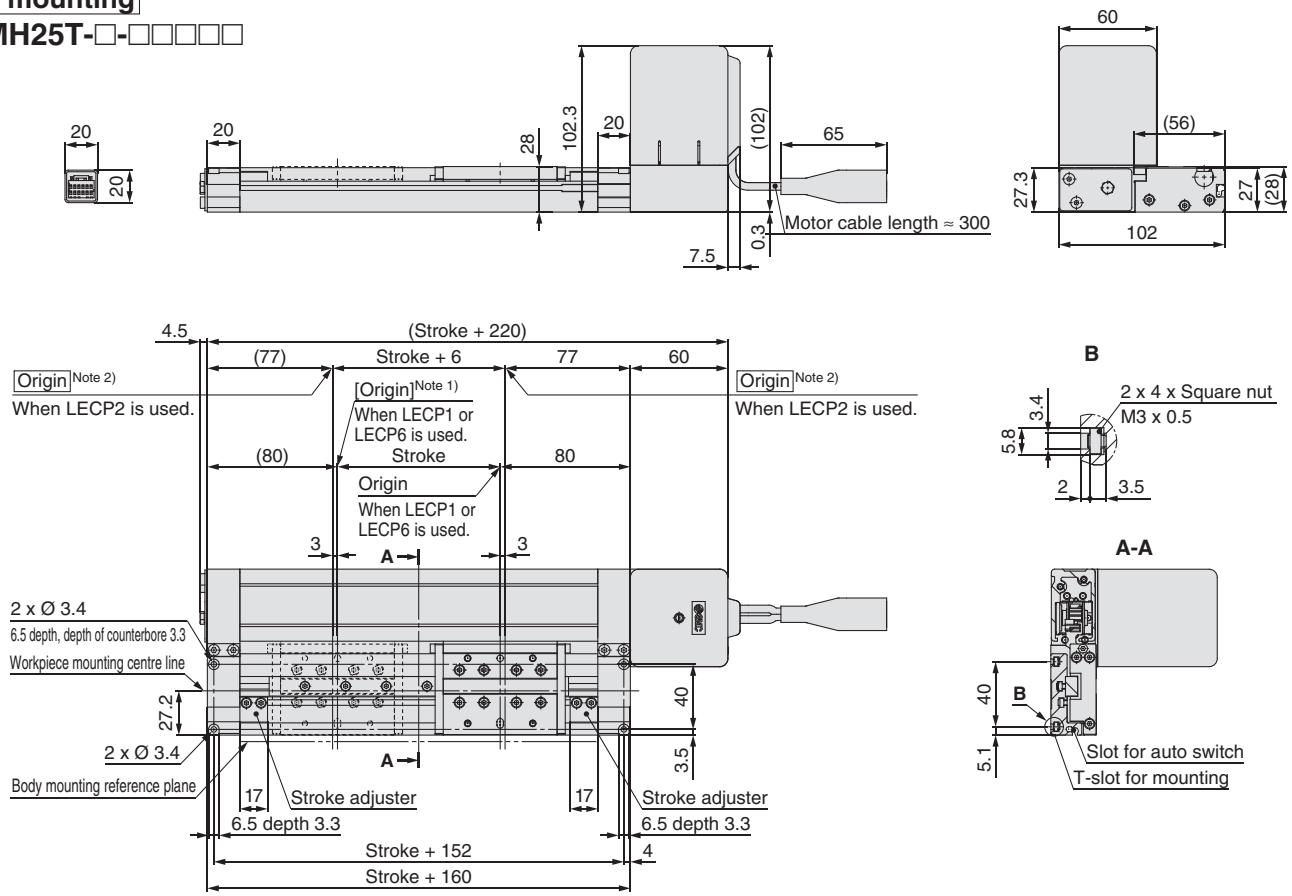
Component Parts

No.	Description	Material	Note
16	**Bearing**	—	
17	**Tension plate**	Aluminium alloy	Anodised
18	**Hexagon bolt**	Carbon steel	Chromated
19	**Motor cover for lock**	Aluminium alloy	Anodised Only “with lock”
20	**Grommet**	CR	Chloroprene rubber Only “with lock”
21	**Guide unit body**	Aluminium alloy	Anodised
22	**Slide table**	Aluminium alloy	Anodised
23	**Guide**	—	
24	**End plate**	Aluminium alloy	Anodised
25	**Stopper**	Carbon steel	Nickel plating
26	**Stroke adjuster**	Aluminium alloy	Anodised
27	**Magnet**	—	

Dimensions: Linear Guide Single Axis Type Size 25

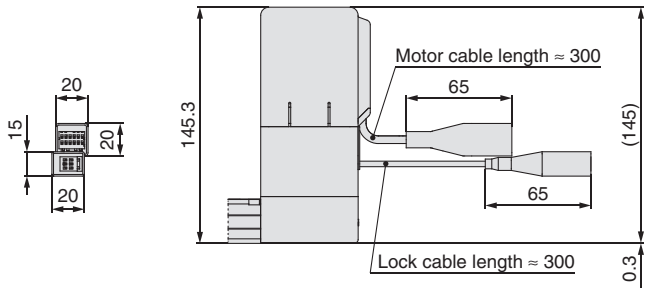
Refer to page 46 and after for dimensions of the controllers.

Top mounting
LEMH25T-□-□□□□□

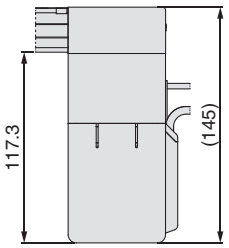


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

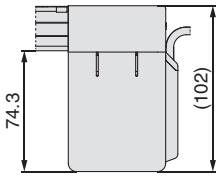
Top mounting
With lock
LEMH25T-□B-□□□□□



Bottom mounting
With lock
LEMH25UT-□B-□□□□□



Bottom mounting
LEMH25UT-□-□□□□□



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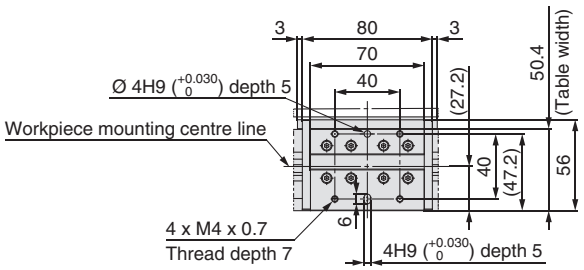
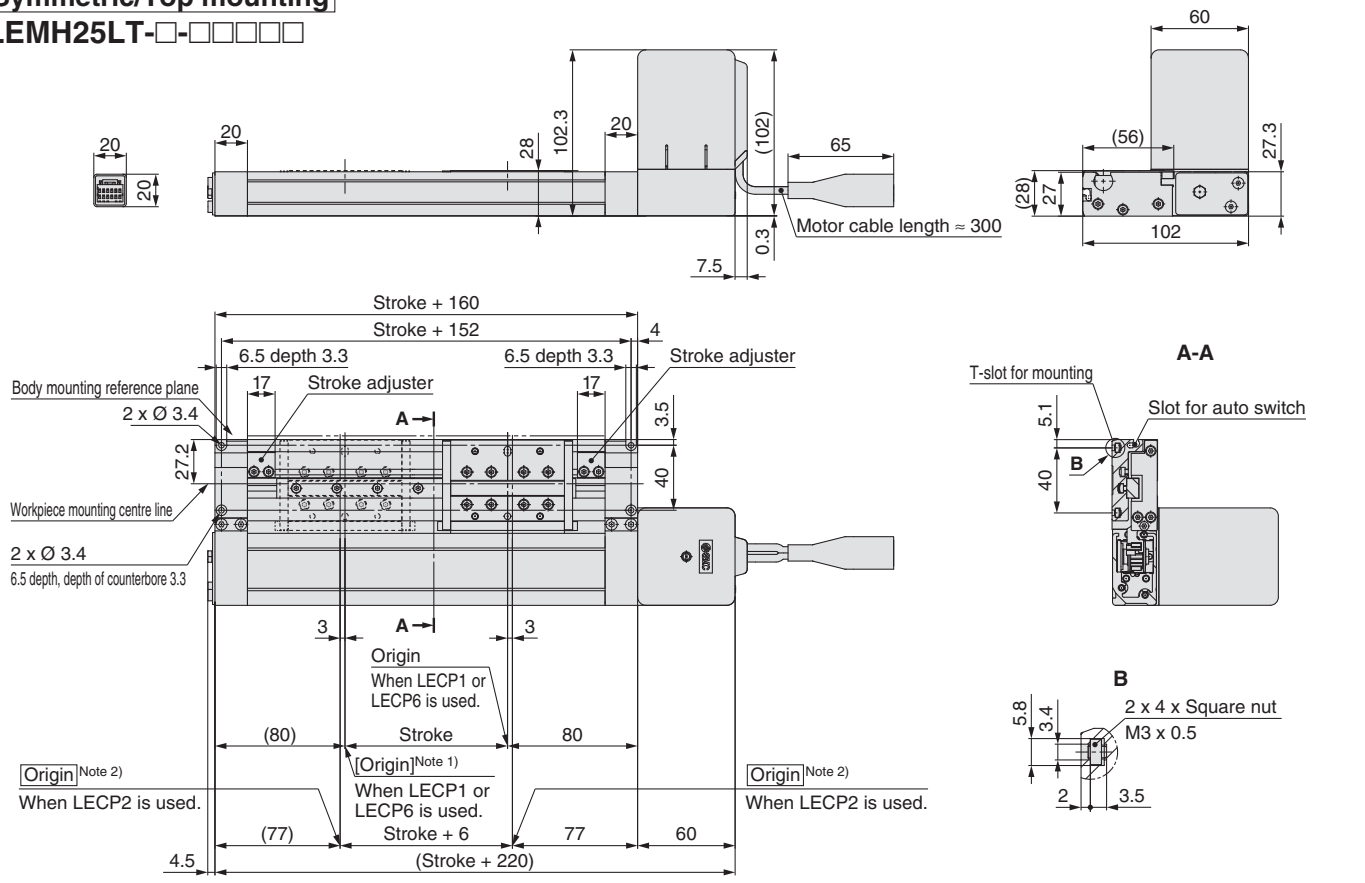


Dimensions: Linear Guide Single Axis Type Size 25

Refer to page 46 and after for dimensions of the controllers.

Symmetric/Top mounting

LEMH25LT-□-□□□□□

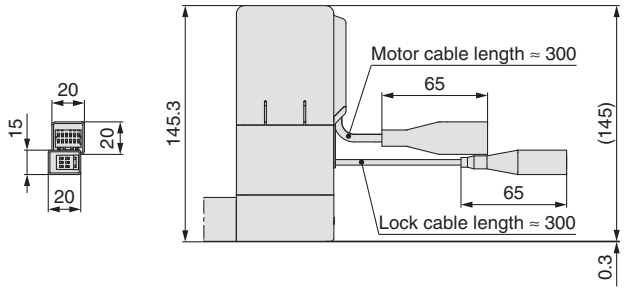


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is “Stroke + 6 mm”.

Top mounting

With lock

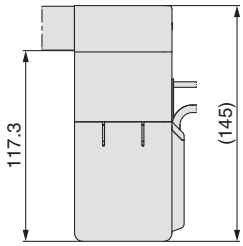
LEMH25LT-□B-□□□□□



Bottom mounting

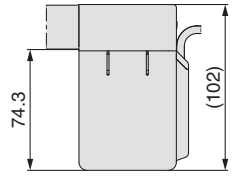
With lock

LEMH25LUT-□B-□□□□□



Bottom mounting

LEMH25LUT-□-□□□□□



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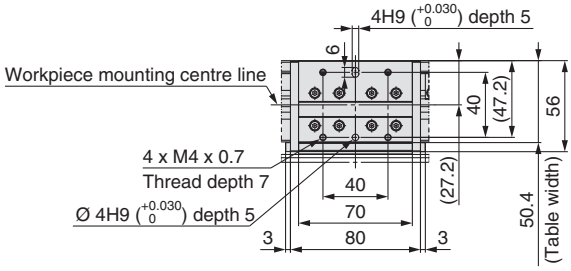
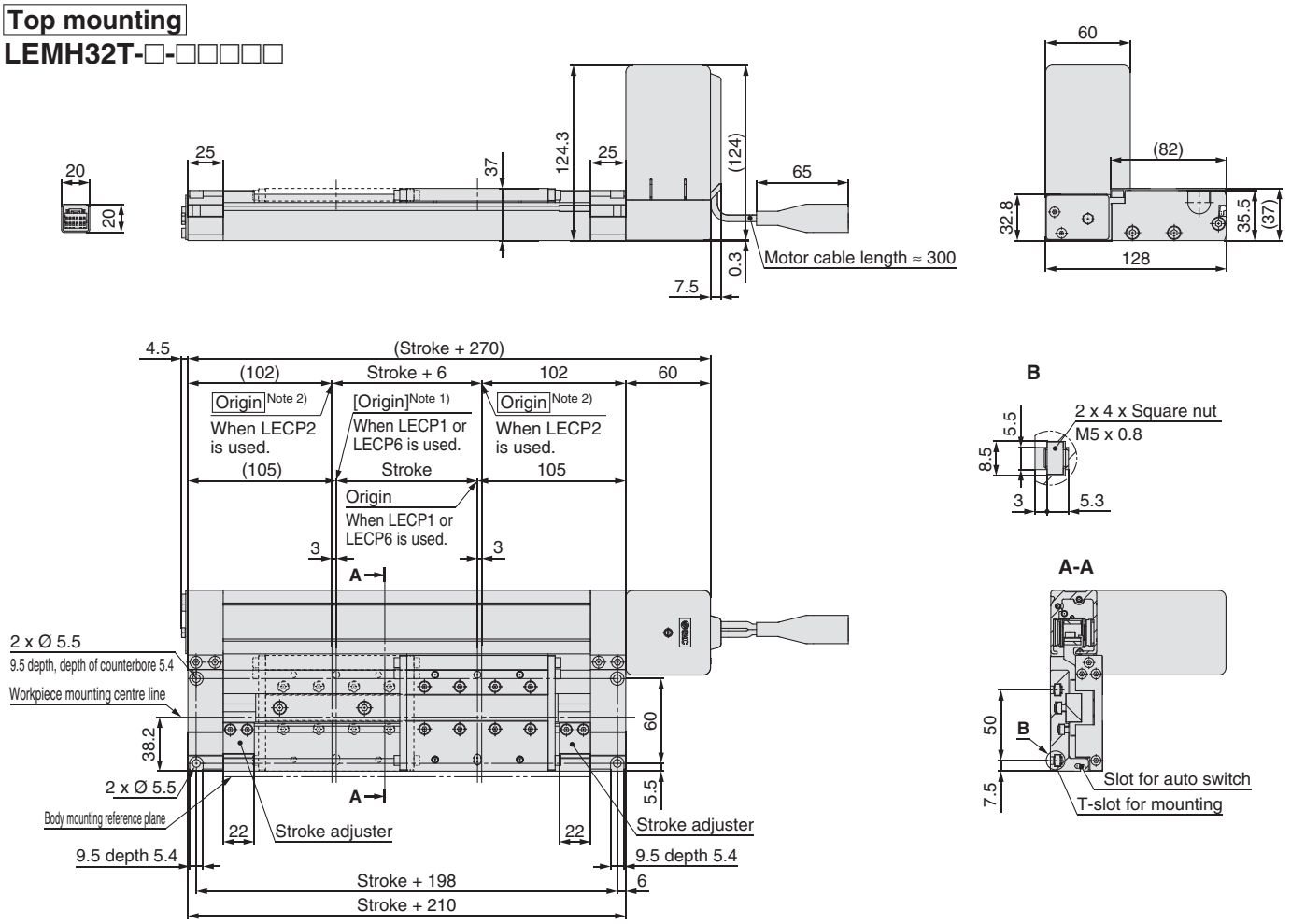


Dimensions: Linear Guide Single Axis Type Size 32

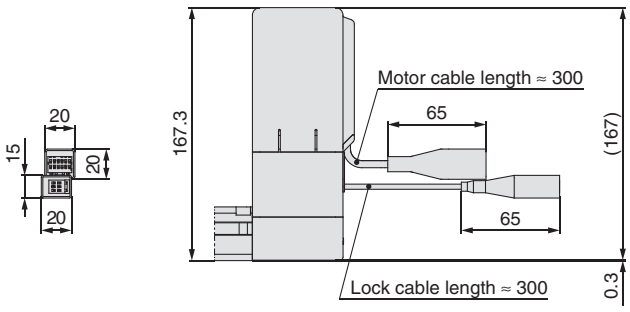
Refer to page 46 and after for dimensions of the controllers.

Top mounting
LEMH32T-□-□□□□□

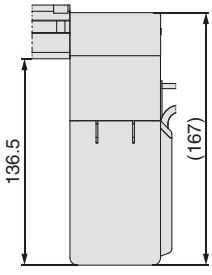


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

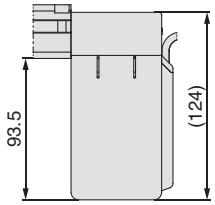
Top mounting
With lock
LEMH32T-□B-□□□□□



Bottom mounting
With lock
LEMH32UT-□B-□□□□□



Bottom mounting
LEMH32UT-□-□□□□□



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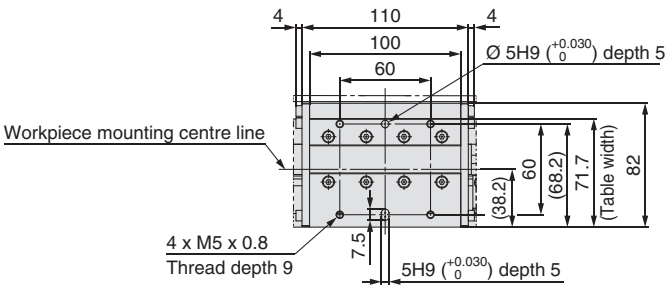
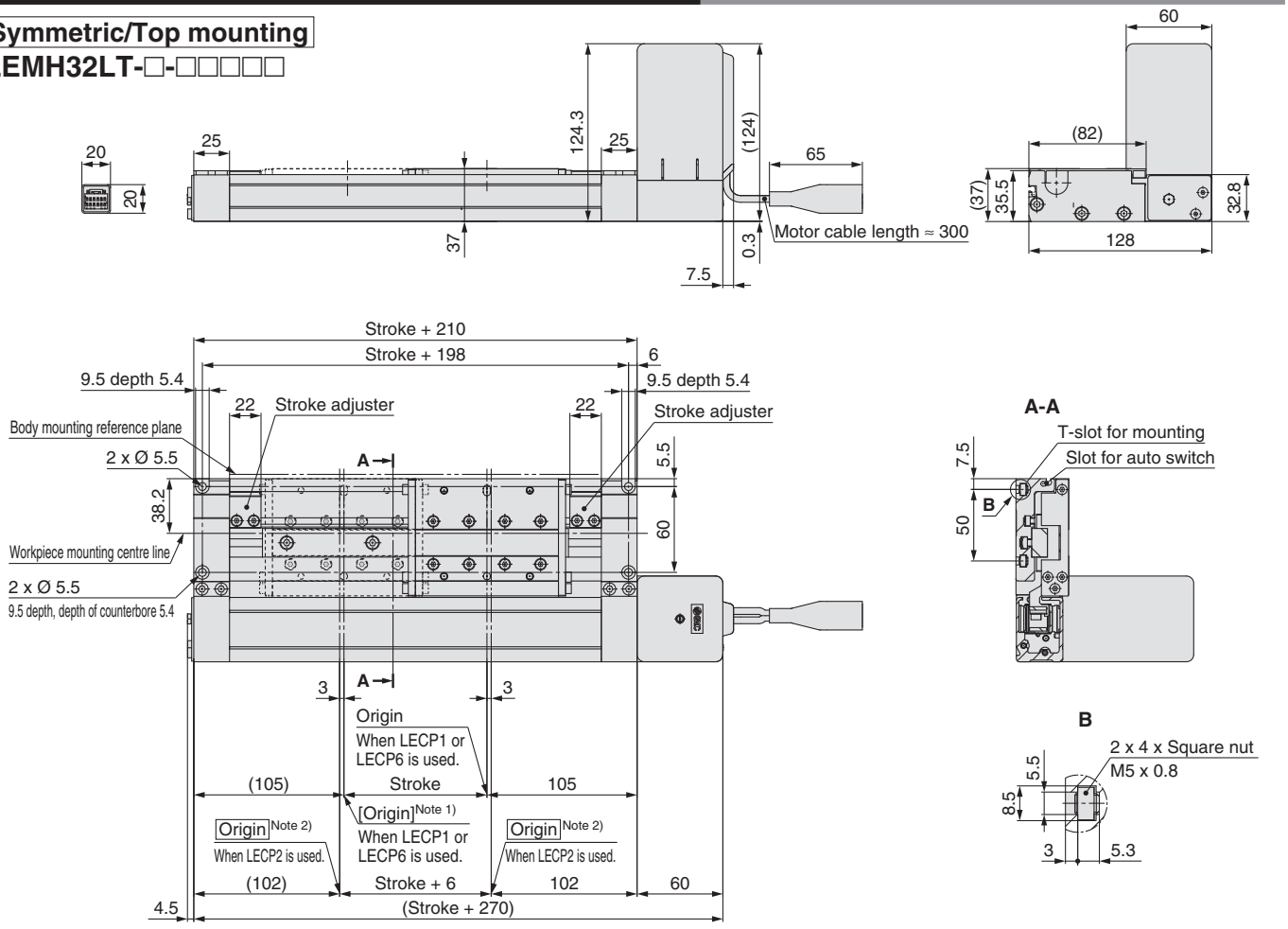


Dimensions: Linear Guide Single Axis Type Size 32

Refer to page 46 and after for dimensions of the controllers.

Symmetric/Top mounting

LEMH32LT-□-□□□□□

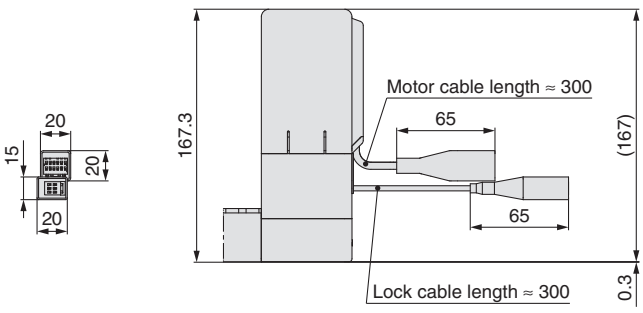


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

Top mounting

With lock

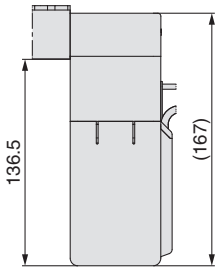
LEMH32LT-□B-□□□□□



Bottom mounting

With lock

LEMH32LUT-□B-□□□□□



Bottom mounting

LEMH32LUT-□-□□□□□

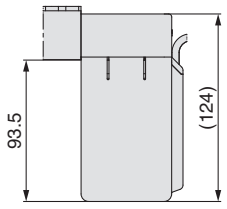
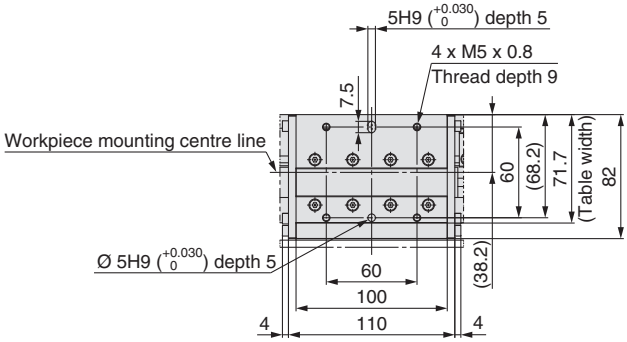


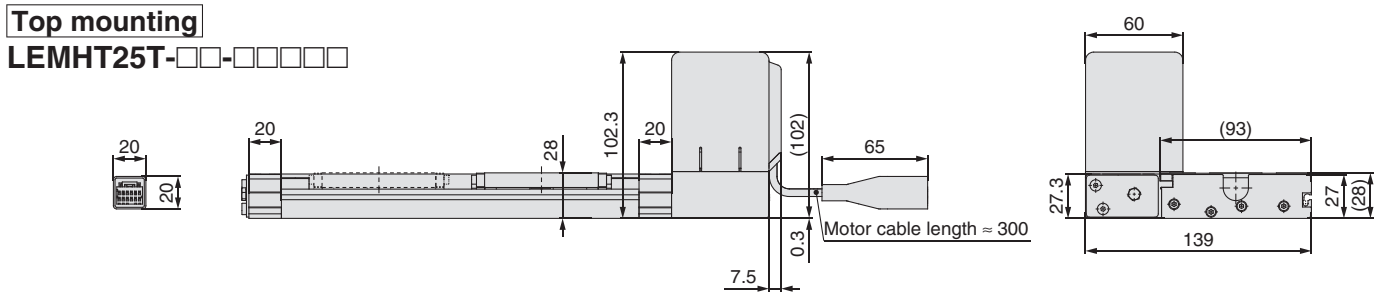
Table details

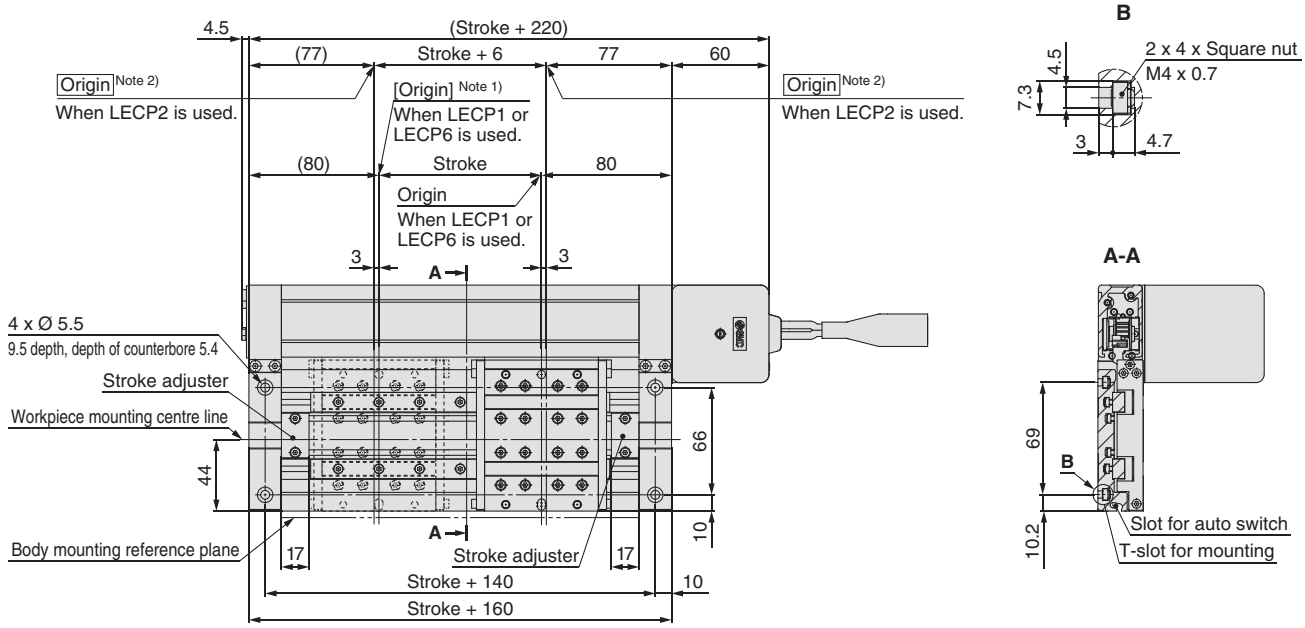


Dimensions: Linear Guide Double Axis Type Size 25

Refer to page 46 and after for dimensions of the controllers.

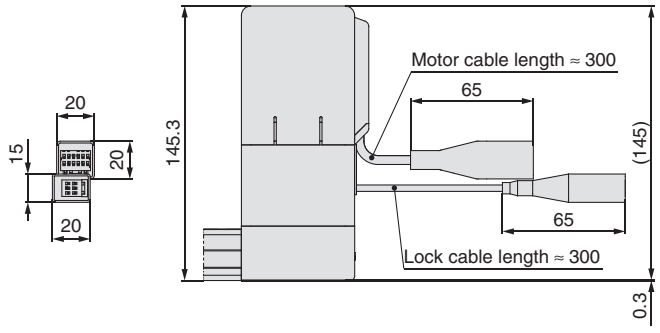
Top mounting
LEMHT25T-□□-□□□□□



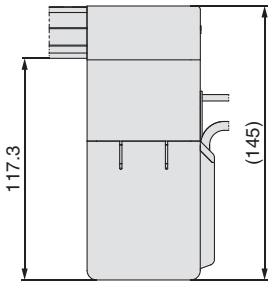


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is “Stroke + 6 mm”.

Top mounting
With lock
LEMHT25T-□B-□□□□□



Bottom mounting
With lock
LEMHT25UT-□B-□□□□□



Bottom mounting
LEMHT25UT-□-□□□□□

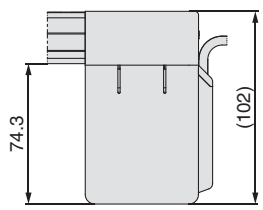
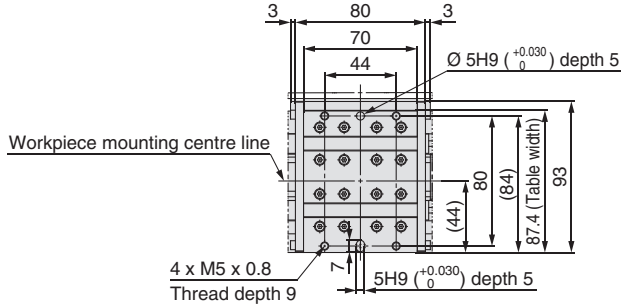


Table details

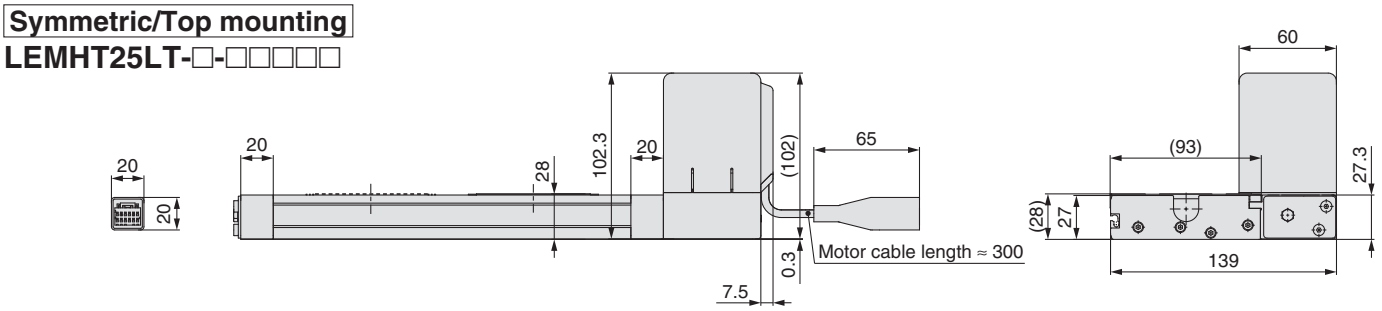


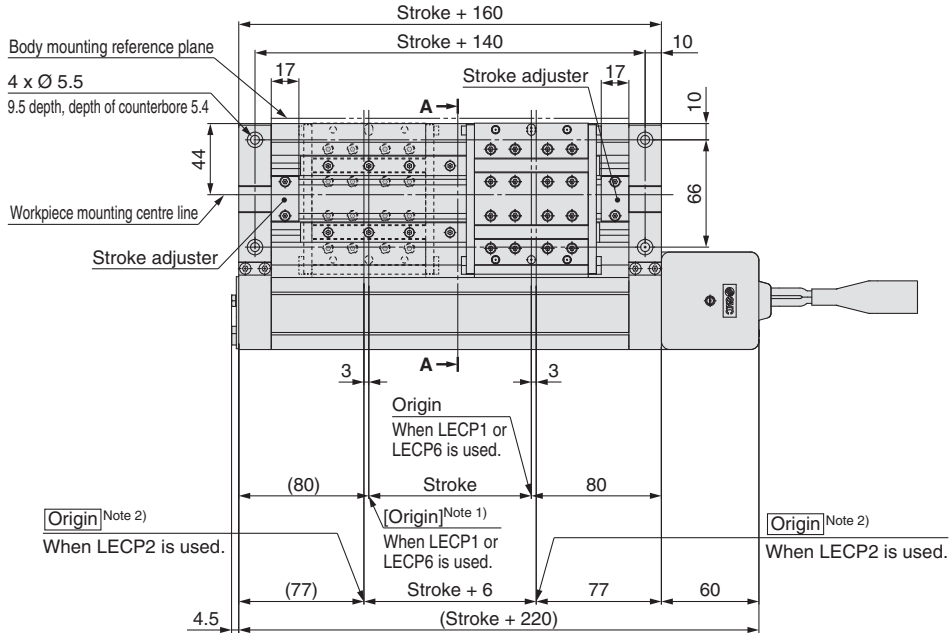
Dimensions: Linear Guide Double Axis Type Size 25

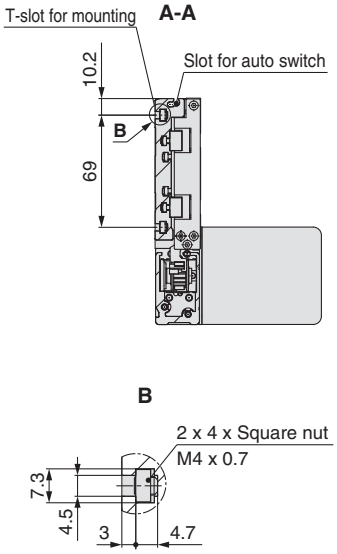
Refer to page 46 and after for dimensions of the controllers.

Symmetric/Top mounting

LEMHT25LT-□-□□□□□





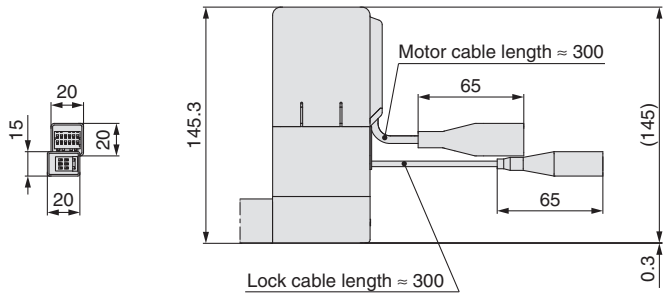


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

Top mounting

With lock

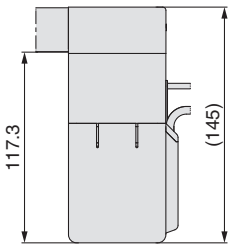
LEMHT25LT-□B-□□□□□



Bottom mounting

With lock

LEMHT25LUT-□B-□□□□□



Bottom mounting

LEMHT25LUT-□-□□□□□

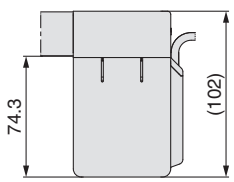
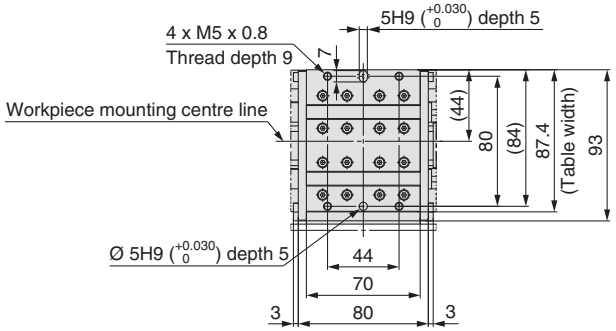


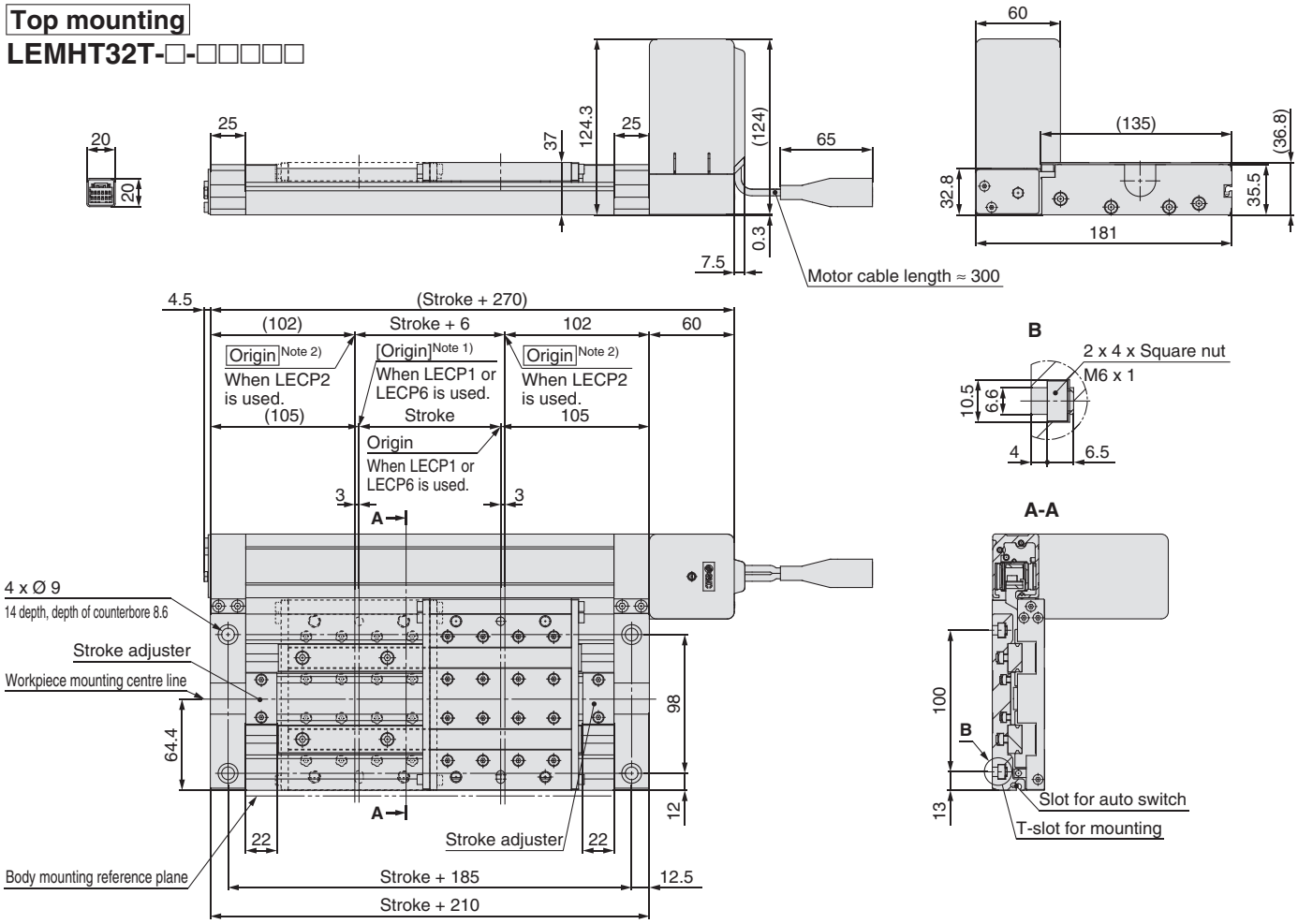
Table details



Dimensions: Linear Guide Double Axis Type Size 32

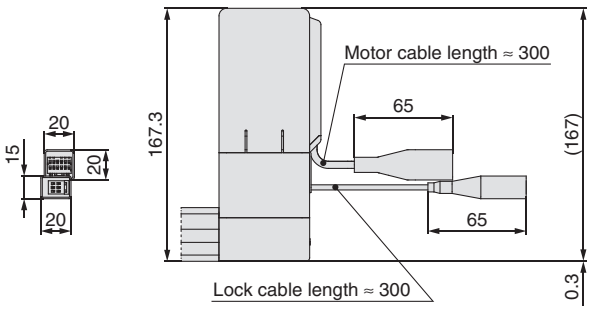
Refer to page 46 and after for dimensions of the controllers.

Top mounting
LEMHT32T-□-□□□□□

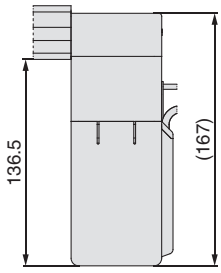


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

Top mounting
With lock
LEMHT32T-□B-□□□□□



Bottom mounting
With lock
LEMHT32UT-□B-□□□□□



Bottom mounting
LEMHT32UT-□-□□□□□

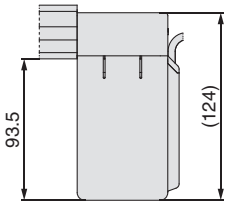
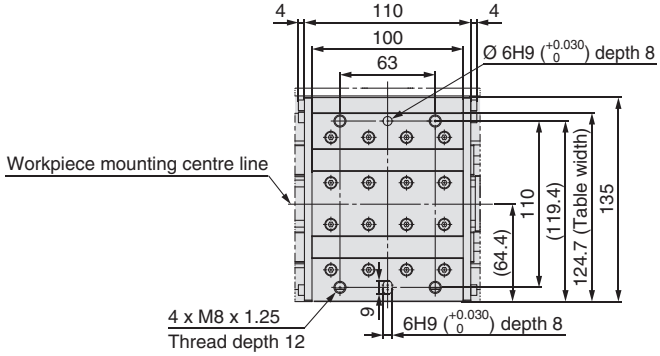


Table details

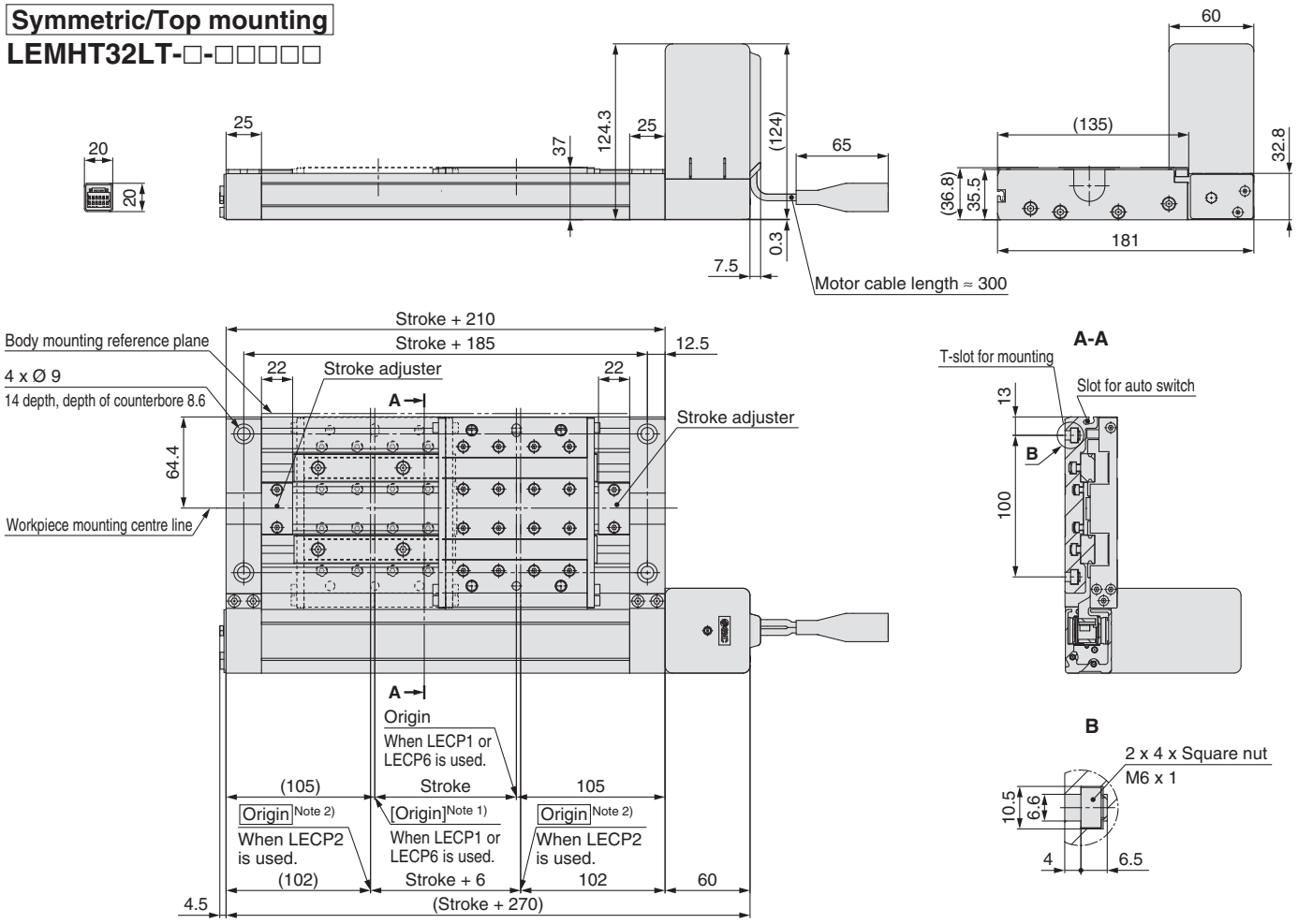


Dimensions: Linear Guide Double Axis Type Size 32

Refer to page 46 and after for dimensions of the controllers.

Symmetric/Top mounting

LEMHT32LT-□-□□□□□

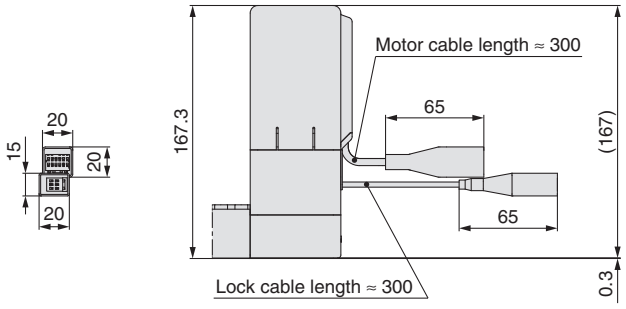


Note 1) [ ] for when the direction of return to origin has changed. (When the LECP1 or 6 is used.)
Note 2) Origin for when the LECP2 is used. The movable stroke is "Stroke + 6 mm".

Top mounting

With lock

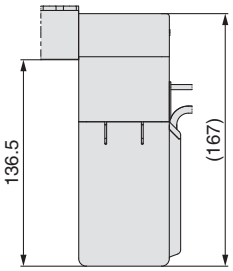
LEMHT32LT-□B-□□□□□



Bottom mounting

With lock

LEMHT32LUT-□B-□□□□□



Bottom mounting

LEMHT32LUT-□-□□□□□

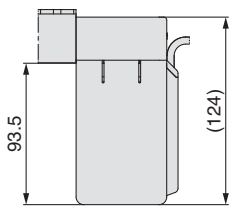
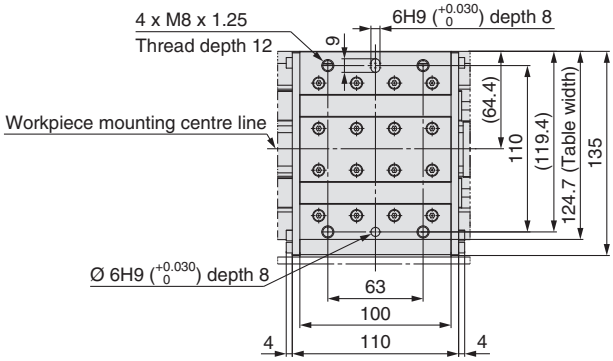
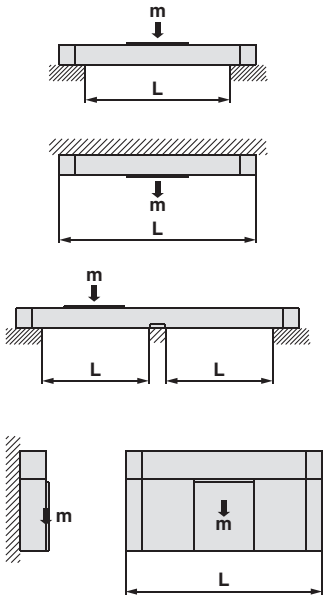


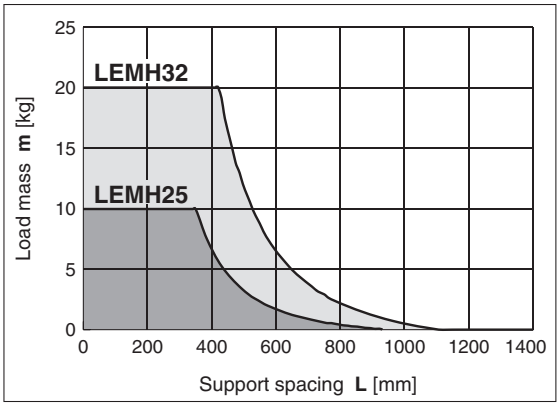
Table details

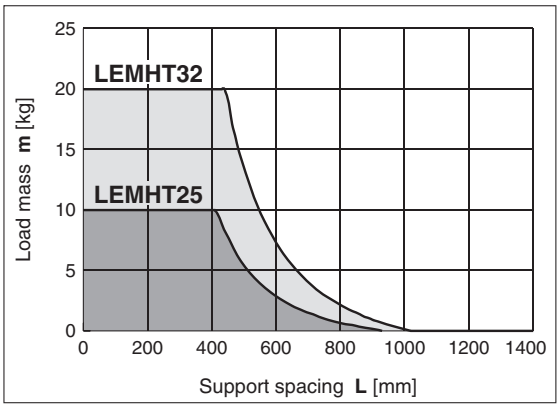


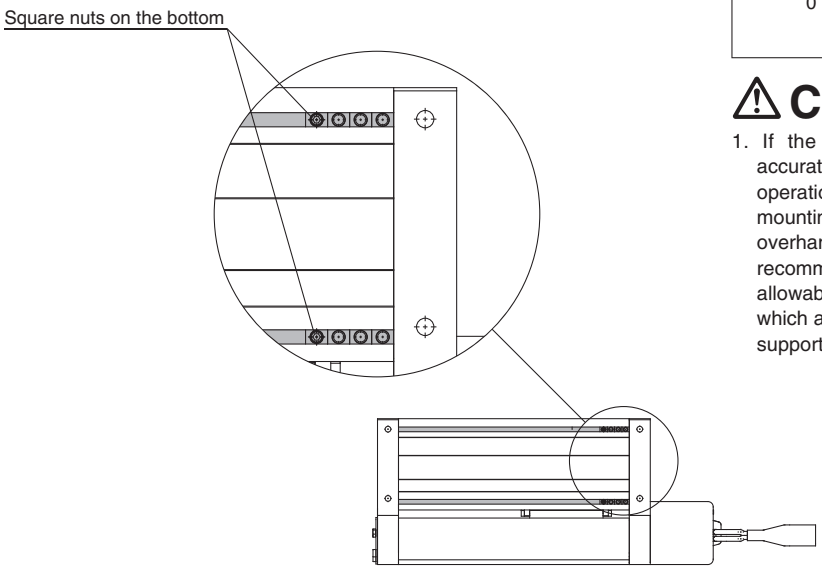
Recommended spacing for side supports

When using actuator with longer stroke, implement intermediate support to prevent frame deflection or deflection caused by vibration or external impacts. The spacing (**L**) of the intermediate supports must be no more than the values shown in the following graph.







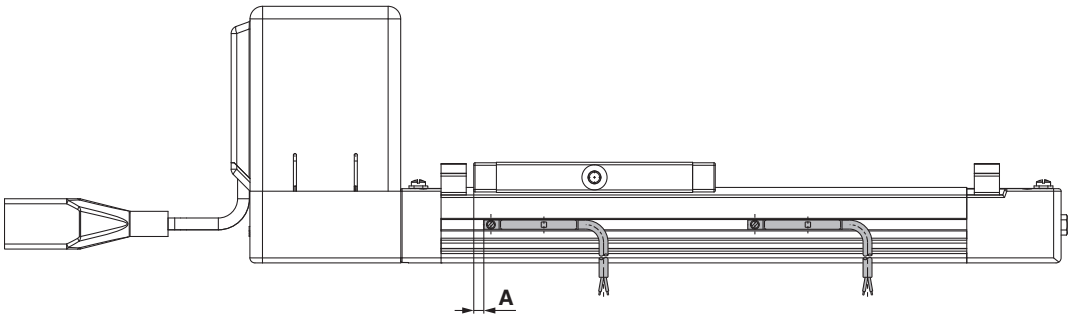


⚠ Caution

1. If the actuator mounting surfaces are not measured accurately, using the intermediate support may cause poor operation. Make sure to level the mounting surface when mounting the actuator. For long stroke operation involving overhang of workpiece, implement intermediate support as recommended even if the support spacing is within the allowable limits shown in the graph. Use the square nuts which are on the bottom of the actuator for the intermediate support.

Series LEM
Auto Switch Mounting

Auto Switch Proper Mounting Position at Stroke End Detection



D-M9, D-M9□V
D-M9□W, D-M9□WV

(mm)

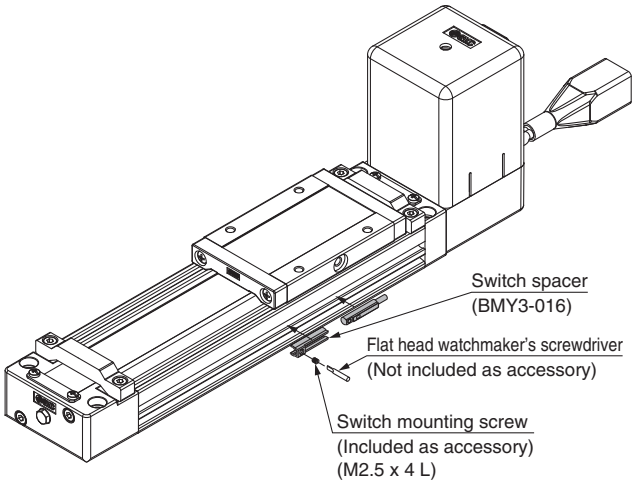
Model	Nominal size	A	Operating range
LEMB	**25**	40	5.5
LEMC		8	3.5
LEMH		10	6
LEMHT		34	7
LEMB	**32**	40	5.5
LEMC		8.4	4
LEMH			5.5
LEMHT			5.5

Note) The operating range is a guideline including hysteresis, not meant to be guaranteed.
There may be large variations (as much as ±30 %) depending on the ambient environment.

Auto Switch Mounting

Series LEMB

When mounting an auto switch, first hold the switch spacer with your fingers and push it into the slot. Confirm that it is aligned evenly within the slot and adjust the position if necessary. Then, insert the auto switch into the slot and slide it into the spacer.
After establishing the mounting position, use a flat head watchmaker's screwdriver to tighten the included auto switch mounting screw.



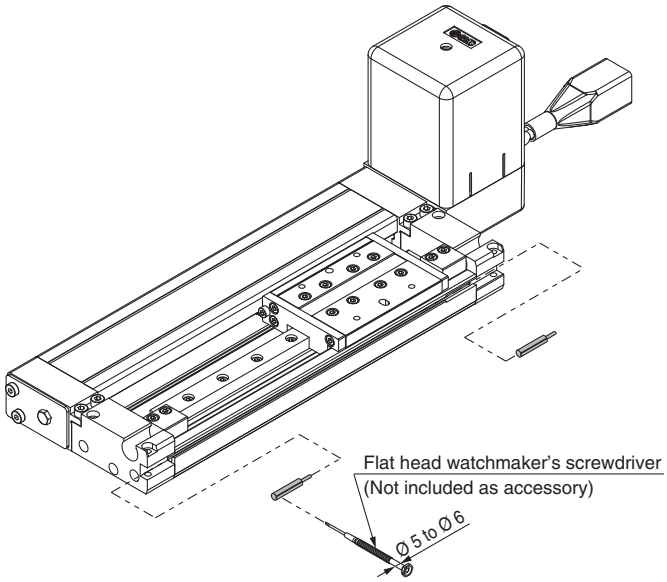
Note) When tightening the auto switch mounting screw, use a watchmaker's screwdriver with a handle of approximately 5 to 6 mm in diameter. Also, tighten with a torque of about 0.05 to 0.1 N·m. As a guide, turn about 90° past the point at which tightening can first be felt.

Switch Spacer/Part No.

Applicable bore size (mm)	25	32
Switch spacer part no.	BMY3-016	

Series LEMC/H/HT

When mounting an auto switch, insert the auto switch into the actuator's auto switch mounting slot as shown below. Once in the mounting position, use a flat head watchmaker's screwdriver to tighten the included auto switch mounting screw.



Note) When tightening the auto switch mounting screw (included with auto switch), use a watchmaker's screwdriver with a handle of approximately 5 to 6 mm in diameter.

Tightening Torque of Auto Switch Mounting Screw [N·m]

Auto switch model	Tightening torque
D-M9□(V) **D-M9□W(V)**	0.10 to 0.15

Solid State Auto Switch
Direct Mounting Style
D-M9N(V)/D-M9P(V)/D-M9B(V)

RoHS

Refer to SMC website for details about products conforming to the international standards.

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Flexibility is 1.5 times greater than the conventional model (SMC comparison).**
- **Using flexible cable as standard.**

⚠Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□, D-M9□V (With indicator light)						
Auto switch model	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED lights up when turned ON.					
Standards	CE Marking, RoHS					

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-M9N□	D-M9P□	D-M9B□
Sheath	Outside diameter [mm]	2.7 x 3.2 (ellipse)		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	Ø 0.9		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	Ø 0.05		
Minimum bending radius [mm] (Reference value)		20		

Note) Refer to the catalogue for solid state auto switch common specifications in our website: ww.smc.eu.

Weight

[g]

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length	0.5 m **(—)**	8		7
	1 m **(M)**	14		13
	3 m **(L)**	41		38
	5 m **(Z)**	68		63

How to Order

D-M9 N □ □

- **Series**
- **Wiring/Output type**

N	3-wire NPN
P	3-wire PNP
B	2-wire

- **Electrical entry**

—	In-line
V	Perpendicular

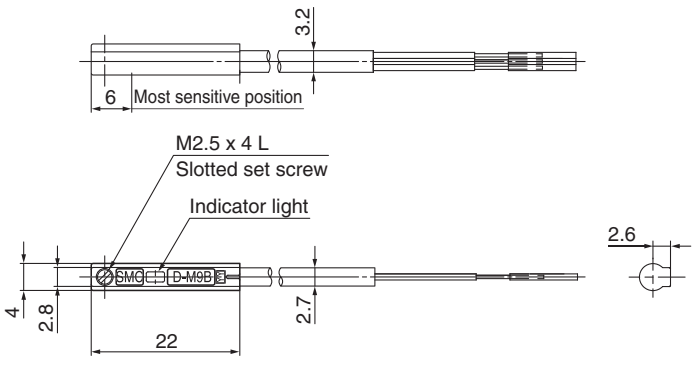
- **Lead wire length**

—	0.5 m
M	1 m
L	3 m
Z	5 m

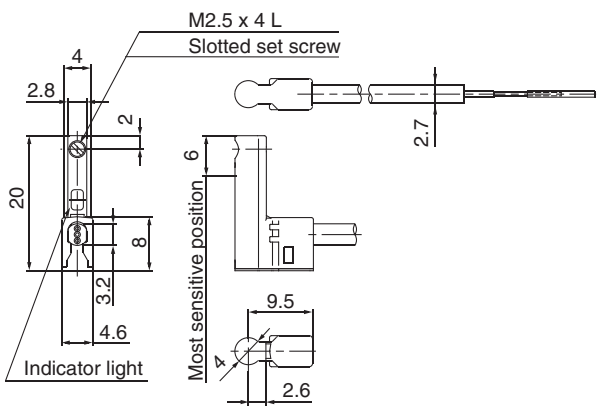
Dimensions

[mm]

D-M9□



D-M9□V



2-colour Indication Solid State Auto Switch Direct Mounting Style
D-M9NW(V)/D-M9PW(V)/D-M9BW(V)

Refer to SMC website for details about products conforming to the international standards.

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Flexibility is 1.5 times greater than the conventional model (SMC comparison).**
- **Using flexible cable as standard.**
- **The optimum operating range can be determined by the colour of the light. (Red → Green ← Red)**

⚠Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□W, D-M9□WV (With indicator light)						
Auto switch model	D-M9NW	D-M9NWV	D-M9PW	D-M9PWV	D-M9BW	D-M9BWV
Electrical entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Operating range ····· Red LED lights up. Optimum operating range ····· Green LED lights up.					
Standards	CE Marking, RoHS					

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NW□	D-M9PW□	D-M9BW□
Sheath	Outside diameter [mm]	2.7 x 3.2 (ellipse)		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	Ø 0.9		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	Ø 0.05		
Minimum bending radius [mm] (Reference value)		20		

Note) Refer to the catalogue for solid state auto switch common specifications in our website: ww.smc.eu.

Weight

[g]

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
Lead wire length	0.5 m (—)	8		7
	1 m (M)	14		13
	3 m (L)	41		38
	5 m (Z)	68		63

How to Order

D-M9 N W V L

Series

Wiring/Output type

N	3-wire NPN
P	3-wire PNP
B	2-wire

Electrical entry

—	In-line
V	Perpendicular

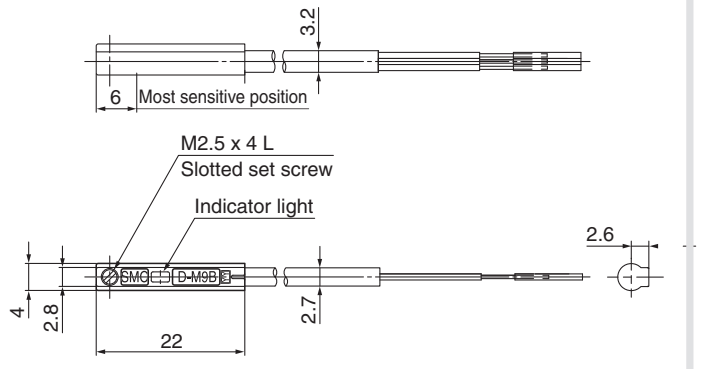
Lead wire length

—	0.5 m
M	1 m
L	3 m
Z	5 m

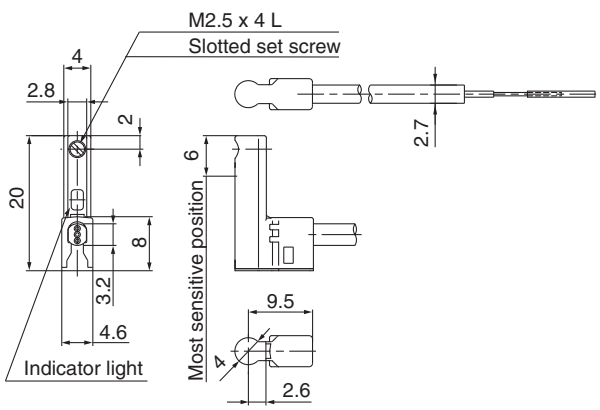
Dimensions

[mm]

D-M9□W



D-M9□WV



SMC

Series LEM
Electric Actuator
Specific Product Precautions 1

Be sure to read before handling. Refer to back cover for Safety Instructions and the Operation Manual for Electric Actuator Precautions.
Please download it via our website, http://www.smc.eu

Design

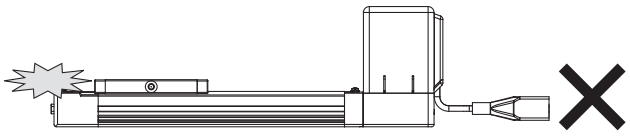
⚠Caution

1. **Do not apply a load in excess of the actuator specification.**
   A product should be selected based on the maximum work load and allowable moment. If the product is used outside of the operating specification, eccentric load applied to the guide will become excessive and have adverse effects such as creating play in the guide, reduced accuracy and reduced product life.
2. **Do not exceed the acceleration, deceleration and speed limit of the actuator specification.**
   Select a suitable actuator by the "Speed - Work Load Graph" and the "Work Load – Acceleration/Deceleration Graph" shown in the catalogue.
   Noise or reduction of accuracy may occur if the actuator is operated in excess of its specification and could lead to reduced accuracy and reduced product file.
3. **Do not use the product in applications where excessive external force or impact force is applied to it.**
   This can lead to premature failure of the product.
4. **When external force is applied to the table, it is necessary to add the external force to the work load as the total carried load for the sizing.**
   When mounting cable duct and so on in parallel to the actuator, it is necessary to add the friction to the work load as the total carried load for the sizing, too.
5. **The resistance value of the attached equipment should be within the allowable external resistance value.**

Handling

⚠Caution

1. **INP output signal (LECP6)**
   1) Positioning operation
   When the product comes within the set range by step data [In positon], INP output signal will be turned on.
   Initial value: Set to [1] or higher.
2. **Never hit at the stroke end except during return to origin. (Except when the LECP2 controller is used.)**
   Internal stopper can be broken.



3. **The moving force should be the initial value.**
   If the moving force is set below the initial value, it may cause an alarm.
4. **The actual speed of this actuator is affected by the work load.**
   Check the model selection section of the catalogue.
5. **Do not apply a load, impact or resistance in addition to the transferred load during return to origin.**
   Additional force will cause the displacement of the origin position since it is based on detected motor torque.
6. **Do not dent, scratch or cause other damage to the body and table mounting surfaces.**
   This may cause unevenness in the mounting surface, play in the guide or an increase in the sliding resistance.

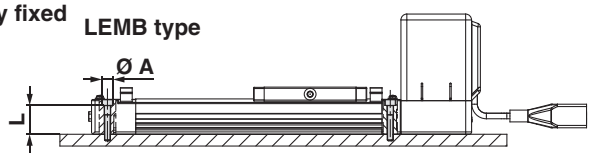
Handling

⚠Caution

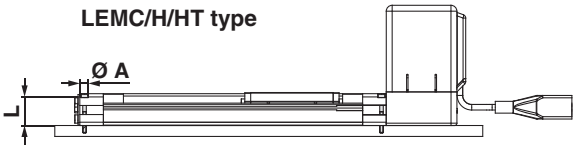
7. **Do not apply strong impact or an excessive moment while mounting a workpiece.**
   If an external force over the allowable moment is applied, it may cause looseness in the guide unit, an increase in sliding resistance or other problems.
8. **Provide a flat surface for installing the actuator. The degree of surface flatness should be determined by the machine precision requirement, or its corresponding precision.**
   The degree of surface flatness for installing the actuator should be within 0.1 mm/500 mm. The degree of surface flatness for mounting a workpiece should be within 0.05 mm (LEMB), 0.02 mm (LEMC/H/HT).
9. **When mounting the actuator, leave a gap of 40 mm or more to allow for bending of the actuator cable.**
10. **Do not hit the table with the workpiece in the positioning operation and positioning range.**
11. **When mounting the product, use bolts with adequate length and tighten them with adequate torque.**
    Tightening the bolts with a higher torque than the maximum may cause a malfunction, whilst tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions detaching of the workpiece.

Body fixed

LEMB type



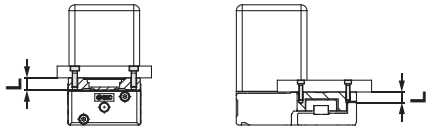
LEMC/H/HT type



Model	Bolt size	Maximum tightening torque [N·m]	Ø A [mm]	L [mm]
LEMB□	M5	3	5.5	24.5
LEMC25 LEMH25	M3	0.6	3.4	23.7
LEMC32 LEMH32	M5	3	5.5	30.1
LEMHT25	M5	3	5.5	21.6
LEMHT32	M8	12.5	9	26.9

Workpiece fixed

LEMB type **LEMC/H/HT type**



Model	Bolt size	Maximum tightening torque [N·m]	L (Maximum screw-in depth)[mm]
LEMB□	M5 x 0.8	3	8
LEMC25 LEMH25	M4 x 0.5	1.5	7
LEMC32 LEMH32	M5 x 0.8	3	9
LEMHT25	M5 x 0.8	3	9
LEMHT32	M8 x 1.25	12.5	12

To prevent the workpiece fixing bolts from touching the body, use bolts that are 0.5 mm or shorter than the maximum screw-in depth. If long bolts are used, they can touch the body and cause a malfunction etc.

Series LEM
Electric Actuator
Specific Product Precautions 2

Be sure to read before handling. Refer to back cover for Safety Instructions and the Operation Manual for Electric Actuator Precautions.
Please download it via our website, http://www.smc.eu

Handling

⚠Caution

12. Do not operate by fixing the table and moving the actuator body.

13. The belt drive actuator cannot be used vertically for applications.

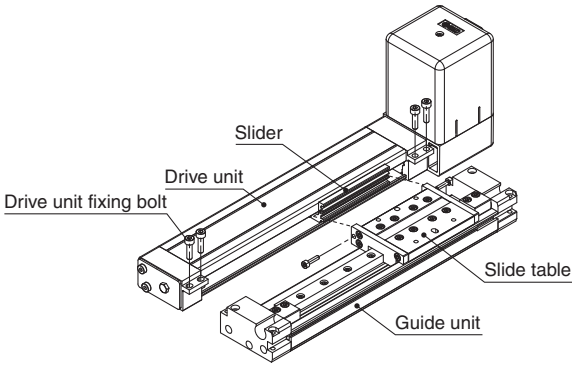
14. Check the specifications for the minimum speed of each actuator.
Otherwise, unexpected malfunctions, such as knocking, may occur.

15. In the case of the belt drive actuator, vibration may occur during operation at speeds within the actuator specifications, this could be caused by the operating conditions. Change the speed setting to a speed that does not cause vibration.

16. High frequency noise will be generated during deceleration depending on the operating conditions. This is a noise generated during processing the regenerative power. It is not a failure.

17. When using actuator with longer stroke, implement an intermediate support.
When using actuator with longer stroke, implement intermediate support to prevent frame deflection or deflection caused by vibration or external impacts.

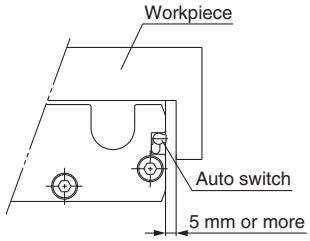
18. Attaching and detaching the drive unit
To remove the drive unit, remove the 6 drive unit fixing bolts and remove the slider from the guide unit. To install the drive unit, insert its slider into the slide table on the guide unit and tighten 2 bolts of connection part, and then equally tighten the 4 fixing bolts. Tighten the fixing bolts securely because if they become loose, problems may occur such as damage, malfunction, etc.



Handling

⚠Caution

19. Workpiece mounting
When mounting a magnetic workpiece, keep a clearance of 5 mm or greater between the auto switch and the workpiece. Otherwise, the magnetic force within the actuator may be lost, resulting in malfunction of the auto switch.



Maintenance

⚠Warning

Maintenance frequency
Perform maintenance according to the table below.

Frequency	Appearance check	Internal check	Belt check
Inspection before daily operation	○	—	—
Inspection every six months/1000 km/ 5 million cycles *	○	○	○

* Whichever occurs first.

● Items for visual appearance check
1. Loose screws. Abnormal dirt.
2. Check of flaws/faults and cable connections.
3. Vibration, noise.

● Items for internal check
1. Lubricant condition on moving parts.
2. Loose or mechanical play in fixed parts or fixing bolts.

● Items for belt check
Stop operation immediately and replace the belt when belt appear to be below. Further, ensure your operating environment and conditions satisfy the requirements specified for the product.

a. Tooth shape canvas is worn out.
Canvas fiber becomes fuzzy. Rubber is removed and the fiber becomes whitish. Lines of fibers become unclear.

b. Peeling off or wearing of the side of the belt
Belt corner becomes round and frayed thread sticks out.

c. Belt partially cut
Belt is partially cut. Foreign matter caught in teeth other than cut part causes flaw.

d. Vertical line of belt teeth
Flaw, which is made when the belt runs on the flange.

e. Rubber back of the belt is softened and sticky.

f. Crack on the back of the belt

Controllers

Step Motor (Servo/24 VDC)

Series LECP2

Specialized for Series LEM

Step Motor (Servo/24 VDC)

Series LECP1

Step Motor (Servo/24 VDC)

Series LECP6

Series LEC-G

Specialized for Series LEM

Programless Controller (With Stroke Study)

Series LECP2

How to Order

LE C P 2 P 1 [ ] – LEMB25T-300

Controller

Compatible motor

P	Step motor (Servo/24 VDC)

Number of step data (Points)

2	2 stroke end points/ 12 intermediate points (Programless)

Parallel I/O type

N	NPN
P	PNP

I/O cable length [m]

—	Without cable
1	1.5
3	3
5	5

Option

—	Screw mounting
D Note)	DIN rail mounting

Note) DIN rail is not included. Order it separately.

Actuator part number

(Except cable specifications and actuator options)
Example: Enter "LEMB25T-300" for the LEMB25T-300W-S12P1.

⚠ Caution

[CE-compliant products]
EMC compliance was tested by combining the electric actuator LEM series and the controller LEC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.

[UL-compliant products]
When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

The controller is sold as single unit after the compatible actuator is set.
Confirm that the combination of the controller and the actuator is correct.

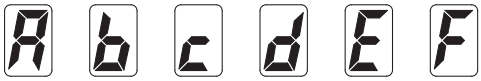
* Refer to the operation manual for using the products. Please download it via our website, http://www.smc.eu

Specifications

Basic Specifications

Item	LECP2
Compatible motor	Step motor (Servo/24 VDC)
Power supply Note 1)	Power supply voltage: 24 VDC ±10 %, Max. current consumption: 3 A (Peak 5 A) Note 2) [Including the motor drive power, control power supply, stop, lock release]
Parallel input	6 inputs (Photo-coupler isolation)
Parallel output	6 outputs (Photo-coupler isolation)
Stop points	Stroke ends 2 points (Position number 1 and 2), Intermediate position 12 points (Position number 3 to 14(E))
Compatible encoder	Incremental A/B phase (800 pulse/rotation)
Memory	EEPROM
LED indicator	LED (Green/Red) one of each
7-segment LED display Note 3)	1 digit, 7-segment display (Red) Figures are expressed in hexadecimal. ("10" to "15" in decimal number are expressed as "A" to "F")
Lock control	Forced-lock release terminal Note 4)
Cable length [m]	I/O cable: 5 or less, Actuator cable: 20 or less
Cooling system	Natural air cooling
Operating temperature range [°C]	0 to 40 (No freezing)
Operating humidity range [%RH]	90 or less (No condensation)
Storage temperature range [°C]	–10 to 60 (No freezing)
Storage humidity range [%RH]	90 or less (No condensation)
Insulation resistance [MΩ]	Between the housing and SG terminal: 50 (500 VDC)
Weight [g]	130 (Screw mounting), 150 (DIN rail mounting)

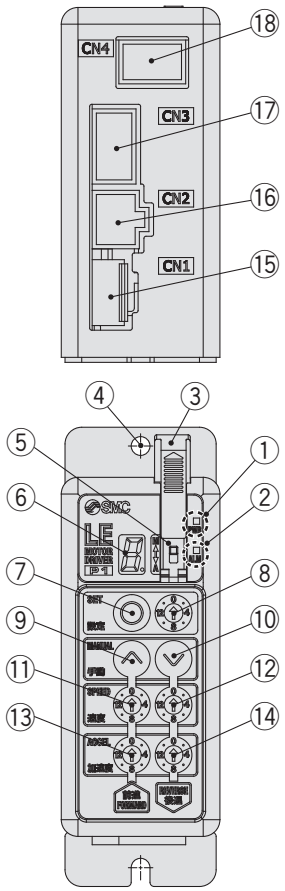
Note 1) Do not use the power supply of "inrush current prevention type" for the controller input power supply. When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.
Note 2) The power consumption changes depending on the actuator model. Refer to the each actuator's operation manual etc. for details.
Note 3) "10" to "15" in decimal number are displayed as follows in the 7-segment LED.



Decimal display	10	11	12	13	14	15
Hexadecimal display	A	b	c	d	E	F

Note 4) Applicable to non-magnetizing lock

Controller Details



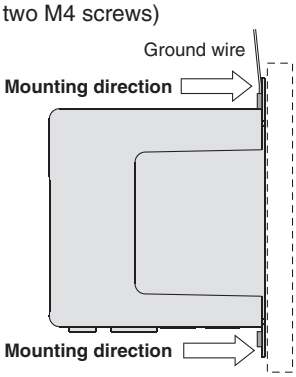
No.	Display	Description	Details
①	**PWR**	Power supply LED	Power supply ON/Servo ON : Green turns on. Power supply ON/Servo OFF: Green flashes.
②	**ALM**	Alarm LED	With alarm : Red turns on. Parameter setting : Red flashes.
③	—	Cover	Change and protection of the mode switch (Close the cover after changing switch.)
④	—	FG	Frame ground (Tighten the bolt with the nut when mounting the controller. Connect the ground wire.)
⑤	—	Mode switch	Switch the mode between manual and auto.
⑥	—	7-segment LED	Stop position, the value set by ⑧ and alarm information are displayed.
⑦	**SET**	Set button	Decide the settings or drive operation in manual mode.
⑧	—	Position selecting switch	Assign the position to drive (1 to 14), and the origin position (15).
⑨	**MANUAL**	Manual forward button	Perform forward jog and inching.
⑩		Manual reverse button	Perform reverse jog and inching.
⑪	**SPEED**	Forward speed switch	16 forward speeds are available.
⑫		Reverse speed switch	16 reverse speeds are available.
⑬	**ACCEL**	Forward acceleration switch	16 forward acceleration steps are available.
⑭		Reverse acceleration switch	16 reverse acceleration steps are available.
⑮	**CN1**	Power supply connector	Connect the power supply cable.
⑯	**CN2**	Motor connector	Connect the motor connector.
⑰	**CN3**	Encoder connector	Connect the encoder connector.
⑱	**CN4**	I/O connector	Connect the I/O cable.

How to Mount

Controller mounting shown below

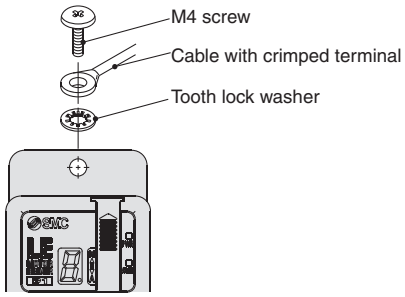
1. Mounting screw (LECP2□□-□)

(Installation with two M4 screws)



2. Grounding

Tighten the bolt with the nut when mounting the ground wire as shown below.



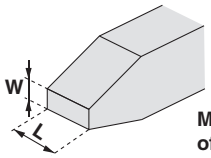
Controller

Note) The space between the controllers should be 10 mm or more.

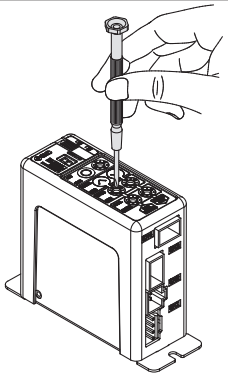
⚠Caution

- M4 screws, cable with crimping terminal and tooth lock washer are not included. Be sure to carry out grounding earth in order to ensure the noise tolerance.
- Use a watchmaker's screwdriver of the size shown below when changing position switch ⑧ and the set value of the speed/acceleration switch ⑪ to ⑭.

Size
End width **L**: 2.0 to 2.4 [mm]
End thickness **W**: 0.5 to 0.6 [mm]

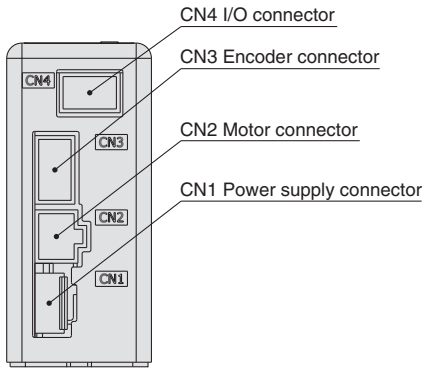


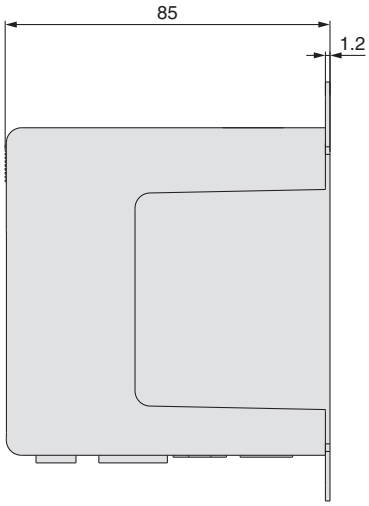
Magnified view of the end of the screwdriver

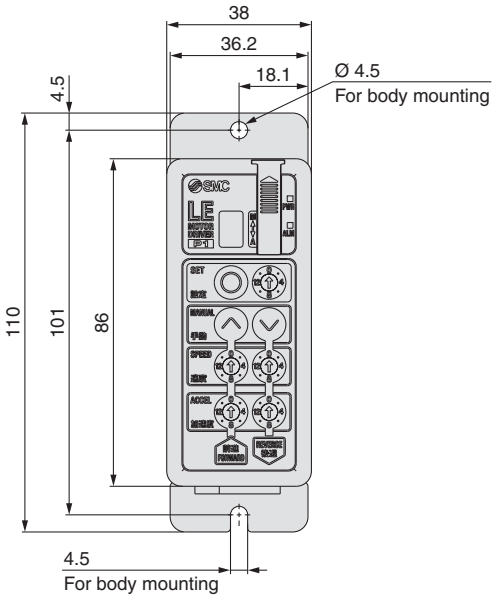


Dimensions

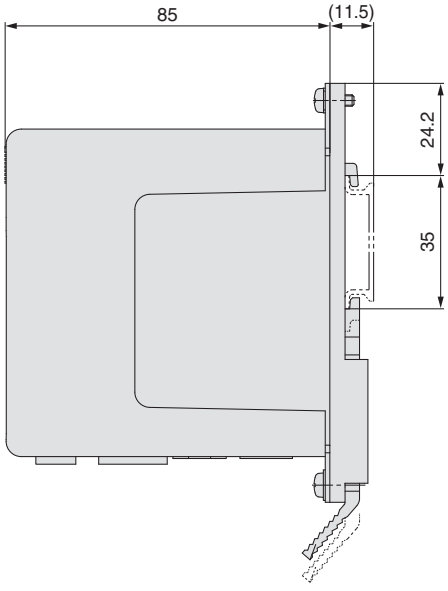
Screw mounting (LEC□2□□-□)

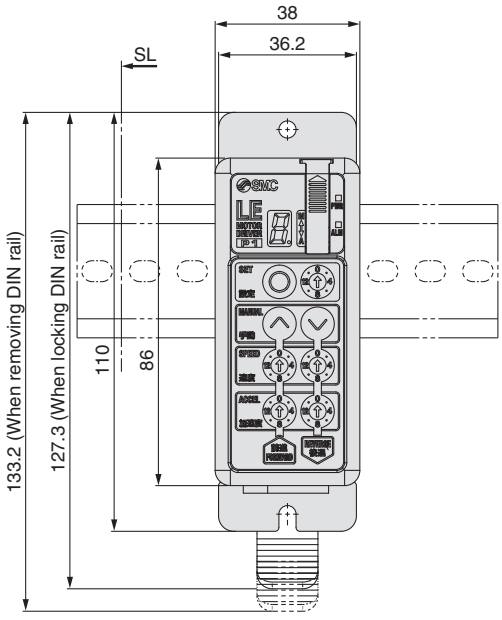






DIN rail mounting (LEC□2□□D-□)





Wiring Example 1

Power Supply Connector: CN1

* When you connect a CN1 power supply connector, use the power supply cable (LEC-CK1-1).
* Power supply cable (LEC-CK1-1) is an accessory.

CN1 Power Supply Connector Terminal for LECP2

Terminal name	Cable colour	Function	Details
0V	Blue	Common supply (–)	M24V terminal/C24V terminal/BK RLS terminal are common (–).
M24V	White	Motor power supply (+)	Motor power supply (+) supplied to the controller
C24V	Brown	Control power supply (+)	Control power supply (+) supplied to the controller
BK RLS	Black	Lock release (+)	Input (+) for releasing the lock

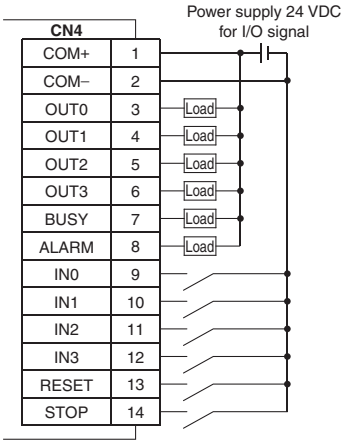
Power supply cable for LECP2 (LEC-CK1-1)

Wiring Example 2

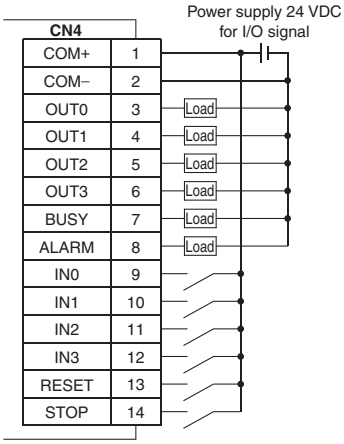
Parallel I/O Connector: CN4

* When you connect a PLC, etc., to the CN4 parallel I/O connector, use the I/O cable (LEC-CK4-□).
* The wiring should be changed depending on the type of the parallel I/O (NPN or PNP).

■ NPN



■ PNP



Input Signal

Name	Details
COM+	Connects the power supply 24 V for input/output signal
COM–	Connects the power supply 0 V for input/output signal
IN0 to IN3	• Instruction to drive (input as a combination of IN0 to IN3) Example - (instruction to drive for position no. 5) IN3: OFF, IN2: ON, IN1: OFF, IN0: ON • Instruction to return to origin (After the power is turned ON, first turn on IN0 or IN1. Return to origin using IN0: Return to origin by moving to the extended end. Return to origin using IN1: Return to origin by moving to the motor end.)
RESET	Alarm reset and operation interruption During operation: deceleration stop from position at which signal is input (servo ON maintained) While alarm is active: alarm reset
STOP	Instruction to stop (after maximum deceleration stop, servo OFF)

Output Signal

Name	Details
OUT0 to OUT3	• Positioning completion (input as a combination of OUT0 to OUT3) Example - (positioning completion for position no. 3) OUT3: OFF, OUT2: OFF, OUT1: ON, OUT0: ON • Return to origin completion (Completion of return to origin using IN0: Only OUT0 is ON. Completion of return to origin using IN1: Only OUT1 is ON.)
BUSY	Outputs when the actuator is moving
*ALARM Note)	Not output when alarm is active or servo OFF

Note) Signal of negative-logic circuit (N.C.)

Input Signal [IN0 - IN3] Position Number Chart ○: OFF ●: ON

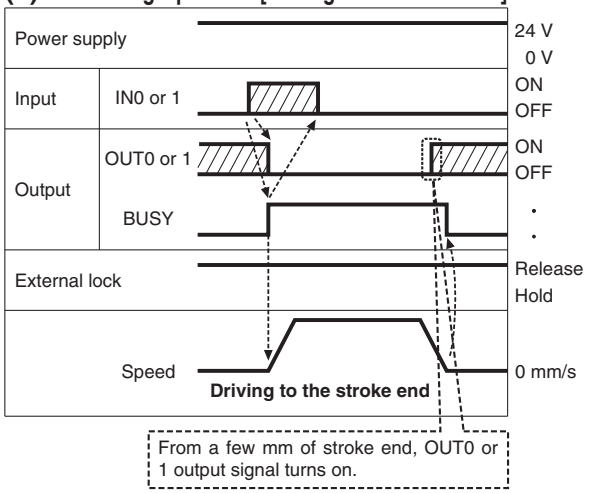
Position number	IN3	IN2	IN1	IN0
1 (End side)	○	○	○	●
2 (Motor side)	○	○	●	○
3	○	○	●	●
4	○	●	○	○
5	○	●	○	●
6	○	●	●	○
7	○	●	●	●
8	●	○	○	○
9	●	○	○	●
10 (A)	●	○	●	○
11 (B)	●	○	●	●
12 (C)	●	●	○	○
13 (D)	●	●	○	●
14 (E)	●	●	●	○

Output Signal [OUT0 - OUT3] Position Number Chart ○: OFF ●: ON

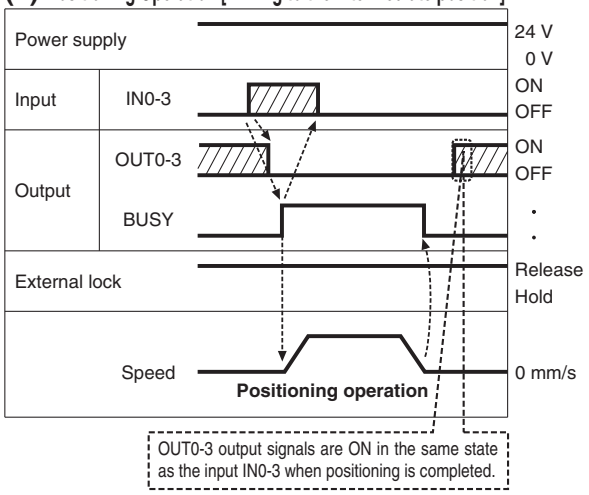
Position number	OUT3	OUT2	OUT1	OUT0
1 (End side)	○	○	○	●
2 (Motor side)	○	○	●	○
3	○	○	●	●
4	○	●	○	○
5	○	●	○	●
6	○	●	●	○
7	○	●	●	●
8	●	○	○	○
9	●	○	○	●
10 (A)	●	○	●	○
11 (B)	●	○	●	●
12 (C)	●	●	○	○
13 (D)	●	●	○	●
14 (E)	●	●	●	○

Signal Timing

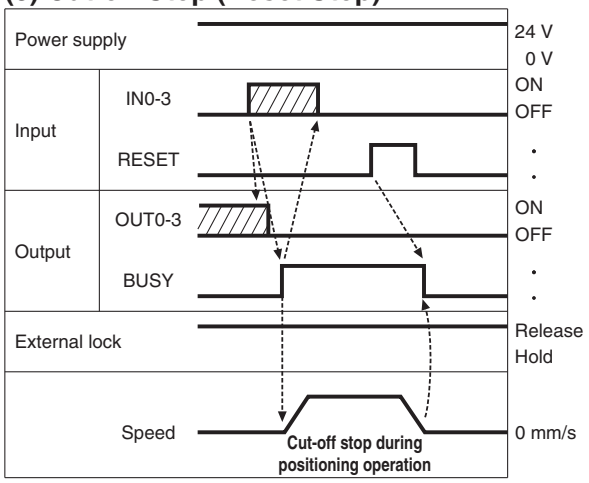
(1) Positioning Operation [Driving to the stroke end]



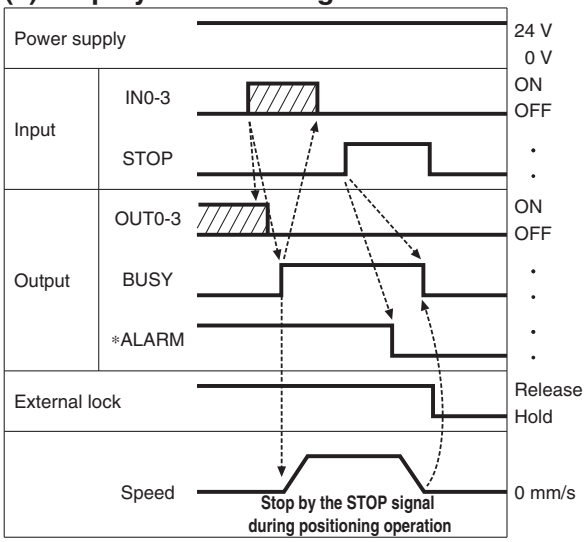
(2) Positioning Operation [Driving to the intermediate position]



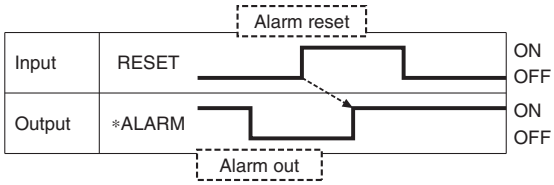
(3) Cut-off Stop (Reset Stop)



(4) Stop by the STOP Signal



(5) Alarm Reset



"∗ALARM" is expressed as negative-logic circuit.

Options: Actuator Cable

[Robotic cable for step motor (Servo/24 VDC), standard cable]

LE – CP – 1 – □

Cable length (L)[m]

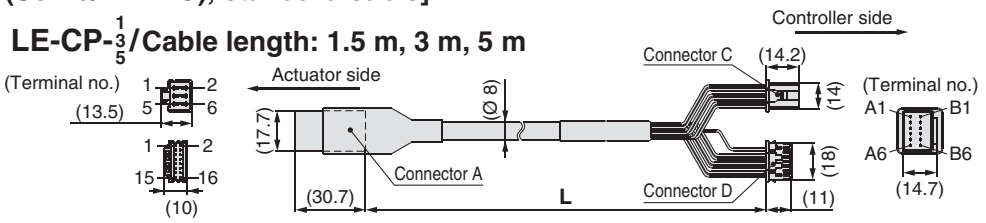
1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

* Produced upon receipt of order (Robotic cable only)

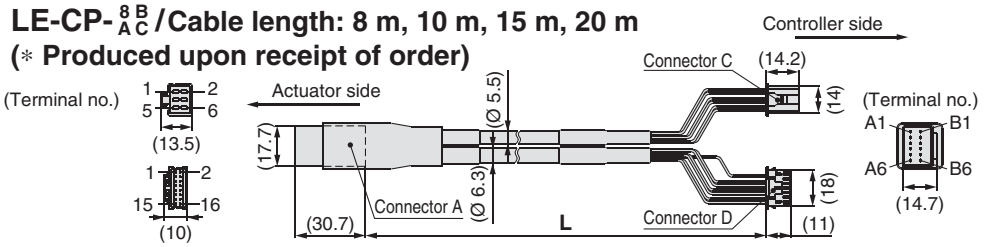
Cable type

—	Robotic cable (Flexible cable)
S	Standard cable

LE-CP-$\frac{1}{3}$/Cable length: 1.5 m, 3 m, 5 m



LE-CP-$\frac{8}{A}\frac{B}{C}$/Cable length: 8 m, 10 m, 15 m, 20 m
(* Produced upon receipt of order)



Circuit	Connector A terminal no.
A	B-1
$\overline{A}$	A-1
B	B-2
$\overline{B}$	A-2
COM-A/COM	B-3
COM-B/–	A-3
Vcc	B-4
GND	A-4
$\overline{A}$	B-5
A	A-5
$\overline{B}$	B-6
B	A-6

Shield

Cable colour	Connector C terminal no.
Brown	2
Red	1
Orange	6
Yellow	5
Green	3
Blue	4

Cable colour	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

[Robotic cable with lock and sensor for step motor (Servo/24 VDC), standard cable]

LE – CP – 1 – B – □

Cable length (L)[m]

1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

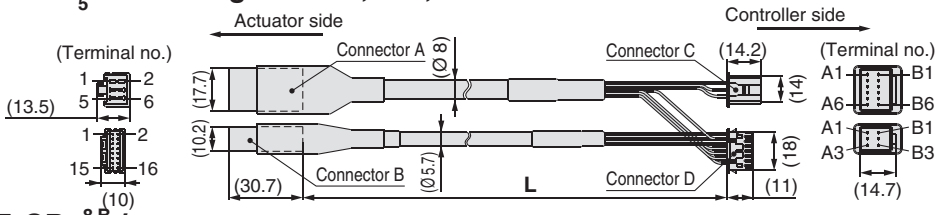
* Produced upon receipt of order (Robotic cable only)

With lock and sensor

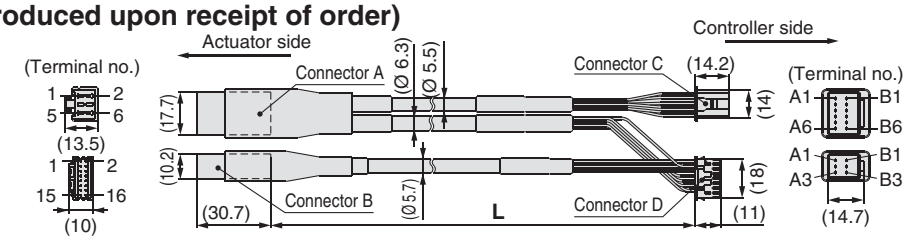
Cable type

—	Robotic cable (Flexible cable)
S	Standard cable

LE-CP-$\frac{1}{3}$/Cable length: 1.5 m, 3 m, 5 m



LE-CP-$\frac{8}{A}\frac{B}{C}$/Cable length: 8 m, 10 m, 15 m, 20 m
(* Produced upon receipt of order)



Circuit	Connector A terminal no.
A	B-1
$\overline{A}$	A-1
B	B-2
$\overline{B}$	A-2
COM-A/COM	B-3
COM-B/–	A-3
Vcc	B-4
GND	A-4
$\overline{A}$	B-5
A	A-5
$\overline{B}$	B-6
B	A-6

Shield

Cable colour	Connector C terminal no.
Brown	2
Red	1
Orange	6
Yellow	5
Green	3
Blue	4

Cable colour	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

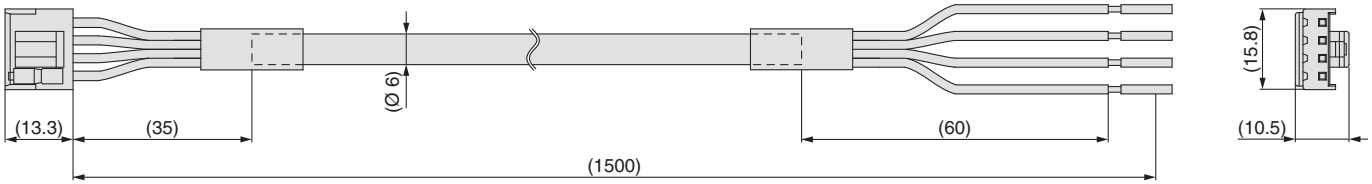
Circuit	Connector B terminal no.
Lock (+)	B-1
Lock (–)	A-1
Sensor (+) Note)	B-3
Sensor (–) Note)	A-3

Red	4
Black	5
Brown	1
Blue	2

Options

[Power supply cable]

LEC−CK1−1



Terminal name	Covered colour	Function
0V	Blue	Common supply (–)
M 24V	White	Motor power supply (+)
C 24V	Brown	Control power supply (+)
BK RLS	Black	Lock release (+)

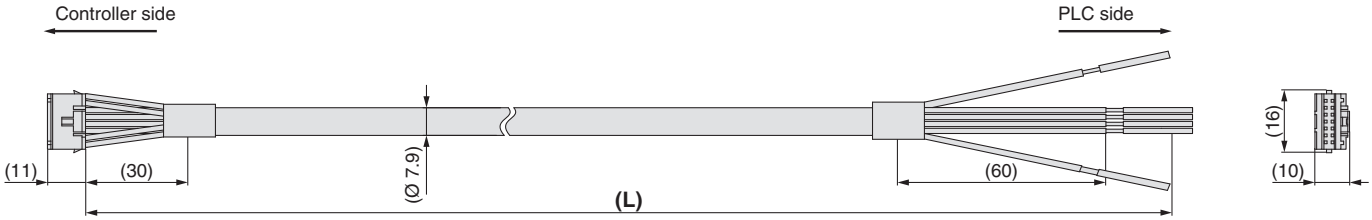
∗ Conductor size: AWG20

[I/O cable]

LEC−CK4−□

Cable length (L) [m]

1	1.5
3	3
5	5



Terminal no.	Insulation colour	Dot mark	Dot colour	Function
1	Light brown	■	Black	COM+
2	Light brown	■	Red	COM–
3	Yellow	■	Black	OUT0
4	Yellow	■	Red	OUT1
5	Light green	■	Black	OUT2
6	Light green	■	Red	OUT3
7	Grey	■	Black	BUSY
8	Grey	■	Red	ALARM
9	White	■	Black	IN0
10	White	■	Red	IN1
11	Light brown	■ ■	Black	IN2
12	Light brown	■ ■	Red	IN3
13	Yellow	■ ■	Black	RESET
14	Yellow	■ ■	Red	STOP

∗ Conductor size: AWG26

∗ Parallel I/O signal is valid in auto mode. While the test function operates at manual mode, only the output is valid.

Programless Controller
Series LECP1

How to Order

LE C P 1 P 1 [ ] – LEMB25T-300

Controller

Compatible motor

P	Step motor (Servo/24 VDC)

Number of step data (Points)

1	14 (Programless)

Parallel I/O type

N	NPN
P	PNP

I/O cable length [m]

—	Without cable
1	1.5
3	3
5	5

Option

—	Screw mounting
D Note)	DIN rail mounting

Note) DIN rail is not included. Order it separately.

Actuator part number

(Except cable specification and actuator options)
Example: Enter "**LEMB25T-300**" for the LEMB25T-300W-S11P1.

∗ **When controller equipped type (-□1N□/-□1P□) is selected when ordering the LE series, you do not need to order this controller.**

⚠ Caution

[CE-compliant products]
EMC compliance was tested by combining the electric actuator LEF series and the controller LEC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.
[UL-compliant products]
When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

The controller is sold as single unit after the compatible actuator is set.
Confirm that the combination of the controller and the actuator is correct.

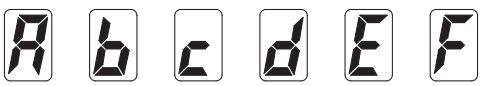
∗ Refer to the Operation Manual for using the products. Please download it via our website, http://www.smc.eu

Specifications

Basic Specifications

Item	LECP1
Compatible motor	Step motor (Servo/24 VDC)
Power supply Note 1)	Power supply voltage: 24 VDC ±10 %, Max. current consumption: 3A (Peak 5A) Note 2) [Including the motor drive power, control power supply, stop, lock release]
Parallel input	6 inputs (Photo-coupler isolation)
Parallel output	6 outputs (Photo-coupler isolation)
Stop points	14 points (Position number 1 to 14(E))
Compatible encoder	Incremental A/B phase (800 pulse/rotation)
Memory	EEPROM
LED indicator	LED (Green/Red) one of each
7-segment LED display Note 3)	1 digit, 7-segment display (Red) Figures are expressed in hexadecimal ("10" to "15" in decimal number are expressed as "A" to "F")
Lock control	Forced-lock release terminal Note 4)
Cable length [m]	I/O cable: 5 or less, Actuator cable: 20 or less
Cooling system	Natural air cooling
Operating temperature range [°C]	0 to 40 (No freezing)
Operating humidity range [%RH]	90 or less (No condensation)
Storage temperature range [°C]	–10 to 60 (No freezing)
Storage humidity range [%RH]	90 or less (No condensation)
Insulation resistance [MΩ]	Between the housing and SG terminal: 50 (500 VDC)
Weight [g]	130 (Screw mounting), 150 (DIN rail mounting)

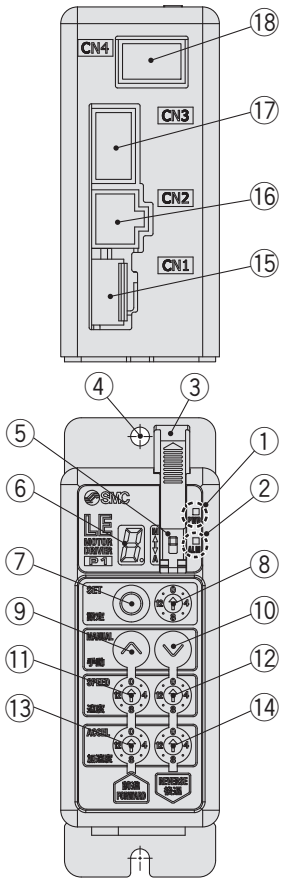
Note 1) Do not use the power supply of "inrush current prevention type" for the controller input power supply. When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.
Note 2) The power consumption changes depending on the actuator model. Refer to the each actuator's operation manual etc. for details.
Note 3) "10" to "15" in decimal number are displayed as follows in the 7-segment LED.



Decimal display	10	11	12	13	14	15
Hexadecimal display	A	b	c	d	E	F

Note 4) Applicable to non-magnetizing lock.

Controller Details



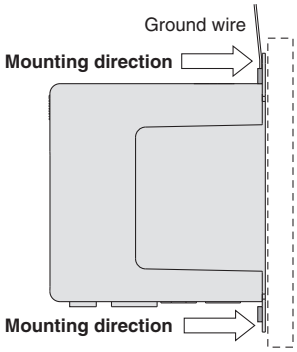
No.	Display	Description	Details
①	**PWR**	Power supply LED	Power supply ON/Servo ON : Green turns on Power supply ON/Servo OFF: Green flashes
②	**ALM**	Alarm LED	With alarm : Red turns on Parameter setting : Red flashes
③	—	Cover	Change and protection of the mode switch (Close the cover after changing switch)
④	—	FG	Frame ground (Tighten the bolt with the nut when mounting the controller. Connect the ground wire.)
⑤	—	Mode switch	Switch the mode between manual and auto.
⑥	—	7-segment LED	Stop position, the value set by ⑧ and alarm information are displayed.
⑦	**SET**	Set button	Decide the settings or drive operation in Manual mode.
⑧	—	Position selecting switch	Assign the position to drive (1 to 14), and the origin position (15).
⑨	**MANUAL**	Manual forward button	Perform forward jog and inching.
⑩		Manual reverse button	Perform reverse jog and inching.
⑪	**SPEED**	Forward speed switch	16 forward speeds are available.
⑫		Reverse speed switch	16 reverse speeds are available.
⑬	**ACCEL**	Forward acceleration switch	16 forward acceleration steps are available.
⑭		Reverse acceleration switch	16 reverse acceleration steps are available.
⑮	**CN1**	Power supply connector	Connect the power supply cable.
⑯	**CN2**	Motor connector	Connect the motor connector.
⑰	**CN3**	Encoder connector	Connect the encoder connector.
⑱	**CN4**	I/O connector	Connect I/O cable.

How to Mount

Controller mounting shown below.

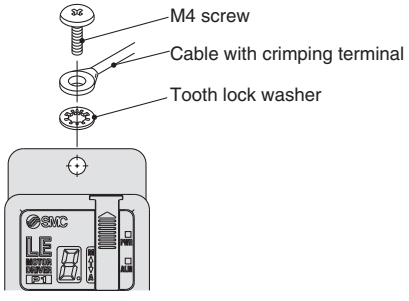
1. Mounting screw (LECP1□□-□)

(Installation with two M4 screws)



2. Grounding

Tighten the bolt with the nut when mounting the ground wire as shown below.



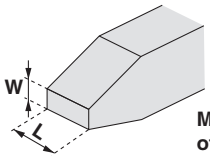
Controller

Note) When size 25 or more of the LE series are used, the space between the controllers should be 10 mm or more.

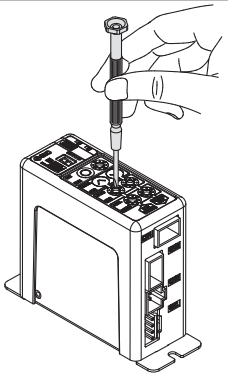
⚠Caution

- M4 screws, cable with crimping terminal and tooth lock washer are not included. Be sure to carry out grounding earth in order to ensure the noise tolerance.
- Use a watchmaker's screwdriver of the size shown below when changing position switch ⑧ and the set value of the speed/acceleration switch ⑪ to ⑭.

Size
End width **L**: 2.0 to 2.4 [mm]
End thickness **W**: 0.5 to 0.6 [mm]

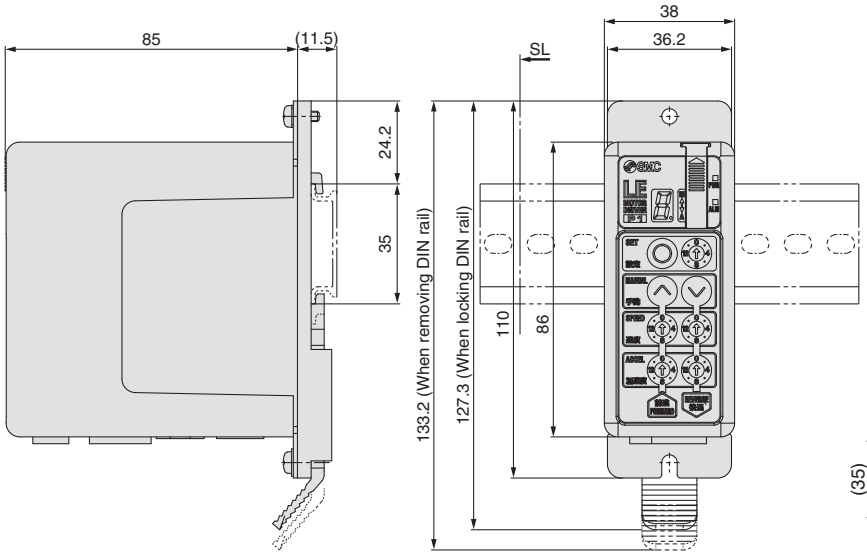


Magnified view of the end of the screwdriver



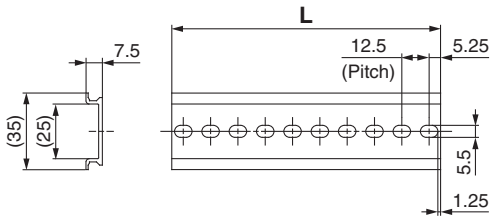
Dimensions

DIN rail mounting (LEC□1□□D-□)



DIN rail
AXT100-DR-□

∗ For □, enter a number from the "No." line in the table below.
Refer to the dimensions above for the mounting dimensions.



L Dimension [mm]

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5	273

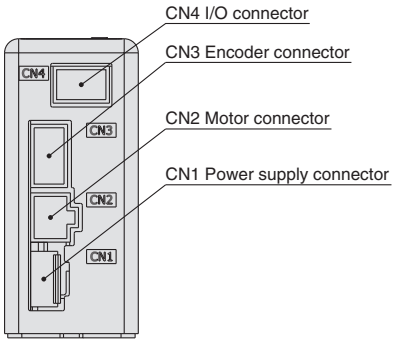
No.	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

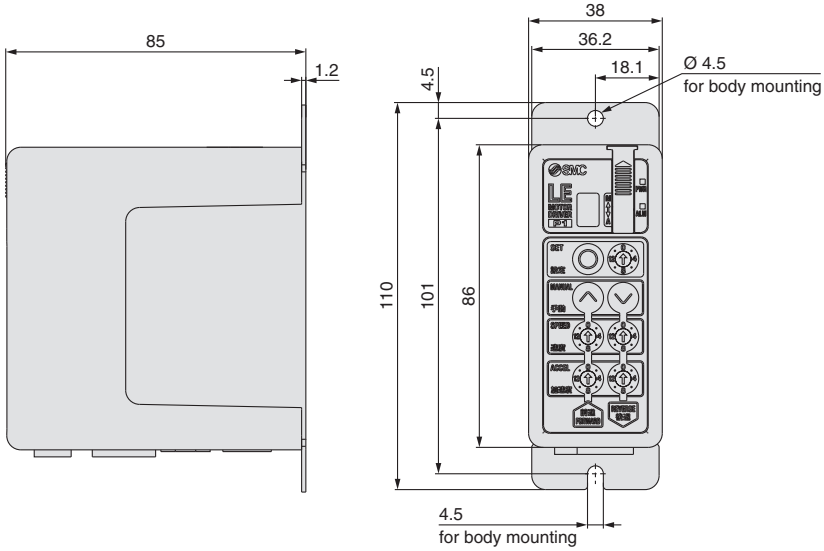
DIN rail mounting adapter

LEC-1-D0 (with 2 mounting screws)

This should be used when the DIN rail mounting adapter is mounted onto the screw mounting type controller afterwards.

Screw mounting (LEC□1□□-□)





Wiring Example 1

Power Supply Connector: CN1

* When you connect a CN1 power supply connector, use the power supply cable (LEC-CK1-1).
* Power supply cable (LEC-CK1-1) is an accessory.

CN1 Power Supply Connector Terminal for LECP1

Terminal name	Cable colour	Function	Details
0V	Blue	Common supply (–)	M 24V terminal/C 24V terminal/BK RLS terminal are common (–).
M 24V	White	Motor power supply (+)	Motor power supply (+) supplied to the controller
C 24V	Brown	Control power supply (+)	Control power supply (+) supplied to the controller
BK RLS	Black	Lock release (+)	Input (+) for releasing the lock

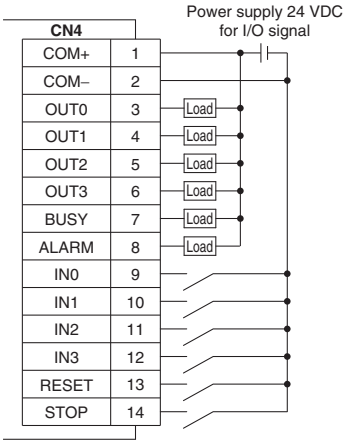
Power supply cable for LECP1 (LEC-CK1-1)

Wiring Example 2

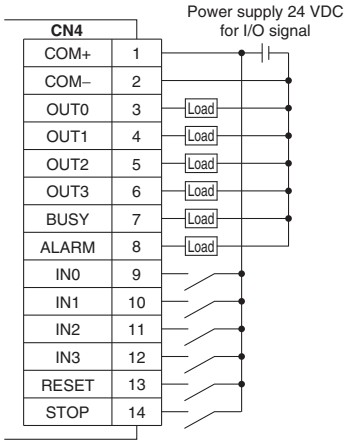
Parallel I/O Connector: CN4

* When you connect a PLC etc., to the CN4 parallel I/O connector, use the I/O cable (LEC-CK4-□).
* The wiring should be changed depending on the type of the parallel I/O (NPN or PNP).

■NPN



■PNP



Input Signal

Name	Details
COM+	Connects the power supply 24 V for input/output signal
COM–	Connects the power supply 0 V for input/output signal
IN0 to IN3	• Instruction to drive (input as a combination of IN0 to IN3) • Instruction to return to origin (IN0 to IN3 all ON simultaneously) Example - (instruction to drive for position no. 5) IN3: OFF, IN2: ON, IN1: OFF, IN0: ON
RESET	Alarm reset and operation interruption During operation: deceleration stop from position at which signal is input (servo ON maintained) While alarm is active: alarm reset
STOP	Instruction to stop (after maximum deceleration stop, servo OFF)

Output Signal

Name	Details
OUT0 to OUT3	Turns on when the positioning or pushing is completed. (Output is instructed in the combination of OUT0 to 3.) Example - (operation complete for position no. 3) OUT3: OFF, OUT2: OFF, OUT1: ON, OUT0: ON
BUSY	Outputs when the actuator is moving
*ALARM Note)	Not output when alarm is active or servo OFF

Note) Signal of negative-logic circuit (N.C.)

Input Signal [IN0 - IN3] Position Number Chart ○: OFF ●: ON

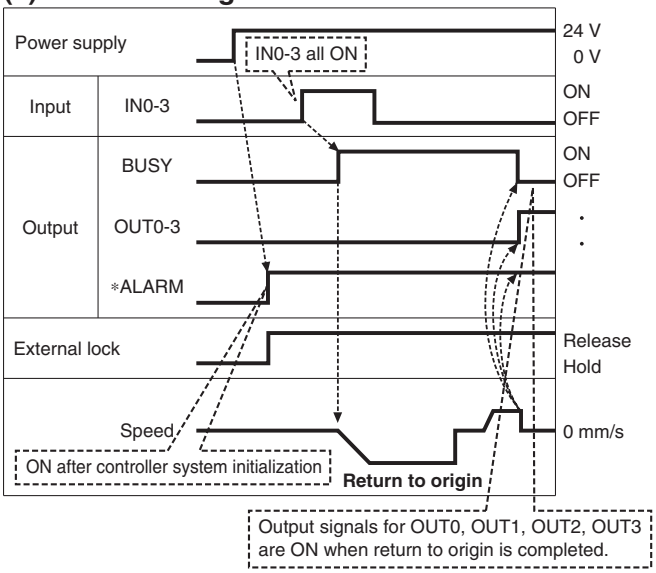
Position number	IN3	IN2	IN1	IN0
1	○	○	○	●
2	○	○	●	○
3	○	○	●	●
4	○	●	○	○
5	○	●	○	●
6	○	●	●	○
7	○	●	●	●
8	●	○	○	○
9	●	○	○	●
10 (A)	●	○	●	○
11 (B)	●	○	●	●
12 (C)	●	●	○	○
13 (D)	●	●	○	●
14 (E)	●	●	●	○
Return to origin	●	●	●	●

Output Signal [OUT0 - OUT3] Position Number Chart ○: OFF ●: ON

Position number	OUT3	OUT2	OUT1	OUT0
1	○	○	○	●
2	○	○	●	○
3	○	○	●	●
4	○	●	○	○
5	○	●	○	●
6	○	●	●	○
7	○	●	●	●
8	●	○	○	○
9	●	○	○	●
10 (A)	●	○	●	○
11 (B)	●	○	●	●
12 (C)	●	●	○	○
13 (D)	●	●	○	●
14 (E)	●	●	●	○
Return to origin	●	●	●	●

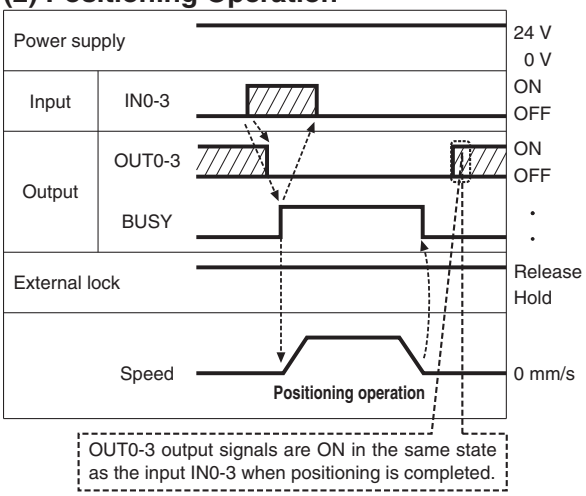
Signal Timing

(1) Return to Origin

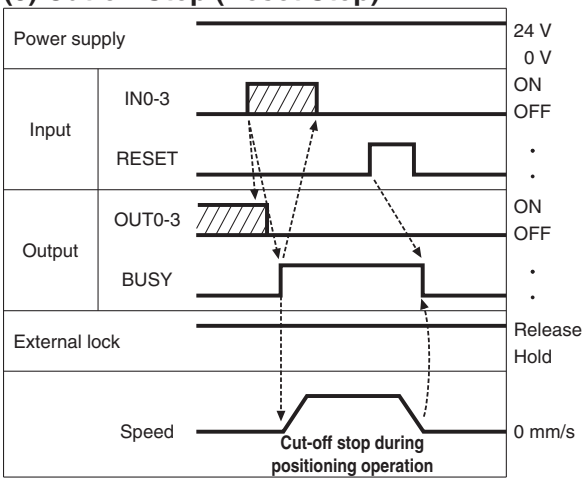


∗ "∗ALARM" is expressed as negative-logic circuit.

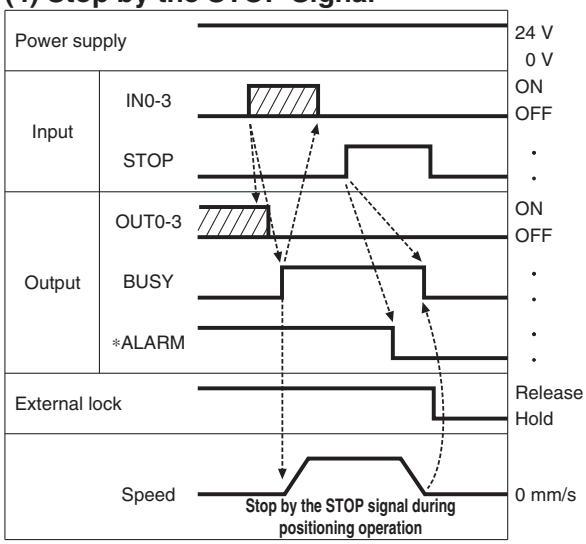
(2) Positioning Operation



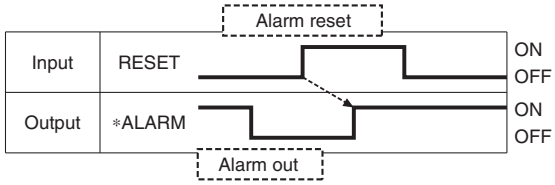
(3) Cut-off Stop (Reset Stop)



(4) Stop by the STOP Signal



(5) Alarm Reset



∗ "∗ALARM" is expressed as negative-logic circuit.

Options: Actuator Cable

[Robotic cable, standard cable for step motor (Servo/24 VDC)]

LE – CP – 1 – ☐

Cable length (L) [m]

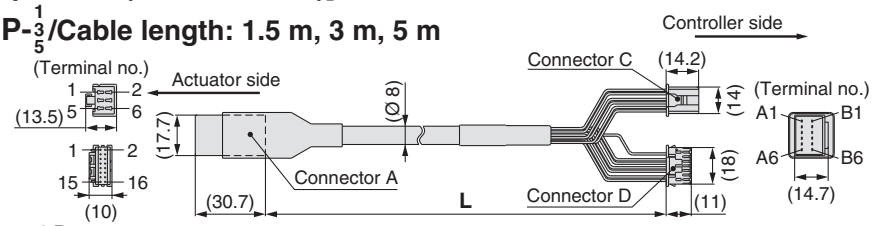
1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

* Produced upon receipt of order (Robotic cable only)

Cable type

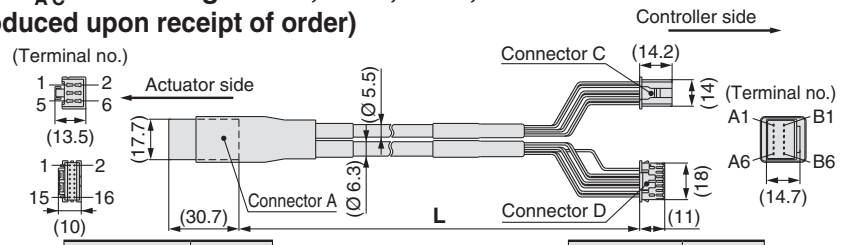
—	Robotic cable (Flexible cable)
S	Standard cable

LE-CP-1/3/5/Cable length: 1.5 m, 3 m, 5 m



LE-CP-8/A/B/C/Cable length: 8 m, 10 m, 15 m, 20 m

(* Produced upon receipt of order)



Signal	Connector A terminal no.
A	B-1
$\overline{A}$	A-1
B	B-2
$\overline{B}$	A-2
COM-A/COM	B-3
COM-B/—	A-3
Vcc	B-4
GND	A-4
A	B-5
A	A-5
B	B-6
B	A-6

Shield

Cable colour	Connector C terminal no.
Brown	2
Red	1
Orange	6
Yellow	5
Green	3
Blue	4

Cable colour	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

[Robotic cable, standard cable with lock and sensor for step motor (Servo/24 VDC)]

LE – CP – 1 – B – ☐

Cable length (L) [m]

1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

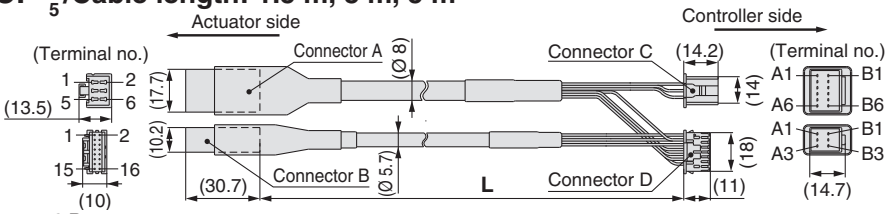
* Produced upon receipt of order (Robotic cable only)

With lock and sensor

Cable type

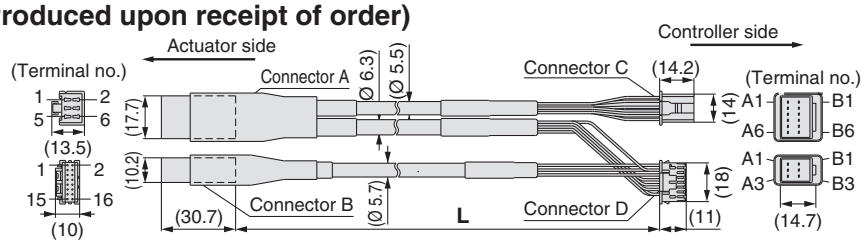
—	Robotic cable (Flexible cable)
S	Standard cable

LE-CP-1/3/5/Cable length: 1.5 m, 3 m, 5 m



LE-CP-8/A/B/C/Cable length: 8 m, 10 m, 15 m, 20 m

(* Produced upon receipt of order)



Signal	Connector A terminal no.
A	B-1
$\overline{A}$	A-1
B	B-2
$\overline{B}$	A-2
COM-A/COM	B-3
COM-B/—	A-3
Vcc	B-4
GND	A-4
$\overline{A}$	B-5
A	A-5
$\overline{B}$	B-6
B	A-6

Shield

Cable colour	Connector C terminal no.
Brown	2
Red	1
Orange	6
Yellow	5
Green	3
Blue	4

Cable colour	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

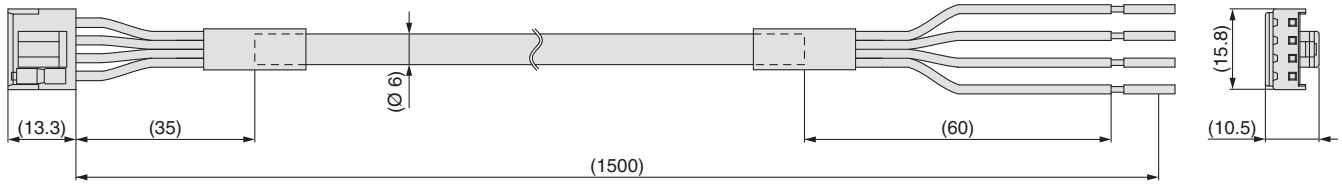
Signal	Connector B terminal no.
Lock (+)	B-1
Lock (–)	A-1
Sensor (+) Note)	B-3
Sensor (–) Note)	A-3

Red	4
Black	5
Brown	1
Blue	2

Options

[Power supply cable]

LEC−CK1−1



Terminal name	Covered colour	Function
0V	Blue	Common supply (–)
M 24V	White	Motor power supply (+)
C 24V	Brown	Control power supply (+)
BK RLS	Black	Lock release (+)

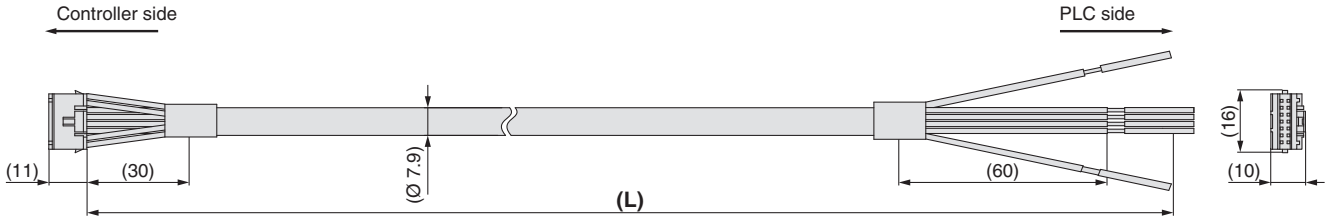
∗ Conductor size: AWG20

[I/O cable]

LEC−CK4−□

Cable length (L) [m]

1	1.5
3	3
5	5



Terminal no.	Insulation colour	Dot mark	Dot colour	Function
1	Light brown	■	Black	COM+
2	Light brown	■	Red	COM–
3	Yellow	■	Black	OUT0
4	Yellow	■	Red	OUT1
5	Light green	■	Black	OUT2
6	Light green	■	Red	OUT3
7	Grey	■	Black	BUSY
8	Grey	■	Red	ALARM
9	White	■	Black	IN0
10	White	■	Red	IN1
11	Light brown	■ ■	Black	IN2
12	Light brown	■ ■	Red	IN3
13	Yellow	■ ■	Black	RESET
14	Yellow	■ ■	Red	STOP

∗ Conductor size: AWG26

∗ Parallel I/O signal is valid in auto mode. While the test function operates at manual mode, only the output is valid.

Step Data Input Type
Step Motor (Servo/24 VDC)
Series LECP6

Series LECP6

How to Order

⚠Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LE series and the controller LEC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.

[UL-compliant products]

When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

LE C P 6 P □ □ – □

Controller

Compatible motor

P	Step motor (Servo/24 VDC)

Number of step data (Points)

6	64

Parallel I/O type

N	NPN
P	PNP

I/O cable length [m]

—	Without cable
1	1.5
3	3
5	5

Actuator part number

Part number except cable specifications and actuator options
Example: Enter "**LEMB25T-300**" for the LEMB25T-300W-S16P1.

BC	Blank controller Note)

Note) The dedicated software (LEC-BCW) is required.

Option

—	Screw mounting
D Note)	DIN rail mounting

Note) DIN rail is not included. Order it separately.

∗ When controller equipped type is selected when ordering the LE series, you do not need to order this controller.

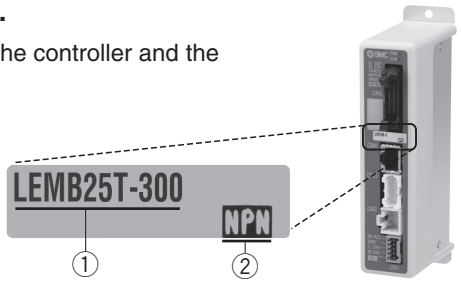
The controller is sold as single unit after the compatible actuator is set.

Confirm that the combination of the controller and the actuator is correct.

<Check the following before use.>

① Check the actuator label for model number. This matches the controller.

② Check Parallel I/O configuration matches (NPN or PNP).



∗ Refer to the operation manual for using the products. Please download it via our website, http://www.smc.eu

Precautions on blank controller (LECP6□□-BC)

Blank controller is a controller to which the customer can write the data of the actuator to be combined and used. Use the dedicated software (LEC-BCW) for data writing.

- Please download the dedicated software (LEC-BCW) via our website.
- Order the controller setting kit (LEC-W2) separately to use this software.

SMC website
http://www.smc.eu

Specifications

Basic Specifications

Item	LECP6
Compatible motor	Step motor (Servo/24 VDC)
Power supply Note 1)	Power voltage: 24 VDC ±10 % Note 2) [Including motor drive power, control power, stop, lock release]
Parallel input	11 inputs (Photo-coupler isolation)
Parallel output	13 outputs (Photo-coupler isolation)
Compatible encoder	Incremental A/B phase (800 pulse/rotation)
Serial communication	RS485 (Modbus protocol compliant)
Memory	EEPROM
LED indicator	LED (Green/Red) one of each
Lock control	Forced-lock release terminal Note 3)
Cable length [m]	I/O cable: 5 or less, Actuator cable: 20 or less
Cooling system	Natural air cooling
Operating temperature range [°C]	0 to 40 (No freezing)
Operating humidity range [%RH]	90 or less (No condensation)
Storage temperature range [°C]	–10 to 60 (No freezing)
Storage humidity range [%RH]	90 or less (No condensation)
Insulation resistance [MΩ]	Between the housing and SG terminal: 50 (500 VDC)
Weight [g]	150 (Screw mounting), 170 (DIN rail mounting)

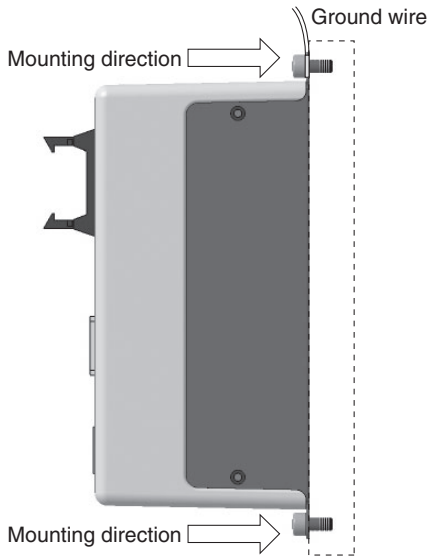
Note 1) Do not use the power supply of "inrush current prevention type" for the controller power supply. When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Note 2) The power consumption changes depending on the actuator model. Refer to the specifications of actuator for more details.

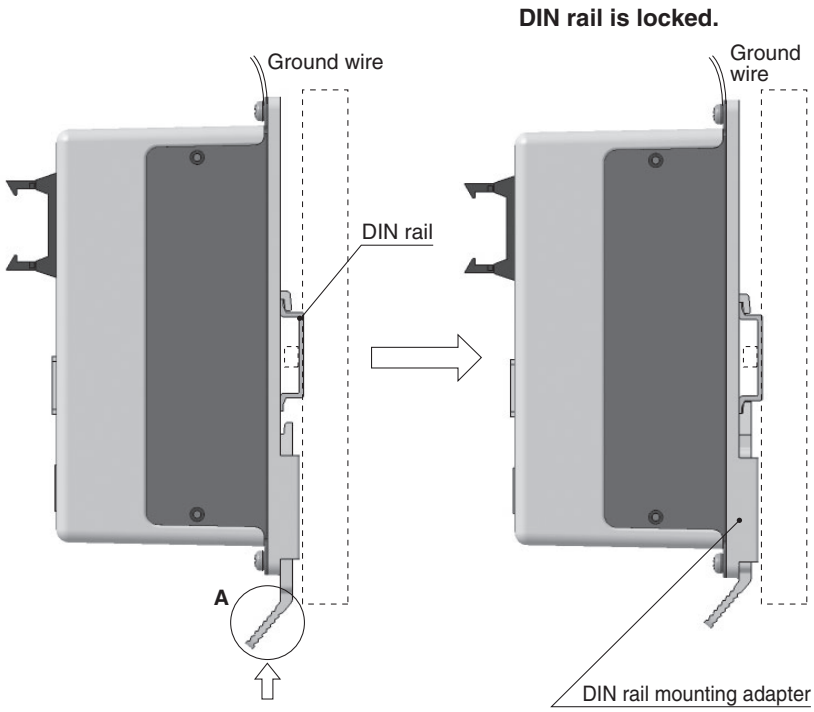
Note 3) Applicable to non-magnetizing lock.

How to Mount

a) Screw mounting (LECP6□□-□)
(Installation with two M4 screws)



b) DIN rail mounting (LECP6□□D-□)
(Installation with the DIN rail)

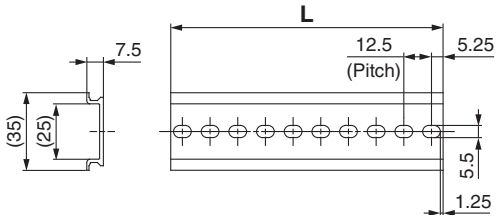


Hook the controller on the DIN rail and press the lever of section **A** in the arrow direction to lock it.

Note) When size 25 or more of the LE series are used, the space between the controllers should be 10 mm or more.

DIN rail
AXT100-DR-□

∗ For □, enter a number from the "No." line in the table below.
Refer to the dimensions on page 63 for the mounting dimensions.



L Dimension [mm]

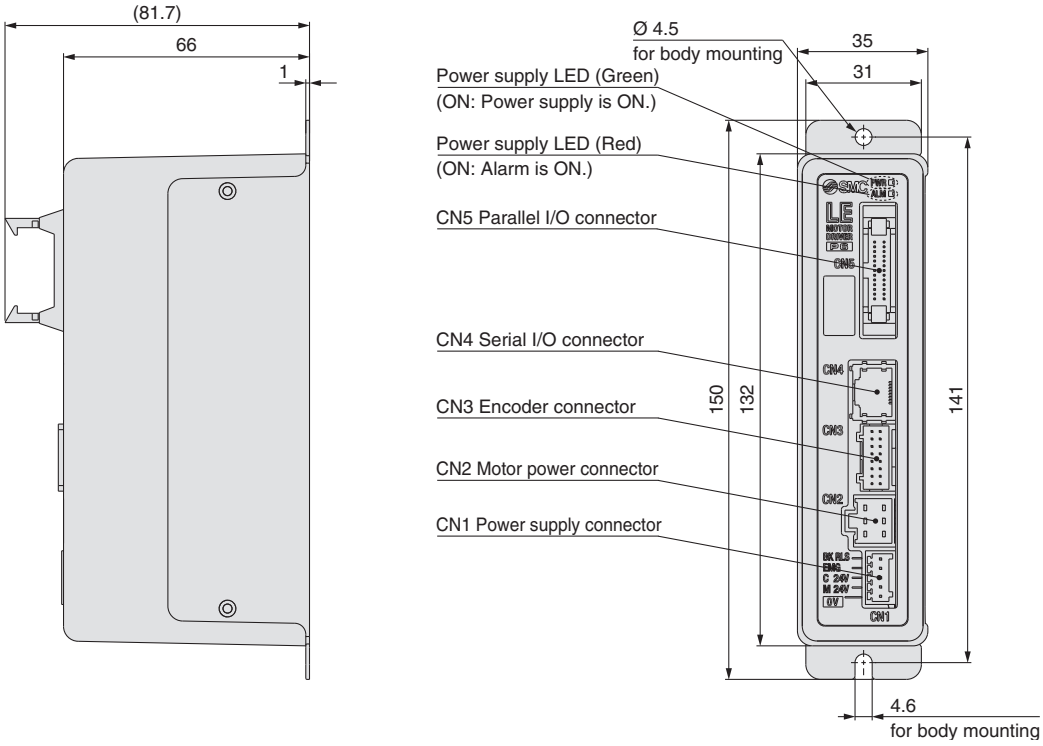
No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5
No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

DIN rail mounting adapter
LEC-D0 (with 2 mounting screws)

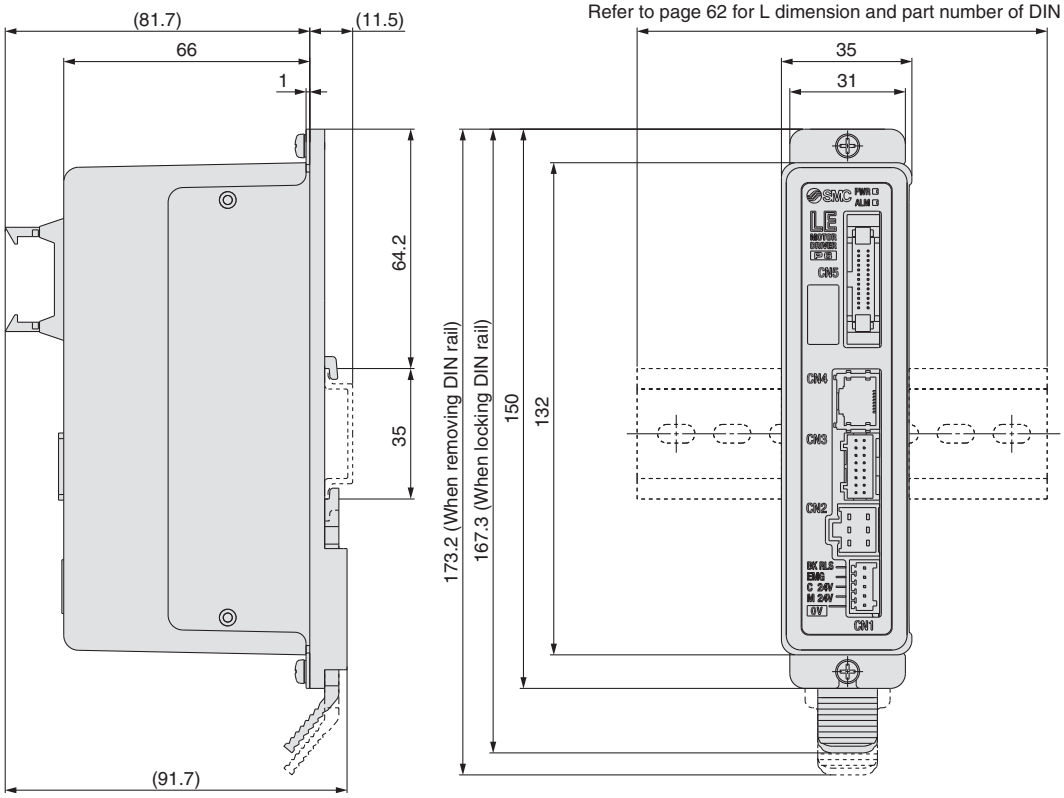
This should be used when the DIN rail mounting adapter is mounted onto the screw mounting type controller afterward.

Dimensions

a) Screw mounting (LECP6□□-□)



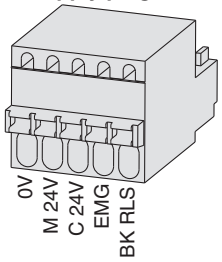
b) DIN rail mounting (LECP6□□D-□)



Wiring Example 1

Power Supply Connector: CN1 ∗ Power supply plug is an accessory.

Power supply plug for LECP6



CN1 Power Supply Connector Terminal for LECP6 (PHOENIX CONTACT FK-MC0.5/5-ST-2.5)

Terminal name	Function	Details
0V	Common supply (–)	M 24V terminal/C 24V terminal/EMG terminal/BK RLS terminal are common (–).
M 24V	Motor power supply (+)	Motor power supply (+) supplied to the controller
C 24V	Control power supply (+)	Control power supply (+) supplied to the controller
EMG	Stop (+)	Input (+) for releasing the stop
BK RLS	Lock release (+)	Input (+) for releasing the lock

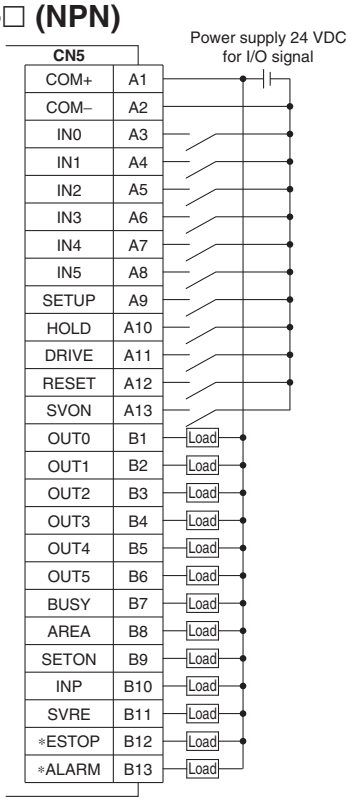
Wiring Example 2

Parallel I/O Connector: CN5

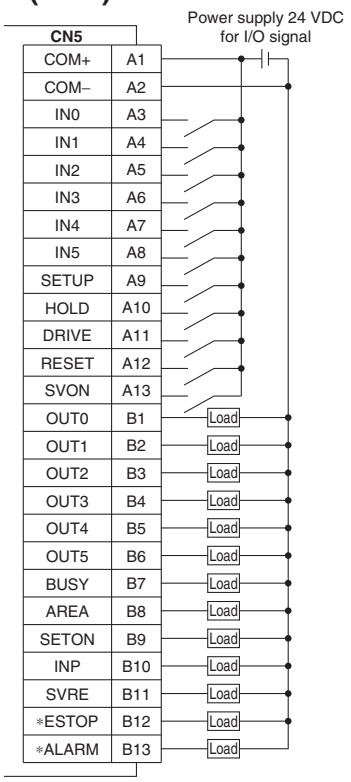
∗ When you connect a PLC etc., to the CN5 parallel I/O connector, use the I/O cable (LEC-CN5-□).
∗ The wiring should be changed depending on the type of the parallel I/O (NPN or PNP).

Wiring diagram

LECP6N□□-□ (NPN)



LECP6P□□-□ (PNP)



Input Signal

Name	Details
COM+	Connects the power supply 24 V for input/output signal
COM–	Connects the power supply 0 V for input/output signal
IN0 to IN5	Step data specified Bit No. (Input is instructed in the combination of IN0 to 5.)
SETUP	Instruction to return to origin
HOLD	Operation is temporarily stopped
DRIVE	Instruction to drive
RESET	Alarm reset and operation interruption
SVON	Servo ON instruction

Output Signal

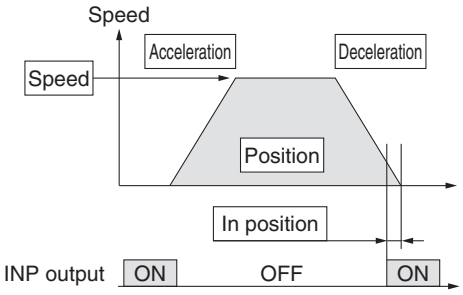
Name	Details
OUT0 to OUT5	Outputs the step data no. during operation
BUSY	Outputs when the actuator is moving
AREA	Outputs within the step data area output setting range
SETON	Outputs when returning to origin
INP	Outputs when target position or target force is reached (Turns on when the positioning or pushing is completed.)
SVRE	Outputs when servo is on
∗ESTOP Note)	Not output when EMG stop is instructed
∗ALARM Note)	Not output when alarm is generated

Note) Signal of negative-logic circuit (N.C.)

Step Data Setting

1. Step data setting for positioning

In this setting, the actuator moves toward and stops at the target position.
The following diagram shows the setting items and operation.
The setting items and set values for this operation are stated below.



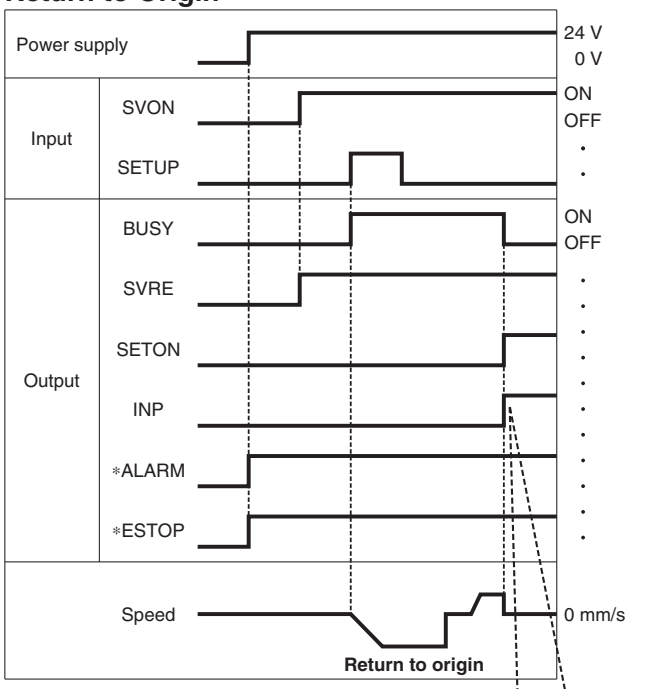
◎: Need to be set.
○: Need to be adjusted as required.
—: Setting is not required.

Step Data (Positioning)

Necessity	Item	Details
◎	Movement MOD	When the absolute position is required, set Absolute. When the relative position is required, set Relative.
◎	Speed	Transfer speed to the target position
◎	Position	Target position
○	Acceleration	Parameter which defines how rapidly the actuator reaches the speed set. The higher the set value, the faster it reaches the speed set.
○	Deceleration	Parameter which defines how rapidly the actuator comes to stop. The higher the set value, the quicker it stops.
◎	Pushing force	Set 0. (If values 1 to 100 are set, the operation will be changed to the pushing operation.)
—	Trigger LV	Setting is not required.
—	Pushing speed	Setting is not required.
○	Moving force	Max. torque during the positioning operation (No specific change is required.)
○	Area 1, Area 2	Condition that turns on the AREA output signal.
○	In position	Condition that turns on the INP output signal. When the actuator enters the range of [in position], the INP output signal turns on. (It is unnecessary to change this from the initial value.) When it is necessary to output the arrival signal before the operation is completed, make the value larger.

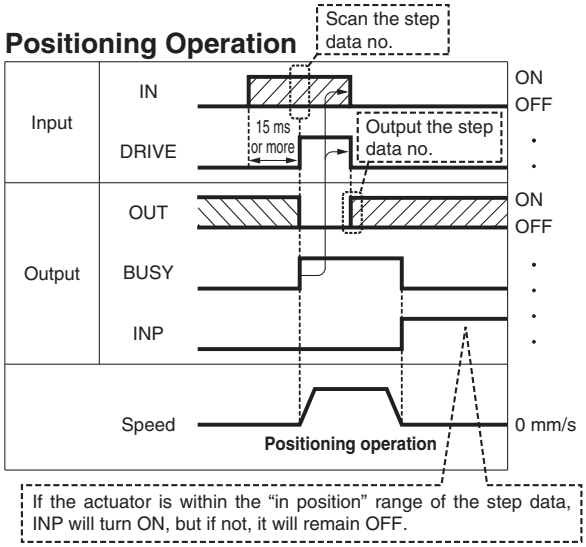
Signal Timing

Return to Origin



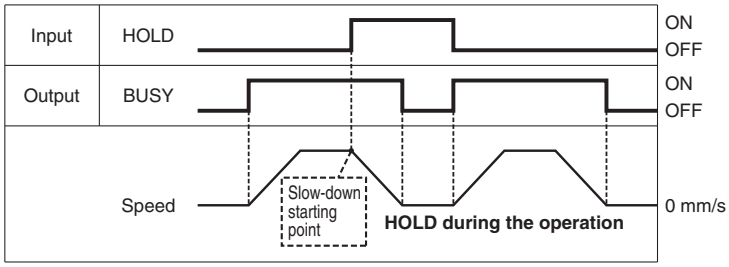
∗ "∗ALARM" and "∗ESTOP" are expressed as negative-logic circuit.

Positioning Operation



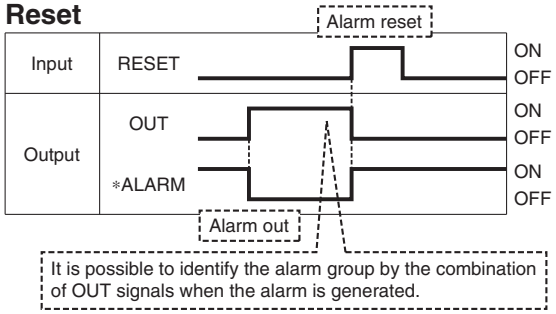
∗ "OUT" is output when "DRIVE" is changed from ON to OFF.
(When power supply is applied, "DRIVE" or "RESET" is turned ON or "∗ESTOP" is turned OFF, all of the "OUT" outputs are OFF.)

HOLD



∗ When the actuator is in the positioning range in the pushing operation, it does not stop even if HOLD signal is input.

Reset



∗ "∗ALARM" is expressed as negative-logic circuit.

Options: Actuator Cable

[Robotic cable, standard cable for step motor (Servo/24 VDC)]

LE – CP – 1 – ☐

Cable length (L) [m]

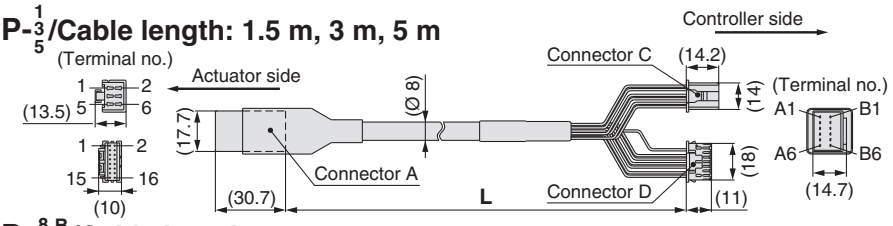
1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

* Produced upon receipt of order (Robotic cable only)

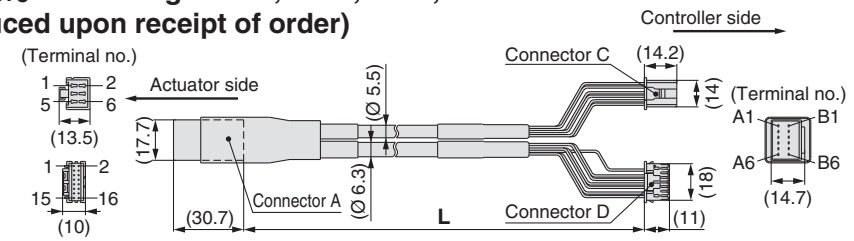
Cable type

—	Robotic cable (Flexible cable)
S	Standard cable

LE-CP-$^{1}_{3}$$_{5}$/Cable length: 1.5 m, 3 m, 5 m



LE-CP-$^{8}_{A}$ $^{B}_{C}$/Cable length: 8 m, 10 m, 15 m, 20 m
(* Produced upon receipt of order)



Signal	Connector A terminal no.	Cable colour	Connector C terminal no.
A	B-1	Brown	2
$\overline{A}$	A-1	Red	1
B	B-2	Orange	6
$\overline{B}$	A-2	Yellow	5
COM-A/COM	B-3	Green	3
COM-B/—	A-3	Blue	4
		Shield	
Vcc	B-4	Brown	12
GND	A-4	Black	13
$\overline{A}$	B-5	Red	7
A	A-5	Black	6
$\overline{B}$	B-6	Orange	9
B	A-6	Black	8
		—	3

Cable colour	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

[Robotic cable, standard cable with lock and sensor for step motor (Servo/24 VDC)]

LE – CP – 1 – B – ☐

Cable length (L) [m]

1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

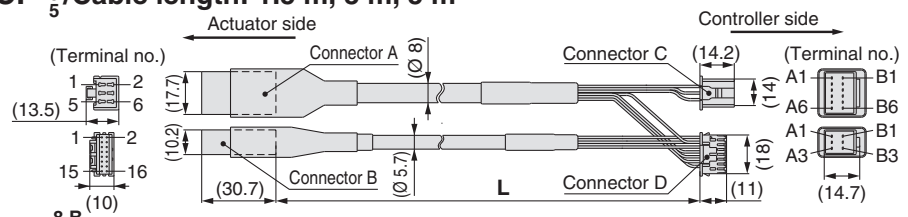
* Produced upon receipt of order (Robotic cable only)

With lock and sensor

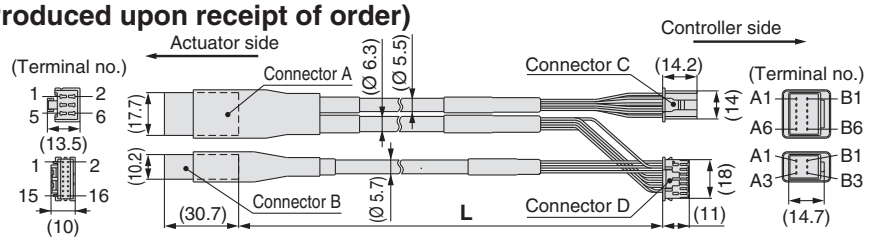
Cable type

—	Robotic cable (Flexible cable)
S	Standard cable

LE-CP-$^{1}_{3}$$_{5}$/Cable length: 1.5 m, 3 m, 5 m



LE-CP-$^{8}_{A}$ $^{B}_{C}$/Cable length: 8 m, 10 m, 15 m, 20 m
(* Produced upon receipt of order)



Signal	Connector A terminal no.	Cable colour	Connector C terminal no.
A	B-1	Brown	2
$\overline{A}$	A-1	Red	1
B	B-2	Orange	6
$\overline{B}$	A-2	Yellow	5
COM-A/COM	B-3	Green	3
COM-B/—	A-3	Blue	4
		Shield	
Vcc	B-4	Brown	12
GND	A-4	Black	13
$\overline{A}$	B-5	Red	7
A	A-5	Black	6
$\overline{B}$	B-6	Orange	9
B	A-6	Black	8
		—	3

Cable colour	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

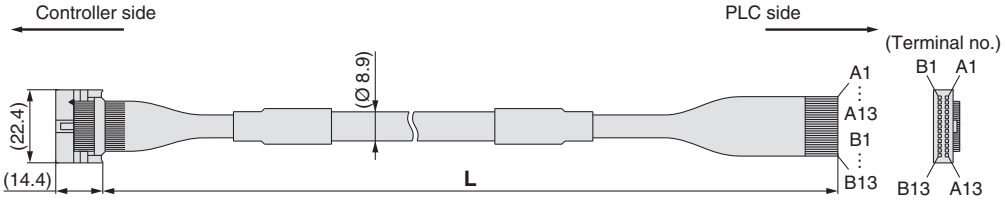
Signal	Connector B terminal no.		
Lock (+)	B-1	Red	4
Lock (–)	A-1	Black	5
Sensor (+) Note)	B-3	Brown	1
Sensor (–) Note)	A-3	Blue	2

Option: I/O Cable

LEC − CN5 − 1

Cable length (L) [m]

1	1.5
3	3
5	5



Connector pin no.	Insulation colour	Dot mark	Dot colour
A1	Light brown	■	Black
A2	Light brown	■	Red
A3	Yellow	■	Black
A4	Yellow	■	Red
A5	Light green	■	Black
A6	Light green	■	Red
A7	Grey	■	Black
A8	Grey	■	Red
A9	White	■	Black
A10	White	■	Red
A11	Light brown	■ ■	Black
A12	Light brown	■ ■	Red
A13	Yellow	■ ■	Black

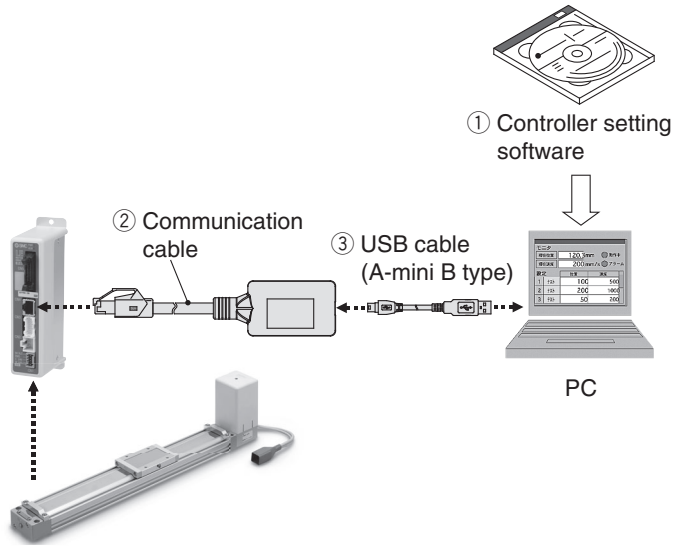
Connector pin no.	Insulation colour	Dot mark	Dot colour
B1	Yellow	■ ■	Red
B2	Light green	■ ■	Black
B3	Light green	■ ■	Red
B4	Grey	■ ■	Black
B5	Grey	■ ■	Red
B6	White	■ ■	Black
B7	White	■ ■	Red
B8	Light brown	■ ■ ■	Black
B9	Light brown	■ ■ ■	Red
B10	Yellow	■ ■ ■	Black
B11	Yellow	■ ■ ■	Red
B12	Light green	■ ■ ■	Black
B13	Light green	■ ■ ■	Red
—	Shield		

∗ Conductor size: AWG28

Series LEC

Windows®XP, Windows®7 compatible

Controller Setting Kit/LEC-W2



How to Order

LEC – W2

Controller setting kit
(Japanese and English are available.)

Contents

	Description	Model*
①	Controller setting software (CD-ROM)	LEC-W2-S
②	Communication cable	LEC-W2-C
③	USB cable (between the PC and the communication cable)	LEC-W2-U

* Can be ordered separately.

Compatible Controller/Driver

Step data input type — ***Series LECP6***

Pulse input type — ***Series LECPA***

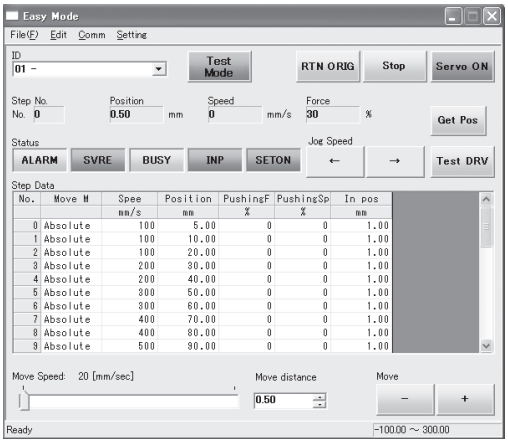
Hardware Requirements

OS	IBM PC/AT compatible machine running Windows®XP (32-bit), Windows®7 (32-bit and 64-bit), Windows®8.1 (32-bit and 64-bit).
Communication interface	USB 1.1 or USB 2.0 ports
Display	XGA (1024 x 768) or more

* Windows®XP, Windows®7 and Windows®8.1 are registered trademarks of Microsoft Corporation in the United States.
* Refer to SMC website for version upgrade information, http://www.smc.eu

Screen Example

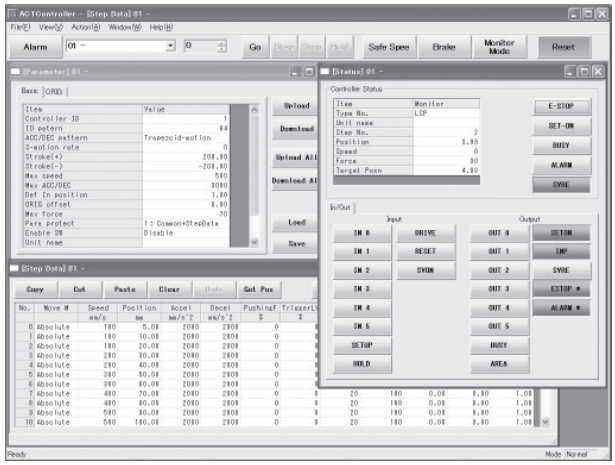
Easy mode screen example



Easy operation and simple setting

- Allowing to set and display actuator step data such as position, speed, force, etc.
- Setting of step data and testing of the drive can be performed on the same page.
- Can be used to jog and move at a constant rate.

Normal mode screen example



Detailed setting

- Step data can be set in detail.
- Signals and terminal status can be monitored.
- Parameters can be set.
- JOG and constant rate movement, return to origin, test operation and testing of forced output can be performed.

SMC

Teaching Box/LEC-T1

How to Order

LEC-T1-3EG

Teaching box

Cable length [m]

3	3

Initial language

J	Japanese
E	English

∗ The displayed language can be changed to English or Japanese.

Stop switch

G	Equipped with stop switch

Enable switch

—	None
S	Equipped with enable switch

∗ Interlock switch for jog and test function

Standard functions
- **Chinese character display**
- **Stop switch is provided.**

Option
- **Enable switch is provided.**

Specifications

Item	Description
Switch	Stop switch, Enable switch (Option)
Cable length [m]	3
Enclosure	IP64 (Except connector)
Operating temperature range [°C]	5 to 50
Operating humidity range [%RH]	90 or less (No condensation)
Weight [g]	350 (Except cable)

[CE-compliant products]
The EMC compliance of the teaching box was tested with the LECP6 series step motor controller (servo/24 VDC) and an applicable actuator.
[UL-compliant products]
When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Easy Mode

Function	Details
Step data	• Setting of step data
Jog	• Jog operation • Return to origin
Test	• 1 step operation • Return to origin
Monitor	• Display of axis and step data no. • Display of two items selected from Position, Speed, Force.
ALM	• Active alarm display • Alarm reset
TB setting	• Reconnection of axis (Ver. 1.∗∗) • Displayed language setting (Ver. 2.∗∗) • Setting of easy/normal mode • Setting step data and selection of items from easy mode monitor

Menu Operations Flowchart

Menu
- Data
- Monitor
- Jog
- Test
- ALM
- TB setting

Data
Step data no.
Setting of two items selected below
Ver. 1.∗∗:
Position, Speed, Force, Acceleration, Deceleration
Ver. 2.∗∗:
Position, Speed, Pushing force, Acceleration, Deceleration, Movement MOD, Trigger LV, Pushing speed, Moving force, Area 1, Area 2, In position

Monitor
Display of step no.
Display of two items selected below
(Position, Speed, Force)

Jog
Return to origin
Jog operation

Test
1 step operation

ALM
Active alarm display
Alarm reset

TB setting
Reconnect (Ver. 1.∗∗)
Japanese/English (Ver. 2.∗∗)
Easy/Normal
Set item

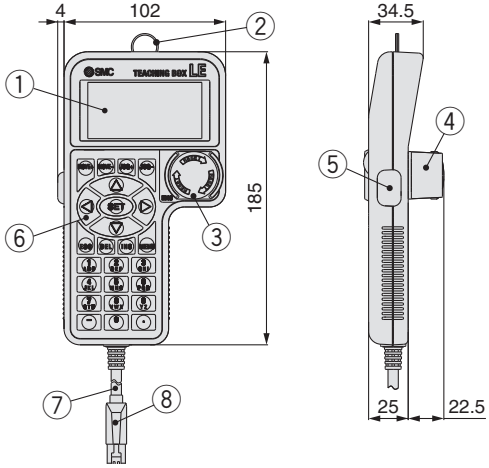
Normal Mode

Function	Details
Step data	• Step data setting
Parameter	• Parameters setting
Test	• Jog operation/Constant rate movement • Return to origin • Test drive (Specify a maximum of 5 step data and operate.) • Forced output (Forced signal output, Forced terminal output)
Monitor	• Drive monitor • Output signal monitor • Input signal monitor • Output terminal monitor • Input terminal monitor
ALM	• Active alarm display (Alarm reset) • Alarm log record display
File	• Data saving Save the step data and parameters of the controller which is being used for communication (it is possible to save four files, with one set of step data and parameters defined as one file). • Load to controller Loads the data which is saved in the teaching box to the controller which is being used for communication. • Delete the saved data. • File protection (Ver. 2.**)
TB setting	• Display setting (Easy/Normal mode) • Language setting (Japanese/English) • Backlight setting • LCD contrast setting • Beep sound setting • Max. connection axis • Distance unit (mm/inch)
Reconnect	• Reconnection of axis

Menu Operations Flowchart

- **Menu**
  - Step data
  - Parameter
  - Monitor
  - Test
  - ALM
  - File
  - TB setting
  - Reconnect
- **Step data**
  - Step data no.
  - Movement MOD
  - Speed
  - Position
  - Acceleration
  - Deceleration
  - Pushing force
  - Trigger LV
  - Pushing speed
  - Moving force
  - Area 1, 2
  - In position
- **Parameter**
  - Basic
  - ORIG
  - **Basic setting**
  - **ORIG setting**
- **Monitor**
  - Drive
  - Output signal
  - Input signal
  - Output terminal
  - Input terminal
  - **DRV monitor**
    - Position, Speed, Torque
    - Step no.
    - Last step no.
  - **Output signal monitor**
  - **Input signal monitor**
  - **Output terminal monitor**
  - **Input terminal monitor**
- **Test**
  - JOG/MOVE
  - Return to ORIG
  - Test drive
  - Forced output
- **ALM**
  - Status
  - ALM Log record
  - **Status**
    - Active alarm display
    - Alarm reset
  - **ALM Log record display**
    - Log entry display
- **File**
  - Data saving
  - Load to controller
  - File deletion
  - File protection (Ver. 2.**)
- **TB setting**
  - Easy/Normal
  - Language
  - Backlight
  - LCD contrast
  - Beep
  - Max. connection axis
  - Password
  - Distance unit
- **Reconnect**

Dimensions



No.	Description	Function
1	**LCD**	A screen of liquid crystal display (with backlight)
2	**Ring**	A ring for hanging the teaching box
3	**Stop switch**	When switch is pushed in, the switch locks and stops. The lock is released when it is turned to the right.
4	**Stop switch guard**	A guard for the stop switch
5	**Enable switch (Option)**	Prevents unintentional operation (unexpected operation) of the jog test function. Other functions such as data change are not covered.
6	**Key switch**	Switch for each input
7	**Cable**	Length: 3 meters
8	**Connector**	A connector connected to CN4 of the controller

Gateway Unit
Series LEC-G

How to Order

⚠ Caution

[CE-compliant products]
EMC compliance was tested by combining the electric actuator LE series and the controller LEC series. The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.

[UL-compliant products]
When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Gateway unit **LEC-G MJ2 □**

Applicable Fieldbus protocols

MJ2	CC-Link Ver. 2.0
DN1	DeviceNet™
PR1	PROFIBUS DP
EN1	EtherNet/IP™

Mounting

—	Screw mounting
D Note)	DIN rail mounting

Note) DIN rail is not included. Order it separately.

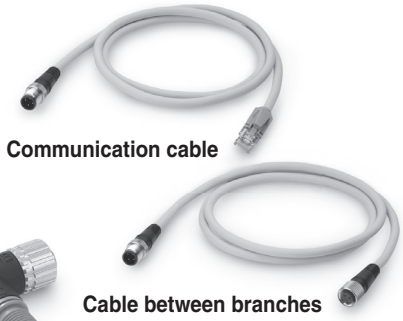
Cable **LEC-CG 1 - L**

Cable type

1	Communication cable
2	Cable between branches

Cable length

K	0.3 m
L	0.5 m
1	1 m



Branch connector **LEC-CGD**

Branch connector

Terminating resistor **LEC-CGR**

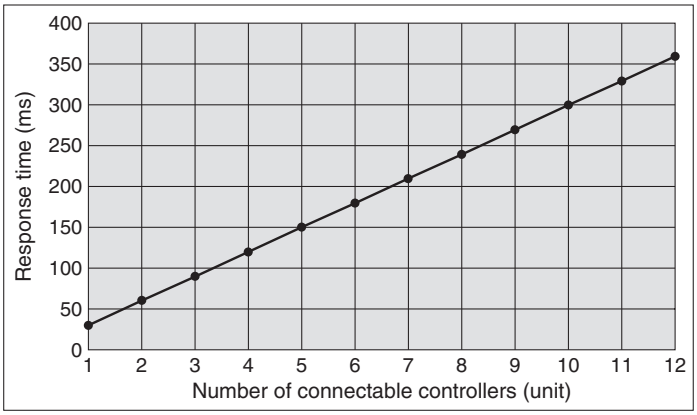
Specifications

Model			LEC-GMJ2□	LEC-GDN1□	LEC-GPR1□	LEC-GEN1□
Communication specifications	Applicable system	Fieldbus	CC-Link	DeviceNet™	PROFIBUS DP	EtherNet/IP™
		Version Note 1)	Ver. 2.0	Release 2.0	V1	Release 1.0
	Communication speed [bps]		156 k/625 k/2.5 M /5 M/10 M	125 k/250 k/500 k	9.6 k/19.2 k/45.45 k/ 93.75 k/187.5 k/500 k/ 1.5 M/3 M/6 M/12 M	10 M/100 M
	Configuration file Note 2)		—	EDS file	GSD file	EDS file
	I/O occupation area		4 stations occupied (8 times setting) Input 896 points 108 words Output 896 points 108 words	Input 200 bytes Output 200 bytes	Input 57 words Output 57 words	Input 256 bytes Output 256 bytes
	Power supply for communication	Power supply voltage [V] Note 6)	—	11 to 25 VDC	—	—
		Internal current consumption [mA]	—	100	—	—
	Communication connector specifications		Connector (Accessory)	Connector (Accessory)	D-sub	RJ45
	Terminating resistor		Not included	Not included	Not included	Not included
Power supply voltage [V] Note 6)			24 VDC ±10 %			
Current consumption [mA]	Not connected to teaching box		200			
	Connected to teaching box		300			
EMG output terminal			30 VDC 1 A			
Controller specifications	Applicable controllers		Series LECP6, Series LECA6			
	Communication speed [bps] Note 3)		115.2 k/230.4 k			
	Max. number of connectable controllers Note 4)		12	8 Note 5)	5	12
Accessories			Power supply connector, communication connector		Power supply connector	
Operating temperature range [°C]			0 to 40 (No freezing)			
Operating humidity range [%RH]			90 or less (No condensation)			
Storage temperature range [°C]			–10 to 60 (No freezing)			
Storage humidity range [%RH]			90 or less (No condensation)			
Weight [g]			200 (Screw mounting), 220 (DIN rail mounting)			

Note 1) Please note that the version is subject to change.
Note 2) Each file can be downloaded from the SMC website, http://www.smc.eu
Note 3) When using a teaching box (LEC-T1-□), set the communication speed to 115.2 kbps.
Note 4) A communication response time for 1 controller is approximately 30 ms.
Refer to "Communication Response Time Guideline" for response times when several controllers are connected.
Note 5) For step data input, up to 12 controllers connectable.
Note 6) When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Communication Response Time Guideline

Response time between gateway unit and controllers depends on the number of controllers connected to the gateway unit. For response time, refer to the graph below.

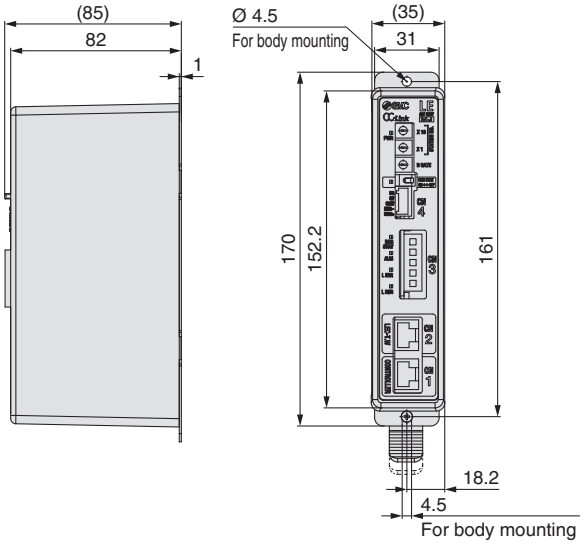


* This graph shows delay times between gateway unit and controllers. Fieldbus network delay time is not included.

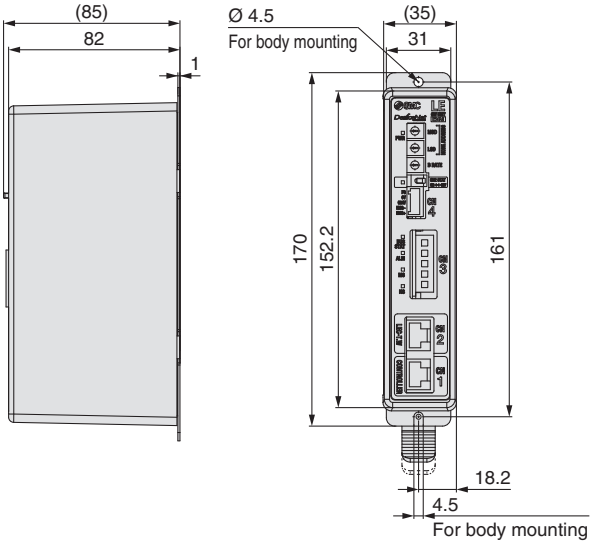
Dimensions

Screw mounting (LEC-G□□□)

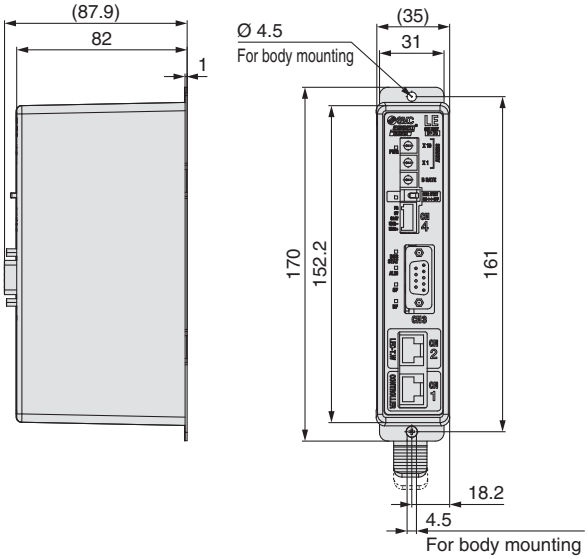
Applicable Fieldbus protocol: CC-Link Ver. 2.0



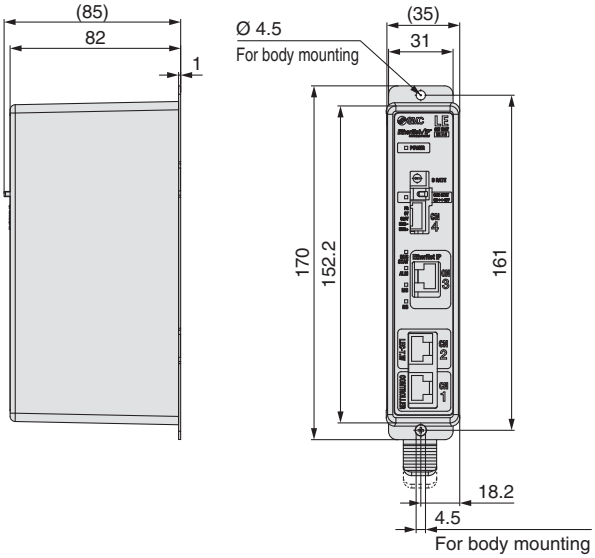
Applicable Fieldbus protocol: DeviceNet™



Applicable Fieldbus protocol: PROFIBUS DP



Applicable Fieldbus protocol: EtherNet/IP™

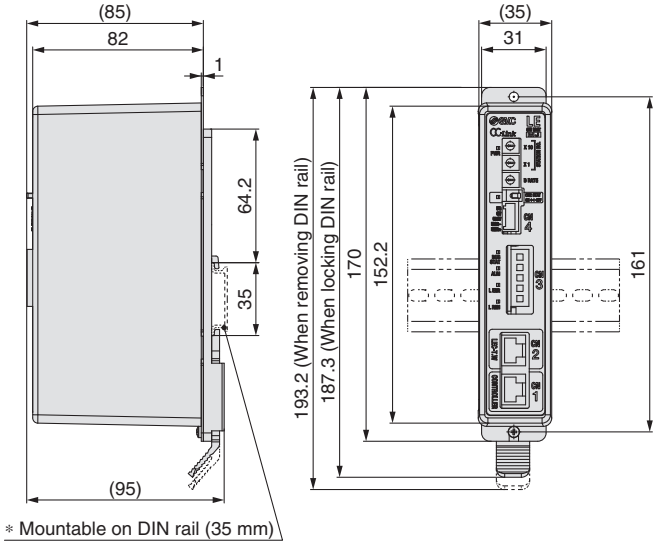


■ **Trademark** DeviceNet™ is a trademark of ODVA. EtherNet/IP™ is a trademark of ODVA.

Dimensions

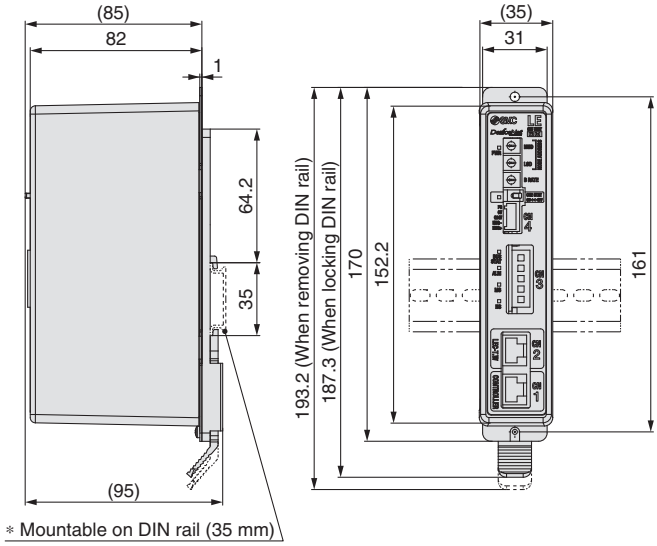
DIN rail mounting (LEC-G□□□D)

Applicable Fieldbus protocol: CC-Link Ver. 2.0



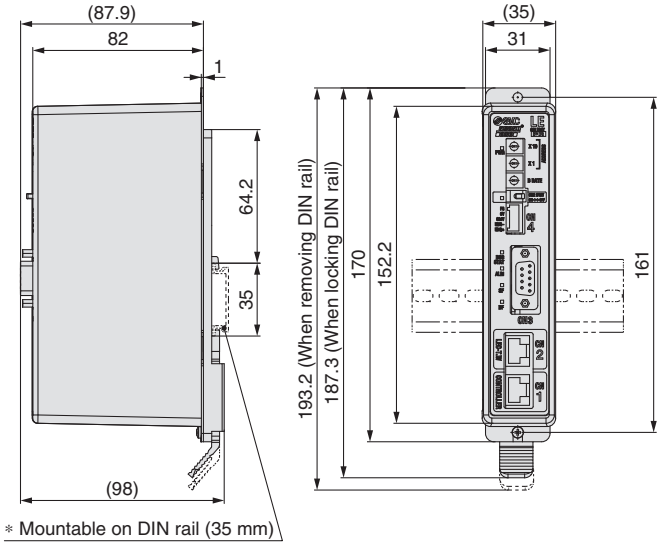
∗ Mountable on DIN rail (35 mm)

Applicable Fieldbus protocol: DeviceNet™



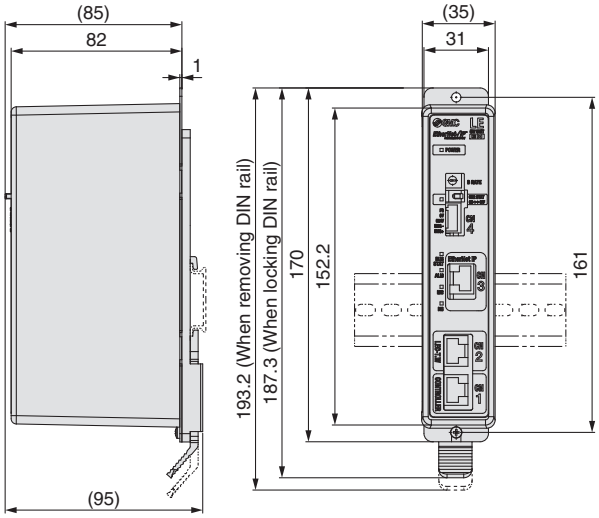
∗ Mountable on DIN rail (35 mm)

Applicable Fieldbus protocol: PROFIBUS DP



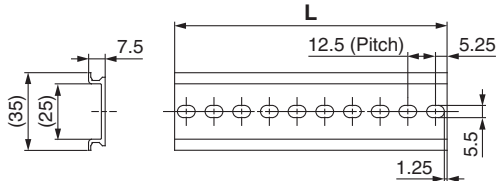
∗ Mountable on DIN rail (35 mm)

Applicable Fieldbus protocol: EtherNet/IP™



DIN rail
AXT100-DR-□

∗ For □, enter a number from the "No." line in the table below.
Refer to the dimensions above for the mounting dimensions.



L Dimension [mm]

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5

No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

Step Motor Controller

5 types of communication protocols

New IO-Link EtherCAT PROFINET DeviceNet EtherNet/IP

Application

Communication protocol

EtherCAT EtherNet/IP PROFINET DeviceNet IO-Link

PLC

Both air and electric systems can be established under the same protocol.

Can be additionally installed in an existing network

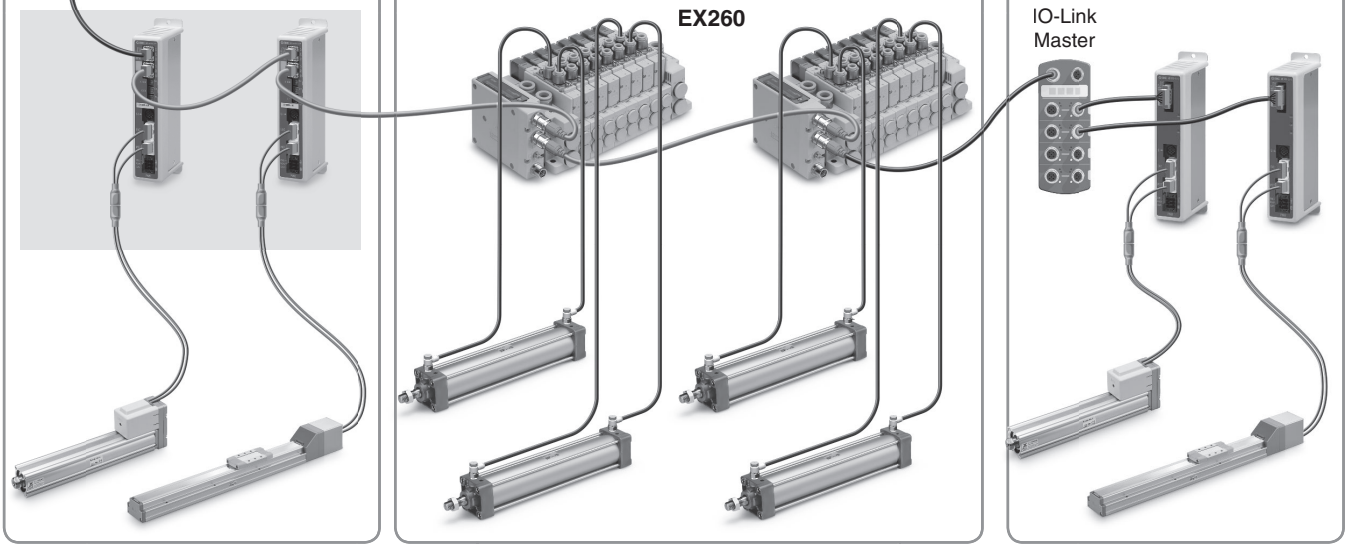
Electric Actuators

Air Cylinders

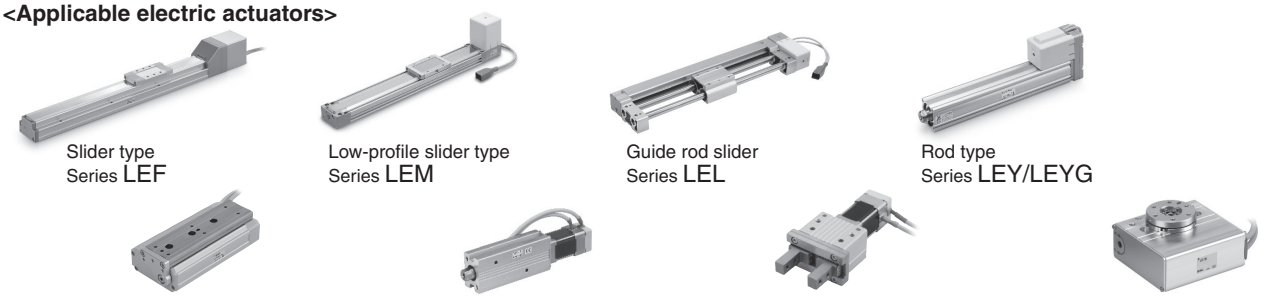
EX260

IO-Link Communication

IO-Link Master



<Applicable electric actuators>



Slider type Series LEF

Low-profile slider type Series LEM

Guide rod slider Series LEL

Rod type Series LEY/LEYG

Slide table Series LES/LESH

Miniature type Series LEPY/LEPS

Gripper Series LEH

Rotary table Series LER

Series JXCE1/91/P1/D1/L1

Two types of operation command

Step no. defined operation: Operate using the preset step data in the controller.
Numerical data defined operation: The actuator operates using values such as position and speed from the PLC.

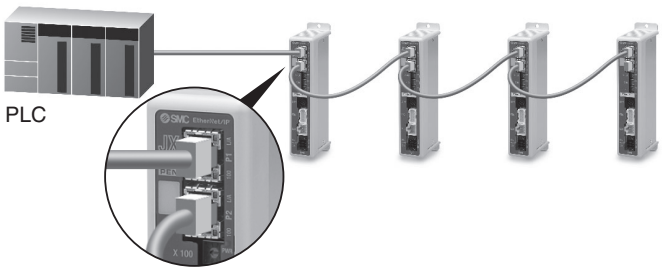
Numerical monitoring available

Numerical information, such as the current speed, current position, and alarm codes, can be monitored on the PLC.

Transition wiring of communication cables

Two communication ports are provided.

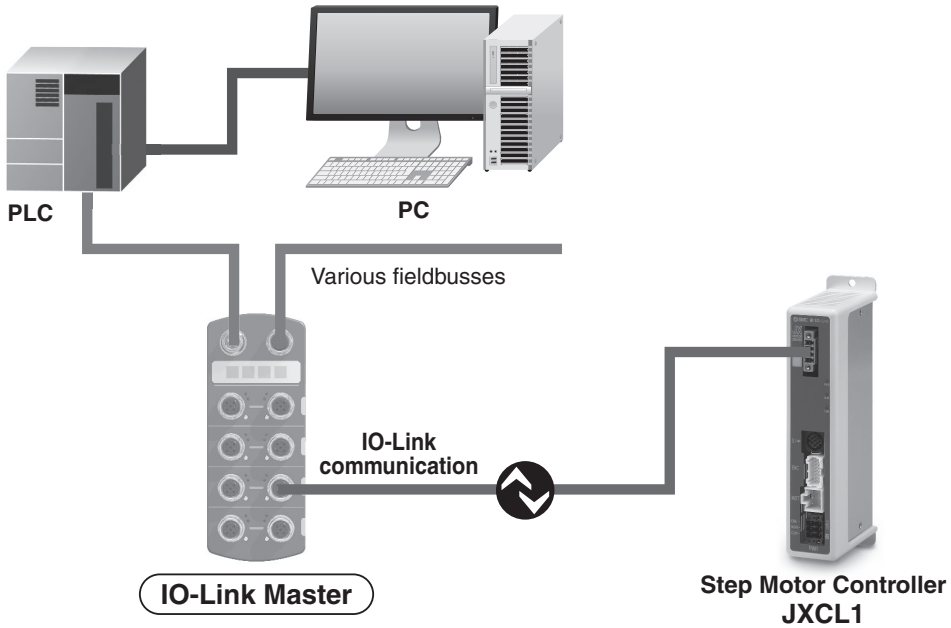
* For the DeviceNet™ type, transition wiring is possible using a branch connector.
* 1 to 1 in the case of IO-Link



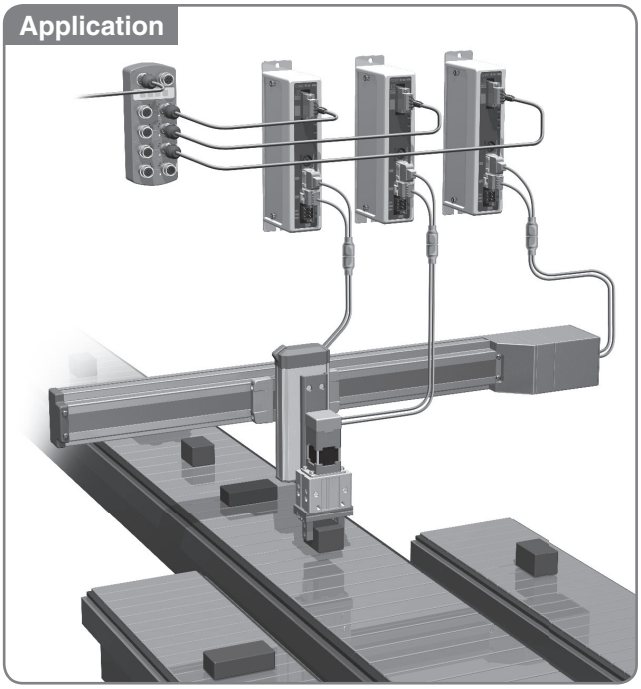
IO-Link communication can be performed.

The data storage function eliminates the need for troublesome resetting of step data and parameters when changing over the controller.

IO-Link
IO-Link is an open communication interface technology between the sensor/actuator and the I/O terminal that is an international standard, IEC61131-9.



Application



● Step data and parameters can be set from the master side.

Step data and parameters can be set or changed by means of IO-Link communication.

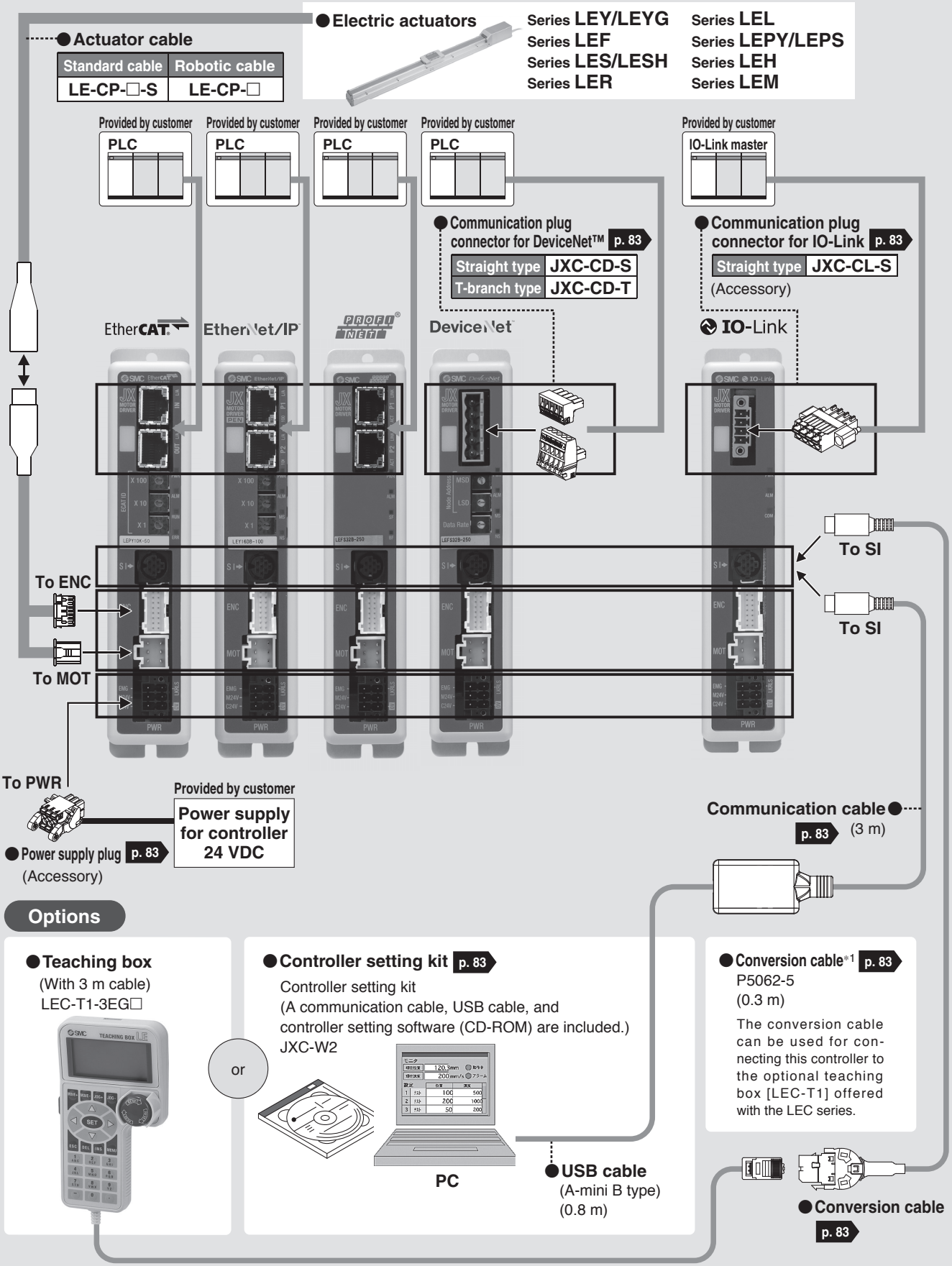
● Data storage function

When the controller is changed, the parameters and step data for the actuator are automatically set.*1

● 4-wire unshielded cables can be used.

*1 The “basic parameter” and the “return to origin parameter” are automatically set as the actuator parameters, and the 3 items of data consisting of No. 0 to 2 are automatically set as the step data.

System Construction



Options

Teaching box
(With 3 m cable)
LEC-T1-3EG□

or

Controller setting kit p. 83
Controller setting kit
(A communication cable, USB cable, and controller setting software (CD-ROM) are included.)
JXC-W2

PC

USB cable
(A-mini B type)
(0.8 m)

Conversion cable[*1] p. 83
P5062-5
(0.3 m)
The conversion cable can be used for connecting this controller to the optional teaching box [LEC-T1] offered with the LEC series.

Conversion cable
p. 83

*1 A conversion cable is also required for connecting the controller to the LEC-W2. (A conversion cable is not required for the JXC-W2.)

Step Motor Controller

Series JXCE1/91/P1/D1/L1

How to Order

Actuator + Controller

LEM16B-100 – R1 CD17T

Actuator type

Refer to "How to Order" in the actuator catalogue available at www.smc.eu.
For compatible actuators, refer to the table below. Example: LEM16B-100B-R1C917

Compatible actuators	
Electric Actuator/Rod Series LEY	Refer to the **Web Catalogue**.
Electric Actuator/Guide Rod Series LEYG	
Electric Actuator/Slider Series LEF	
Electric Slide Table Series LES/LESH	
Electric Rotary Table Series LER	
Electric Actuator/Guide Rod Slider Series LEL	
Electric Actuator/Miniature Series LEPY/LEPS	
Electric Gripper Series LEH	
Electric Actuator/Low-Profile Slider Series LEM	

∗ Only the step motor type is applicable.

Controller

—	Without controller
C□1□□	With controller

C D 1 7 T

Communication protocol

E	EtherCAT®
9	EtherNet/IP™
P	PROFINET
D	DeviceNet™
L	IO-Link

For single axis

Mounting

7	Screw mounting
8∗1	DIN rail

∗1 The DIN rail is not included. It must be ordered separately. (Refer to page 83.)

Actuator cable type/length

—	Without cable
S1	Standard cable 1.5 m
S3	Standard cable 3 m
S5	Standard cable 5 m
R1	Robotic cable 1.5 m
R3	Robotic cable 3 m
R5	Robotic cable 5 m
R8	Robotic cable 8 m∗1
RA	Robotic cable 10 m∗1
RB	Robotic cable 15 m∗1
RC	Robotic cable 20 m∗1

∗1 Produced upon receipt of order (Robotic cable only)
∗ The standard cable should only be used on fixed parts. For use on moving parts, select the robotic cable.

Option

—	Without option
S	With straight type DeviceNet™ communication plug for JXCD1
T	With T-branch type DeviceNet™ communication plug for JXCD1

∗ Select "Nil" for anything other than JXCD1.

⚠Caution

[CE-compliant products]
EMC compliance was tested by combining the electric actuator LE series and the JXCE1/91/P1/D1/L1 series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

When selecting an electric actuator, refer to the model selection chart of each actuator. Also, for the "Speed–Work Load" graph of the actuator, refer to the LECP6 section on the model selection page of the electric actuators **Web Catalogue**.

Controller

JXC D 1 7 T – LEM16B-100

Precautions for blank controllers (JXC□1□□-BC)

A blank controller is a controller to which the customer can write the data of the actuator it is to be combined and used with. Use the dedicated software (JXC-BCW) for data writing.
- Please download the dedicated software (JXC-BCW) via our website.
- Order the controller setting kit (LEC-W 2) separately to use this software.

SMC website
http://www.smc.eu

Communication protocol

E	EtherCAT®
9	EtherNet/IP™
P	PROFINET
D	DeviceNet™
L	IO-Link

For single axis

Mounting

7	Screw mounting
8∗1	DIN rail

∗1 The DIN rail is not included. It must be ordered separately. (Refer to page 83.)

Option

—	Without option
S	With straight type DeviceNet™ communication plug for JXCD1
T	With T-branch type DeviceNet™ communication plug for JXCD1

∗ Select "Nil" for anything other than JXCD1.

Actuator part number

Without cable specifications and actuator options
Example: Enter "**LEM16B-100**" for the LEM16B-100B-S1□□.

BC	Blank controller∗1

∗1 Requires dedicated software (JXC-BCW)

When selecting an electric actuator, refer to the model selection chart of each actuator. Also, for the "Speed–Work Load" graph of the actuator, refer to the LECP6 section on the model selection page of the electric actuators **Web Catalogue**.

Specifications

Model			JXCE1	JXC91	JXCP1	JXCD1	JXCL1
Network			EtherCAT®	EtherNet/IP™	PROFINET	DeviceNet™	IO-Link
Compatible motor			Step motor (Servo/24 VDC)				
Power supply			Power voltage: 24 VDC ±10 %				
Current consumption (Controller)			200 mA or less	130 mA or less	200 mA or less	100 mA or less	100 mA or less
Compatible encoder			Incremental A/B phase (800 pulse/rotation)				
Communication specifications	Applicable system	**Protocol**	EtherCAT®*2	EtherNet/IP™*2	PROFINET*2	DeviceNet™	IO-Link
		Version*1	Conformance Test Record V.1.2.6	Volume 1 (Edition 3.14) Volume 2 (Edition 1.15)	Specification Version 2.32	Volume 1 (Edition 3.14) Volume 3 (Edition 1.13)	Version 1.1 Port Class A
	Communication speed		100 Mbps*2	10/100 Mbps*2 (Automatic negotiation)	100 Mbps*2	125/250/500 kbps	230.4 kbps (COM3)
	Configuration file*3		ESI file	EDS file	GSDML file	EDS file	IODD file
	I/O occupation area		Input 20 bytes Output 36 bytes	Input 36 bytes Output 36 bytes	Input 36 bytes Output 36 bytes	Input 4, 10, 20 bytes Output 4, 12, 20, 36 bytes	Input 14 bytes Output 22 bytes
	Terminating resistor		Not included				
Memory			EEPROM				
LED indicator			PWR, RUN, ALM, ERR	PWR, ALM, MS, NS	PWR, ALM, SF, BF	PWR, ALM, MS, NS	PWR, ALM, COM
Cable length [m]			Actuator cable: 20 or less				
Cooling system			Natural air cooling				
Operating temperature range [°C]			0 to 40 (No freezing)				
Operating humidity range [%RH]			90 or less (No condensation)				
Insulation resistance [MΩ]			Between all external terminals and the case 50 (500 VDC)				
Weight [g]			220 (Screw mounting) 240 (DIN rail mounting)	210 (Screw mounting) 230 (DIN rail mounting)	220 (Screw mounting) 240 (DIN rail mounting)	210 (Screw mounting) 230 (DIN rail mounting)	190 (Screw mounting) 210 (DIN rail mounting)

*1 Please note that versions are subject to change.
*2 Use a shielded communication cable with CAT5 or higher for the PROFINET, EtherNet/IP™, and EtherCAT®.
*3 The files can be downloaded from the SMC website: http://www.smc.eu

■Trademark
EtherNet/IP™ is a trademark of ODVA.
DeviceNet™ is a trademark of ODVA.
EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Example of Operation Command

In addition to the step data input of 64 points maximum in each communication protocol, the changing of each parameter can be performed in real time via numerical data defined operation.
* Numerical values other than “Moving force,” “Area 1,” and “Area 2” can be used to perform operation under numerical instructions from JXCL1.

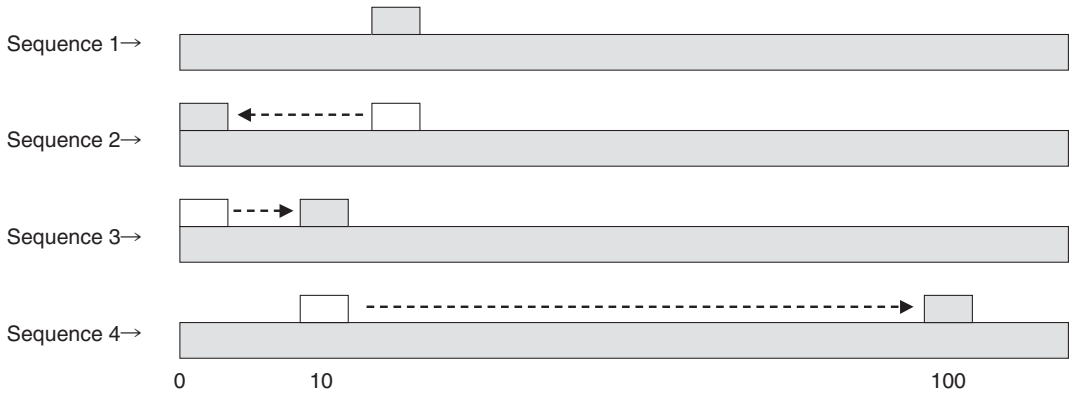
<Application example> Movement between 2 points

No.	Movement mode	Speed	Position	Acceleration	Deceleration	Pushing force	Trigger LV	Pushing speed	Moving force	Area 1	Area 2	In position
0	1: Absolute	100	10	3000	3000	0	0	0	100	0	0	0.50
1	1: Absolute	100	100	3000	3000	0	0	0	100	0	0	0.50

<Step no. defined operation>
Sequence 1: Servo ON instruction
Sequence 2: Instruction to return to origin
Sequence 3: Specify step data No. 0 to input the DRIVE signal.
Sequence 4: Specify step data No. 1 after the DRIVE signal has been temporarily turned OFF to input the DRIVE signal.

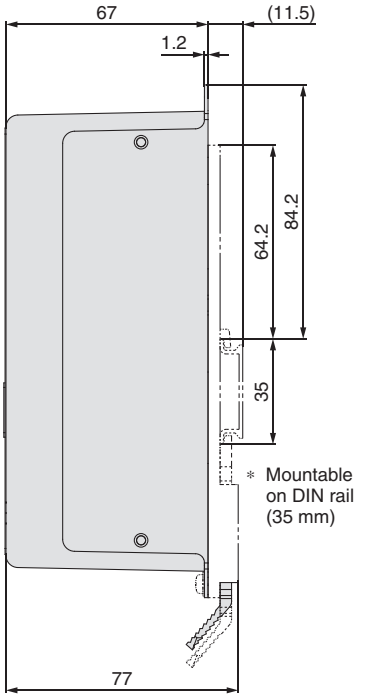
<Numerical data defined operation>
Sequence 1: Servo ON instruction
Sequence 2: Instruction to return to origin
Sequence 3: Specify step data No. 0 and turn ON the input instruction flag (position). Input 10 in the target position. Subsequently the start flag turns ON.
Sequence 4: Turn ON step data No. 0 and the input instruction flag (position) to change the target position to 100 while the start flag is ON.

The same operation can be performed with any operation command.

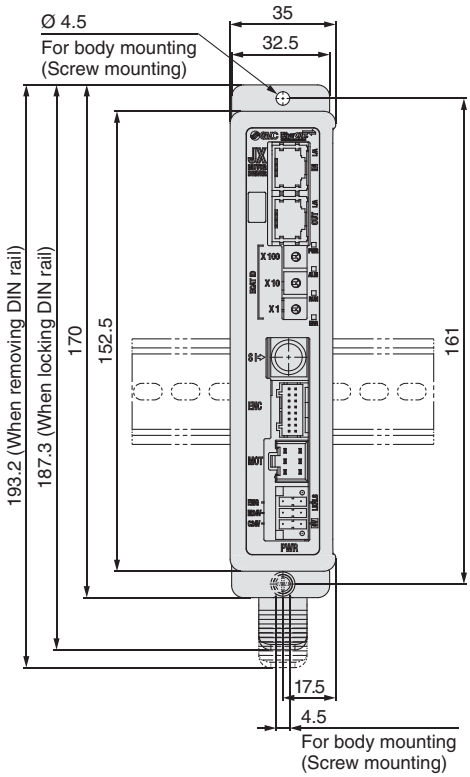


Dimensions

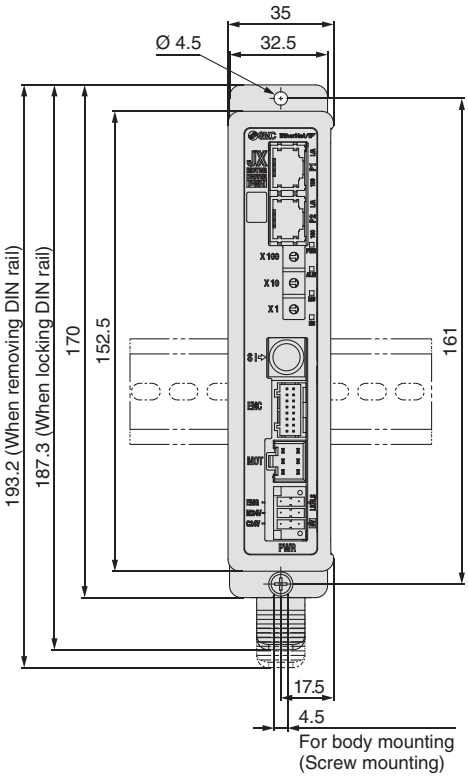
JXCE1/JXC91



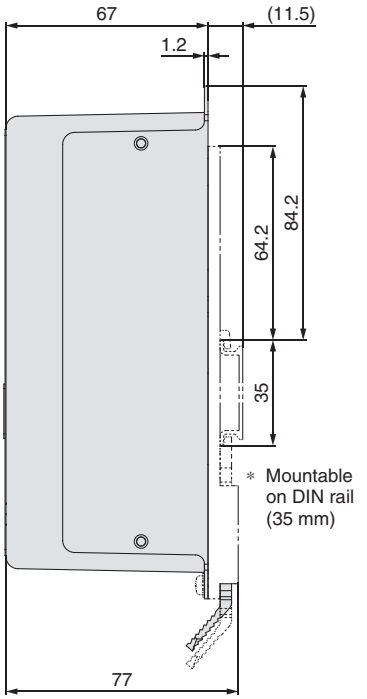
JXCE1



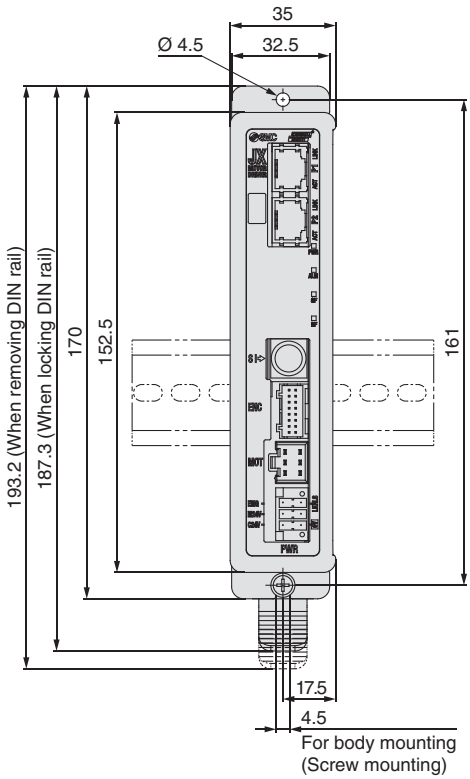
JXC91



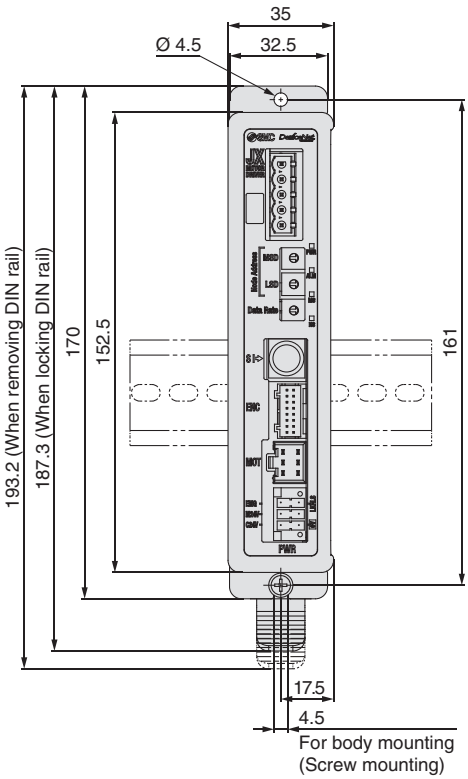
JXCP1/JXCD1



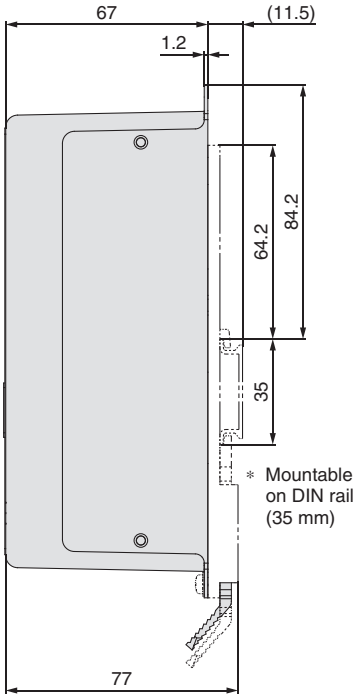
JXCP1



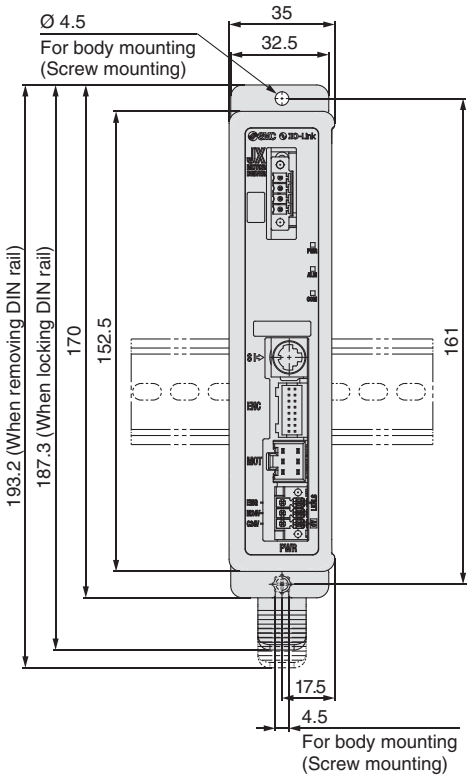
JXCD1



Dimensions

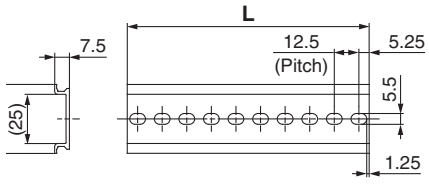


JXCL1



DIN rail
AXT100-DR-□

* For □, enter a number from the "No." line in the table below.



L Dimensions [mm]

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5

No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

Options

■ Controller setting kit JXC-W2

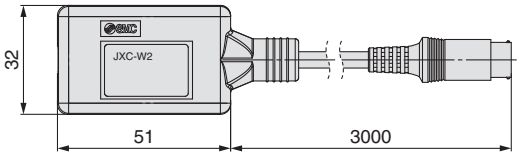
[Contents]
① Communication cable
② USB cable
③ Controller setting software
∗ A conversion cable (P5062-5) is not required.

JXC − W2 − □

Contents

—	A kit includes: Communication cable, USB cable, Controller setting software
C	Communication cable
U	USB cable
S	Controller setting software (CD-ROM)

① Communication cable JXC-W2-C

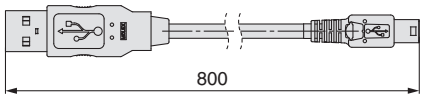


∗ It can be connected to the controller directly.

② USB cable JXC-W2-U

③ Controller setting software JXC-W2-S

∗ CD-ROM



■ DIN rail mounting adapter LEC-3-D0

∗ With 2 mounting screws

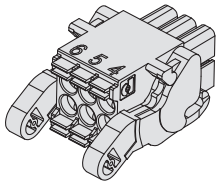
This should be used when a DIN rail mounting adapter is mounted onto a screw mounting type controller afterwards.

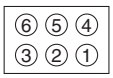
■ DIN rail AXT100-DR-□

∗ For □, enter a number from the No. line in the table on page 82. Refer to the dimension drawings on page 82 for the mounting dimensions.

■ Power supply plug JXC-CPW

∗ The power supply plug is an accessory.





① C24V ④ 0V
② M24V ⑤ N.C.
③ EMG ⑥ LK RLS

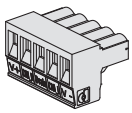
Power supply plug

Terminal name	Function	Details
0V	Common supply (–)	M24V terminal/C24V terminal/EMG terminal/ LK RLS terminal are common (–).
M24V	Motor power supply (+)	Motor power supply (+) of the controller
C24V	Control power supply (+)	Control power supply (+) of the controller
EMG	Stop (+)	Connection terminal of the external stop circuit
LK RLS	Lock release (+)	Connection terminal of the lock release switch

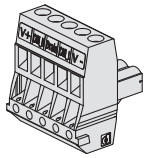
■ Communication plug connector

For DeviceNet™

Straight type
JXC-CD-S



T-branch type
JXC-CD-T

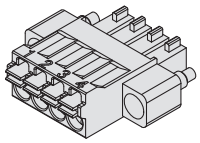


Communication plug connector for DeviceNet™

Terminal name	Details
V+	Power supply (+) for DeviceNet™
CAN_H	Communication wire (High)
Drain	Grounding wire/Shielded wire
CAN_L	Communication wire (Low)
V–	Power supply (–) for DeviceNet™

For IO-Link

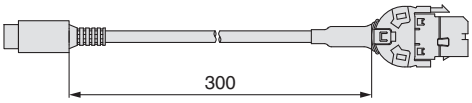
Straight type
JXC-CL-S



Communication plug connector for IO-Link

Terminal no.	Terminal name	Details
1	L+	+24 V
2	NC	N/A
3	L–	0 V
4	C/Q	IO-Link signal

■ Conversion cable P5062-5 (Cable length: 300 mm)



∗ To connect the teaching box (LEC-T1-3□G□) or controller setting kit (LEC-W2) to the controller, a conversion cable is required.

Series JXCE1/91/P1/D1
Precautions Related to Differences in Controller Versions

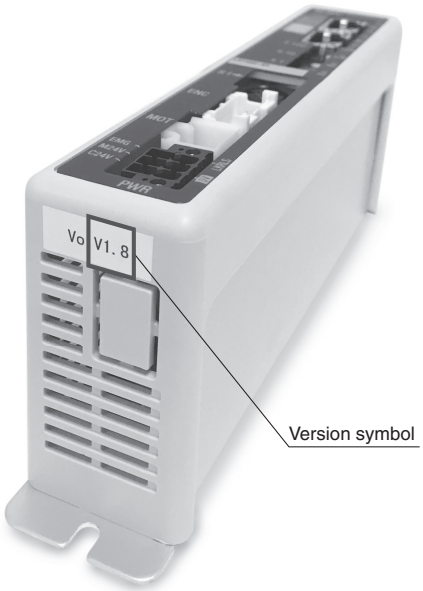
As the controller version of the JXC series differs, the internal parameters are not compatible.

■ Do not use a version V2.0 or S2.0 or higher controller with parameters lower than version V2.0 or S2.0.
Do not use a version V2.0 or S2.0 or lower controller with parameters higher than version V2.0 or S2.0.

■ Please use the latest version of the JXC-BCW (parameter writing tool).

∗ The latest version is Ver. 2.0 (as of December 2017).

Identifying Version Symbols



For versions lower than V2.0 and S2.0:

Do not use with controller parameters higher than V2.0 or S2.0.

VZ V1.8

Applicable models

Series JXC91□

VZ S1.3T1.0

Applicable models

Series JXCD1□
Series JXCP1□
Series JXCE1□

For versions higher than V2.0 and S2.0:

Do not use with controller parameters lower than V2.0 or S2.0.

VZ V2.0

Applicable models

Series JXC91□

VZ S2.0T1.0

Applicable models

Series JXCD1□
Series JXCP1□
Series JXCE1□

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots - Safety.
etc.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.
Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.
The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.
1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.
1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalogue.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. The product is provided for use in manufacturing industries.
The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".
Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, wichever is first.*2) Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.

*2) **Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

⚠ Caution

SMC products are not intended for use as instruments for legal metrology.
Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

⚠ Safety Instructions Be sure to read "Handling Precautions for SMC Products" (M-E03-3) before using.

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