Electric Actuator

High Rigidity **Slider Type**

New

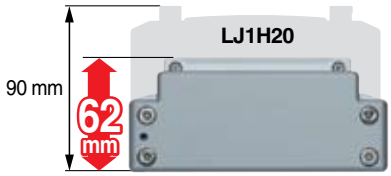
CE RoHS

Low-profile/Low center of gravity

Height dimension reduced by approx.

31% (Reduced by 28 mm)

Series	Work load lb (kg)	Speed (mm/s)	Motor output (W)
New **LEJS40**	121 (55)	600	100
(Existing model) **LJ1H20**	66 (30)	500	100



LEJS40

AC Servo Motor (100/200 W) Type

Ball Screw Drive *Series LEJS*

Size: 40, 63

Max. work load: **187** lb (85 kg)

Positioning repeatability: ±**0.02** mm

Max. acceleration/deceleration: **20000** mm/s²

Belt Drive *Series LEJB*

Size: 40, 63

Max. stroke: **3000** mm

Max. speed: **3000** mm/s

Max. acceleration/deceleration: **20000** mm/s²

Incremental Type

Pulse input type/ Positioning type
Series LECSA

Absolute Type

Pulse input type
Series LECSB

CC-Link direct input type
Series LECSC

SSCNET III type
Series LECSS

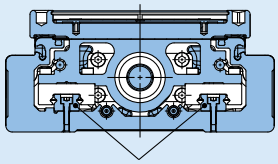
Series LEJ

SMC

CAT.NAS100-104A

High precision/High rigidity

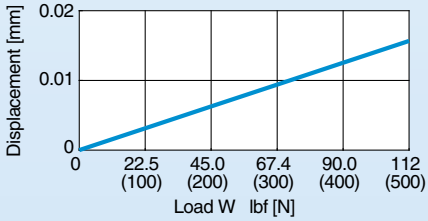
Double axis linear guide reduces deflection

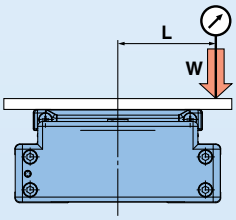


Linear guide (Double axis)

Table displacement

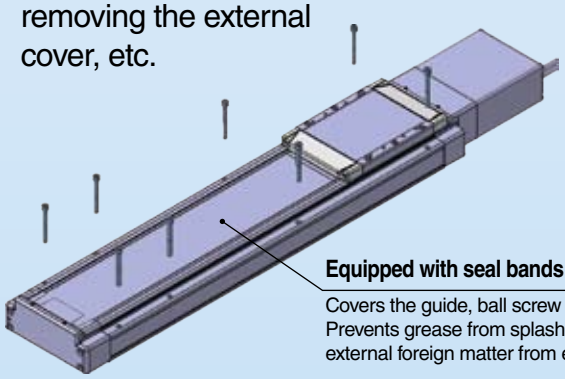
∗ LEJ□63: L = 64.5 mm





Reduction of the installation labor

Possible to mount the main body without removing the external cover, etc.



Equipped with seal bands as standard

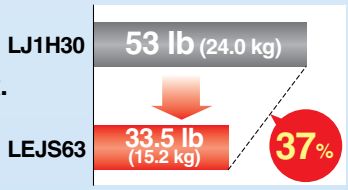
Covers the guide, ball screw and belt. Prevents grease from splashing and external foreign matter from entering.

Weight reduction

Weight reduced by approx.

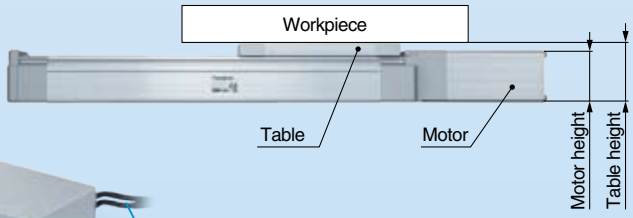
37%

∗ Stroke: 600 mm



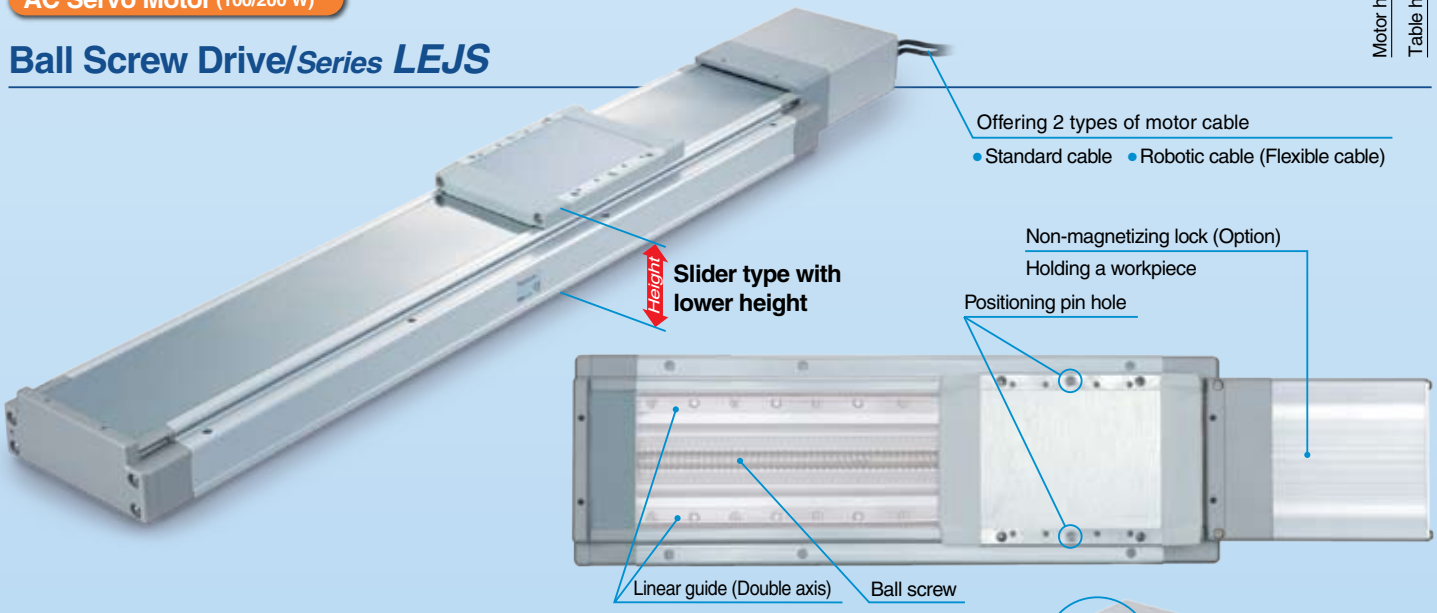
Workpiece does not interfere with the motor

Table height > Motor height

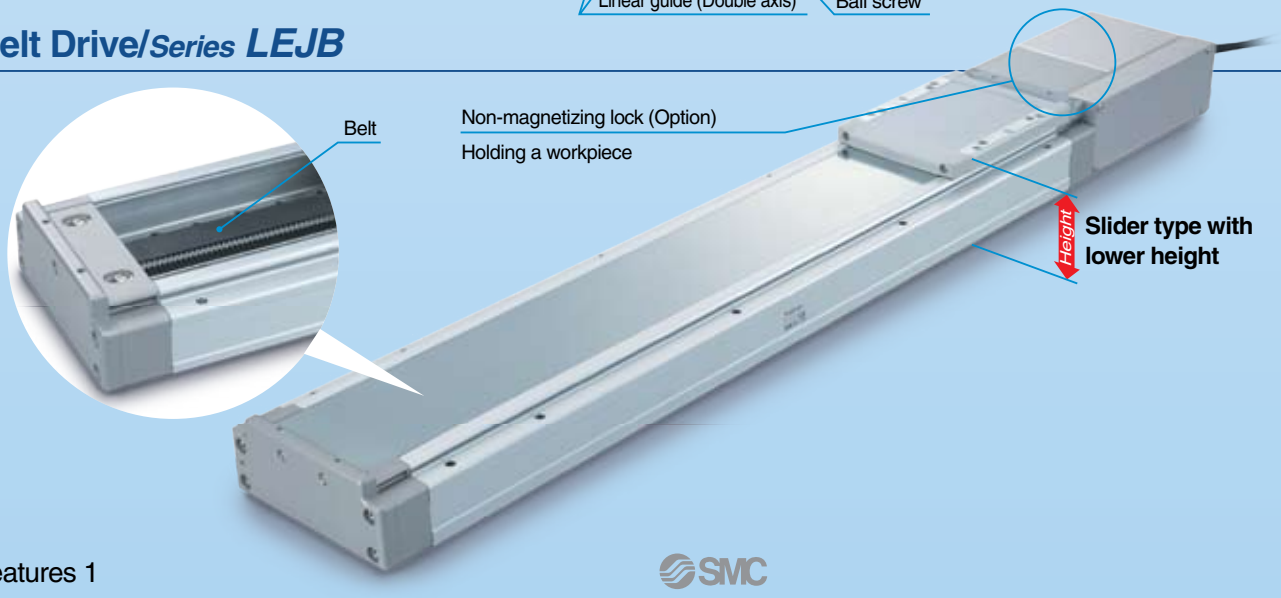


AC Servo Motor (100/200 W)

Ball Screw Drive/*Series* LEJS

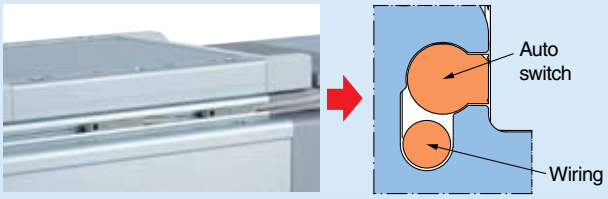


Belt Drive/*Series* LEJB



● Solid state auto switch can be mounted

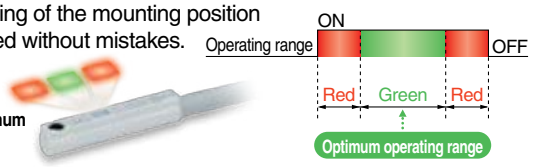
- Switch wiring can be placed in the body
- D-M9□W (2-color indication), D-M9□



2-color indication solid state auto switch

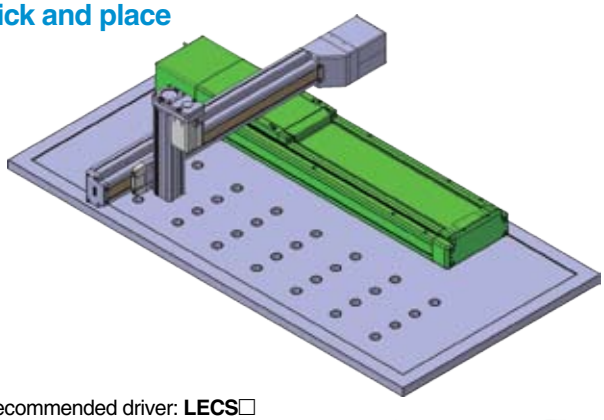
Appropriate setting of the mounting position can be performed without mistakes.

A green light lights up at the optimum operating range.



Application Examples

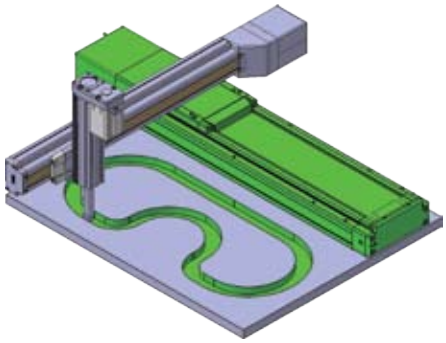
Pick and place



Recommended driver: **LECS□**

LECSA **LECSB** **LECSC** **LECSS**

Glue dispensing/High speed trajectory is available



Recommended driver: **LECSS** (SSCNET III)

Series Variations

Ball Screw Drive/Series LEJS

(1 Kg = 2.2 lb)

Size	Lead (mm)	Stroke (mm)*	Work load: Horizontal (kg) 10 20 30 40 50 60 70 80 90	Work load: Vertical (kg) 10 20 30	Speed (mm/s) 200 400 600 800 1000 1200	Page
40	8	200, 300, (400) 500, 600, (700) 800, (900) (1000), (1200)				Page 9
	16					
63	10	300, (400), 500 600, (700), 800 (900), 1000 (1200), (1500)				
	20					

* Strokes shown in ( ) are produced upon receipt of order. Strokes other than those shown above are produced as special order (1 mm increments).

Belt Drive/Series LEJB

Size	Equivalent lead (mm)	Stroke (mm)*1	Work load: Horizontal (kg)*2 5 10 15 20 25 30	Speed (mm/s) 500 1000 1500 2000 2500 3000	Page
40	27	(200), 300, (400), 500, (600), (700), 800 (900), 1000, (1200), (1500), (2000)			Page 14
63	42	(300), (400), 500, (600), (700), 800 (900), 1000, 1200, (1500), (2000), (3000)			

* 1 Strokes shown in ( ) are produced upon receipt of order. Strokes other than those shown above are produced as special order (1 mm increments).
* 2 The belt drive actuator cannot be used for vertically applications.

AC Servo Motor Driver

Series LECS□ list

		Compatible motor (100/200 VAC)		Control method			Application/ Function	Compatible option
		100 W	200 W	Note 1) Positioning	Pulse	Network direct input	Note 2) Synchronous	Setup software LEC-MR-SETUP221
Incremental Type	**LECSA** (Pulse input type/ Positioning type)	●	●	Up to 7 points ●	●			●
Absolute Type	**LECSB** (Pulse input type)	●	●		●			●
	LECSC (CC-Link direct input type)	●	●	Up to 255 points ●		CC-Link Ver. 1.10 ●		●
	LECSS (SSCNET III type) Compatible with Mitsubishi Electric's servo system controller network	●	●			SSCNET III ●	●	●

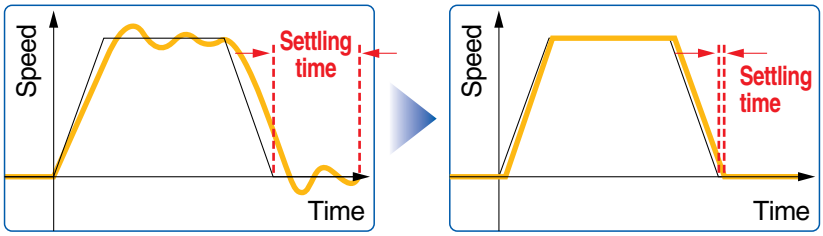
Note 1) For positioning type, setting needs to be changed to use with maximum set values.
Setup software (MR Configurator) LEC-MR-SETUP221 is required.
Note 2) Available when the Mitsubishi motion controller is used for the master equipment.

Series LECS□

Servo adjustment using auto gain tuning

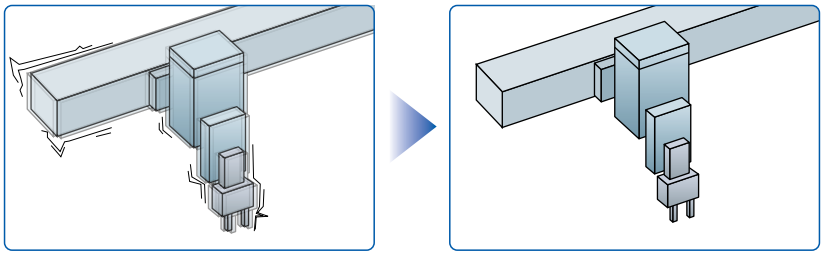
Auto resonant filter function

- Controls the difference in movement between command value and actual movement



Auto damping control function

- Automatically controls machine's low frequency vibrations (up to 100 Hz)



With display setting function

One-touch adjustment button

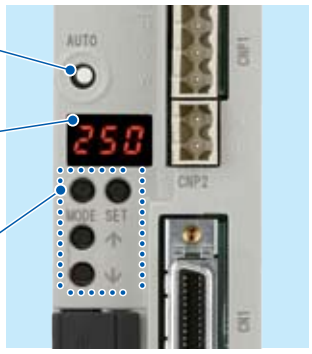
One-touch servo adjustment

Display

Displays the monitor, parameter and alarm.

Settings

Sets parameters and monitor display, etc. with push buttons.



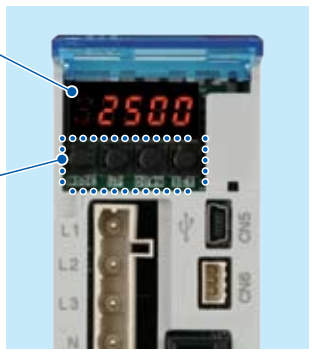
LECSA

Display

Displays the monitor, parameter and alarm.

Settings

Sets parameters and monitor display, etc. with push buttons.



(With the front cover opened)

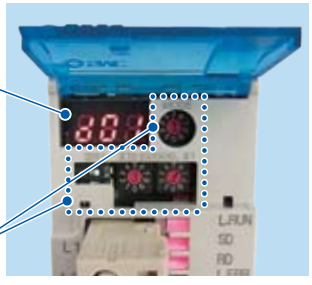
LECSB

Display

Displays the communication status with the driver, the alarm and the point table No.

Settings

Controls Baud rate, station number and the occupied station count.



(With the front cover opened)

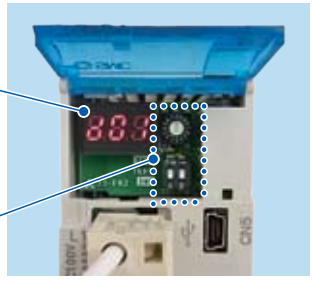
LECSC

Display

Displays the communication status with the driver and the alarm.

Settings

Switches for selecting axis and switching to the test operation



(With the front cover opened)

LECSS

System Construction

Incremental encoder compatible Series LECSA

(Pulse input type/Positioning type)

Provided by customer

Power supply
Single phase 100 to 120 VAC (50/60 Hz)
200 to 230 VAC (50/60 Hz)

◎Option
Regeneration option Page 36
Part no.: **LEC-MR-RB-□**

Main circuit power supply connector Page 30
(Accessory)

Driver

Provided by customer

Control circuit power supply
24 VDC

◎Option

Setup software Page 37
(MR Configurator™)
Part no.: **LEC-MR-SETUP221□**

PC

∗ Order USB cable (Part no.: LEC-MR-J3USB) separately to use this software.

Control circuit power supply connector Page 30
(Accessory)

USB cable Page 37
Part no.: **LEC-MR-J3USB**

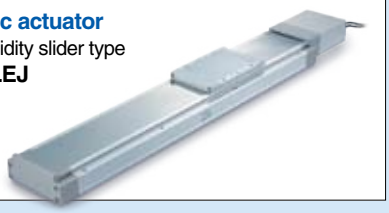
Motor cable Page 36

Standard cable	Robotic cable
LE-CSM-S□□	LE-CSM-R□□

Lock cable Page 36

Standard cable	Robotic cable
LE-CSB-S□□	LE-CSB-R□□

Electric actuator
High rigidity slider type
Series **LEJ**



◎Option Page 36
I/O connector
Part no.: **LE-CSNA**

Provided by customer

PLC (Positioning unit)
Power supply for I/O signal 24 VDC

Encoder cable Page 36

Standard cable	Robotic cable
LE-CSE-S□□	LE-CSE-R□□

Absolute encoder compatible Series LECSB

(Pulse input type)

Provided by customer

Power supply
Single phase 100 to 120 VAC (50/60 Hz)
200 to 230 VAC (50/60 Hz)
Three phase 200 to 230 VAC (50/60 Hz)

◎Option
Regeneration option Page 36
Part no.: **LEC-MR-RB-□**

Main circuit power supply connector Page 31
(Accessory)

Driver

USB cable Page 37
Part no.: **LEC-MR-J3USB**

◎Option

Setup software Page 37
(MR Configurator™)
Part no.: **LEC-MR-SETUP221□**

PC

∗ Order USB cable (Part no.: LEC-MR-J3USB) separately to use this software.

Analog monitor output

RS-422 communication

Motor cable Page 36

Standard cable	Robotic cable
LE-CSM-S□□	LE-CSM-R□□

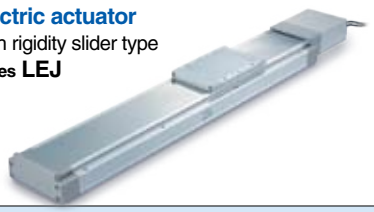
Lock cable Page 36

Standard cable	Robotic cable
LE-CSB-S□□	LE-CSB-R□□

Control circuit power supply connector Page 31
(Accessory)

Motor Page 31
connector
(Accessory)

Electric actuator
High rigidity slider type
Series **LEJ**



◎Option Page 36
I/O connector
Part no.: **LE-CSNB**

Provided by customer

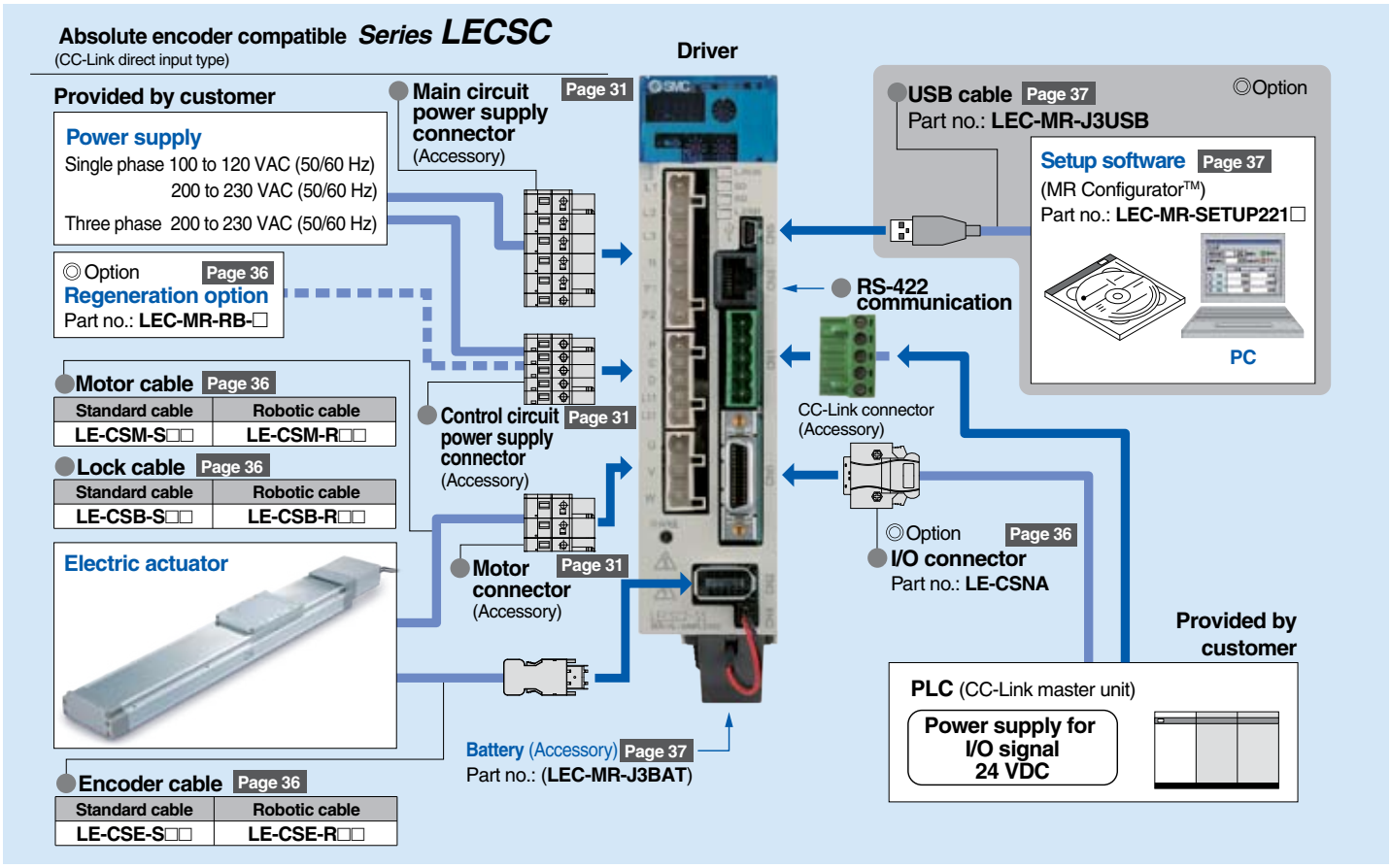
PLC (Positioning unit)
Power supply for I/O signal 24 VDC

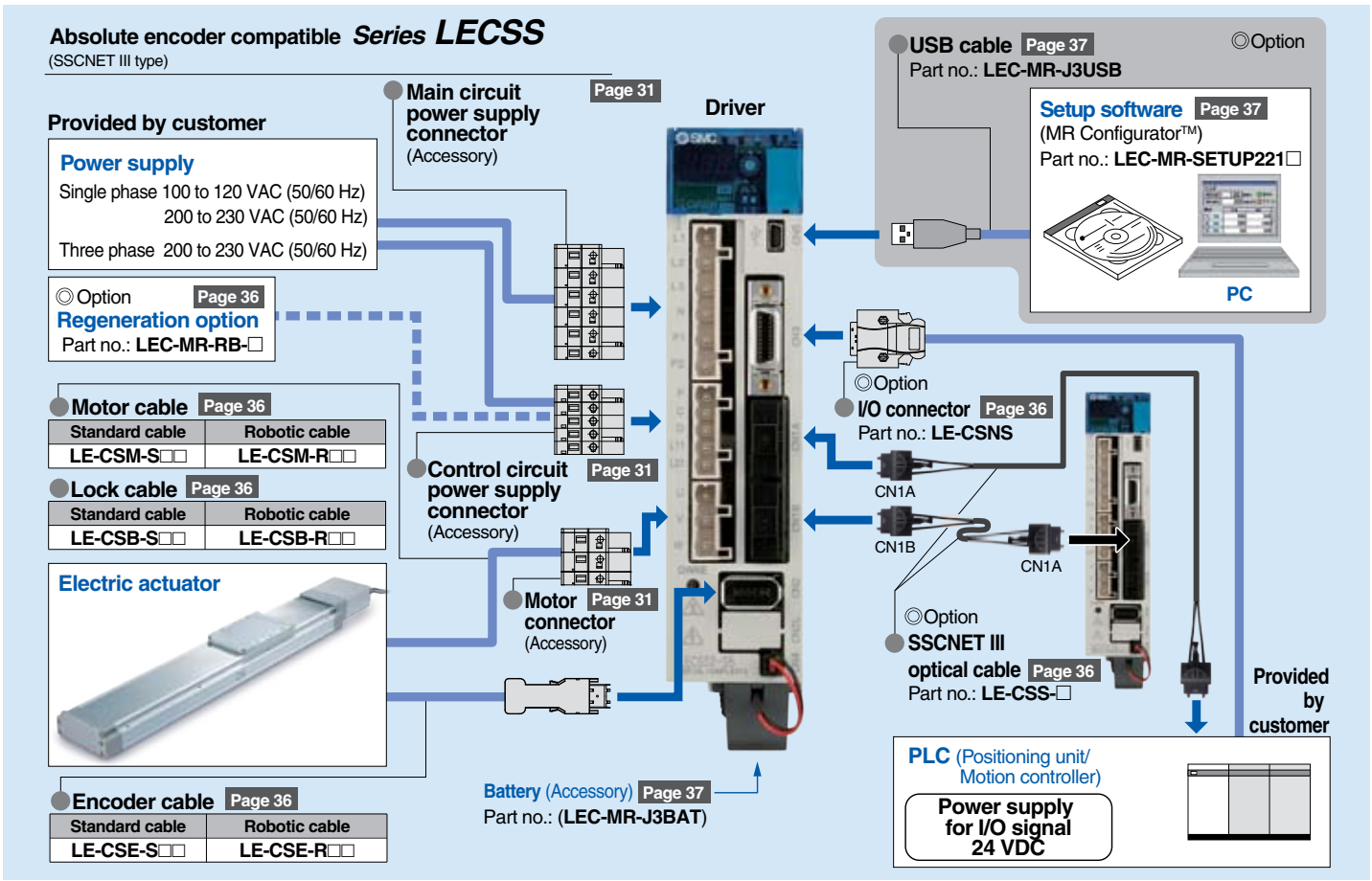
Encoder cable Page 36

Standard cable	Robotic cable
LE-CSE-S□□	LE-CSE-R□□

Battery (Accessory) Page 37
Part no.: (**LEC-MR-J3BAT**)

System Construction





SMC Electric Actuators

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


CAT.NAS100-83

Basic type
Series **LEY**

Series **LEY**

Size	Pushing force lbf (N)	Stroke (mm)
16	31.7 (141)	Up to 300
25	101.6 (452)	Up to 400
32	158.9 (707)	Up to 500

In-line motor type
Series **LEY□D**

Series **LEYG**

Size	Pushing force lbf (N)	Stroke (mm)
16	31.7 (141)	Up to 200
25	101.6 (452)	Up to 300
32	158.9 (707)	Up to 300

Guide rod type
Series **LEYG**

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

Rod Type
AC Servo Motor (100/200 W)


CAT.NAS100-83

Basic type
Series **LEY**

Series **LEY**
(Motor parallel)

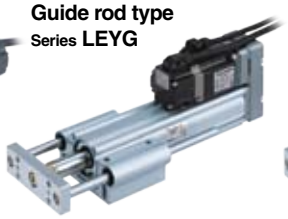
Size	Pushing force lbf (N)	Stroke (mm)
25	109.0 (485)	Up tp 400
32	132.2 (588)	Up tp 500

In-line motor type
Series **LEY□D**

Series **LEY**
(In-line motor)

Size	Pushing force lbf (N)	Stroke (mm)
25	109.0 (485)	Up to 400
32	165.5 (736)	Up to 500

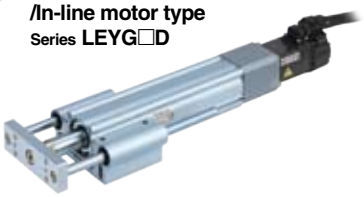
Guide rod type
Series **LEYG**



Series **LEYG**
(Motor parallel)

Size	Pushing force lbf (N)	Stroke (mm)
25	109.0 (485)	30 to 300
32	132.2 (588)	

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



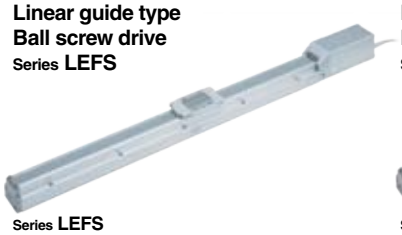
Series **LEYG**
(In-line motor)

Size	Pushing force lbf (N)	Stroke (mm)
25	109.0 (485)	30 to 300
32	165.5 (736)	

Slider Type
Step Motor (Servo/24 VDC) | Servo Motor (24 VDC) | AC Servo Motor (100/200/400 W)


CAT.NAS100-87

Linear guide type
Ball screw drive
Series **LEFS**



Series **LEFS**

Size	Max. work load lb (kg)	Stroke (mm)
16	22 (10)	Up to 400
25	44 (20)	Up to 600
32	99 (45)	Up to 800
40	132 (60)	Up to 1000

Linear guide type
Belt drive
Series **LEFB**

Series **LEFB**

Size	Max. work load lb (kg)	Stroke (mm)
16	2.2 (1)	Up to 1000
25	11 (5)	Up to 2000
32	31 (14)	Up to 2000

Linear guide type
Ball screw drive
Series **LEFS**

Series **LEFS**

Size	Max. work load lb (kg)	Stroke (mm)
25	44 (20)	Up to 600
32	99 (45)	Up to 800
40	132 (60)	Up to 1000

High Rigidity Slider Type
AC Servo Motor (100/200 W)

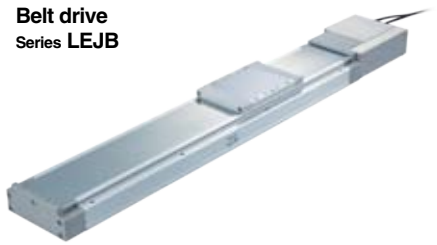

CAT.NAS100-104

Ball screw drive
Series **LEJS**

Series **LEJS**

Size	Max. work load lb (kg)	Stroke (mm)
40	121 (55)	200 to 1200
63	187 (85)	300 to 1500

Belt drive
Series **LEJB**



Series **LEJB**

Size	Max. work load (kg)	Stroke (mm)
40	44 (20)	200 to 2000
63	66 (30)	300 to 3000

SMC Electric Actuators

Guide Rod Slider
Step Motor (Servo/24 VDC)


CAT.NAS100-101

Belt drive
Series **LEL**

Series **LEL25M**
Sliding bearing

Size	Max. work load lb (kg)	Stroke (mm)
25	6.6 (3)	Up to 1000

Series **LEL25L**
Ball bushing bearing

Size	Max. work load lb (kg)	Stroke (mm)
25	11.0 (5)	Up to 1000

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


CAT.NAS100-78

Basic type
Series **LESH□R**

Symmetrical type
Series **LESH□L**

Series **LESH**

Size	Max. work load lb (kg)	Stroke (mm)
8	4.4 (2)	50, 75
	2.2 (1)	
16	13.2 (6)	50, 100
	8.8 (4)	
25	19.8 (9)	50, 100
	13.2 (6)	150

In-line motor type
Series **LESH□D**

Miniature
Step Motor (Servo/24 VDC)


CAT.NAS100-92

Rod type
Series **LEPY**

Slide table type
Series **LEPS**

Series **LEPY**

Size	Max. work load lb (kg)	Stroke (mm)
6	2.2 (1.0)	25, 50, 75
10	4.4 (2.0)	

Series **LEPS**

Size	Max. work load lb (kg)	Stroke (mm)
6	2.2 (1.0)	25
10	4.4 (2.0)	50

Rotary Table
Step Motor (Servo/24 VDC)


CAT.NAS100-94

Basic type
Series **LER**

High precision type
Series **LERH**

Series **LER**

Size	Rotating torque lbf·ft (N·m)		Max. speed (°/s)	
	Basic	High torque	Basic	High torque
10	0.15 (0.2)	0.22 (0.3)	420	280
30	0.59 (0.8)	0.89 (1.2)		
50	4.87 (6.6)	7.37 (10)		

Gripper
Step Motor (Servo/24 VDC)

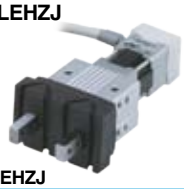

CAT.NAS100-77

2-finger type
Series **LEHZ**

Series **LEHZ**

Size	Max. gripping force lb (N)		Stroke/both sides (mm)
	Basic	Compact	
10	3.15 (14)	1.35 (6)	4
16		1.80 (8)	6
20	8.99 (40)	6.29 (28)	10
25			14
32	29.2 (130)	—	22
40	47.2 (210)	—	30

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



Series **LEHZJ**

Size	Max. gripping force lb (N)		Stroke/both sides (mm)
	Basic	Compact	
10	3.15 (14)	1.35 (6)	4
16		1.80 (8)	6
20	8.99 (40)	6.29 (28)	10
25			14

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

Series **LEHF**

Size	Max. gripping force lb (N)	Stroke/both sides (mm)
10	1.57 (7)	16 (32)
20	6.29 (28)	24 (48)
32	27.0 (120)	32 (64)
40	40.5 (180)	40 (80)

Note) ( ): Long stroke

3-finger type
Series **LEHS**

Series **LEHS**

Size	Max. gripping force lb (N)		Stroke/both sides (mm)
	Basic	Compact	
10	1.24 (5.5)	0.79 (3.5)	4
20	4.95 (22)	3.82 (17)	6
32	20.2 (90)	—	8
40	29.2 (130)	—	12

Controller

Controller

Step data input type
For step motor
Series LECP6

Control motor
Step motor (Servo/24 VDC)

Step data input type
For servo motor
Series LECA6

Control motor
Servo motor (24 VDC)

Programless type
Series LECP1

Control motor
Step motor (Servo/24 VDC)

Pulse input type
Series LECPA

Control motor
Step motor (Servo/24 VDC)

Controller

Fieldbus-compatible gateway (GW) unit
Series LEC-G

Applicable Fieldbus protocols	CC-Link V2	DeviceNet	PROFIBUS	EtherNet/IP
Max. number of connectable controllers	12	8	5	12

Driver

AC Servo Motor Driver

Pulse input type/
Positioning type
Series LECSA

Control motor
AC servo motor (100/200 VAC)

Pulse input type
Series LECSB

Control motor
AC servo motor (100/200 VAC)

CC-Link direct input type
Series LECSC

Control motor
AC servo motor (100/200 VAC)

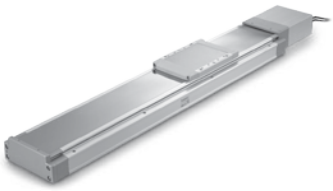
SSCNET III type
Series LECSS

Control motor
AC servo motor (100/200 VAC)

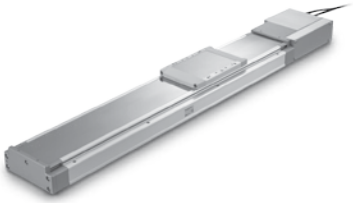
INDEX

Electric Actuator AC Servo Motor (100/200 W) Type

◎ Electric Actuator/High Rigidity Slider Type Ball Screw Drive
Series LEJS



◎ Electric Actuator/High Rigidity Slider Type Belt Drive
Series LEJB



◎AC Servo Motor Driver

Model Selection

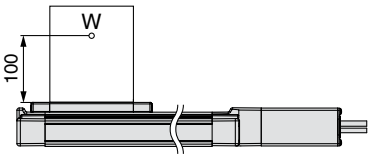
Model Selection

Step 1 Check the speed–work load. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

- Workpiece mass: 60 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s^2]
- Stroke: 200 [mm]
- Mounting orientation: Horizontal
- Motor type: Incremental encoder
- External force: 10 [N]
- Workpiece mounting condition:



1 N = 0.224 lbf

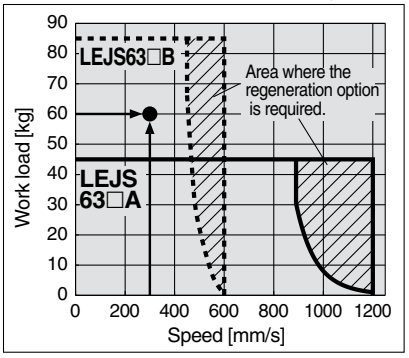
Step 1 Check the speed–work load.

Select the product by referring to "Speed-Work Load Graph" (Page 2).

Selection example) The **LEJS63S3B-200** is temporarily selected based on the graph shown on the right.

The regeneration option (LEC-MR-RB032) may be necessary. See the shaded area in the graph.

1 Kg = 2.2 lb



<Speed–Work load graph> (LEJS63)

Step 2 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)

The graph is based on the maximum speed of each size.

Method 2: Calculation

Cycle time T can be found from the following equation.

$T = T1 + T2 + T3 + T4$ [s]

- T1 and T3 can be obtained by the following equation.

$T1 = V/a1$ [s] $T3 = V/a2$ [s]

The acceleration and deceleration values have upper limits depending on the workpiece mass and the duty ratio. Check that they do not exceed the upper limit, by referring to "Work load–Acceleration/Deceleration Graph (Guide)" (Page 4).

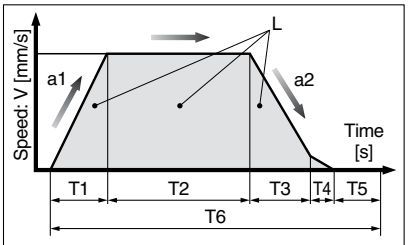
For the ball screw type, there is an upper limit of the speed depending on the stroke. Check that if it does not exceed the upper limit, by referring to the specifications (Page 10).

- T2 can be found from the following equation.

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

- T4 varies depending on the motor type and load. The value below is recommended.

$T4 = 0.05$ [s]



L : Stroke [mm]
V : Speed [mm/s]
a1: Acceleration [mm/s^2]
a2: Deceleration [mm/s^2]

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

T5: Resting time [s]
Time the product is not running

T6: Total time [s]
Total time from T1 to T5

Duty ratio: Ratio of T to T6
T ÷ T6 x 100

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

$T1 = V/a1 = 300/3000 = 0.1$ [s],

$T3 = V/a2 = 300/3000 = 0.1$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{200 - 0.5 \cdot 300 \cdot (0.1 + 0.1)}{300} = 0.57 \text{ [s]}$$

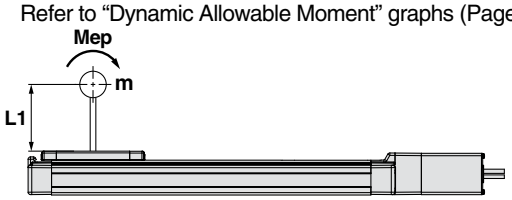
$T4 = 0.05$ [s]

Therefore, the cycle time can be obtained as follows.

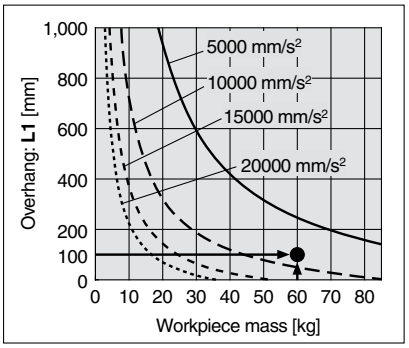
$T = T1 + T2 + T3 + T4$
$= 0.1 + 0.57 + 0.1 + 0.05$
$=$ **0.82 [s]**

Step 3 Check the allowable moment.

Refer to "Dynamic Allowable Moment" graphs (Pages 6, 7).



Selection example)
Select the **LEJS63S3B-200** from the graph on the right.
Confirm that the external force is 20 [N] or less (Refer to the allowable external force on page 10.).
(The external force is the resistance due to cable duct, flexible trunking or air tubing.)



<Dynamic allowable moment> (LEJS63)

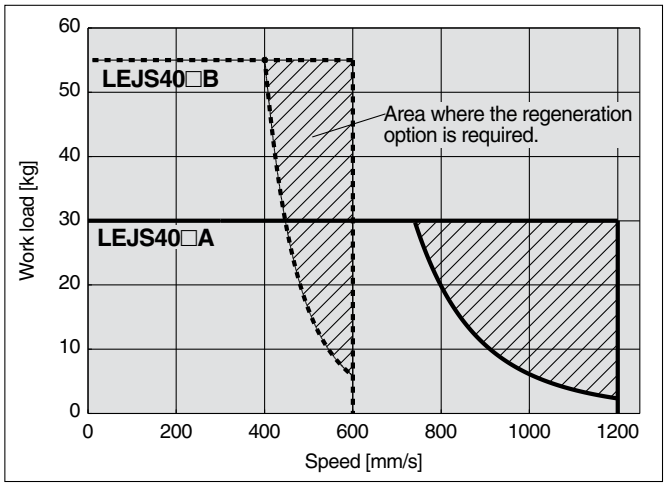
1 Kg = 2.2 lb

Speed–Work Load Graph (Guide)

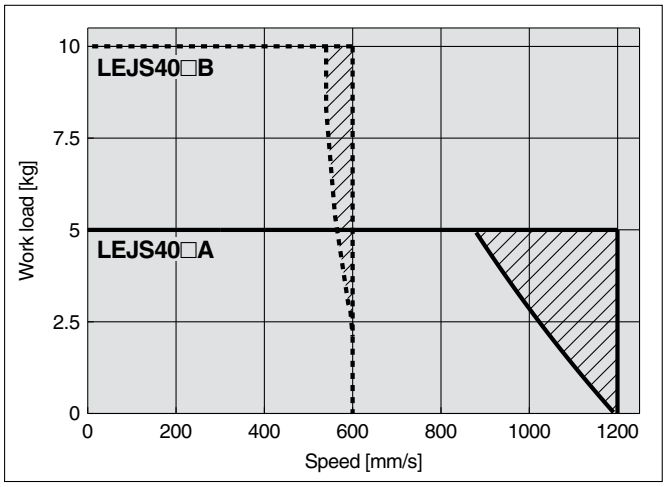
LEJS40/Ball Screw Drive

1 Kg = 2.2 lb

Horizontal

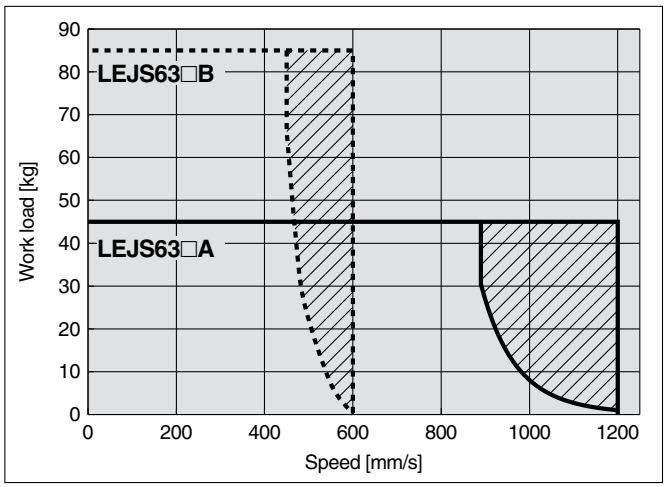


Vertical

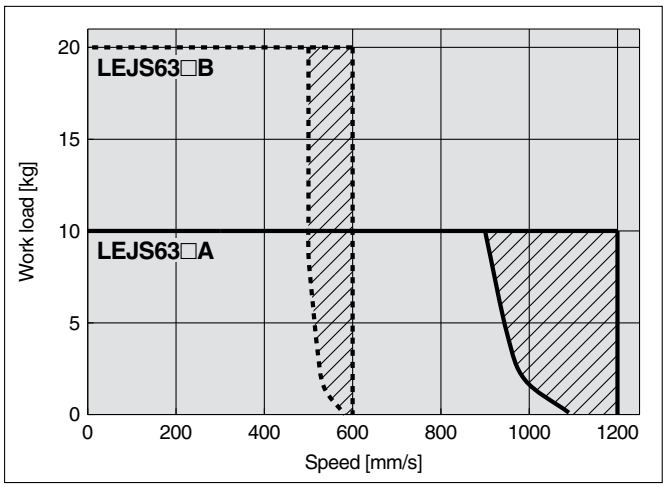


LEJS63/Ball Screw Drive

Horizontal

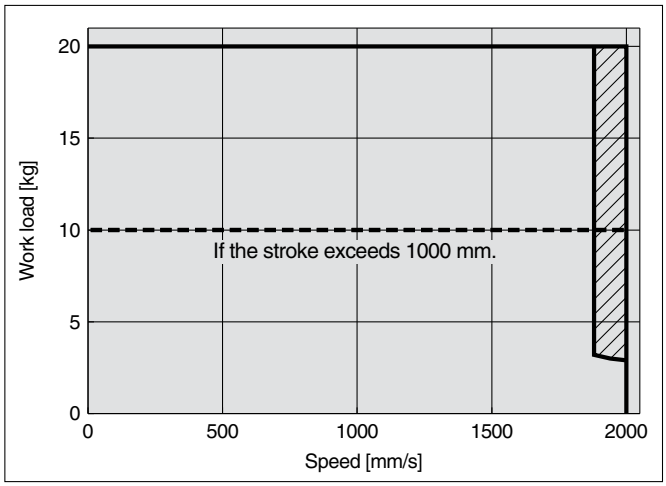


Vertical



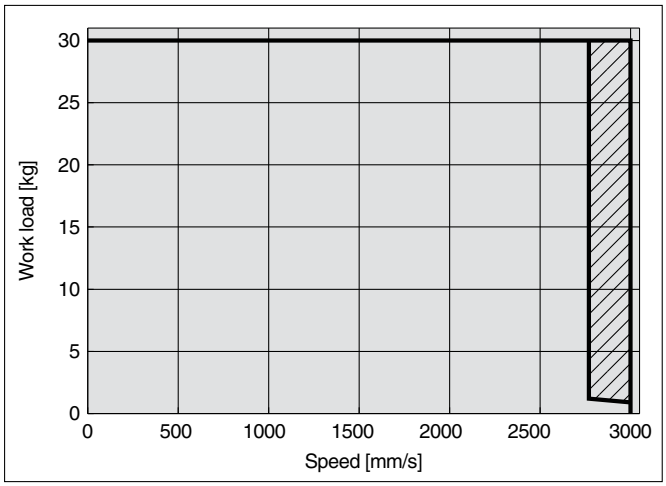
LEJB40/Belt Drive

Horizontal



LEJB63/Belt Drive

Horizontal

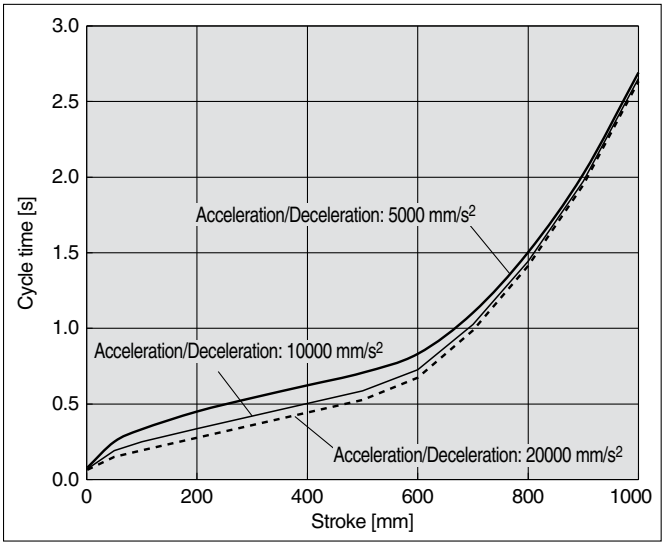


∗ When the stroke of the LEJB40 series exceeds 1000 mm, the work load is 10 kg.
∗ The shaded area in the graph requires the regeneration option (LEC-MR-RB032).
∗ The belt drive actuator cannot be used for vertical applications.

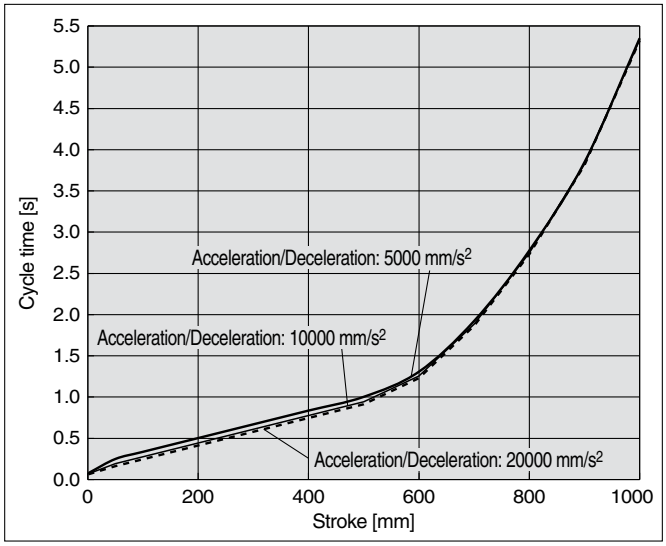
Cycle Time Graph (Guide)

LEJS40/Ball Screw Drive

LEJS40□A

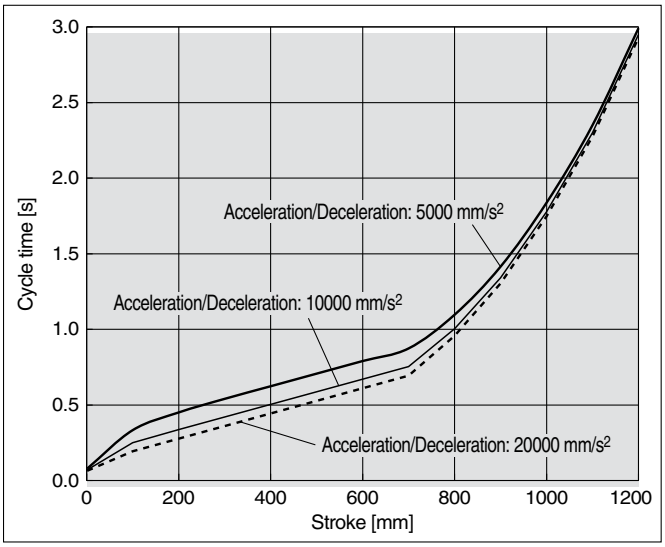


LEJS40□B

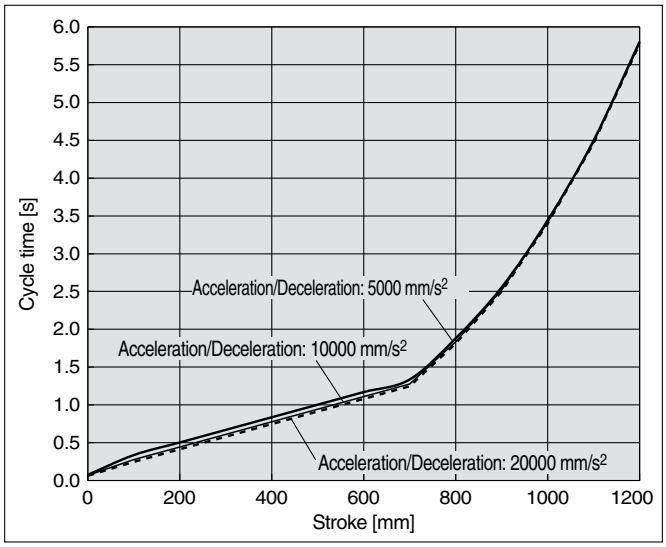


LEJS63/Ball Screw Drive

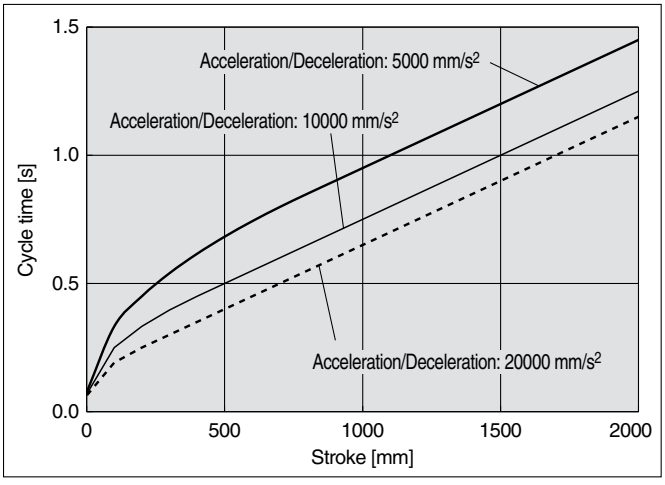
LEJS63□A



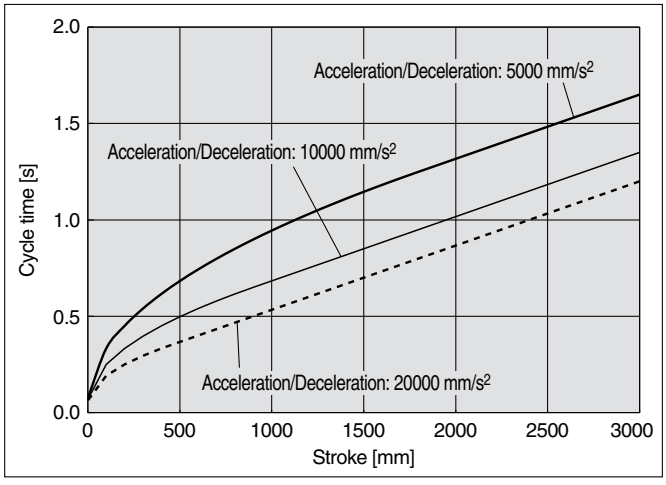
LEJS63□B



LEJB40/Belt Drive



LEJB63/Belt Drive



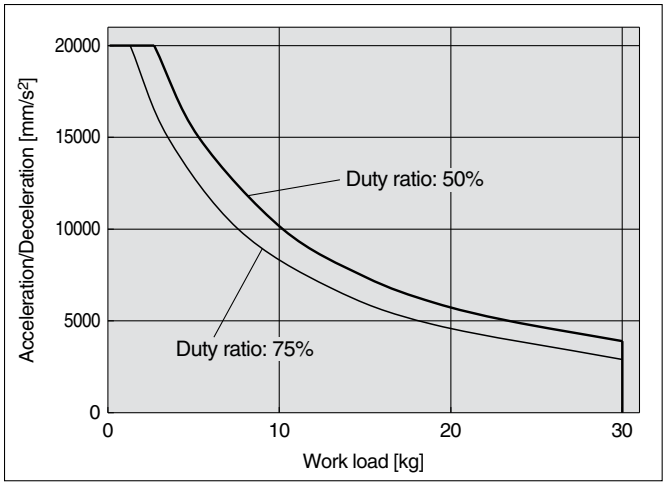
∗ Maximum work load/acceleration/deceleration graph
∗ Maximum speed/acceleration/deceleration values graph for each stroke

Work Load–Acceleration/Deceleration Graph (Guide)

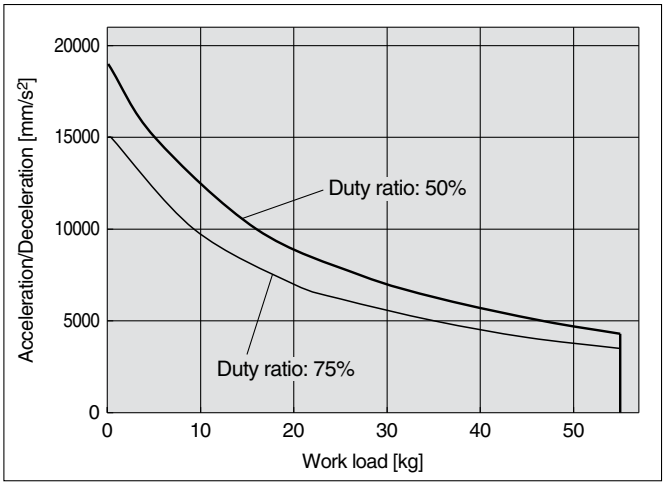
LEJS40/Ball Screw Drive: Horizontal

1 Kg = 2.2 lb

LEJS40□A

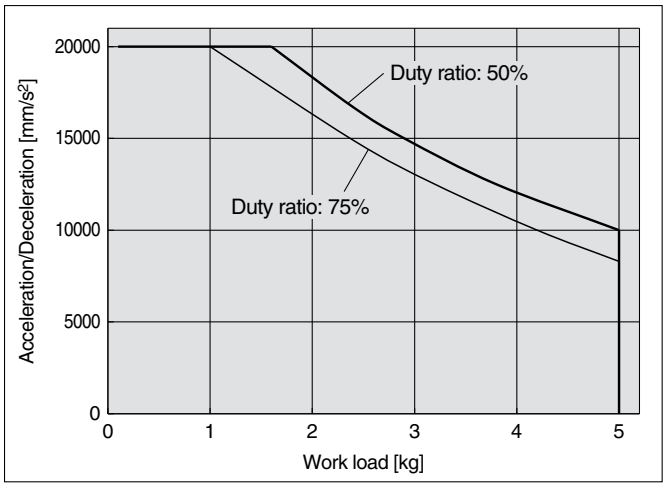


LEJS40□B

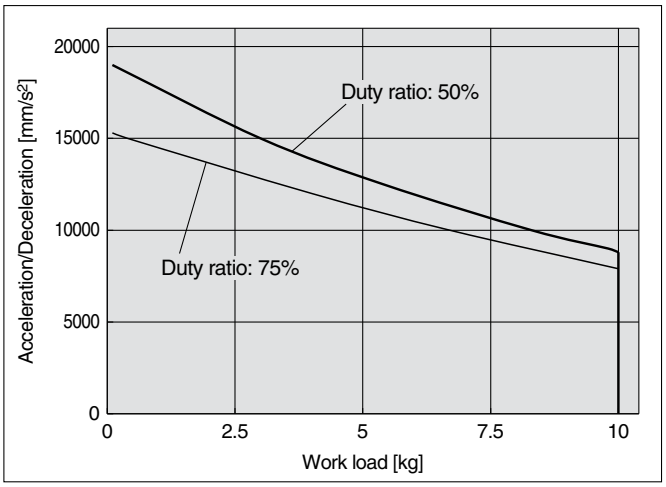


LEJS40/Ball Screw Drive: Vertical

LEJS40□A



LEJS40□B



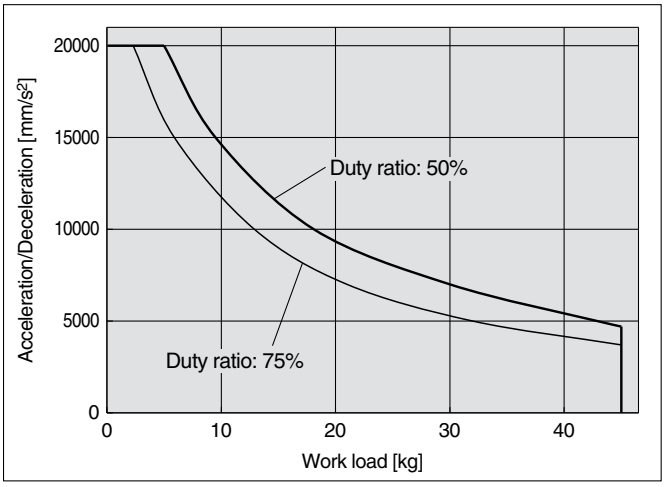
∗ The products can be used up to 100% duty ratio.
The above graphs show examples of when the duty ratio is 75% and 50%.

Work Load–Acceleration/Deceleration Graph (Guide)

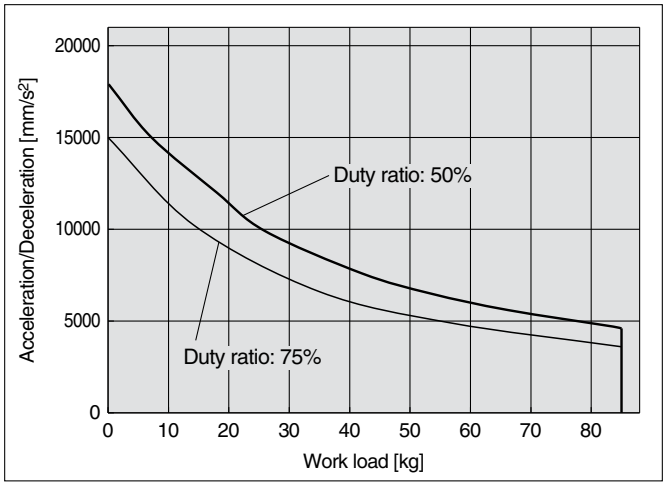
LEJS63/Ball Screw Drive: Horizontal

1 Kg = 2.2 lb

LEJS63□A

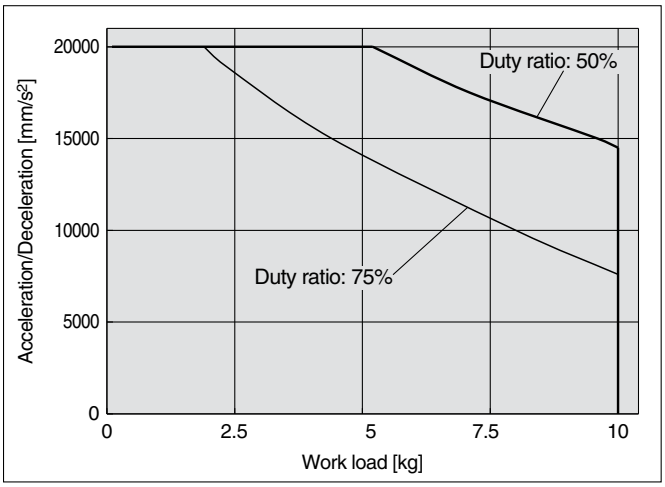


LEJS63□B

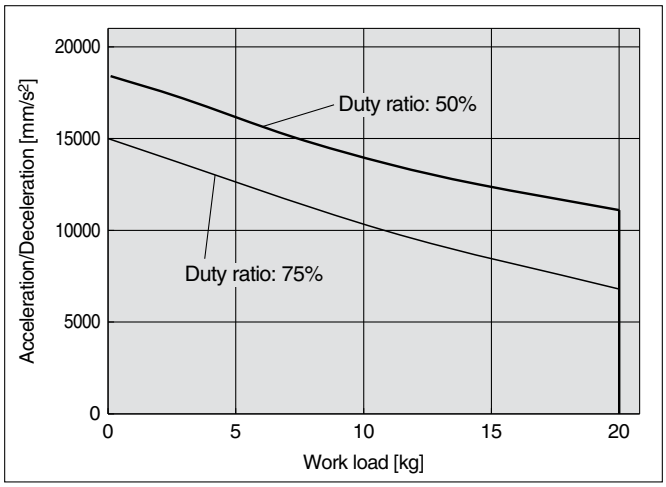


LEJS63/Ball Screw Drive: Vertical

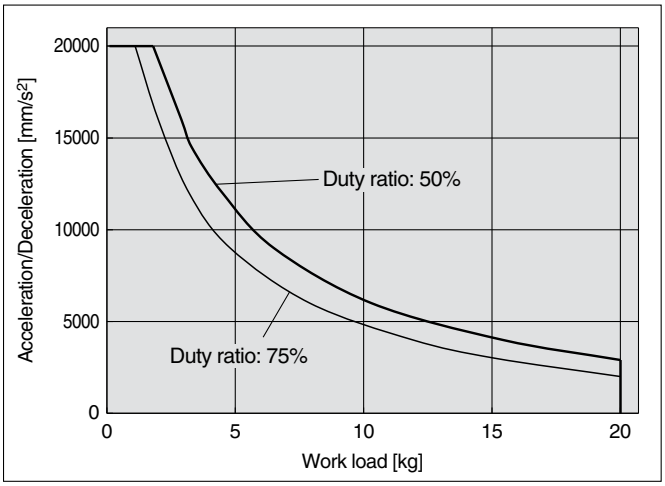
LEJS63□A



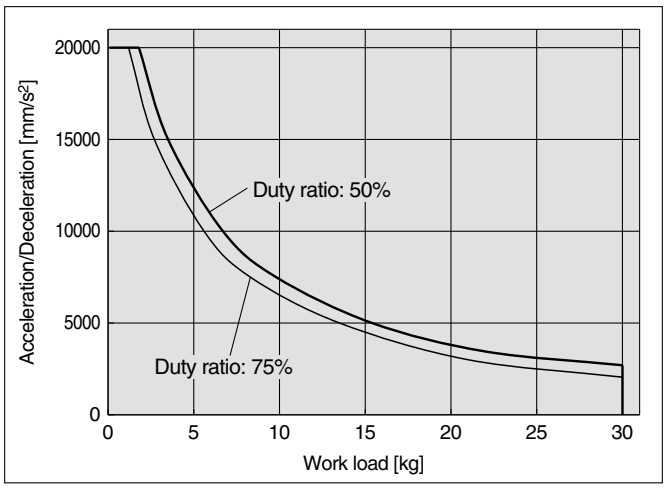
LEJS63□B



LEJB40/Belt Drive: Horizontal

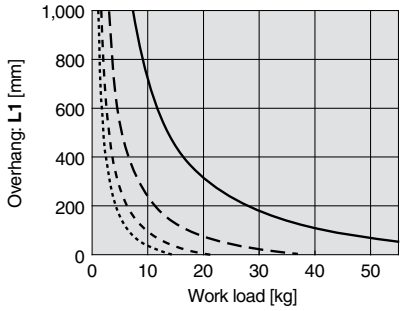
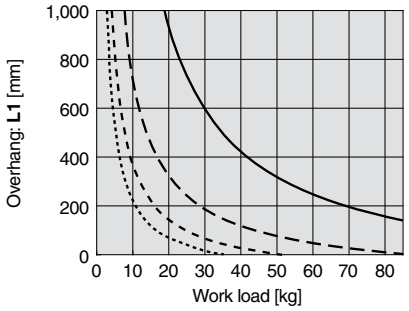
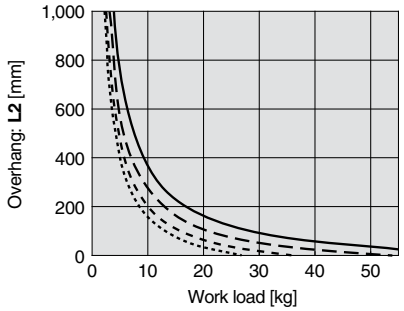
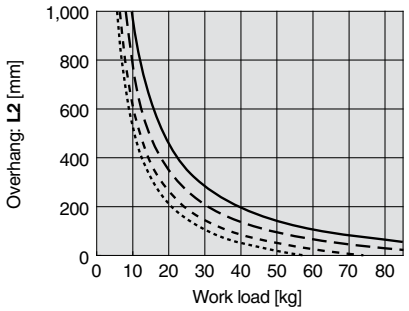
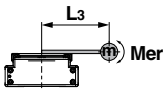
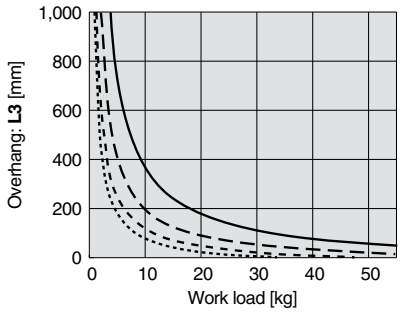
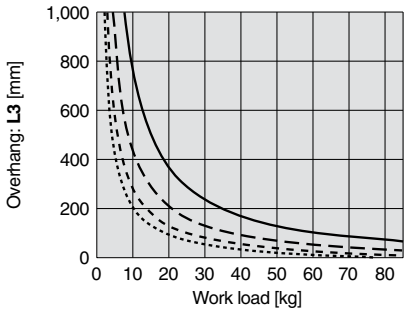
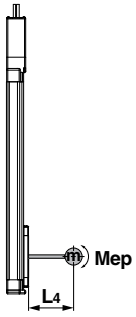
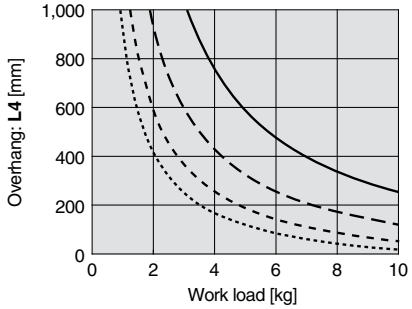
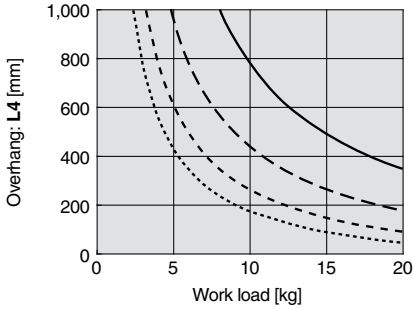
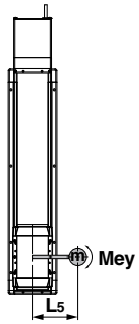
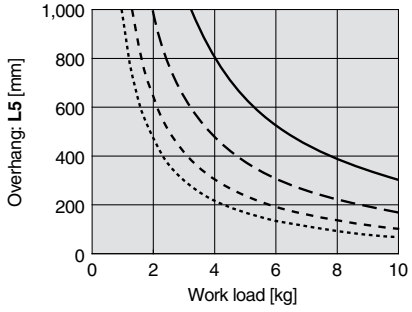
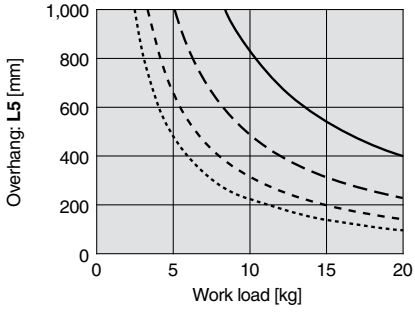


LEJB63/Belt Drive: Horizontal



Dynamic Allowable Moment

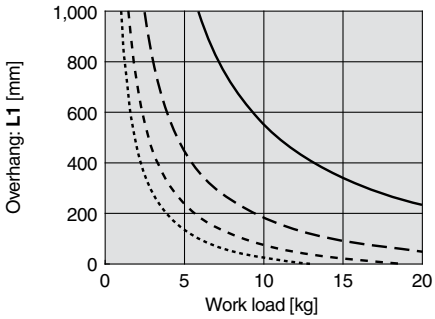
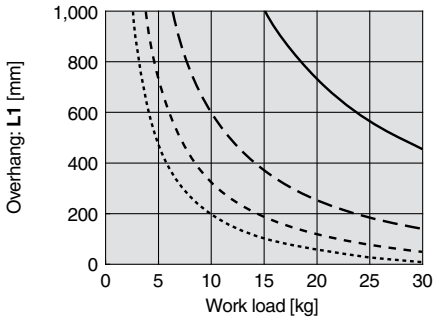
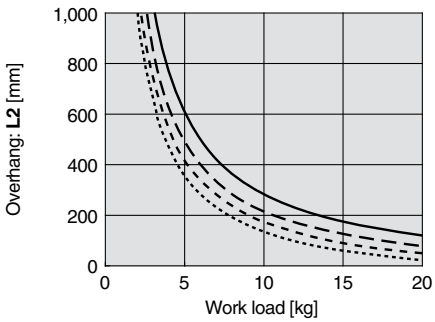
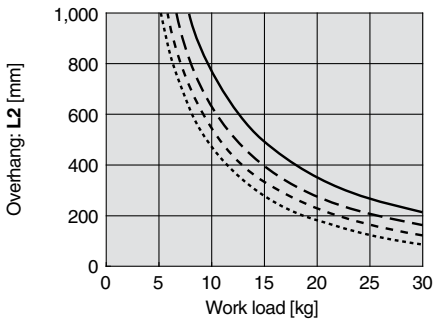
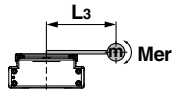
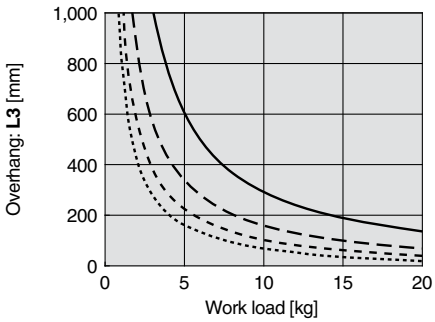
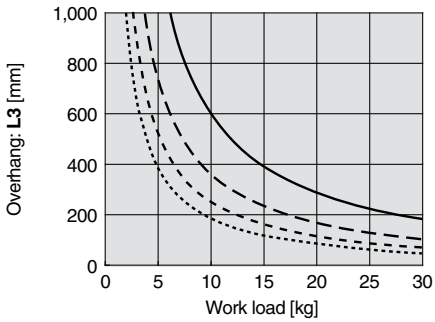
Acceleration —— 5,000 mm/s² — — — 10,000 mm/s² - - - - 15,000 mm/s² ····· 20,000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Dynamic allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model: LEJS40	Model: LEJS63
Horizontal		Pitching		
		Yawing		
		Rolling		
Vertical		Pitching		
		Yawing		

1 Kg = 2.2 lb

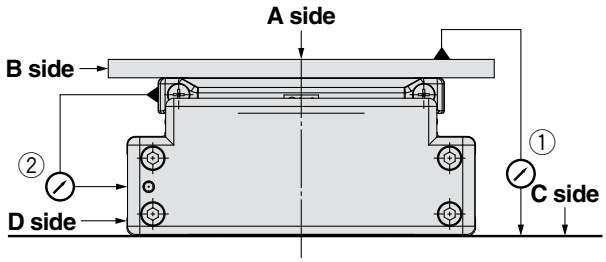
Dynamic Allowable Moment

Acceleration —— 5,000 mm/s² — — — 10,000 mm/s² - - - - 15,000 mm/s² ····· 20,000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Dynamic allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model: LEJB40	Model: LEJB63
Horizontal		Pitching		
		Yawing		
		Rolling		

1 Kg = 2.2 lb

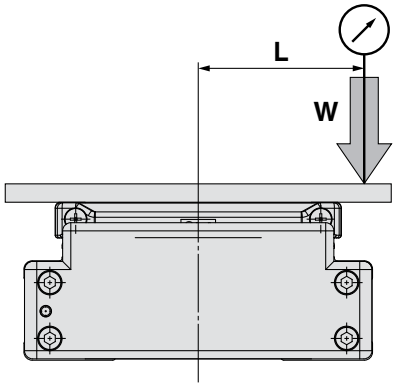
Table Accuracy (Reference Value)



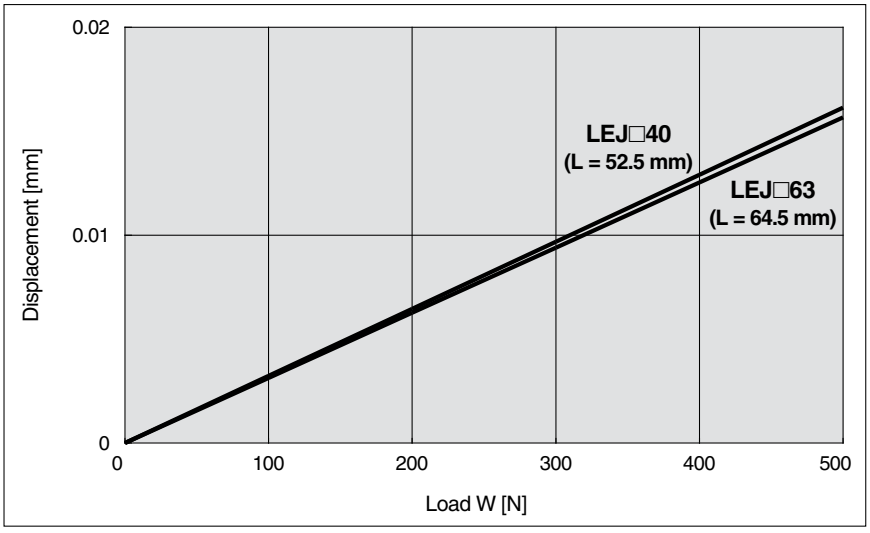
Model	Traveling parallelism [mm] (Every 300 mm)	
	① C side traveling parallelism to A side	② D side traveling parallelism to B side
LEJ□40	0.05	0.03
LEJ□63	0.05	0.03

Note) Traveling parallelism does not include the mounting surface accuracy.

Table Displacement (Reference Value)



1 N = 0.224 lbf

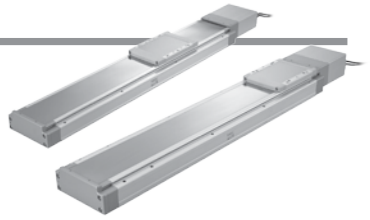


Note) This displacement is measured when a 15 mm aluminum plate is mounted and fixed on the table. (Table clearance is included.)

Electric Actuator/High Rigidity Slider Type
Ball Screw Drive AC Servo Motor (100/200 W)
Series LEJS

CE RoHS

How to Order



LEJS 40 S2 A – 500 ❺ – ❻ ❼ ❽ ❾

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Size

40
63

❷ Motor type*1

Symbol	Type	Output [W]	Actuator size	Compatible drivers*2
S2	AC servo motor (Incremental encoder)	100	40	LECSA□-S1
S3	AC servo motor (Incremental encoder)	200	63	LECSA□-S3
S6	AC servo motor (Absolute encoder)	100	40	LECSB□-S5 LECSC□-S5 LECSS□-S5
S7	AC servo motor (Absolute encoder)	200	63	LECSB□-S7 LECSC□-S7 LECSS□-S7

*1: For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.
*2: For details of the driver, refer to page 26.

❸ Lead [mm]

Symbol	LEJS40	LEJS63
A	16	20
B	8	10

❹ Stroke [mm]*3

200
to
1500

*3: Refer to the table below for details.

❺ Motor option

Nil	Without lock
B	With lock

❻ Cable type*5, *6, *7

Nil	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

* 6: The motor and encoder cables are included. (The lock cable is included when the motor with lock option is selected.)
* 7: Standard cable entry direction is "(A) Axis side".

❼ Cable length [m]*5, *8

Nil	Without cable
2	2 m
5	5 m
A	10 m

*8: The length of the motor, encoder and lock cables are the same.

❽ Driver type*5

	Compatible drivers	Power supply voltage (V)
Nil	Without driver	—
A1	LECSA1-S□	100 to 120
A2	LECSA2-S□	200 to 230
B1	LECSB1-S□	100 to 120
B2	LECSB2-S□	200 to 230
C1	LECSC1-S□	100 to 120
C2	LECSC2-S□	200 to 230
S1	LECSS1-S□	100 to 120
S2	LECSS2-S□	200 to 230

❾ I/O connector

Nil	Without connector
H	With connector

Applicable Stroke Table*4

● Standard ○Produced upon receipt of order

Model \ Stroke (mm)	200	300	400	500	600	700	800	900	1000	1200	1500
LEJS40	●	●	○	●	●	○	●	○	○	○	—
LEJS63	—	●	○	●	●	○	●	○	●	○	○

* 4: Strokes other than those shown above are produced as special order (1 mm increments).

*5: When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

For auto switches, refer to pages 19, 20.

Compatible Drivers

Driver type	Pulse input type /Positioning type 	Pulse input type 	CC-Link direct input type 	SSCNET III type 
Series	LECSA	LECSB	LECSC	LECSS
Number of point tables	Up to 7	—	Up to 255	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNET III
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder
External communication	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication, RS422 communication
Power supply voltage (V)	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)			
Reference page	Page 26	Page 26	Page 26	Page 26

Specifications

LEJS40/63 AC Servo Motor (100/200 W)

Model				LEJS40S $^{2}_{6}$		LEJS63S $^{3}_{7}$	
Actuator specifications	Stroke [mm] Note 1)			200, 300, (400), 500, 600, (700), 800 (900), (1000), (1200)		300, (400), 500, 600, (700), 800, (900) 1000, (1200), (1500)	
	Work load lb [kg] Note 2)		Horizontal	66 (30)	121 (55)	99 (45)	187 (85)
			Vertical	11 (5)	22 (10)	22 (10)	44 (20)
	Speed Note 3) [mm/s]	Stroke range	Up to 500	1200	600	1200	600
			501 to 600	1050	520	1200	600
			601 to 700	780	390	1200	600
			701 to 800	600	300	930	460
			801 to 900	480	240	740	370
			901 to 1000	390	190	600	300
			1001 to 1100	320	160	500	250
			1101 to 1200	270	130	420	210
			1201 to 1300	—	—	360	180
			1301 to 1400	—	—	310	150
			1401 to 1500	—	—	270	130
	Max. acceleration/deceleration [mm/s²]			20000 (Refer to page 4 for limit according to work load and duty ratio.)			
	Positioning repeatability [mm] Note 4)			±0.02			
	Lead [mm]			16	8	20	10
	Impact/Vibration resistance [m/s²] Note 5)			50/20			
	Actuation type			Ball screw			
	Guide type			Linear guide			
	Allowable external force			4.5 lbf (20 N)			
	Operating temperature range			41 to 104°F (5 to 40°C)			
	Operating humidity range [%RH]			90 or less (No condensation)			
	Regeneration option			May be required depending on speed and work load. (Refer to page 36.)			
Electric specifications	Motor output [W]/Size [mm]			100/□40		200/□60	
	Motor type			AC servo motor (100/200 VAC)			
	Encoder			Motor type S2, S3: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S6, S7: Absolute 18-bit encoder (Resolution: 262144 p/rev)			
Lock unit specifications	Type Note 6)			Non-magnetizing lock			
	Holding force			22.7 lbf (101 N)	45.6 lbf (203 N)	74.2 (330 N)	148.4 lbf (660 N)
	Power consumption at 68°F (20°C [W] Note 7)			6.3		7.9	
	Rated voltage [V]			24 VDC $^{0}_{-10\%}$			

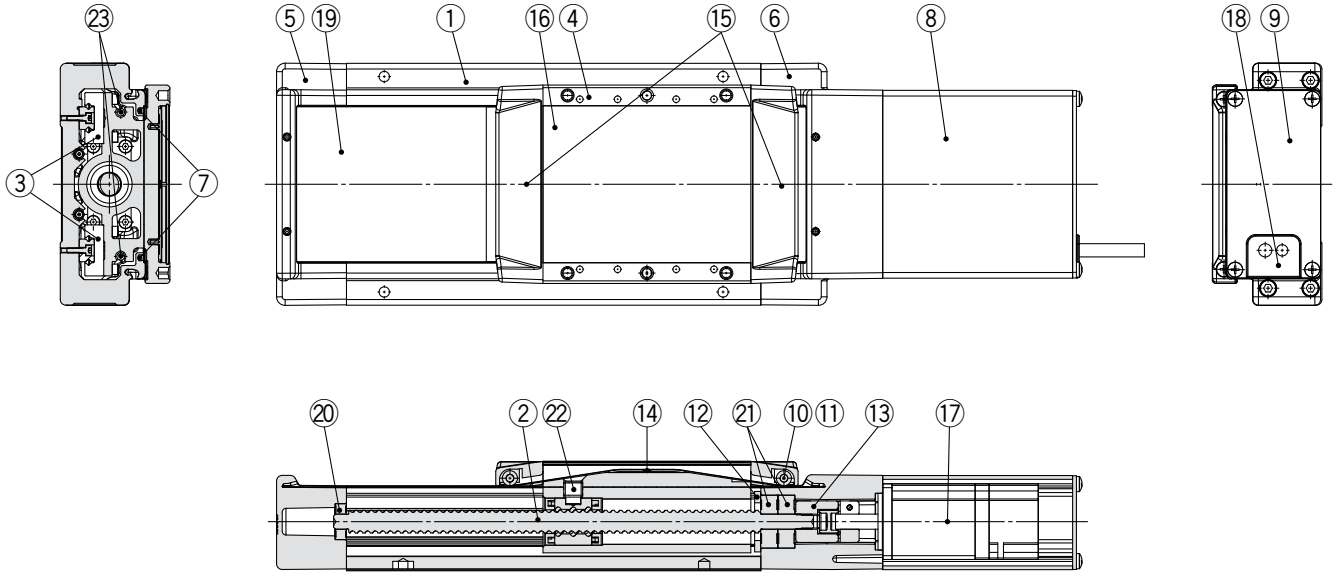
Note 1) Strokes shown in ( ) are produced upon receipt of order. Strokes other than those shown above are produced as special order (1 mm increments).
Note 2) Check "Speed–Work Load Graph (Guide)" on page 2.
Note 3) The allowable speed will change depending on the stroke.
Note 4) Conforming to JIS B 6191-1999
Note 5) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 6) Only when motor option "With lock" is selected.
Note 7) For an actuator with lock, add the power consumption for the lock.

Weight

Model	LEJS40									
Stroke [mm]	200	300	(400)	500	600	(700)	800	(900)	(1000)	(1200)
Product weight lb [kg]	12.3 (5.6)	14.1 (6.4)	15.7 (7.1)	17.4 (7.9)	19.2 (8.7)	20.7 (9.4)	22.5 (10.2)	24.3 (11.0)	25.8 (11.7)	29.3 (13.3)
Additional weight with lock	0.44 lb (0.2 kg) (Incremental encoder)/0.66 lb (0.3 Kg) (Absolute encoder)									

Model	LEJS63									
Stroke [mm]	300	(400)	500	600	(700)	800	(900)	1000	(1200)	(1500)
Product weight lb [kg]	25.1 (11.4)	28.0 (12.7)	30.6 (13.9)	33.5 (15.2)	36.2 (16.4)	39.0 (17.7)	41.7 (18.9)	44.3 (20.1)	49.8 (22.6)	58.2 (26.4)
Additional weight with lock	0.88 lb (0.4 Kg) (Incremental encoder)/1.54 lb (0.7 Kg) (Absolute encoder)									

Construction



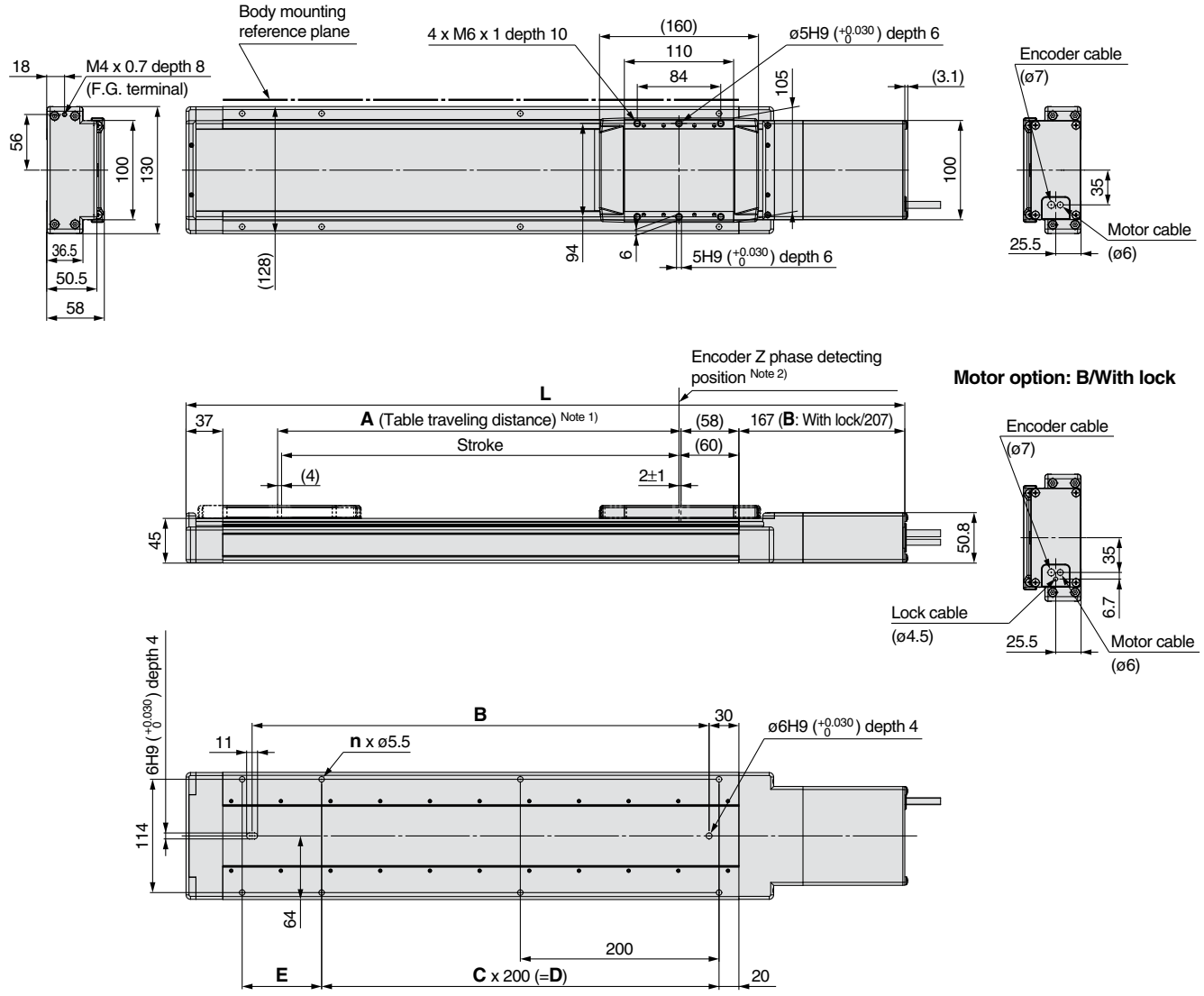
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw assembly**	—	
3	**Linear guide assembly**	—	
4	**Table**	Aluminum alloy	Anodized
5	**Housing A**	Aluminum alloy	Coating
6	**Housing B**	Aluminum alloy	Coating
7	**Seal magnet**	—	
8	**Motor cover**	Aluminum alloy	Anodized
9	**End cover A**	Aluminum alloy	Anodized
10	**Roller shaft**	Stainless steel	
11	**Roller**	Synthetic resin	
12	**Bearing stopper**	Carbon steel	

No.	Description	Material	Note
13	**Coupling**	—	
14	**Table cap**	Synthetic resin	
15	**Seal band stopper**	Synthetic resin	
16	**Blanking plate**	Aluminum alloy	Anodized
17	**Motor**	—	
18	**Grommet**	NBR	
19	**Dust seal band**	Stainless steel	
20	**Bearing**	—	
21	**Bearing**	—	
22	**Nut fixing pin**	Carbon steel	
23	**Magnet**	—	

Dimensions: Ball Screw Drive

LEJS40



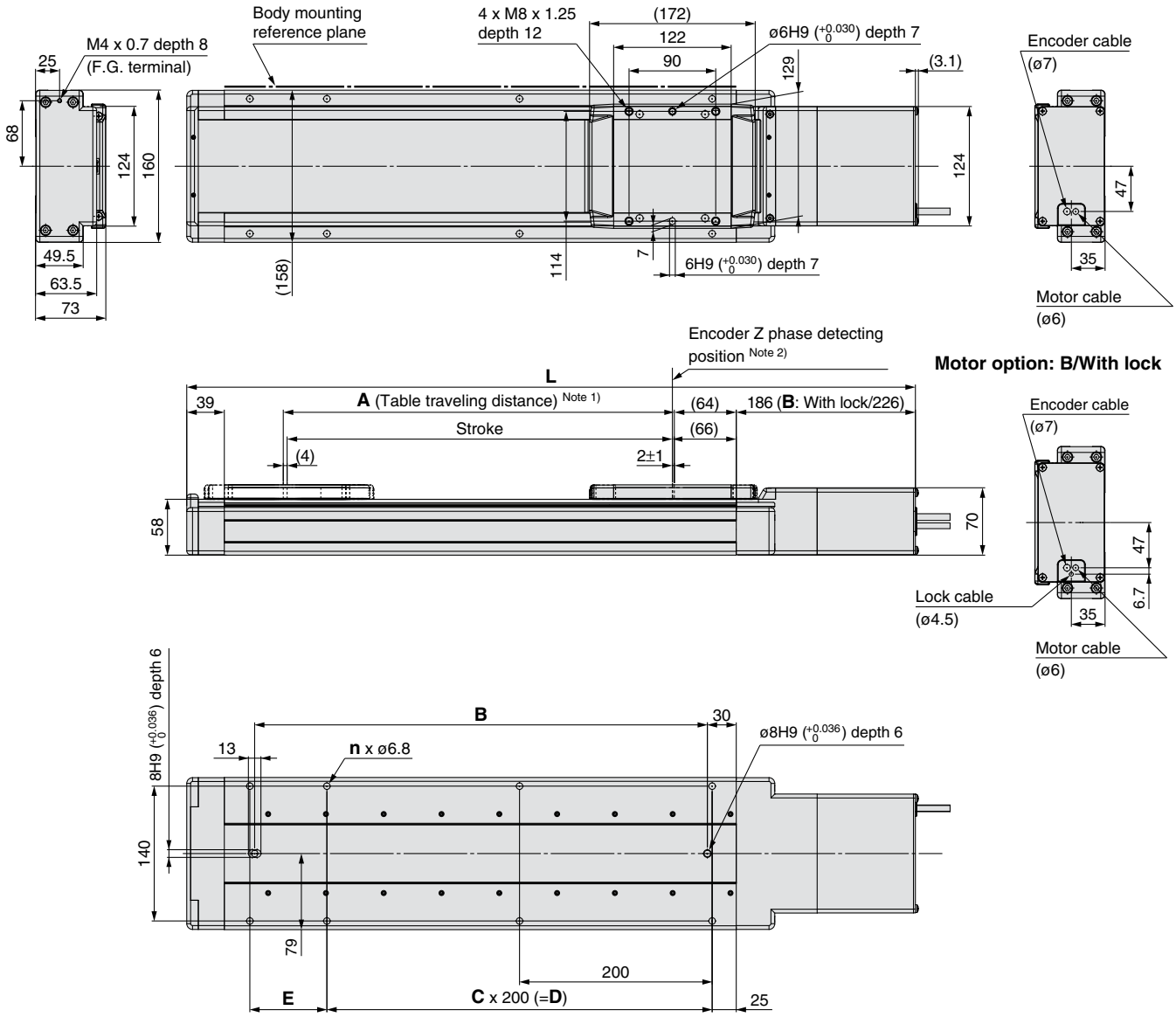
Note 1) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) The Z phase first detecting position from the stroke end of the motor side.
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L		A	B	n	C	D	E
	Without lock	With lock						
LEJS40S□□-200□-□□□□	523.5	563.5	206	260	6	1	200	80
LEJS40S□□-300□-□□□□	623.5	663.5	306	360	6	1	200	180
LEJS40S□□-400□-□□□□	723.5	763.5	406	460	8	2	400	80
LEJS40S□□-500□-□□□□	823.5	863.5	506	560	8	2	400	180
LEJS40S□□-600□-□□□□	923.5	963.5	606	660	10	3	600	80
LEJS40S□□-700□-□□□□	1023.5	1063.5	706	760	10	3	600	180
LEJS40S□□-800□-□□□□	1123.5	1163.5	806	860	12	4	800	80
LEJS40S□□-900□-□□□□	1223.5	1263.5	906	960	12	4	800	180
LEJS40S□□-1000□-□□□□	1323.5	1363.5	1006	1060	14	5	1000	80
LEJS40S□□-1200□-□□□□	1523.5	1563.5	1206	1260	16	6	1200	80

Dimensions: Ball Screw Drive

LEJS63



Note 1) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) The Z phase first detecting position from the stroke end of the motor side.
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L		A	B	n	C	D	E
	Without lock	With lock						
LEJS63S□□-300□-□□□□	656.5	696.5	306	370	6	1	200	180
LEJS63S□□-400□-□□□□	756.5	796.5	406	470	8	2	400	80
LEJS63S□□-500□-□□□□	856.5	896.5	506	570	8	2	400	180
LEJS63S□□-600□-□□□□	956.5	996.5	606	670	10	3	600	80
LEJS63S□□-700□-□□□□	1056.5	1096.5	706	770	10	3	600	180
LEJS63S□□-800□-□□□□	1156.5	1196.5	806	870	12	4	800	80
LEJS63S□□-900□-□□□□	1256.5	1296.5	906	970	12	4	800	180
LEJS63S□□-1000□-□□□□	1356.5	1396.5	1006	1070	14	5	1000	80
LEJS63S□□-1200□-□□□□	1556.5	1596.5	1206	1270	16	6	1200	80
LEJS63S□□-1500□-□□□□	1856.5	1896.5	1506	1570	18	7	1400	180

Electric Actuator/High Rigidity Slider Type
Belt Drive AC Servo Motor (100/200 W)
Series LEJB

How to Order

LEJB [40] [S2] [T] – [500] [ ] – [ ] [ ] [ ] [ ]

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Size

40
63

❷ Motor type*1

Symbol	Type	Output [W]	Actuator size	Compatible drivers
S2	AC servo motor (Incremental encoder)	100	40	LECSA□-S1
S3	AC servo motor (Incremental encoder)	200	63	LECSA□-S3
S6	AC servo motor (Absolute encoder)	100	40	LECSB□-S5 LECSC□-S5 LECSS□-S5
S7	AC servo motor (Absolute encoder)	200	63	LECSB□-S7 LECSC□-S7 LECSS□-S7

*1: For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.

❸ Lead [mm]

Symbol	LEJB40	LEJB63
T	27	42

❹ Stroke [mm]*2

200 to 3000

*2: Refer to the table below for details.

❺ Motor option

Nil	Without lock
B	With lock

❻ Cable type*4, *5, *6

Nil	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

*5: The motor and encoder cables are included. (The lock cable is included when the motor with lock option is selected.)

*6: Standard cable entry direction is "(A) Axis side".

❼ Cable length [m]*4, *7

Nil	Without cable
2	2 m
5	5 m
A	10 m

*7: The length of the motor, encoder and lock cables are the same.

❽ Driver type*4

	Compatible drivers	Power supply voltage (V)
Nil	Without driver	—
A1	LECSA1	100 to 120
A2	LECSA2	200 to 230
B1	LECSB1	100 to 120
B2	LECSB2	200 to 230
C1	LECSC1	100 to 120
C2	LECSC2	200 to 230
S1	LECSS1	100 to 120
S2	LECSS2	200 to 230

❾ I/O connector

Nil	Without connector
H	With connector

Applicable Stroke Table*3

● Standard ○ Produced upon receipt of order

Model \ Stroke (mm)	200	300	400	500	600	700	800	900	1000	1200	1500	2000	3000
LEJB40	○	●	☆○	●	○	○	●	○	●	○	○	○	—
LEJB63	—	○	☆○	●	○	○	●	○	●	●	○	○	○

*3: Strokes other than those shown above are produced as special order (1 mm increments).

*4: When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

For auto switches, refer to pages 19, 20.

Compatible Drivers

Driver type	Pulse input type /Positioning type	Pulse input type	CC-Link direct input type	SSCNET III type
Series	LECSA	LECSB	LECSC	LECSS
Number of point tables	Up to 7	—	Up to 255	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNET III
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder
External communication	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication, RS422 communication
Power supply voltage (V)	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)			
Reference page	Page 26	Page 26	Page 26	Page 26

Specifications

LEJB40/63 AC Servo Motor (100/200 W)

Model			LEJB40S$^{2}_{6}$	LEJB63S$^{3}_{7}$
Actuator specifications	Stroke [mm] Note 1)		(200), 300, (400), 500, (600), (700), 800 (900), 1000, (1200), (1500), (2000)	(300), (400), 500, (600), (700), 800 (900), 1000, 1200, (1500), (2000), (3000)
	Work load lb [kg]	Horizontal	44.0 (20) (If the stroke exceeds 1000 mm: 10)	66.1 (30)
	Speed [mm/s] Note 2)		2000	3000
	Max. acceleration/deceleration [mm/s^2]		20000 (Refer to page 4 for limit according to work load and duty ratio.)	
	Positioning repeatability [mm] Note 3)		±0.04	
	Lead [mm]		27	42
	Impact/Vibration resistance [m/s^2] Note 4)		50/20	
	Actuation type		Belt	
	Guide type		Linear guide	
	Allowable external force		4.5 lbf (20 N)	
	Operating temperature range		41 to 104°F (5 to 40°C)	
	Operating humidity range [%RH]		90 or less (No condensation)	
	Regeneration option		May be required depending on speed and work load. (Refer to page 36.)	
Electric specifications	Motor output [W]/Size [mm]		100/□40	200/□60
	Motor type		AC servo motor (100/200 VAC)	
	Encoder		Motor type S2, S3: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S6, S7: Absolute 18-bit encoder (Resolution: 262144 p/rev)	
Lock unit specifications	Type Note 5)		Non-magnetizing lock	
	Holding force		13.5 lbf (60 N)	42.5 lbf (189 N)
	Power consumption at 68°F (20°C) [W] Note 6)		6.3	7.9
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$	

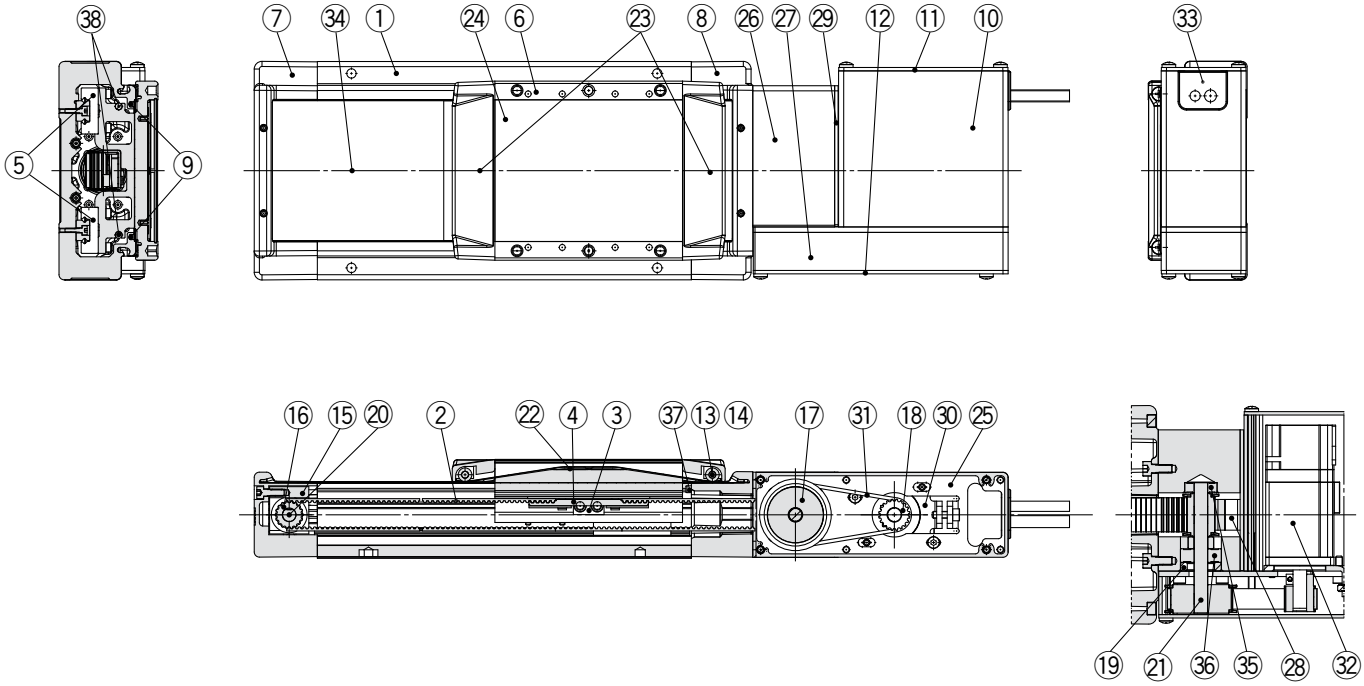
Note 1) Strokes shown in ( ) are produced upon receipt of order. Strokes other than those shown above are produced as special order (1 mm increments).
Note 2) Check "Speed–Work Load Graph (Guide)" on page 2.
Note 3) Conforming to JIS B 6191-1999
Note 4) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 5) Only when motor option "With lock" is selected.
Note 6) For an actuator with lock, add the power consumption for the lock.

Weight

Model	LEJB40											
Stroke [mm]	(200)	300	(400)	500	(600)	(700)	800	(900)	1000	(1200)	(1500)	(2000)
Product weight lb [kg]	12.6 (5.7)	14.1 (6.4)	15.7 (7.1)	17.0 (7.7)	18.5 (8.4)	20.1 (9.1)	21.6 (9.8)	23.1 (10.5)	24.7 (11.2)	27.8 (12.6)	32.4 (14.7)	40.0 (18.1)
Additional weight with lock	0.44 lb (0.2 kg) (Incremental encoder)/0.66 lg (0.3 lb) (Absolute encoder)											

Model	LEJB63											
Stroke [mm]	(300)	(400)	500	(600)	(700)	800	(900)	1000	1200	(1500)	(2000)	(3000)
Product weight lb [kg]	25.4 (11.5)	28.0 (12.7)	30.4 (13.8)	33.0 (15.0)	35.7 (16.2)	38.4 (17.4)	41.0 (18.6)	43.4 (19.7)	48.7 (22.1)	56.7 (25.7)	70.0 (31.6)	95.7 (43.4)
Additional weight with lock	0.88 lb (0.4 kg) (Incremental encoder)/1.54 lb (0.7 kg) (Absolute encoder)											

Construction



Motor details

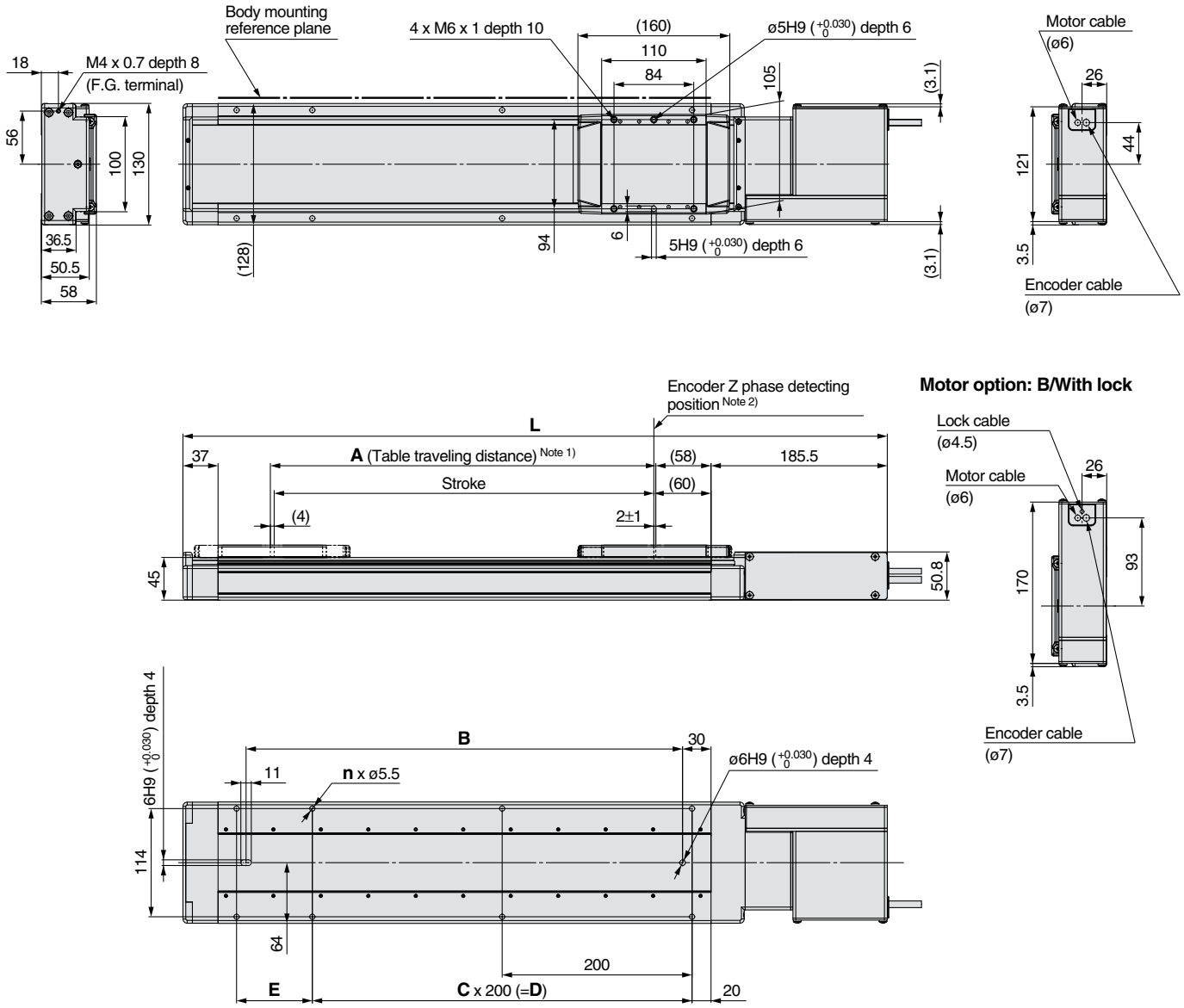
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Belt**	—	
3	**Belt holder**	Carbon steel	
4	**Belt stopper**	Aluminum alloy	
5	**Linear guide assembly**	—	
6	**Table**	Aluminum alloy	Anodized
7	**Housing A**	Aluminum alloy	Coating
8	**Housing B**	Aluminum alloy	Coating
9	**Seal magnet**	—	
10	**Motor cover**	Aluminum alloy	Anodized
11	**End cover A**	Aluminum alloy	Anodized
12	**End cover B**	Aluminum alloy	Anodized
13	**Roller shaft**	Stainless steel	
14	**Roller**	Synthetic resin	
15	**Pulley holder**	Aluminum alloy	
16	**Drive pulley**	Aluminum alloy	
17	**Speed reduction pulley**	Aluminum alloy	
18	**Motor pulley**	Aluminum alloy	
19	**Spacer**	Aluminum alloy	

No.	Description	Material	Note
20	**Pulley shaft A**	Stainless steel	
21	**Pulley shaft B**	Stainless steel	
22	**Table cap**	Synthetic resin	
23	**Seal band stopper**	Synthetic resin	
24	**Blanking plate**	Aluminum alloy	Anodized
25	**Motor mount plate**	Carbon steel	
26	**Pulley block**	Aluminum alloy	Anodized
27	**Pulley cover**	Aluminum alloy	Anodized
28	**Belt stopper**	Aluminum alloy	
29	**Side plate**	Aluminum alloy	Anodized
30	**Motor plate**	Carbon steel	
31	**Belt**	—	
32	**Motor**	—	
33	**Grommet**	NBR	
34	**Dust seal band**	Stainless steel	
35	**Bearing**	—	
36	**Bearing**	—	
37	**Stopper pin**	Stainless steel	
38	**Magnet**	—	

Dimensions: Belt Drive

LEJB40



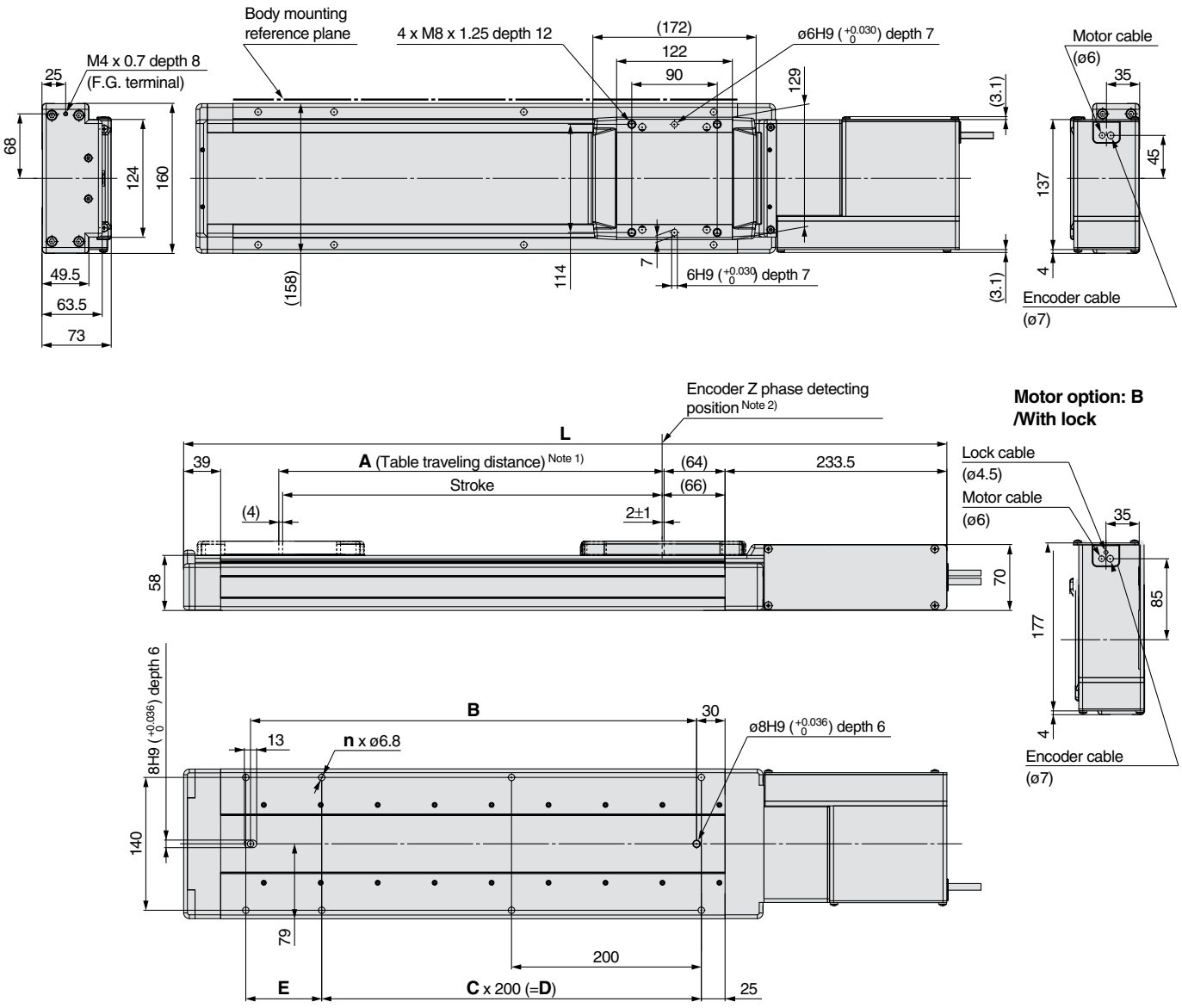
Note 1) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) The Z phase first detecting position from the stroke end of the motor side.
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L	A	B	n	C	D	E
LEJB40S□□-200□-□□□□	542	206	260	6	1	200	80
LEJB40S□□-300□-□□□□	642	306	360	6	1	200	180
LEJB40S□□-400□-□□□□	742	406	460	8	2	400	80
LEJB40S□□-500□-□□□□	842	506	560	8	2	400	180
LEJB40S□□-600□-□□□□	942	606	660	10	3	600	80
LEJB40S□□-700□-□□□□	1042	706	760	10	3	600	180
LEJB40S□□-800□-□□□□	1142	806	860	12	4	800	80
LEJB40S□□-900□-□□□□	1242	906	960	12	4	800	180
LEJB40S□□-1000□-□□□□	1342	1006	1060	14	5	1000	80
LEJB40S□□-1200□-□□□□	1542	1206	1260	16	6	1200	80
LEJB40S□□-1500□-□□□□	1842	1506	1560	18	7	1400	180
LEJB40S□□-2000□-□□□□	2342	2006	2060	24	10	2000	80

Dimensions: Belt Drive

LEJB63



Note 1) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) The Z phase first detecting position from the stroke end of the motor side.
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L	A	B	n	C	D	E
LEJB63S□□-300□-□□□□	704	306	370	6	1	200	180
LEJB63S□□-400□-□□□□	804	406	470	8	2	400	80
LEJB63S□□-500□-□□□□	904	506	570	8	2	400	180
LEJB63S□□-600□-□□□□	1004	606	670	10	3	600	80
LEJB63S□□-700□-□□□□	1104	706	770	10	3	600	180
LEJB63S□□-800□-□□□□	1204	806	870	12	4	800	80
LEJB63S□□-900□-□□□□	1304	906	970	12	4	800	180
LEJB63S□□-1000□-□□□□	1404	1006	1070	14	5	1000	80
LEJB63S□□-1200□-□□□□	1604	1206	1270	16	6	1200	80
LEJB63S□□-1500□-□□□□	1904	1506	1570	18	7	1400	180
LEJB63S□□-2000□-□□□□	2404	2006	2070	24	10	2000	80
LEJB63S□□-3000□-□□□□	3404	3006	3070	34	15	3000	80

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

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.**

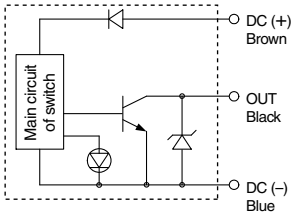
⚠Caution

Precautions

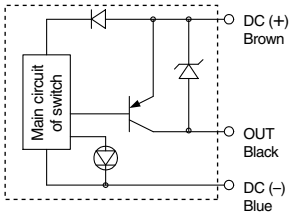
Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Internal Circuit

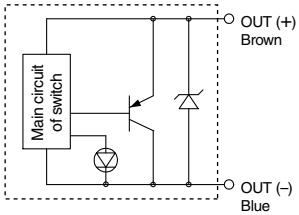
D-M9N/M9NV



D-M9P/M9PV



D-M9B/M9BV



Auto Switch Specifications

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

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					

● Lead wires — Oilproof flexible heavy-duty vinyl cord: ø2.7 x 3.2 ellipse, 0.15 mm², 2 cores (D-M9B(V)), 3 cores (D-M9N(V)/D-M9P(V))

Note) Refer to Best Pneumatics No. 2 for solid state auto switch common specifications.

Weight

[g]

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

Nil	In-line
V	Perpendicular

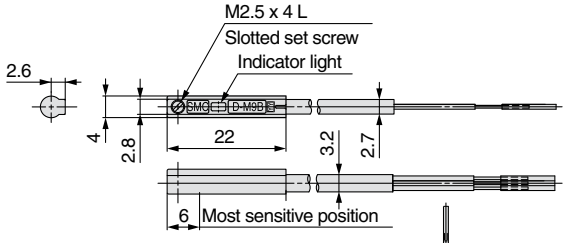
Lead wire length

Nil	0.5 m
M	1 m
L	3 m
Z	5 m

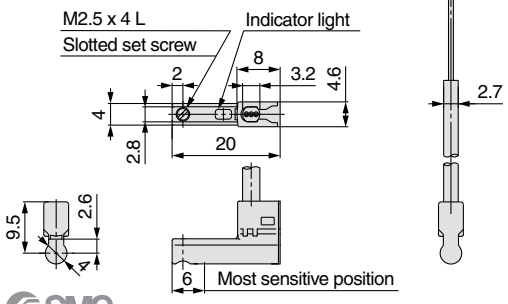
Dimensions

[mm]

D-M9□



D-M9□V



SMC

2-Color Indication Solid State Auto Switch / Direct Mounting Style

D-M9NW(V)/D-M9PW(V)/D-M9BW(V) CE RoHS

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 color of the light. (Red → Green ← Red)**

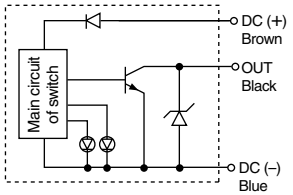
⚠Caution

Precautions

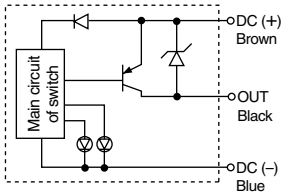
Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Internal Circuit

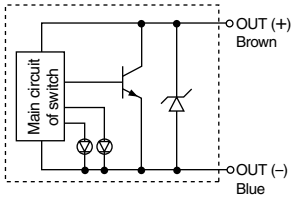
D-M9NW/M9NWV



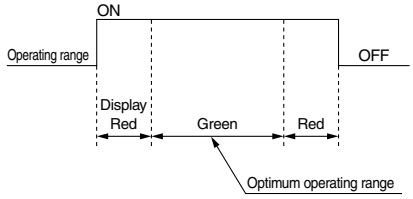
D-M8PW/M9PWV



D-M9BW/M9BWV



Indicator light/Indication method



Auto Switch Specifications

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

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					

- Lead wires — Oilproof flexible heavy-duty vinyl cord: ø2.7 x 3.2 ellipse, 0.15 mm², 2 cores (D-M9BW(V)), 3 cores (D-M9NW(V), D-M9PW(V))

Note) Refer to Best Pneumatics No. 2 for solid state auto switch common specifications.

Weight

[g]

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

Nil	In-line
V	Perpendicular

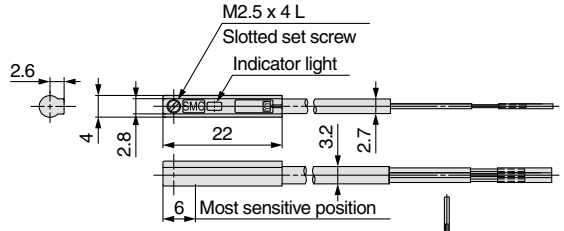
Lead wire length

Nil	0.5 m
M	1 m
L	3 m
Z	5 m

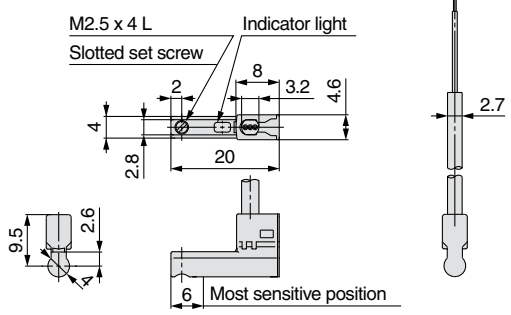
Dimensions

[mm]

D-M9□W



D-M9□WV



Series LEJ 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.smcworld.com

Design

⚠Caution

1. Do not apply a load in excess of the operating limit.

A product should be selected based on the maximum load and allowable moment. If the product is used outside of the operating limit, eccentric load applied to the guide will become excessive and have adverse effects such as creating play at the guide, degraded accuracy and shortened product life.

2. Do not use the product in applications where excessive external force or impact force is applied to it.

The product can be damaged.

The components including the motor are manufactured to precise tolerances. So that even a slight deformation may cause faulty operation or seizure.

Selection

⚠Warning

1. Do not exceed the speed limit of the actuator specification.

Select a suitable actuator by the relationship of the allowable work load and speed, and the allowable speed of each stroke. 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.

2. When the product repeatedly cycles with partial strokes (100 mm or less), lubrication can run out. Operate it at a full stroke at least once a day or every 1000 strokes.

3. When external force is applied to the table, it is necessary to add external force to the work load as the total carried load for the sizing.

When a cable duct or flexible moving tube is attached to the actuator, the sliding resistance of the table increases and may lead to operational failure of the product.

Handling

⚠Caution

1. Do not allow the table to hit the end of stroke.

It can cause damage to the actuator.

Handle the actuator with care, especially when it is used in the vertical direction.

2. The actual speed of this actuator is affected by the work load and stroke.

Check specifications with reference to the model selection section of the catalog.

3. Do not apply a load, impact or resistance in addition to a transferred load during returning to the original position.

4. Do not dent, scratch or cause other damage to the body and table mounting surfaces.

It may cause a loss of parallelism in the mounting surfaces, looseness in the guide unit, an increase in sliding resistance or other problems.

5. Do not apply strong impact or an excessive moment while mounting the product or 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.

6. Keep the flatness of mounting surface 0.1 mm or less.

Insufficient flatness of a workpiece or base mounted on the body of the product can cause play at the guide and increased sliding resistance.

In the case of overhang mounting (including cantilever), to avoid deflection of the actuator body, use a support plate or support guide.

7. When mounting the actuator, use all mounting holes.

If all mounting holes are not used, it influences the specifications, e.g., the amount of displacement of the table increases.

8. Do not hit the table with the workpiece in the positioning operation and positioning range.

9. Do not apply external force to the dust seal band.

Particularly during the transportation.

Series LEJ 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.smcworld.com

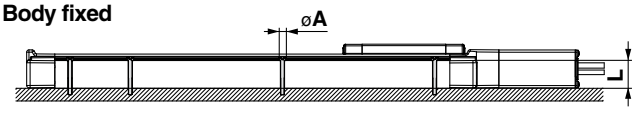
Handling

⚠Caution

10. When mounting the product, use screws with adequate length and tighten them with adequate torque.

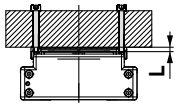
Tightening the screws with a higher torque than recommended may malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed



Model	Bolt	øA (mm)	L (mm)
LEJ□40	M5	5.5	36.5
LEJ□63	M6	6.8	49.5

Workpiece fixed



Model	Bolt	Max. tightening torque lbf·ft (N·m)	L (Max. screw-in depth) (mm)
LEJ□40	M6 x 1	3.8 (5.2)	10
LEJ□63	M8 x 1.25	9.2 (12.5)	12

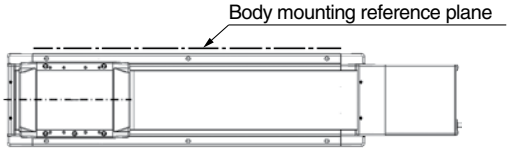
To prevent the workpiece fixing bolts from touching the body, use bolts that are 0.5 mm or shorter than the maximum screw-in depth. If long bolts are used, they can touch the body and cause malfunction, etc.

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

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

13. Vibration may occur during operation, this could be caused by the operating conditions.
If it occurs, adjust response value of auto tuning of driver to be lower.
During the first auto tuning noise may occur, the noise will stop when the tuning is complete.

14. When mounting the actuator using the body mounting reference plane, use a pin. Set the height of the pin to be 5 mm or more because of chamfering. (Recommended height 6 mm)



Maintenance

⚠Warning

Maintenance frequency

Perform maintenance according to the table below.

Frequency	Appearance check	Internal check	Belt check
Inspection before daily operation	○	—	—
Inspection every 6 months/1000 km/ 5 million cycles*	○	○	○

* Select whichever comes sooner.

- **Items for visual appearance check**
  1. Loose set screws, Abnormal dirt
  2. Check of flaw and cable joint
  3. Vibration, Noise
- **Items for internal check**
  1. Lubricant condition on moving parts.
     * For lubrication, use lithium grease No. 2.
  2. Loose or mechanical play in fixed parts or fixing screws.
- **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

AC Servo Motor Driver
Series ***LECS*** □

Pulse input type/
Positioning type

Incremental type
Series LECSA

Pulse input type

Absolute type
Series LECSB

CC-Link direct input type

Absolute type
Series LECSC

SSCNET III type

Absolute type
Series LECSS

AC Servo Motor Driver

Series LECS□

Power supply voltage	100 to 120 VAC 200 to 230 VAC
Motor capacity	100/200 W

Incremental Type

Series LECSA (Pulse input type/Positioning type)

- **Up to 7 positioning points by point table**
- **Input type:** Pulse input
- **Control encoder:** Incremental 17-bit encoder (Resolution: 131072 pulse/rev)
- **Parallel input:** 6 inputs
  output: 4 outputs

Absolute Type

Series LECSB (Pulse input type)

- **Input type:** Pulse input
- **Control encoder:** Absolute 18-bit encoder (Resolution: 262144 pulse/rev)
- **Parallel input:** 10 inputs
  output: 6 outputs

Series LECSC (CC-Link direct input type)

CC-Link

- **Position data/speed data setting and operation start/stop**
- **Positioning by up to 255 point tables (when 2 stations occupied)**
- **Up to 32 drivers connectable (when 2 stations occupied) with CC-Link communication**
- **Applicable Fieldbus protocol:** CC-Link (Ver. 1.10, max. communication speed: 10 Mbps)
- **Control encoder:** Absolute 18-bit encoder (Resolution: 262144 pulse/rev)

Series LECSS (SSCNET III type)

- **Compatible with Mitsubishi Electric's servo system controller network**
- **Reduced wiring and SSCNET III optical cable for one-touch connection**
- **SSCNET III optical cable provides enhanced noise resistance**
- **Up to 16 drivers connectable with SSCNET III communication**
- **Applicable Fieldbus protocol:** SSCNET III
  (High-speed optical communication, max. bidirectional communication speed: 100 Mbps)
- **Control encoder:** Absolute 18-bit encoder (Resolution: 262144 pulse/rev)

AC Servo Motor Driver
Incremental Type
Series LECSA (Pulse Input Type/Positioning Type)
Absolute Type
Series LECSB/LECSC/LECSS
(Pulse Input Type) (CC-Link Direct Input Type) (SSCNET III Type)


LECSA LECSB LECSC LECSS

How to Order

Driver LECS **A** **1** – **S1**

Driver type

A	Pulse input type/Positioning type (For incremental encoder)
B	Pulse input type (For absolute encoder)
C	CC-Link direct input type (For absolute encoder)
S	SSCNET III type (For absolute encoder)

Power supply voltage

1	100 to 120 VAC, 50/60 Hz
2	200 to 230 VAC, 50/60 Hz

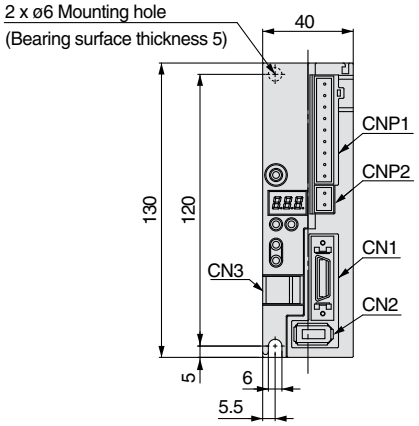
Compatible motor type

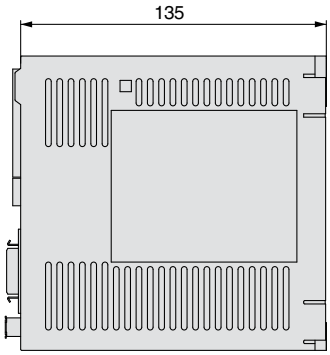
Symbol	Type	Capacity	Encoder
S1	AC servo motor (S2)	100 W	Incremental
S3	AC servo motor (S3)	200 W	
S5	AC servo motor (S6)	100 W	Absolute
S7	AC servo motor (S7)	200 W	

Dimensions

(mm)

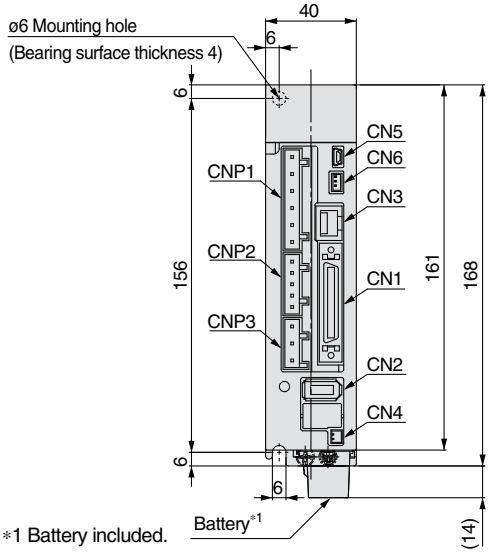
LECSA□

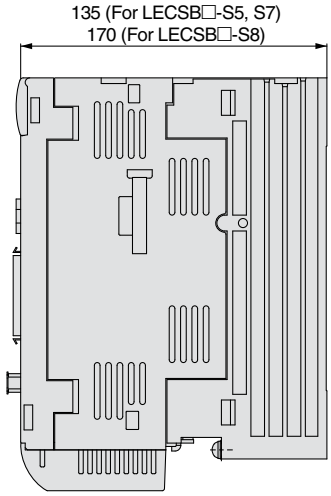




Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3	USB communication connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector

LECSB□





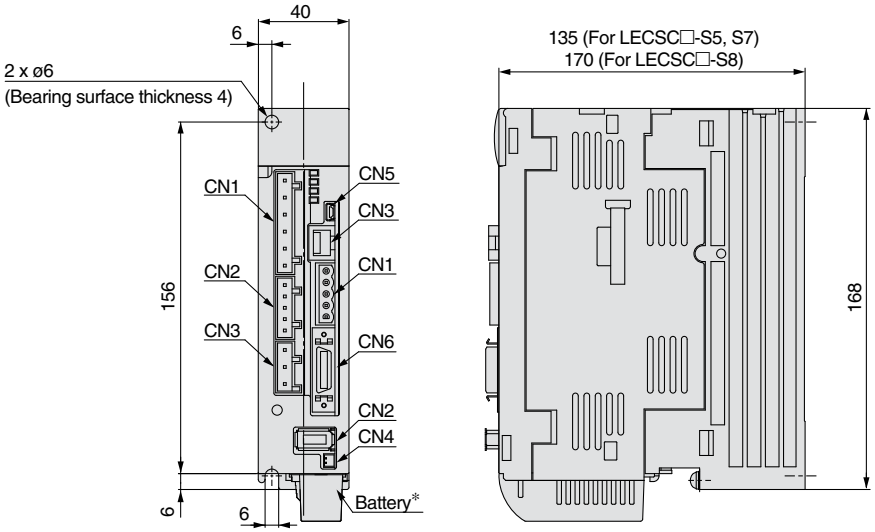
Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3	RS-422 communication connector
CN4	Battery connector
CN5	USB communication connector
CN6	Analog monitor connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector
CNP3	Servo motor power connector

*1 Battery included.

Dimensions

(mm)

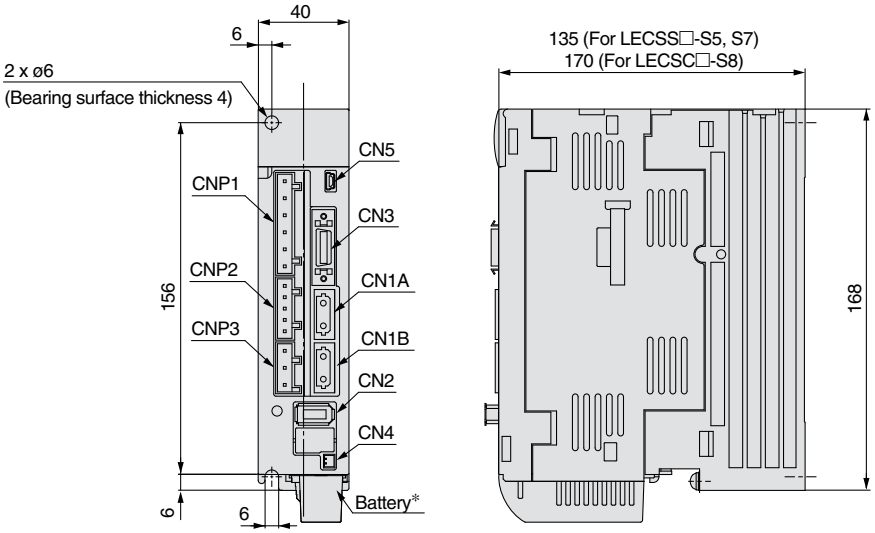
LECSC□



Connector name	Description
CN1	CC-Link connector
CN2	Encoder connector
CN3	RS-422 communication connector
CN4	Battery connector
CN5	USB communication connector
CN6	I/O signal connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector
CNP3	Servo motor power connector

∗ Battery included.

LECSS□



Connector name	Description
CN1A	Front axis connector for SSCNET III optical cable
CN1B	Rear axis connector for SSCNET III optical cable
CN2	Encoder connector
CN3	I/O signal connector
CN4	Battery connector
CN5	USB communication connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector
CNP3	Servo motor power connector

∗ Battery included.

Specifications

Series LECSA

Model		LECSA1-S1	LECSA1-S3	LECSA2-S1	LECSA2-S3
Compatible motor capacity [W]		100	200	100	200
Compatible encoder		Incremental 17-bit encoder (Resolution: 131072 pulse/rev)			
Main power supply	**Power voltage [V]**	Single phase 100 to 120 VAC (50/60 Hz)		Single phase 200 to 230 VAC (50/60 Hz)	
	Allowable voltage fluctuation [V]	Single phase 85 to 132 VAC		Single phase 170 to 253 VAC	
	Rated current [A]	3.0	5.0	1.5	2.4
Control power supply	**Control power supply voltage [V]**	24 VDC			
	Allowable voltage fluctuation [V]	21.6 to 26.4 VDC			
	Rated current [A]	0.5			
Parallel input		6 inputs			
Parallel output		4 outputs			
Max. input pulse frequency [pps]		1 M (when differential receiver), 200 k (when open collector)			
Function	**In-position range setting [pulse]**	0 to ±65535 (Command pulse unit)			
	Error excessive	±3 rotations			
	Torque limit	Parameter setting			
	Setting communication	USB communication			
Operating temperature range		32 to 131°F (0 to 55°C) (No freezing)			
Operating humidity range [%RH]		90 or less (No condensation)			
Storage temperature range [°C]		–4 to 149°F (–20 to 65°C) (No freezing)			
Storage humidity range [%RH]		90 or less (No condensation)			
Insulation resistance [MΩ]		Between case and SG: 10 (500 VDC)			
Weight		21.2 oz (600 g)			

Series LECSB

Model		LECSB1-S5	LECSB1-S7	LECSB2-S5	LECSB2-S7
Compatible motor capacity [W]		100	200	100	200
Compatible encoder		Absolute 18-bit encoder (Resolution: 262144 pulse/rev)			
Main power supply	**Power voltage [V]**	Single phase 100 to 120 VAC (50/60 Hz)		Three phase 200 to 230 VAC (50/60 Hz) Single phase 200 to 230 VAC (50/60 Hz)	
	Allowable voltage fluctuation [V]	Single phase 85 to 132 VAC		Three phase 170 to 253 VAC Single phase 170 to 253 VAC	
	Rated current [A]	3.0	5.0	0.9	1.5
Control power supply	**Control power supply voltage [V]**	Single phase 100 to 120 VAC (50/60 Hz)		Single phase 200 to 230 VAC (50/60 Hz)	
	Allowable voltage fluctuation [V]	Single phase 85 to 132 VAC		Single phase 170 to 253 VAC	
	Rated current [A]	0.4		0.2	
Parallel input		10 inputs			
Parallel output		6 outputs			
Max. input pulse frequency [pps]		1 M (when differential receiver), 200 k (when open collector)			
Function	**In-position range setting [pulse]**	0 to ±10000 (Command pulse unit)			
	Error excessive	±3 rotations			
	Torque limit	Parameter setup or external analog input setup (0 to 10 VDC)			
	Setting communication	USB communication, RS422 communication*1			
Operating temperature range		32 to 131°F (0 to 55°C) (No freezing)			
Operating humidity range [%RH]		90 or less (No condensation)			
Storage temperature range		–4 to 149°F (–20 to 65°C) (No freezing)			
Storage humidity range [%RH]		90 or less (No condensation)			
Insulation resistance [MΩ]		Between case and SG: 10 (500 VDC)			
Weight		28.2 oz (800 g)			

*1 USB communication and RS422 communication cannot be performed at the same time.

Specifications

Series LECSC

Model			LECSC1-S5	LECSC1-S7	LECSC2-S5	LECSC2-S7
Compatible motor capacity [W]			100	200	100	200
Compatible encoder			Absolute 18-bit encoder (Resolution: 262144 pulse/rev)			
Main power supply	Power voltage [V]		Single phase 100 to 120 VAC (50/60 Hz)		Three phase 200 to 230 VAC (50/60 Hz) Single phase 200 to 230 VAC (50/60 Hz)	
	Allowable voltage fluctuation [V]		Single phase 85 to 132 VAC		Three phase 170 to 253 VAC Single phase 170 to 253 VAC	
	Rated current [A]		3.0	5.0	0.9	1.5
Control power supply	Control power supply voltage [V]		Single phase 100 to 120 VAC (50/60 Hz)		Single phase 200 to 230 VAC (50/60 Hz)	
	Allowable voltage fluctuation [V]		Single phase 85 to 132 VAC		Single phase 170 to 253 VAC	
	Rated current [A]		0.4		0.2	
Communication specifications	Applicable Fieldbus protocol (Version)		CC-Link communication (Ver. 1.10)			
	Connection cable		CC-Link Ver. 1.10 compliant cable (Shielded 3-core twisted pair cable)*1			
	Remote station number		1 to 64			
	Cable length	Communication speed [bps]	16 k	625 k	2.5 M	5 M
		Maximum overall cable length [m]	1200	900	400	160
		Cable length between stations [m]	0.2 or more			
	I/O occupation area (Inputs/Outputs)		1 station occupied (Remote I/O 32 points/32 points)/(Remote register 4 words/4 words) 2 stations occupied (Remote I/O 64 points/64 points)/(Remote register 8 words/8 words)			
	Number of connectable drivers		Up to 42 (when 1 station is occupied by 1 driver), Up to 32 (when 2 stations are occupied by 1 driver), when there are only remote device stations.			
Command method	Remote register input		Available with CC-Link communication (2 stations occupied)			
	Point table No. input		Available with CC-Link communication, RS422 communication CC-Link communication (1 station occupied): 31 points CC-Link communication (2 stations occupied): 255 points RS422 communication: 255 points			
	Indexer positioning input		Available with CC-Link communication CC-Link communication (1 station occupied): 31 points CC-Link communication (2 stations occupied): 255 points			
Setting communication			USB communication, RS422 communication*2			
Operating temperature range			32 to 131°F (0 to 55°C) (No freezing)			
Operating humidity range [%RH]			90 or less (No condensation)			
Storage temperature range			–4 to 149°F (–20 to 65°C) (No freezing)			
Storage humidity range [%RH]			90 or less (No condensation)			
Insulation resistance [MΩ]			Between case and SG: 10 (500 VDC)			
Weight			28.2 oz (800 g)			

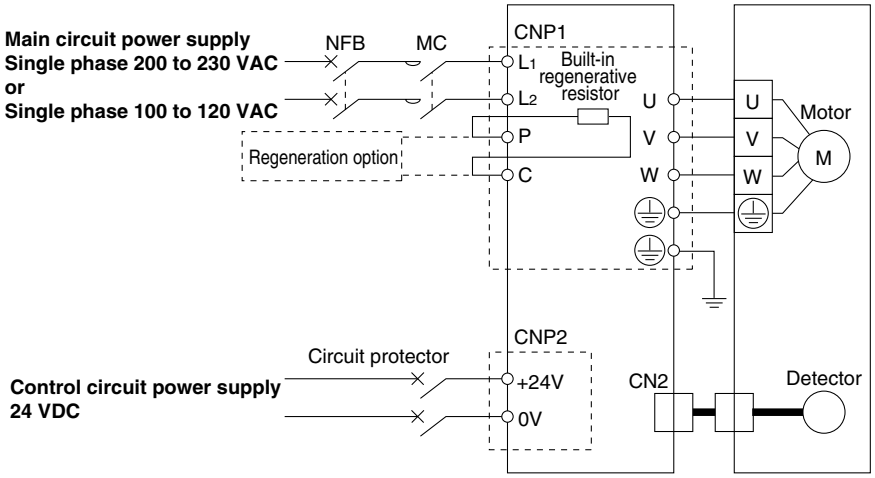
*1 If the system comprises of both CC-Link Ver. 1.00 and Ver. 1.10 compliant cables, Ver. 1.00 specifications are applied to the cable extensions and the cable length between stations.
*2 USB communication and RS422 communication cannot be performed at the same time.

Series LECSS

Model		LECSS1-S5	LECSS1-S7	LECSS2-S5	LECSS2-S7
Compatible motor capacity [W]		100	200	100	200
Compatible encoder		Absolute 18-bit encoder (Resolution: 262144 pulse/rev)			
Main power supply	Power voltage [V]	Single phase 100 to 120 VAC (50/60 Hz)		Three phase 200 to 230 VAC (50/60 Hz) Single phase 200 to 230 VAC (50/60 Hz)	
	Allowable voltage fluctuation [V]	Single phase 85 to 132 VAC		Three phase 170 to 253 VAC Single phase 170 to 253 VAC	
	Rated current [A]	3.0	5.0	0.9	1.5
Control power supply	Control power supply voltage [V]	Single phase 100 to 120 VAC (50/60 Hz)		Single phase 200 to 230 VAC (50/60 Hz)	
	Allowable voltage fluctuation [V]	Single phase 85 to 132 VAC		Single phase 170 to 253 VAC	
	Rated current [A]	0.4		0.2	
Applicable Fieldbus protocol		SSCNET III (High-speed optical communication)			
Setting communication		USB communication			
Operating temperature range		32 to 131°F (0 to 55°C) (No freezing)			
Operating humidity range [%RH]		90 or less (No condensation)			
Storage temperature range		– 4 to 149°F (–20 to 65°C) (No freezing)			
Storage humidity range [%RH]		90 or less (No condensation)			
Insulation resistance [MΩ]		Between case and SG: 10 (500 VDC)			
Weight		28.2 oz (800 g)			

Power Supply Wiring Example: LECSA

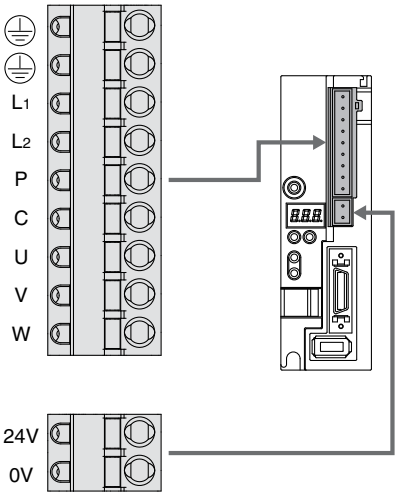
LECSA□-□



Main Circuit Power Supply Connector: CNP1

∗ Accessory

Terminal name	Function	Details
⏚	Protective earth (PE)	Should be grounded by connecting the servo motor's earth terminal and the control panel's protective earth (PE).
L_1	Main circuit power supply	Connect the main circuit power supply. LECSA1: Single phase 100 to 120 VAC, 50/60 Hz LECSA2: Single phase 200 to 230 VAC, 50/60 Hz
L_2		
P	Regeneration option	Terminal to connect regeneration option LECSA□-S1: No need for connection LECSA□-S3, S4: Connected at time of shipping. ∗ If regeneration option is required for "Model Selection", connect to this terminal.
C		
U	Servo motor power (U)	Connect to motor cable (U, V, W)
V	Servo motor power (V)	
W	Servo motor power (W)	



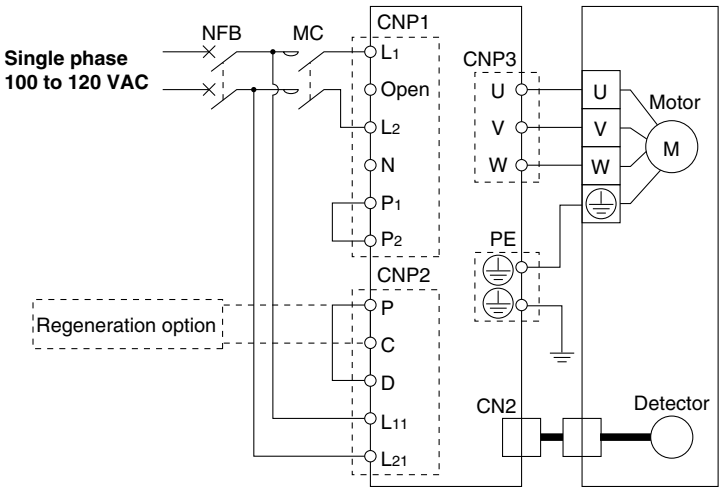
Control Circuit Power Supply Connector: CNP2

∗ Accessory

Terminal name	Function	Details
24V	Control circuit power supply (24 V)	24 V side of the control circuit power supply (24 VDC) which supplies the driver.
0V	Control circuit power supply (0 V)	0 V side of the control circuit power supply (24 VDC) which supplies the driver.

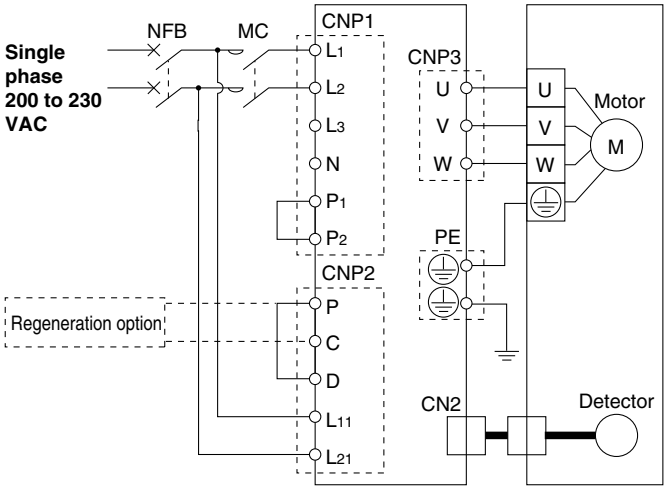
Power Supply Wiring Example: LECSB, LECSC, LECSS

LECSB1-□
LECSC1-□
LECSS1-□

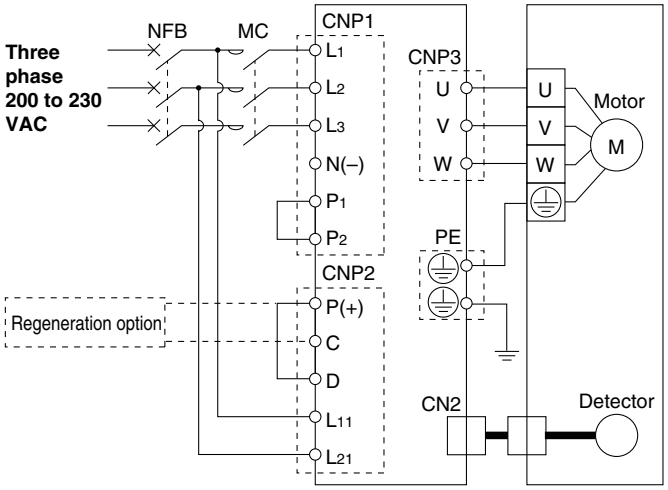


LECSB2-□
LECSC2-□
LECSS2-□

For single phase 200 VAC



For three phase 200 VAC



Note) For single phase 200 to 230 VAC, power supply should be connected to L_1 and L_2 terminals, with nothing connected to L_3.

Main Circuit Power Supply Connector: CNP1

∗ Accessory

Terminal name	Function	Details
L_1	Main circuit power supply	Connect the main circuit power supply. LECSB1/LECSC1/LECSS1: Single phase 100 to 120 VAC, 50/60 Hz Connection terminal: L_1,L_2 LECSB2/LECSC2/LECSS2: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_1,L_2 Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_1,L_2,L_3
L_2		
L_3		
N	Do not connect.	
P_1	Connect between P_1 and P_2. (Connected at time of shipping.)	
P_2		

Control Circuit Power Supply Connector: CNP2

∗ Accessory

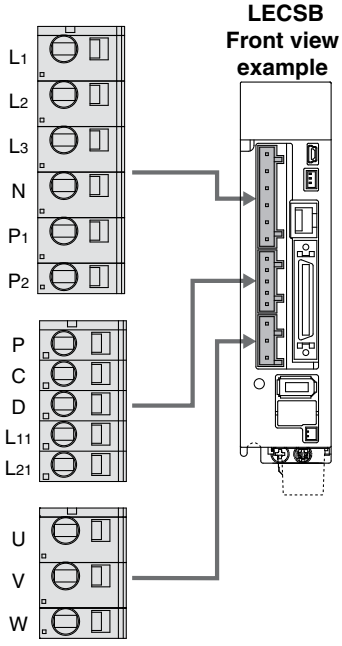
Terminal name	Function	Details
P	Regeneration option	Connect between P and D. (Connected at time of shipping.) ∗ If regeneration option is required for "Model Selection", connect to this terminal.
C		
D		
L_{11}	Control circuit power supply	Connect the control circuit power supply. LECSB1/LECSC1/LECSS1: Single phase 100 to 120 VAC, 50/60 Hz Connection terminal: L_{11},L_{21} LECSB2/LECSC2/LECSS2: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_{11},L_{21} Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_{11},L_{21}
L_{21}		

Motor Connector: CNP3

∗ Accessory

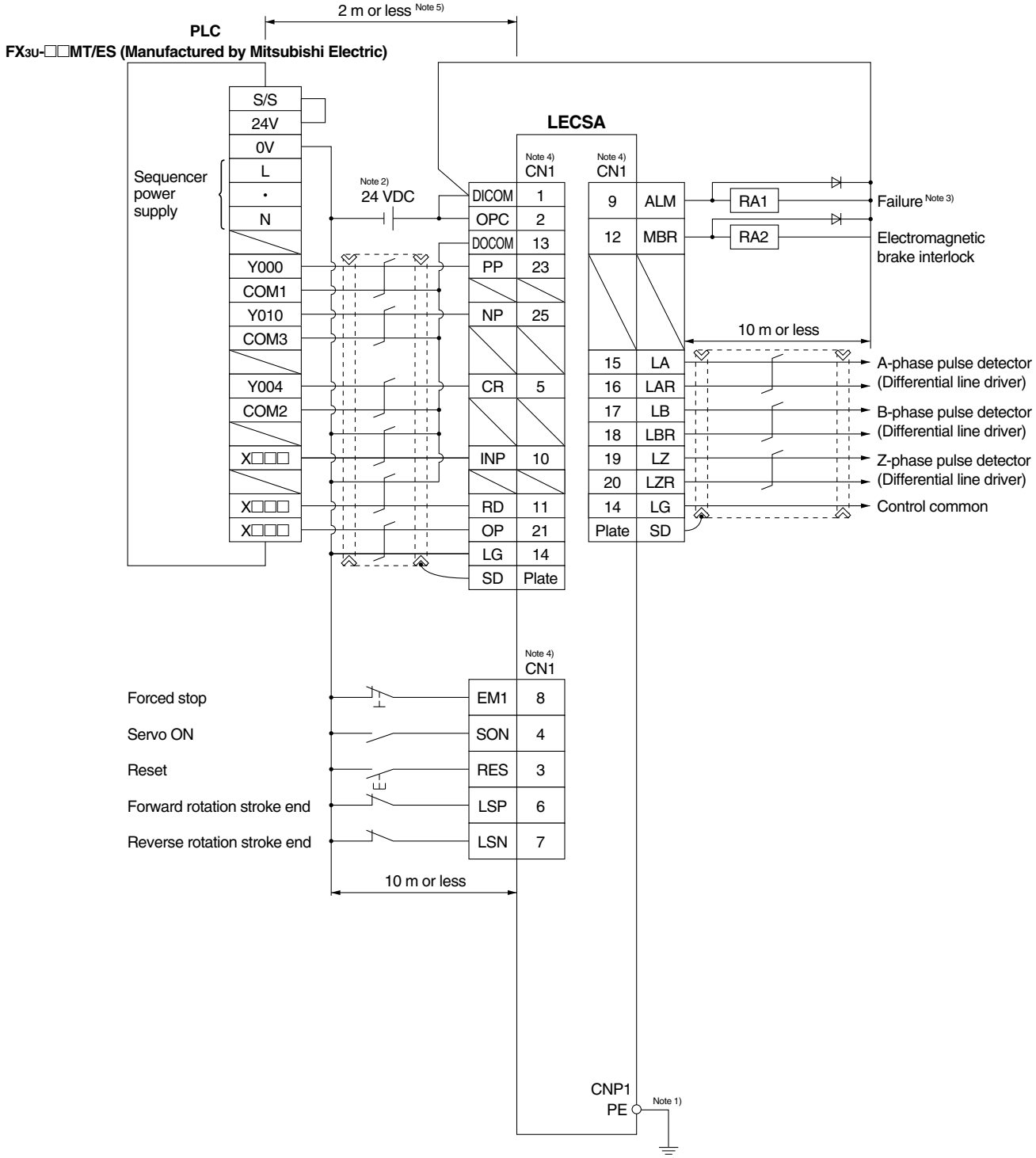
Terminal name	Function	Details
U	Servo motor power (U)	Connect to motor cable (U, V, W)
V	Servo motor power (V)	
W	Servo motor power (W)	

LECSB Front view example



Control Signal Wiring Example: LECSA

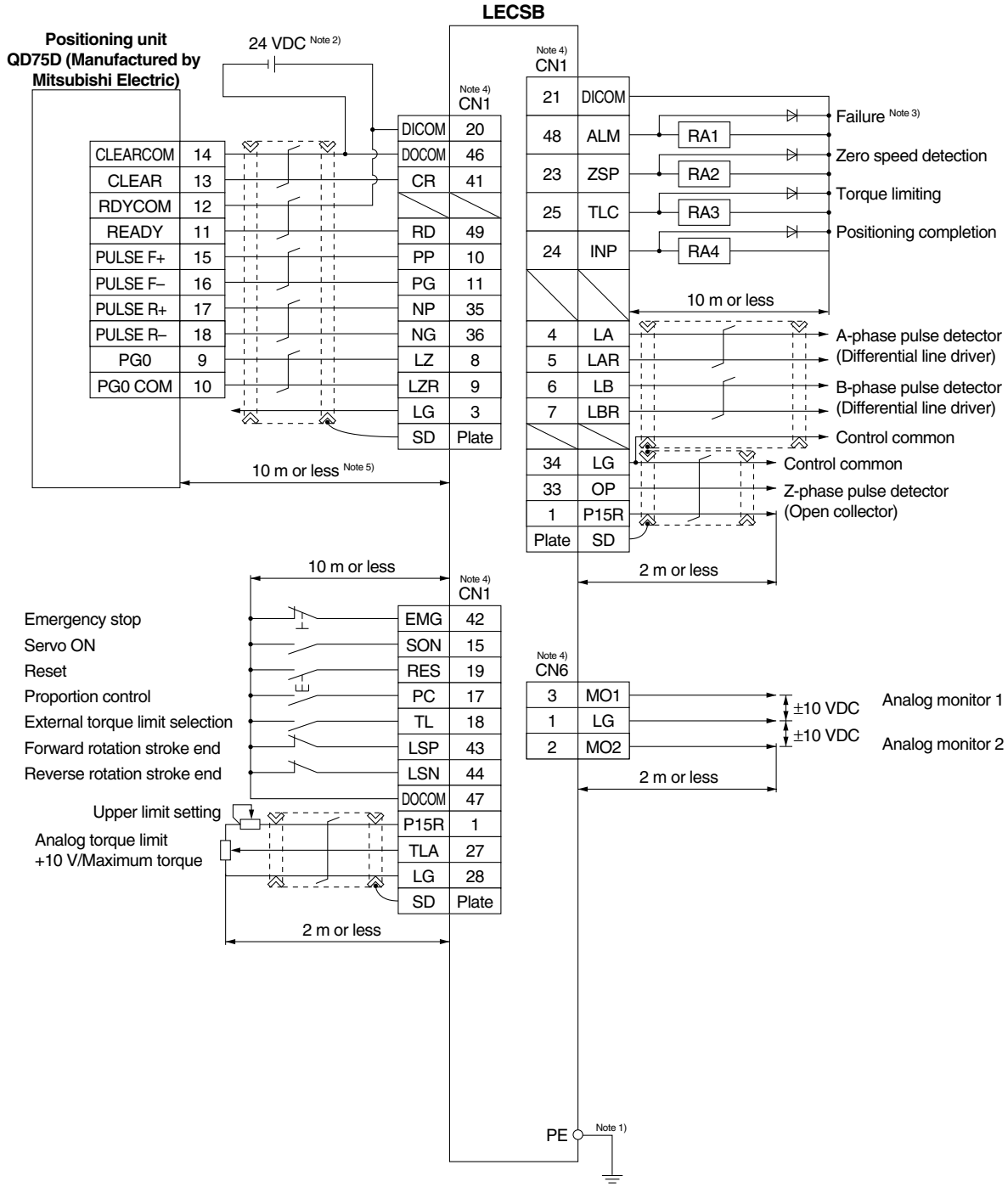
This wiring example shows connection with a PLC (FX3U-□□MT/ES) manufactured by Mitsubishi Electric as when used in position control mode. Refer to the LECSA operation manual and any technical literature or operation manuals for your PLC and positioning unit before connecting to another PLC or positioning unit.



Note 1) For preventing electric shock, be sure to connect the driver circuit power supply connector (CNP1)'s protective earth (PE) terminal to the control panel's protective earth (PE).
Note 2) For interface use, supply 24 VDC ±10% 200 mA using an external source. 200 mA is the value when all I/O command signals are used and reducing the number of inputs/outputs can decrease current capacity. Refer to "Operation Manual" for required current for interface.
Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.
Note 4) The same name signals are connected inside the driver.
Note 5) For command pulse input with an open collector method. When a positioning unit loaded with a differential line driver method is used, it is 10 m or less.

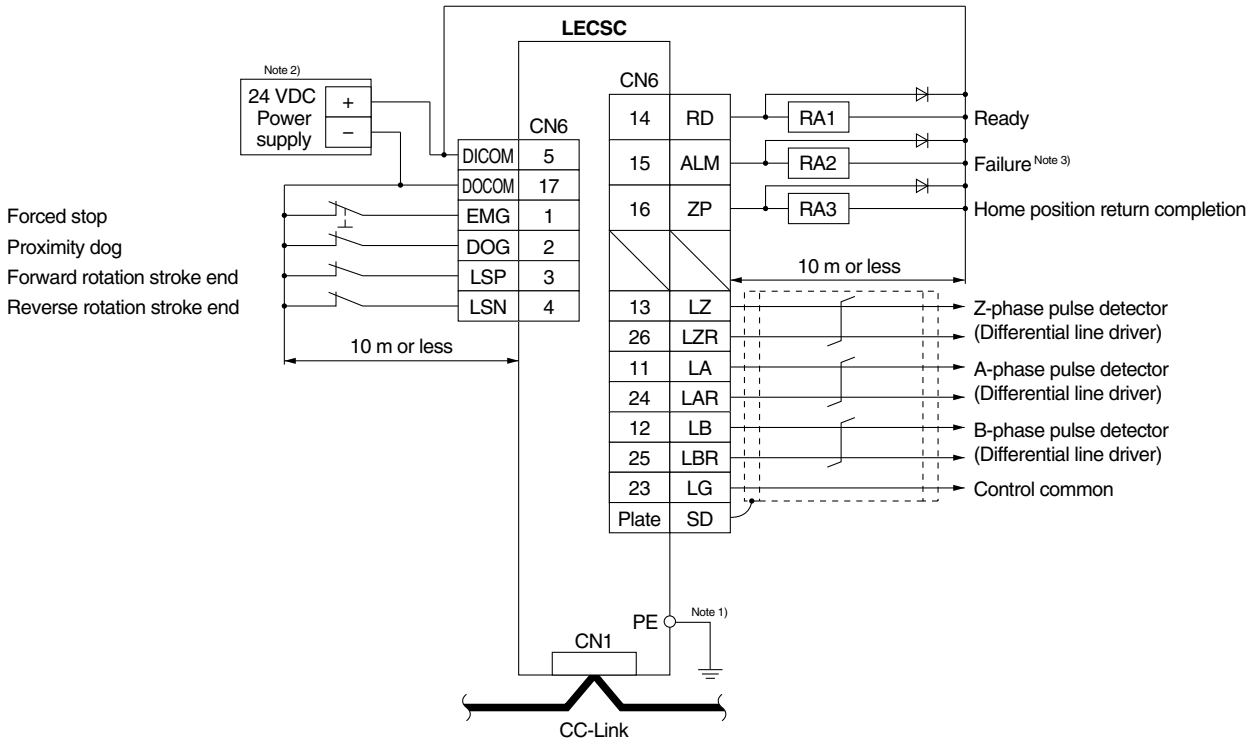
Control Signal Wiring Example: LECSB

This wiring example shows connection with a positioning unit (QD75D) manufactured by Mitsubishi Electric as when used in position control mode. Refer to the LECSB operation manual and any technical literature or operation manuals for your PLC and positioning unit.



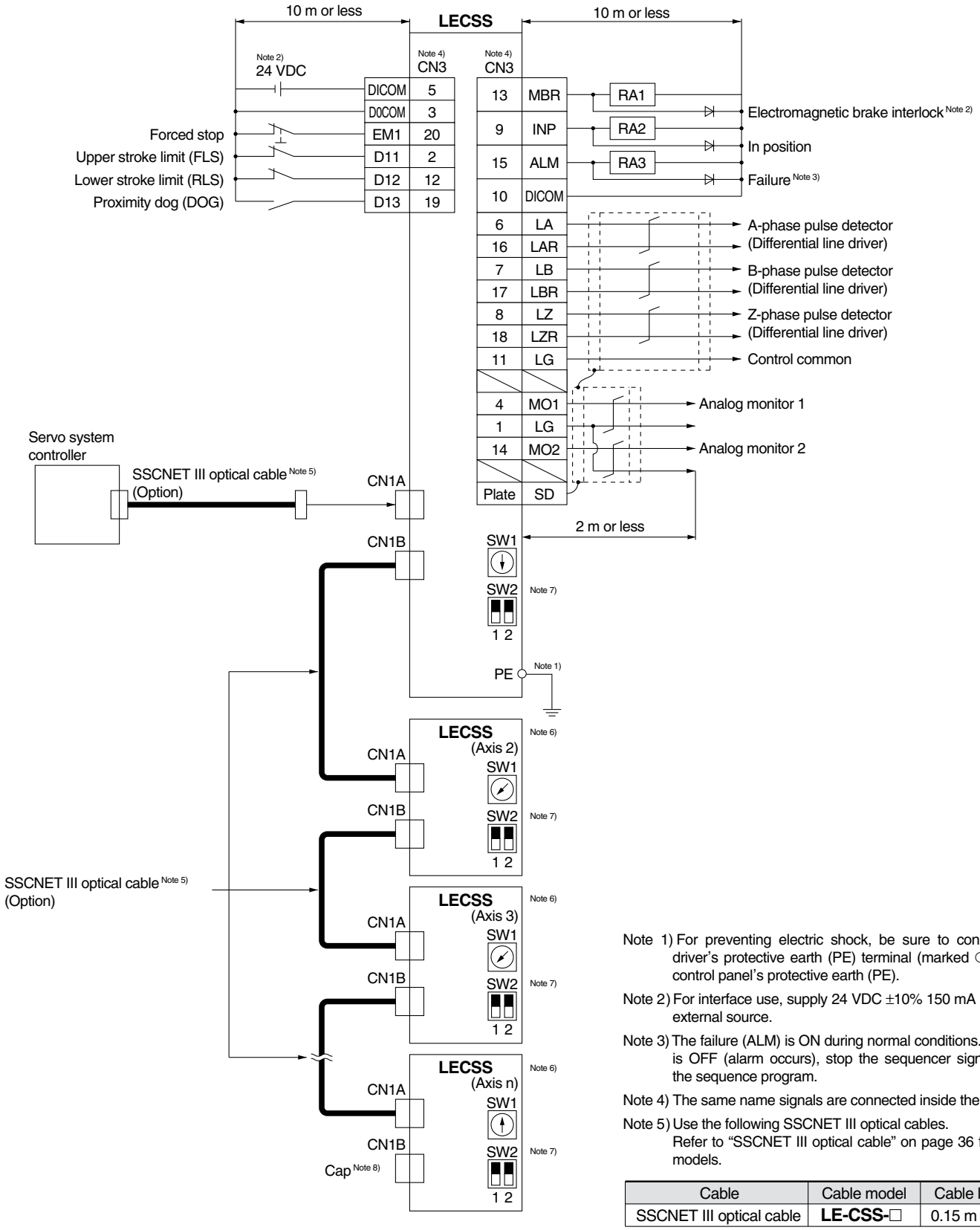
Note 1) For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal to the control panel's protective earth (PE).
Note 2) For interface use, supply 24 VDC ±10% 300 mA using an external source.
Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.
Note 4) The same name signals are connected inside the driver.
Note 5) For command pulse input with a differential line driver method. For open collector method, it is 2 m or less.

Control Signal Wiring Example: LECSC



Note 1) For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked ○) to the control panel's protective earth (PE).
Note 2) For interface use, supply 24 VDC ±10% 150 mA using an external source.
Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.

Control Signal Wiring Example: LECSS



Note 1) For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked ○) to the control panel's protective earth (PE).

Note 2) For interface use, supply 24 VDC ±10% 150 mA using an external source.

Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.

Note 4) The same name signals are connected inside the driver.

Note 5) Use the following SSCNET III optical cables.
Refer to "SSCNET III optical cable" on page 36 for cable models.

Cable	Cable model	Cable length
SSCNET III optical cable	**LE-CSS-□**	0.15 m to 3 m

Note 6) Connections from Axis 2 onward are omitted.

Note 7) Up to 16 axes can be set.

Note 8) Be sure to place a cap on unused CN1A/CN1B.

Options

Motor cable, Lock cable, Encoder cable (LECS□ common)

LE − CS M − S 5 A

Motor type

S	AC servo motor

Cable description

M	Motor cable
B	Lock cable
E	Encoder cable

Cable type

S	Standard cable
R	Robotic cable

Cable length (L) [m]

2	2
5	5
A	10

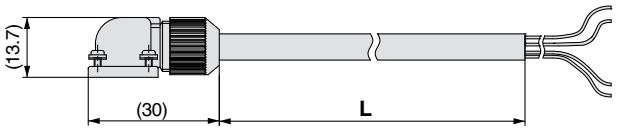
Direction of connector Note)

A	Axis side
B	Counter axis side

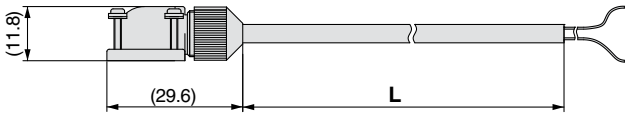
Note) Refer to "How to Order" for the direction of the standard connector.

∗ LE-CSM-S□□ is MR-PWS1CBL□M-A□-L manufactured by Mitsubishi Electric.
LE-CSB-S□□ is MR-BKS1CBL□M-A□-L manufactured by Mitsubishi Electric.
LE-CSE-S□□ is MR-J3ENCBL□M-A□-L manufactured by Mitsubishi Electric.
LE-CSM-R□□ is MR-PWS1CBL□M-A□-H manufactured by Mitsubishi Electric.
LE-CSB-R□□ is MR-BKS1CBL□M-A□-H manufactured by Mitsubishi Electric.
LE-CSE-R□□ is MR-J3ENCBL□M-A□-H manufactured by Mitsubishi Electric.

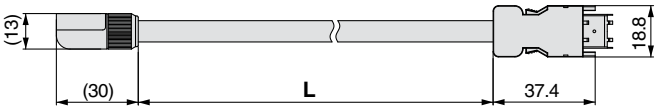
LE-CSM-□□: Motor cable



LE-CSB-□□: Lock cable



LE-CSE-□□: Encoder cable



I/O connector

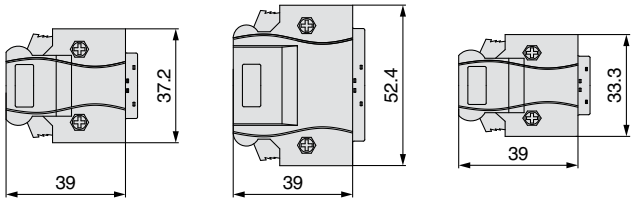
LE − CSN A

Driver type

A	**LECSA□, LECSC□**
B	**LECSB□**
S	**LECSS□**

∗ LE-CSNA: 10126-3000EL (connector)/10326-3210-0000 (shell kit) manufactured by 3M or equivalent item.
LE-CSNB: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by 3M or equivalent item.
LE-CSNS: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by 3M or equivalent item.

LE-CSNA **LE-CSNB** **LE-CSNS**



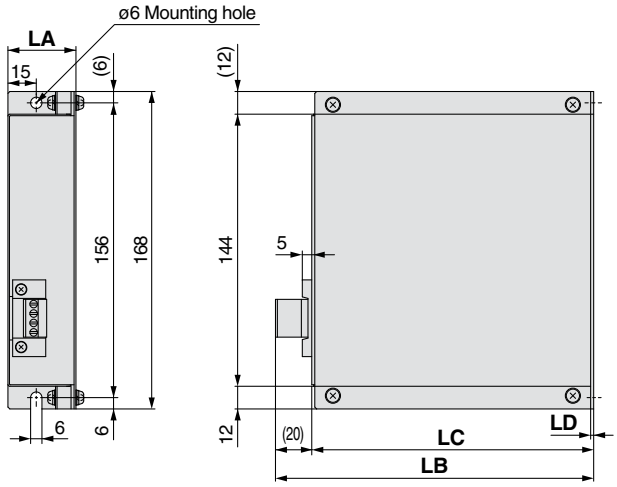
Regeneration option (LECS□ common)

LEC − MR − RB − □

Regeneration option type

032	Allowable regenerative power 30 W
12	Allowable regenerative power 100 W

∗ Confirm regeneration option to be used in "Model Selection".



Dimensions [mm]

Model	LA	LB	LC	LD
LEC-MR-RB-032	30	119	99	1.6
LEC-MR-RB-12	40	169	149	2

∗ MR-RB-□ manufactured by Mitsubishi Electric.

SSCNET III optical cable

LE − CSS − 1

Motor type

S	AC servo motor

Cable description

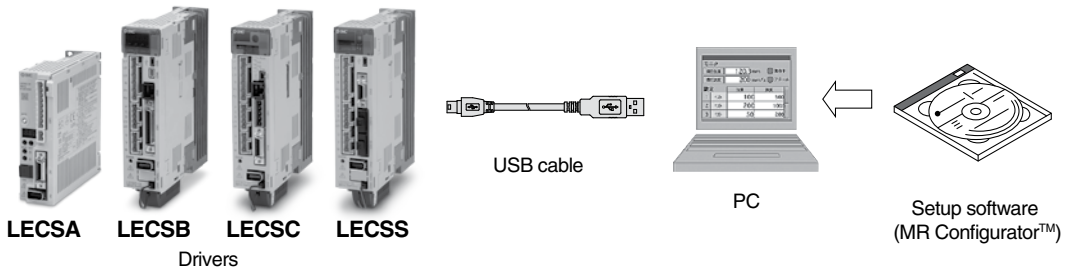
S	SSCNET III optical cable

Cable length

L	0.15 m
K	0.3 m
J	0.5 m
1	1 m
3	3 m

∗ LE-CSS-□ is MR-J3BUS□M manufactured by Mitsubishi Electric.

Options



Setup software (MR Configurator™) (LECSA, LECSB, LECSC, LECSS common)

LEC − MR − SETUP221 □

Display language

Nil	Japanese version
E	English version

∗ MRZJW3-SETUP221 manufactured by Mitsubishi Electric.
Refer to Mitsubishi Electric's website for operating environment and version update information.
MR Configurator™ is a registered trademark or trademark of Mitsubishi Electric.

Adjustment, motor display, diagnostics, parameter read/write, and test operation can be performed upon a PC.

Compatible PC

When using setup software (MR Configurator™), use an IBM PC/AT compatible PC that meets the following operating conditions.

Hardware Requirements

Equipment		Setup software (MR Configurator™) **LEC-MR-SETUP221□**
Note 1) Note 2) Note 3) PC	OS	Windows®98, Windows®Me, Windows®2000 Professional, Windows®XP Professional / Home Edition, Windows Vista® Home Basic / Home Premium / Business / Ultimate / Enterprise Windows®7 Starter / Home Premium / Professional / Ultimate / Enterprise
	Available HD space	130 MB or more
	Communication interface	Use USB port
Display		Resolution 1024 x 768 or more Must be capable of high color (16-bit) display. The connectable with the above PC
Keyboard		The connectable with the above PC
Mouse		The connectable with the above PC
Printer		The connectable with the above PC
USB cable		LEC-MR-J3USB Note 4, 5)

Note 1) Before using a PC for setting LECSA point table method/program method or LECSC point table No. input, upgrade to version C5 (Japanese version) /version C4 (English version). Refer to Mitsubishi Electric's website for version upgrade information.
Note 2) Windows, Windows Vista, Windows 7 are registered trademarks of Microsoft Corporation in the United States and/or other countries.
Note 3) This software may not run correctly depending on the PC that you are using.
Note 4) Not compatible with 64-bit Windows® XP and 64-bit Windows Vista®.
Note 5) Order USB cable separately.

USB cable (3 m)

LEC − MR − J3USB

∗ MR-J3USB manufactured by Mitsubishi Electric.

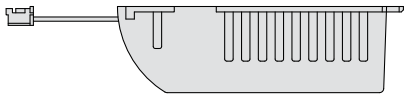
Cable for connecting PC and driver when using the setup software (MR Configurator™).
Do not use any cable other than this cable.

Battery (only for LECSB, LECSC or LECSS)

LEC − MR − J3BAT

∗ MR-J3BAT manufactured by Mitsubishi Electric.

Battery for replacement.
Absolute position data is maintained by installing the battery to the driver.



Series LECS□
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.smcworld.com

Design/Selection

⚠Warning

1. Use the specified voltage.
If the applied voltage is higher than the specified voltage, malfunction and damage to the controller may result. If the applied voltage is lower than the specified voltage, there is a possibility that the load cannot be moved due to internal voltage drop. Check the operating voltage prior to start. Also, confirm that the operating voltage does not drop below the specified voltage during operation.

2. Do not use the products outside the specifications.
Otherwise, fire, malfunction or damage to the driver/actuator can result. Check the specifications prior to use.

3. Install an emergency stop circuit.
Install an emergency stop outside the enclosure in easy reach to the operator so that the operator can stop the system operation immediately and intercept the power supply.

4. To prevent danger and damage due to a breakdown or malfunction of these products, which may occur at a certain probability, a backup system should be arranged in advance by using a multiple-layered structure or by making a fail-safe equipment design, etc.

5. If there is a risk of fire or personal injury due to abnormal heat generation, sparking, smoke generated by the product, etc., cut off the power supply from this product and the system immediately.

Handling

⚠Warning

1. Never touch the inside of the driver and its peripheral devices.
Otherwise, electric shock or failure can result.

2. Do not operate or set up this equipment with wet hands.
Otherwise, electric shock can result.

3. Do not use a product that is damaged or missing any components.
Electric shock, fire or injury can result.

4. Use only the specified combination between the electric actuator and driver.
Otherwise, it may cause damage to the driver or to the other equipment.

5. Be careful not to touch, get caught or hit by the workpiece while the actuator is moving.
An injury can result.

6. Do not connect the power supply or power up the product until it is confirmed that the workpiece can be moved safely within the area that can be reached by the workpiece.
Otherwise, the movement of the workpiece may cause an accident.

7. Do not touch the product when it is energized and for some time after the power has been disconnected, as it is very hot.
Otherwise, it may cause burns due to the high temperature.

8. Check the voltage using a tester at least 5 minutes after power-off when performing installation, wiring and maintenance.
Otherwise, electric shock, fire or injury can result.

Handling

⚠Warning

9. Static electricity may cause a malfunction or damage the driver. Do not touch the driver while power is supplied to it.
Take sufficient safety measures to eliminate static electricity when it is necessary to touch the driver for maintenance.

10. Do not use the products in an area where they could be exposed to dust, metallic powder, machining chips or splashes of water, oil or chemicals.
Otherwise, a failure or malfunction can result.

11. Do not use the products in a magnetic field.
Otherwise, a malfunction or failure can result.

12. Do not use the products in an environment where flammable, explosive or corrosive gases, liquids or other substances are present.
Otherwise, fire, explosion or corrosion can result.

13. Avoid heat radiation from strong heat sources, such as direct sunlight or a hot furnace.
Otherwise, it will cause a failure to the driver or its peripheral devices.

14. Do not use the products in an environment with cyclic temperature changes.
Otherwise, it will cause a failure to the driver or its peripheral devices.

15. Do not use the products in an environment where surges are generated.
Devices (solenoid type lifters, high frequency induction furnaces, motors, etc.) that generate a large amount of surge around the product may lead to deterioration or damage to the internal circuits of the products. Avoid supplies of surge generation and crossed lines.

16. Do not install these products in a place subject to vibration and impact.
Otherwise, a malfunction or failure can result.

17. When a surge generating load such as a relay or solenoid valve is directly driven, use a product that incorporates a surge absorption element.

Mounting

⚠Warning

1. Install the driver and its peripheral devices on fireproof material.
Direct installation on or near flammable material may cause fire.

2. Do not install these products in a place subject to vibration and impact.
Otherwise, a malfunction or failure can result.

3. The driver should be mounted on a vertical wall in a vertical direction.
Also, do not cover the driver's suction/exhaust ports.

4. Install the driver and its peripheral devices on a flat surface.
If the mounting surface is not flat or uneven, excessive force may be applied to the housing and other parts resulting in a malfunction.

⚠ 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 catalog 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 catalog.
   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.*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 catalog 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.

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

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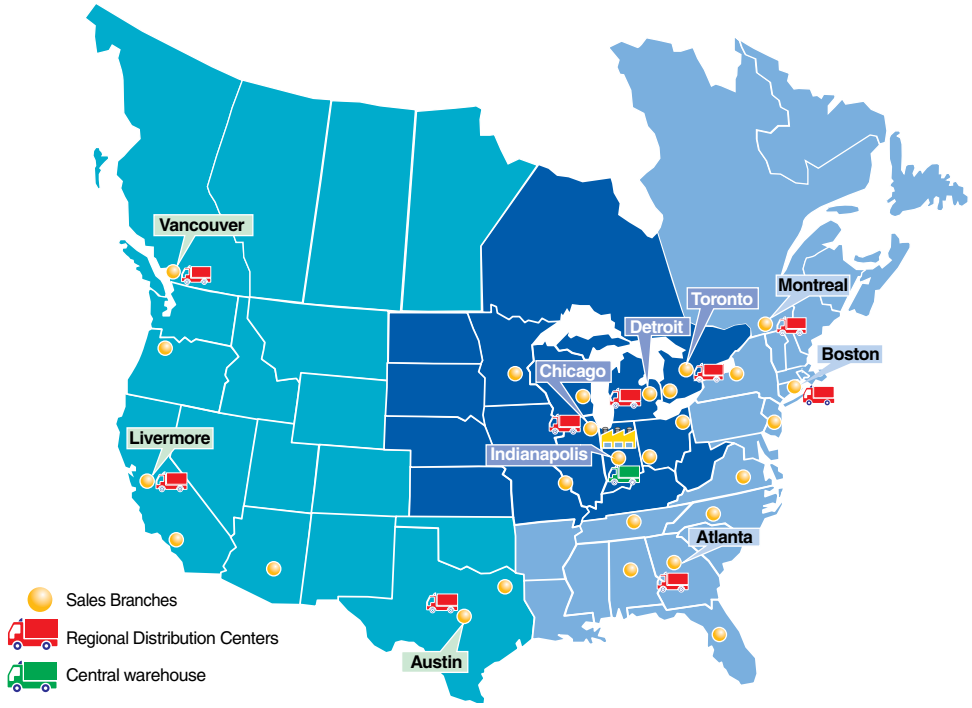

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