

Electric Actuator

High Rigidity

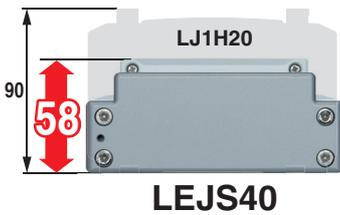
Slider Type



Low-profile/ Low centre of gravity

Height dimension reduced by approx. **36%** (Reduced by 32 mm)

Series	Work load [kg]	Speed [mm/s]	Motor output [W]
New LEJS40	55	600	100
(Existing model) LJ1H20	30	500	100



AC Servo Motor Type

Ball Screw Drive Series LEJS

Size: 40, 63

Work load: **85 kg**

Positioning repeatability: **±0.01 mm** (High precision type)

Max. speed: **1800 mm/s**

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

*1 ISO 14644-1

*2 The particle generation characteristics change depending on the suction flow rate. Refer to page 24 for details.



Clean Room Specification

11-LEJS
ISO Class 4⁺¹⁺²

Belt Drive Series LEJB

Size: 40, 63

Max. stroke: **3000 mm**

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

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



AC Servo Motor Driver

* Not applicable to UL.

► For absolute encoder

- Pulse input type
Series **LECSB**
- CC-Link direct input type
Series **LECSA**
- SSCNET III type
Series **LECS**
- SSCNET III/H type
Series **LECS-T**
- MECHATROLINK type
Series **LECY** □



► For incremental encoder

- Pulse input type/
Positioning type
Series **LECSA**



Series **LEJ**

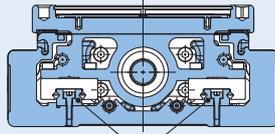


CAT.EUS100-104Ccc-UK

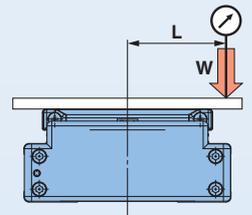
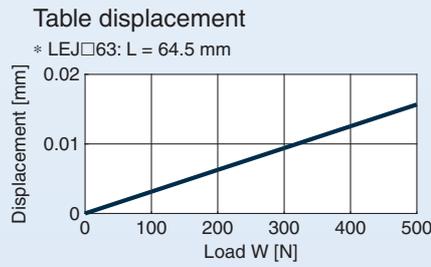
Series LEJ

● High precision/High rigidity

Double axis linear guide reduces deflection

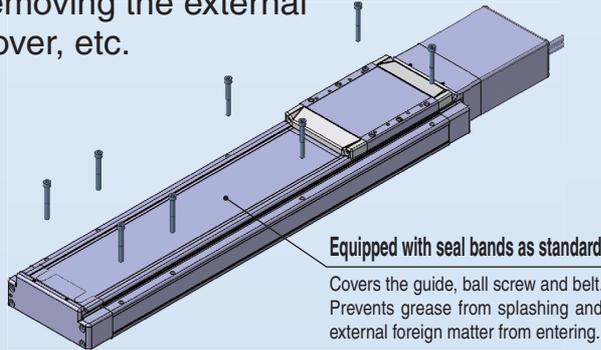


Linear guide (Double axis)



● Reduction of the installation labour

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

LJ1H30

24.0 kg

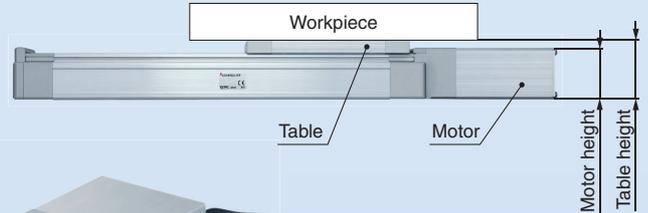
LEJS63

15.2 kg

37%

● Workpiece does not interfere with the motor

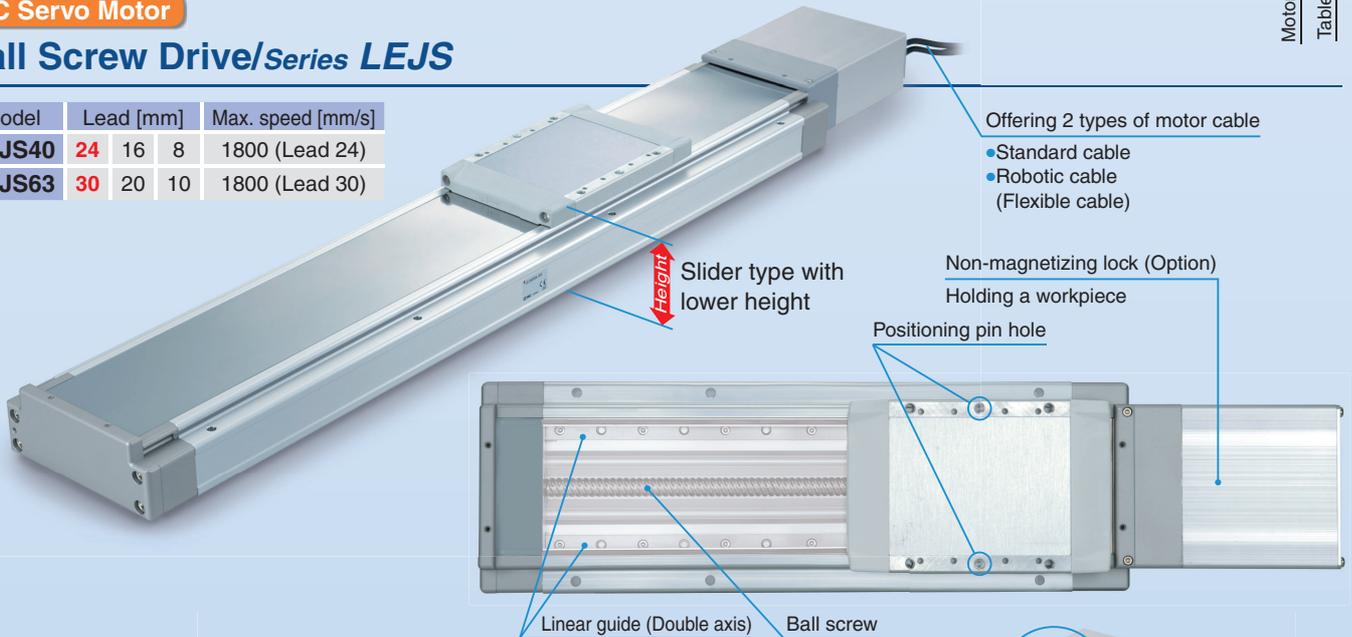
Table height > Motor height



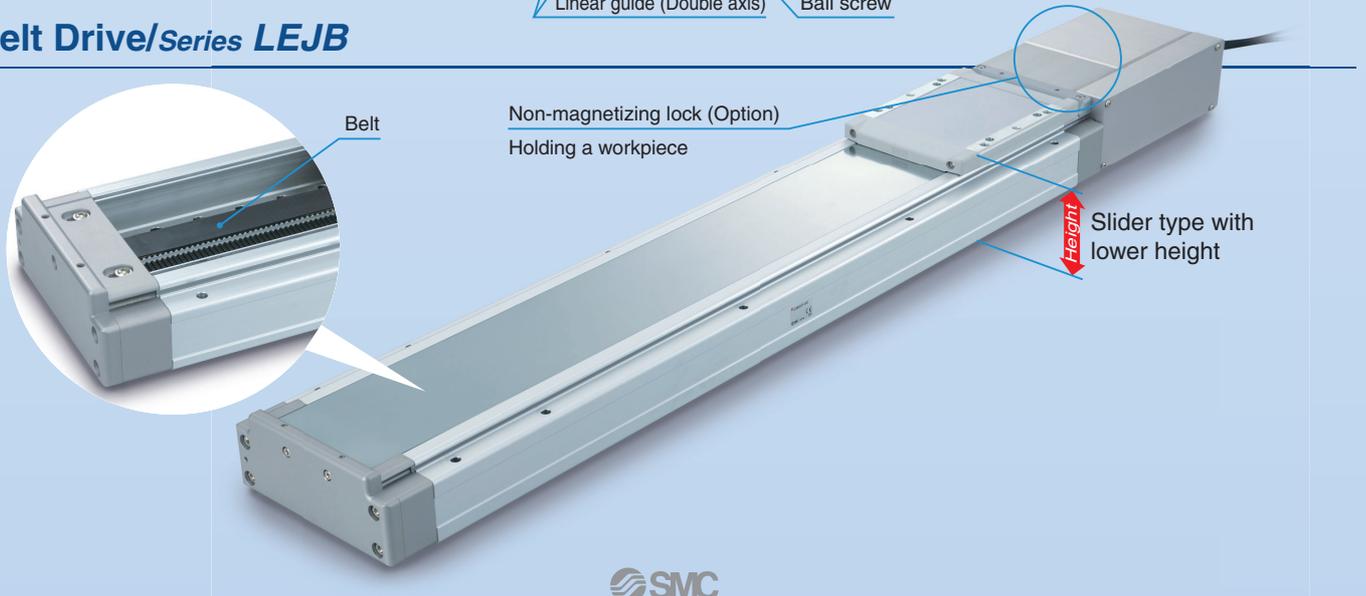
AC Servo Motor

Ball Screw Drive/Series LEJS

Model	Lead [mm]	Max. speed [mm/s]
LEJS40	24 16 8	1800 (Lead 24)
LEJS63	30 20 10	1800 (Lead 30)



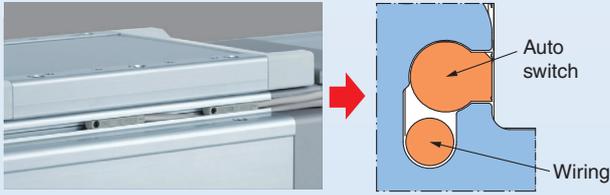
Belt Drive/Series LEJB



Electric Actuator/High Rigidity Slider Type

●Solid state auto switch can be mounted (For checking the limit and intermediate signal)

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



2-colour indication solid state auto switch

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



Clean Room Specification

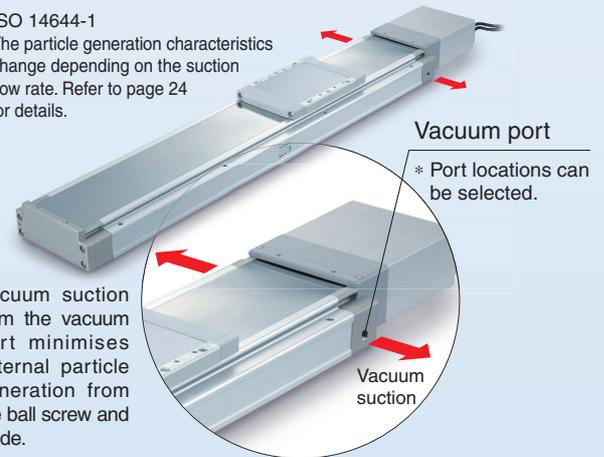
Ball Screw Drive Series 11-LEJS Size: 40, 63

ISO Class 4*1, *2

- Built-in vacuum piping
- Possible to mount the main body without removing the external cover, etc.

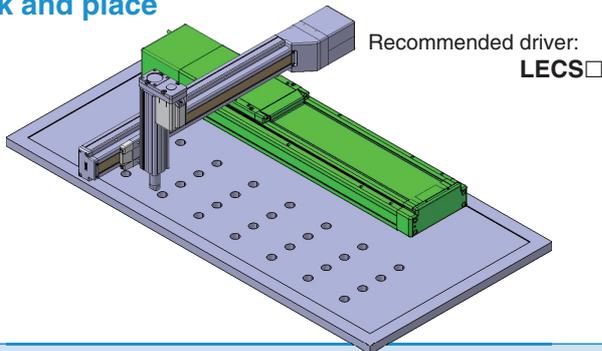
*1 ISO 14644-1

*2 The particle generation characteristics change depending on the suction flow rate. Refer to page 24 for details.

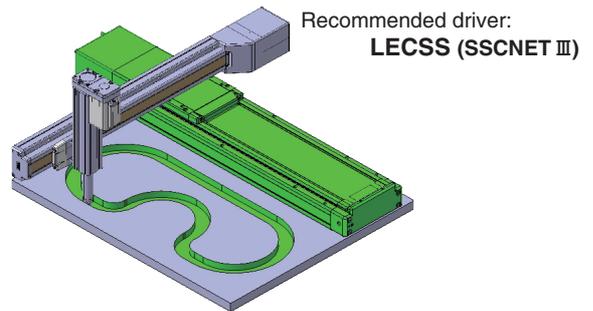


Application Examples

Pick and place



Glue dispensing/High speed trajectory is available



Series Variations

Ball Screw Drive/Series LEJS Clean room compatible*2

Size	Lead [mm]	Stroke [mm] ^{*1}	Work load: Horizontal [kg]									Work load: Vertical [kg]			Speed [mm/s]								Page
			10	20	30	40	50	60	70	80	90	10	20	30	200	400	600	800	1000	1200	1400	1600	
40	8	200, 300, 400	[Red bars]									[Red bars]			[Red bars]								Page 27
	16	500, 600, 700 800, 900	[Red bars]									[Red bars]			[Red bars]								
	24	1000, 1200	[Red bars]									[Red bars]			[Red bars]								
63	10	300, 400, 500	[Red bars]									[Red bars]			[Red bars]								
	20	600, 700, 800 900, 1000	[Red bars]									[Red bars]			[Red bars]								
	30	1200, 1500	[Red bars]									[Red bars]			[Red bars]								

*1 Consult with SMC for non-standard strokes as they are produced as special orders.

*2 Except lead 24 and 30 mm

Belt Drive/Series LEJB

Size	Equivalent lead [mm]	Stroke [mm] ^{*1}	Work load: Horizontal [kg] ^{*2}						Speed [mm/s]					Page
			5	10	15	20	25	30	500	1000	1500	2000	2500	
40	27	200, 300, 400, 500, 600, 700, 800 900, 1000, 1200, 1500, 2000	[Red bars]						[Red bars]					Page 38
63	42	300, 400, 500, 600, 700, 800 900, 1000, 1200, 1500, 2000, 3000	[Red bars]						[Red bars]					

*1 Consult with SMC for non-standard strokes as they are produced as special orders.

*2 The belt drive actuator cannot be used vertically for 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-MRC2E	
Incremental Type	 <p>LECSA (Pulse input type/ Positioning type)</p>	●	●	● Up to 7 points	●		●	
		Absolute Type	 <p>LECSB (Pulse input type)</p>	●	●		●	
 <p>LECSA (Pulse input type/ Positioning type)</p>	●			●	● Up to 255 points		● CC-Link Ver. 1.10	●
	 <p>LECSS (SSCNET III type) Compatible with Mitsubishi Electric's servo system controller network</p>			●	●		● SSCNET III	●

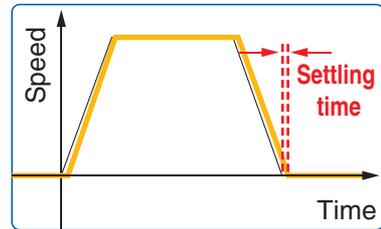
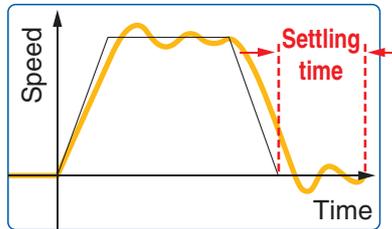
Note 1) For positioning type, setting needs to be changed to use with maximum set values. Setup software (MR Configurator2™) LEC-MRC2E is required.

Note 2) Available when the Mitsubishi motion controller is used for the master equipment.

Servo adjustment using auto gain tuning

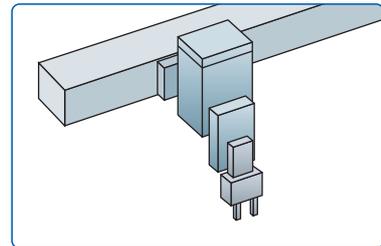
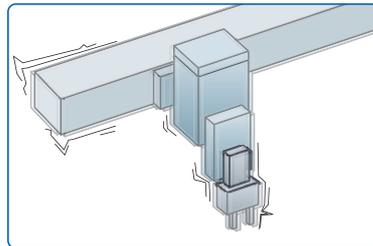
Auto resonant filter function

- Control the difference between command value and actual action
- * High-speed positioning is possible since gains etc. are adjusted automatically!



Auto damping control function

- Automatically suppress low frequency machine vibrations (up to 100 Hz)
- * Can be set automatically by auto tuning.



With display setting function

One-touch adjustment button

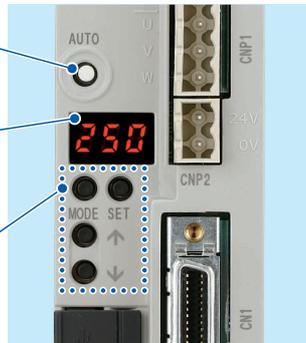
One-touch servo adjustment

Display

Display the monitor, parameter and alarm.

Settings

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



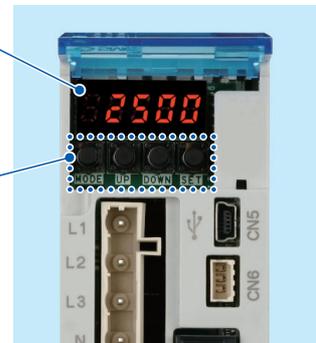
LECSA

Display

Display the monitor, parameter and alarm.

Settings

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



(With the front cover opened)

LECSB

Display

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

Settings

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



(With the front cover opened)

LECSB

Display

Display 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)

LECSB

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 Page 63
Regeneration option
Part no.: LEC-MR-RB-□

Motor cable Page 61

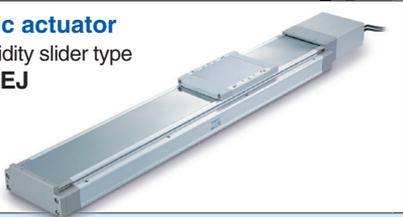
Standard cable	Robotic cable
LE-CSM-S□□	LE-CSM-R□□

Lock cable Page 61

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

Electric actuator

High rigidity slider type
Series LEJ



Encoder cable Page 61

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

Main circuit power supply connector (Accessory) Page 55

Driver



Provided by customer

Control circuit power supply 24 VDC

Control circuit power supply connector (Accessory) Page 55

Option

Setup software Page 64
(MR Configurator2™)
Part no.: LEC-MRC2E



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

USB cable Page 64
Part no.: LEC-MR-J3USB

Option Page 61
I/O connector
Part no.: LE-CSNA

Provided by customer

PLC (Positioning unit)

Power supply for I/O signal 24 VDC



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 Page 63
Regeneration option
Part no.: LEC-MR-RB-□

Motor cable Page 61

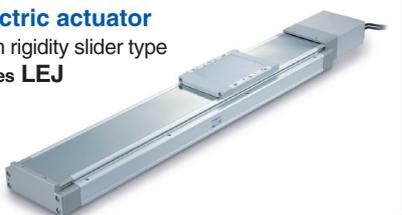
Standard cable	Robotic cable
LE-CSM-S□□	LE-CSM-R□□

Lock cable Page 61

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

Electric actuator

High rigidity slider type
Series LEJ



Encoder cable Page 61

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

Main circuit power supply connector (Accessory) Page 56

Driver



Control circuit power supply connector (Accessory) Page 56

Motor connector (Accessory) Page 56

USB cable Page 64
Part no.: LEC-MR-J3USB

Option

Setup software Page 64
(MR Configurator2™)
Part no.: LEC-MRC2E



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

Analogue monitor output
RS-422 communication

Option Page 61
I/O connector
Part no.: LE-CSNB

Provided by customer

PLC (Positioning unit)

Power supply for I/O signal 24 VDC



Battery (Accessory) Page 64
Part no.: (LEC-MR-J3BAT)

System Construction

Absolute encoder compatible *Series LECSC* (CC-Link direct 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**
Part no.: LEC-MR-RB-□

Motor cable

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

Lock cable

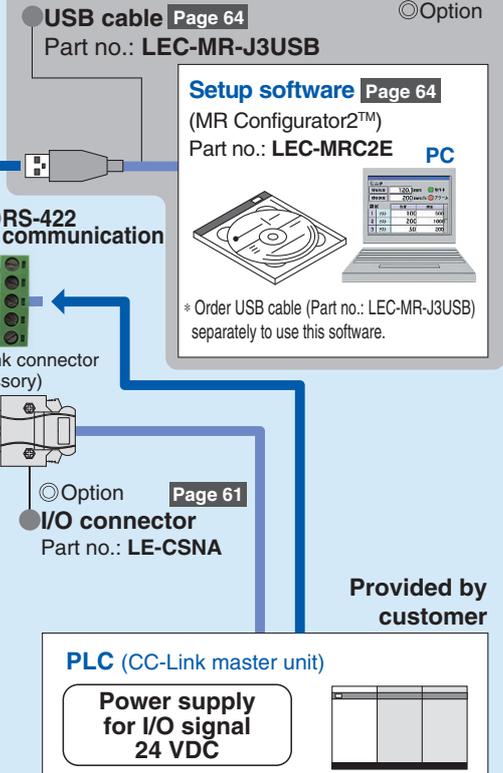
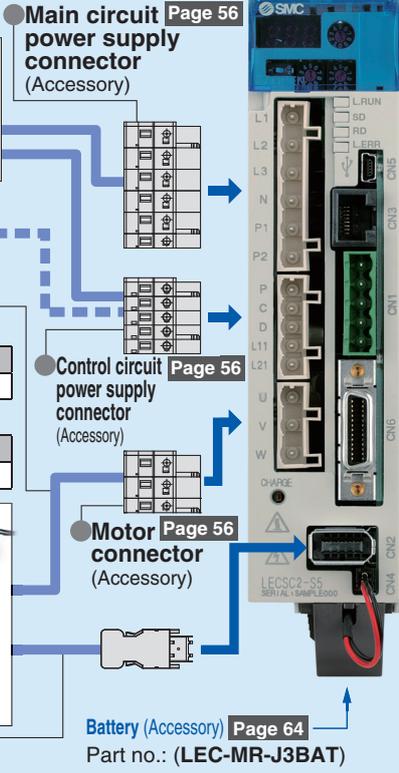
Standard cable	Robotic cable
LE-CSB-S□□	LE-CSB-R□□

Electric actuator



Encoder cable

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



Absolute encoder compatible *Series LECSS* (SSCNET III 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**
Part no.: LEC-MR-RB-□

Motor cable

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

Lock cable

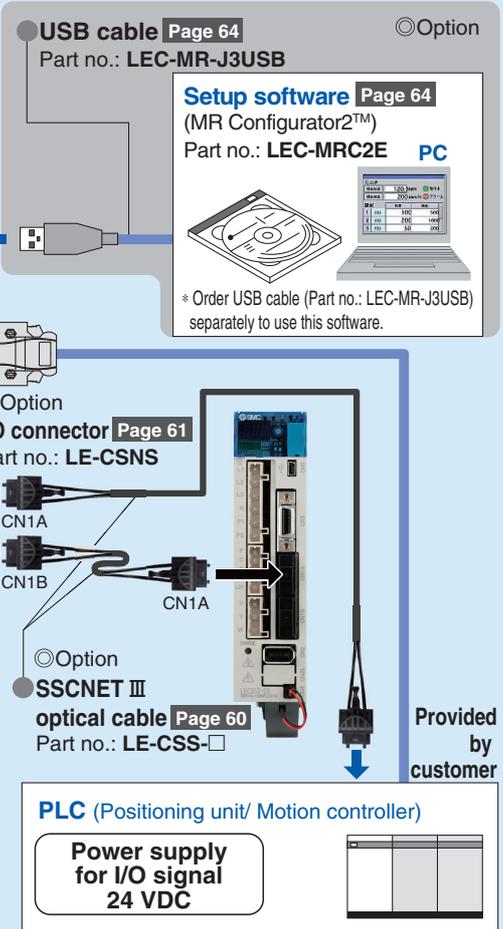
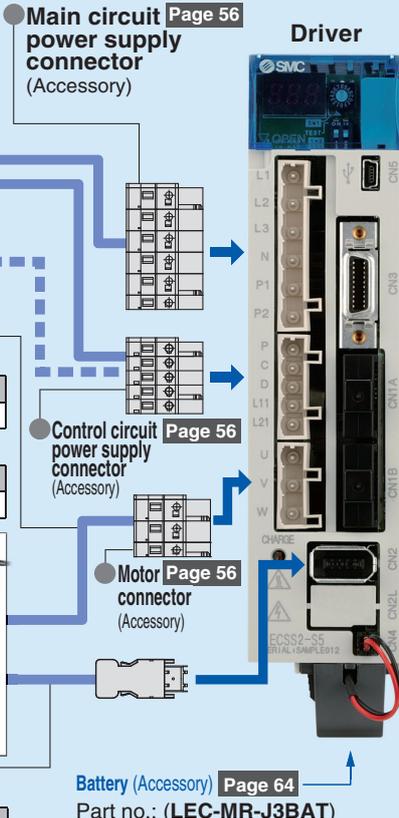
Standard cable	Robotic cable
LE-CSB-S□□	LE-CSB-R□□

Electric actuator



Encoder cable

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



System Construction

Absolute encoder compatible Series LECSS-T



Provided by customer

Power supply

Single phase 200 to 240 VAC (50/60 Hz)
Three phase 200 to 240 VAC (50/60 Hz)

Option
Regeneration option
Part no.: LEC-MR-RB-□

Motor cable Page 68

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

Lock cable Page 68

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

Motor connector Page 66
(Accessory)

Control circuit power supply connector Page 66
(Accessory)

Encoder cable Page 68

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

Main circuit power supply connector Page 66
(Accessory)

Driver



Option

Setup software Page 71
(MR Configurator2™)

Part no.: LEC-MRC2□



PC

* Order USB cable (LEC-MR-J3USB) separately to use this software.

USB cable Page 72
Part no.: LEC-MR-J3USB

Option
I/O connector Page 68
Part no.: LE-CSNS

Option
STO cable (3 m) Page 72
Part no.: LEC-MR-D05UDL3M

Option Page 69
SSCNET III optical cable
Part no.: LE-CSS-□

Battery (Accessory) Page 72
Part no.: (LEC-MR-BAT6V1SET)

Provided by customer

PLC

(Positioning unit/Motion controller)

Power supply for I/O signal
24 VDC



Electric actuator

Slider type
Series LEF



High rigidity slider type
Series LEJ



Rod type
Series LEY



Guide rod type
Series LEYG



* The LECSS2-T□ cannot be used with the LEC-MR-SETUP221□.

SMC Electric Actuators

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

Ball screw drive
Series LEFS

Clean room compatible



Series LEFS

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

Belt drive
Series LEFB



Series LEFB

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

Ball screw drive
Series LEFS

Clean room compatible



Series LEFS

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

Belt drive
Series LEFB



Series LEFB

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

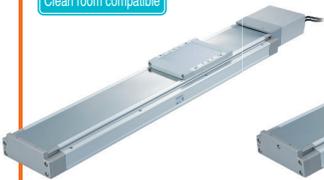


CAT.ES100-87

High Rigidity Slider Type AC Servo Motor

Ball screw drive
Series LEJS

Clean room compatible



Series LEJS

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

Belt drive
Series LEJB



Series LEJB

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



CAT.ES100-104

Guide Rod Slider Step Motor (Servo/24 VDC)

Belt drive
Series LEL



Series LEL25M
Sliding bearing

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

Series LEL25L
Ball bushing bearing

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



CAT.E102

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

Basic type
Series LEMB



Series LEMB

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

Cam follower guide type
Series LEMC



Series LEMC

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

Linear guide single axis type
Series LEMH



Series LEMH

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

Linear guide double axis type
Series LEMHT



Series LEMHT

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



CAT.ES100-98

SMC Electric Actuators

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

Basic type Series LEY

Dust/Drip proof compatible



Series LEY

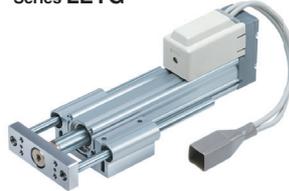
Size	Pushing force [N]	Stroke [mm]
16	141	Up to 300
25	452	Up to 400
32	707	Up to 500
40	1058	Up to 500

In-line motor type Series LEY□D

Dust/Drip proof compatible



Guide rod type Series LEYG



Series LEYG

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

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



CAT.E102

AC Servo Motor

Basic type Series LEY

Dust/Drip proof compatible



Series LEY

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

In-line motor type Series LEY□D

Dust/Drip proof compatible



Series LEY

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

Guide rod type Series LEYG



Series LEYG

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

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



Series LEYG

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

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

Series LES

Basic type/R type Series LES□R



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

Symmetrical type/L type Series LES□L



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



Series LESH

Basic type/R type Series LESH□R



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

Symmetrical type/L type Series LESH□L



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



CAT.E102

Miniature Step Motor (Servo/24 VDC)

Rod type Series LEPY



Series LEPY

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

Slide table type Series LEPS



Series LEPS

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



CAT.E102

Rotary Table Step Motor (Servo/24 VDC)

Basic type Series LER



Series LER

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

High precision type Series LERH



CAT.E102

SMC Electric Actuators

Gripper (Step Motor (Servo/24 VDC))

2-finger type
Series LEHZ



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

2-finger type
With dust cover
Series LEHZJ



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

2-finger type
Long stroke
Series LEHF



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

Note) (): Long stroke

3-finger type
Series LEHS



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



CAT.E102

Controllers/Driver

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Step Data Input Type

Series LECP6
Series LECA6

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



Step Data Input Type

Series JXC73/83



Step Motor (Servo/24 VDC)

Programless Type

Series LECP1

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



Programless Type
(With Stroke Study)

Series LECP2

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



Specialized for Series LEM

Step Motor (Servo/24 VDC)

Fieldbus-compatible Network Controller/Gateway Unit

Pulse Input Type

Series LECPA



Series JXC□1

PROFIBUS

EtherCAT

DeviceNet

EtherNet/IP



Series JXC92

EtherNet/IP



Series JXC93

EtherNet/IP



Series LEC-G

PROFIBUS

CC-Link V2

DeviceNet

EtherNet/IP



AC Servo Motor

Pulse Input Type

Series LECSA

Series LECSB

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



Series LECSA Series LECSB

CC-Link Direct Input Type
Series LECSA
CC-Link



SSCNET III Type
Series LECSA

SSCNET III
SERVO SYSTEM CONTROLLER NETWORK



MECHATROLINK II Type

Series LECYM

MECHATROLINK-II



MECHATROLINK III Type

Series LECYU

MECHATROLINK-III



SSCNET III/H Type

Series LECSS-T

SSCNET III/H
SERVO SYSTEM CONTROLLER NETWORK



Electric Actuator AC Servo Motor Type

◎Electric Actuator/High Rigidity Slider Type Ball Screw Drive

Series LEJS



Model Selection	Page 13
How to Order	Page 27
Specifications	Page 28
Construction	Page 29
Dimensions	Page 30

◎Electric Actuator/High Rigidity Slider Type Ball Screw Drive Clean Room Specification

Series 11-LEJS



Particle Generation Characteristics	Page 24
How to Order	Page 32
Specifications	Page 33
Dimensions	Page 34

◎Electric Actuator/High Rigidity Slider Type Ball Screw Drive Secondary Battery Compatible

Series 25A-LEJS



How to Order	Page 36
Specific Product Precautions	Page 37

◎Electric Actuator/High Rigidity Slider Type Belt Drive

Series LEJB



Model Selection	Page 13
How to Order	Page 38
Specifications	Page 39
Construction	Page 40
Dimensions	Page 41
Auto Switch	Page 43
Specific Product Precautions	Page 46

◎AC Servo Motor Driver



Series LECSA/LECSB/LECS/LECSS	Page 50
Series LECSS-T	Page 65

Electric Actuator/High Rigidity Slider Type **AC Servo Motor** Ball Screw Drive/*Series LEJS* Belt Drive/*Series LEJB* Model Selection



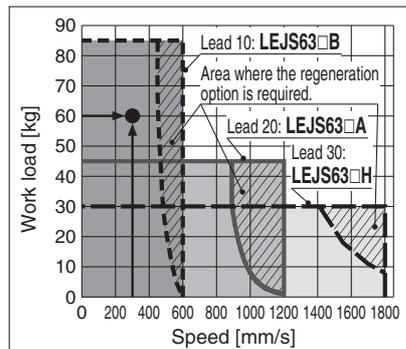
Selection Procedure



Selection Example

Operating conditions

- Work load: 60 [kg]
 - Speed: 300 [mm/s]
 - Acceleration/Deceleration: 3000 [mm/s²]
 - Stroke: 300 [mm]
 - Mounting orientation: Horizontal
 - Motor type: Incremental encoder
 - External force: 10 [N]
- Workpiece mounting condition:
-



<Speed-Work load graph>
(LEJS63)

Step 1 Check the speed-work load.

Select the product by referring to “Speed-Work Load Graph” (Page 14).
Selection example) The **LEJS63S3B-300** is temporarily selected based on the graph shown on the right side.

The regeneration option may be necessary.
Refer to page 14 for “Required Conditions for Regeneration Option”.

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 15)

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

Method 2: Calculation

Cycle time T can be found from the following equation.

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

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

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

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)” (Pages 17 to 19).

For the ball screw type, there is an upper limit of the speed depending on the stroke. Check that it does not exceed the upper limit, by referring to the specifications (Page 28).

- 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.

$$T4 = 0.05 \text{ [s]}$$

Calculation example)

T1 to T4 can be calculated as follows.

$$T1 = V/a1 = 300/3000 = 0.1 \text{ [s]}$$

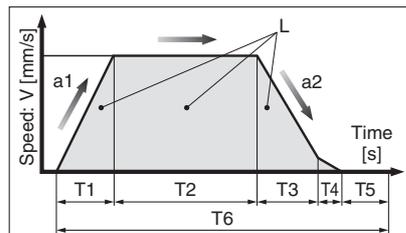
$$T3 = V/a2 = 300/3000 = 0.1 \text{ [s]}$$

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{300 - 0.5 \cdot 300 \cdot (0.1 + 0.1)}{300} = 0.90 \text{ [s]}$$

$$T4 = 0.05 \text{ [s]}$$

Therefore, the cycle time can be obtained as follows.

$$T = T1 + T2 + T3 + T4 = 0.1 + 0.90 + 0.1 + 0.05 = 1.15 \text{ [s]}$$



L : Stroke [mm]
V : Speed [mm/s]
a1 : Acceleration [mm/s²]
a2 : Deceleration [mm/s²]

- 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

$$\text{Duty ratio: Ratio of } T \text{ to } T6 \\ T \div T6 \times 100$$

Step 3 Check the allowable moment.

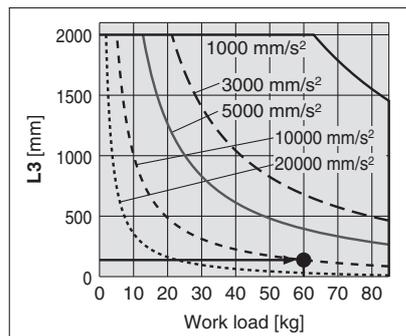
Refer to “Dynamic Allowable Moment” graphs (Pages 20 and 21).



Selection example) Select the **LEJS63S3B-300** from the graph on the right side.

Confirm that the external force is 20 [N] or less.

(The external force is the resistance due to cable duct, flexible trunking or air tubing.)

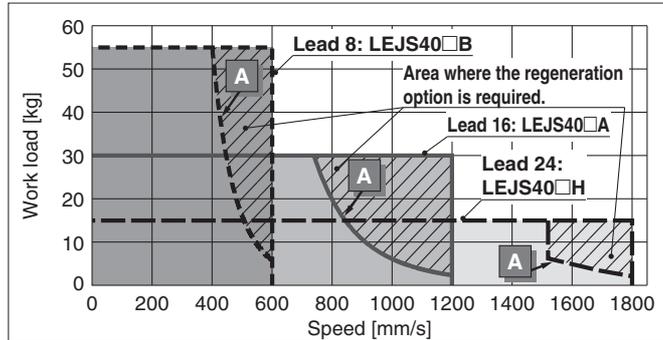


<Dynamic allowable moment>
(LEJS63)

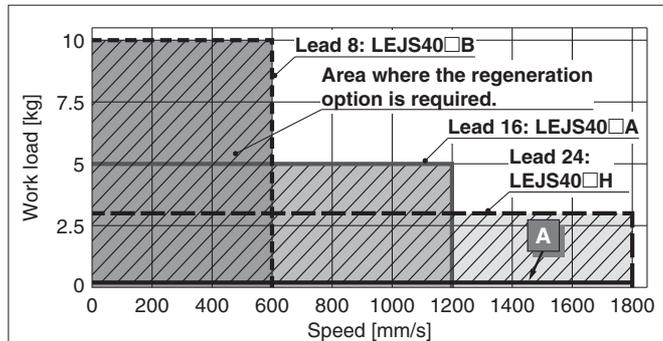
Speed-Work Load Graph/Required Conditions for “Regeneration Option”(Guide)

LEJS40/Ball Screw Drive

Horizontal

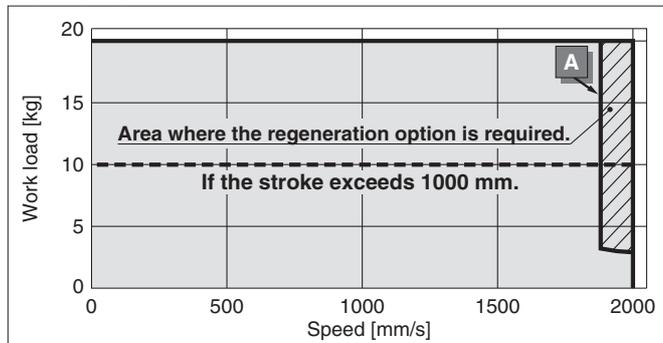


Vertical



LEJB40/Belt Drive

Horizontal



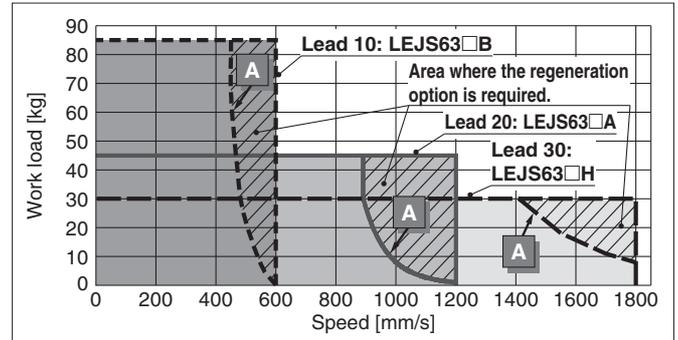
* When the stroke of the LEJB40 series exceeds 1000 mm, the work load is 10 kg.

Required conditions for “Regeneration option”

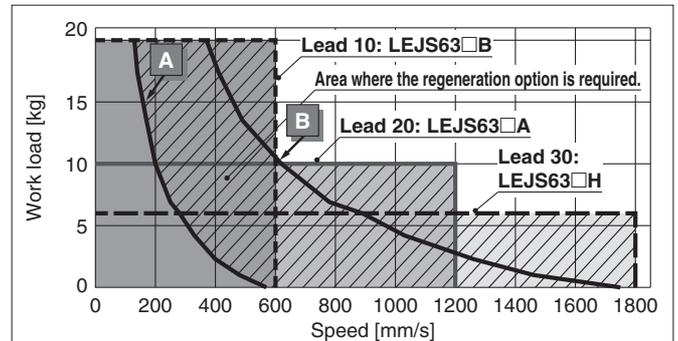
* Regeneration option required when using product above “Regeneration” line in graph.
 (Order separately)

LEJS63/Ball Screw Drive

Horizontal

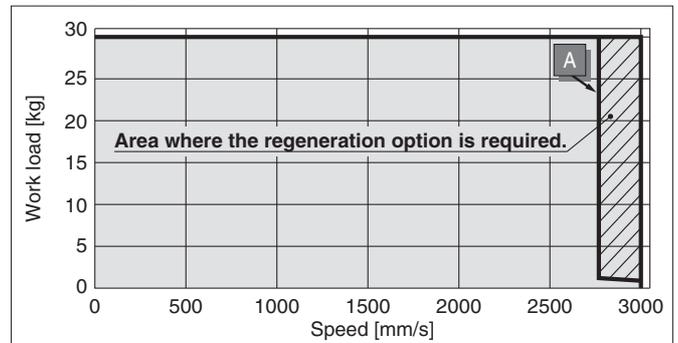


Vertical



LEJB63/Belt Drive

Horizontal



“Regeneration Option” Models

Operating condition	Regenerative condition	Regeneration option
A	Duty ratio	LEC-MR-RB-032
B	100 %	LEC-MR-RB-12

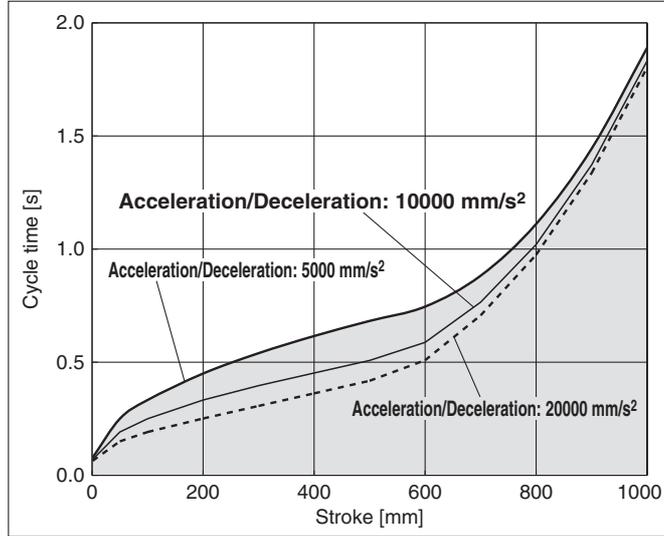
Allowable Stroke Speed

Model	AC servo motor	Lead		Stroke [mm]															
		Symbol	[mm]	Up to 200	Up to 300	Up to 400	Up to 500	Up to 600	Up to 700	Up to 800	Up to 900	Up to 1000	Up to 1100	Up to 1200	Up to 1300	Up to 1400	Up to 1500		
LEJS40	100W/ □40	H	24					1800		1580	1170	910	720	580	480	410	—	—	—
		A	16					1200		1050	780	600	480	390	320	270	—	—	—
		B	8					600		520	390	300	240	190	160	130	—	—	—
		(Motor rotation speed)							(4500 rpm)		(3938 rpm)	(2925 rpm)	(2250 rpm)	(1800 rpm)	(1463 rpm)	(1200 rpm)	(1013 rpm)	—	—
LEJS63	200W/ □60	H	30	—								1390	1110	900	750	630	540	470	410
		A	20	—								930	740	600	500	420	360	310	270
		B	10	—								460	370	300	250	210	180	150	130
		(Motor rotation speed)											(2790 rpm)	(2220 rpm)	(1800 rpm)	(1500 rpm)	(1260 rpm)	(1080 rpm)	(930 rpm)

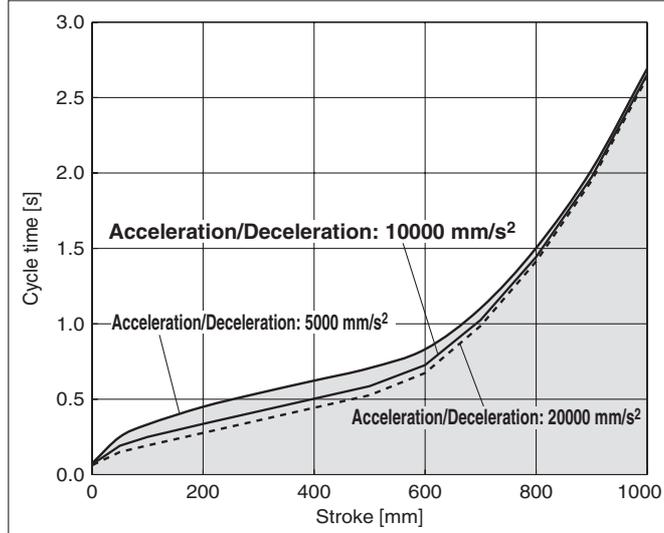
Cycle Time Graph (Guide)

LEJS40/Ball Screw Drive

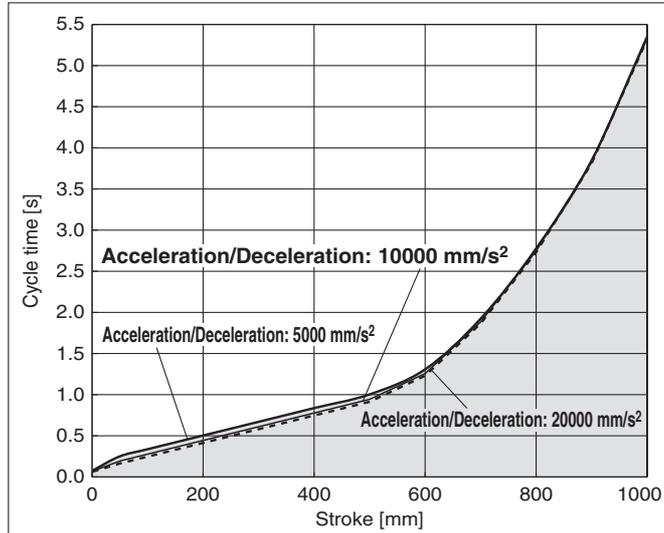
LEJS40□H



LEJS40□A

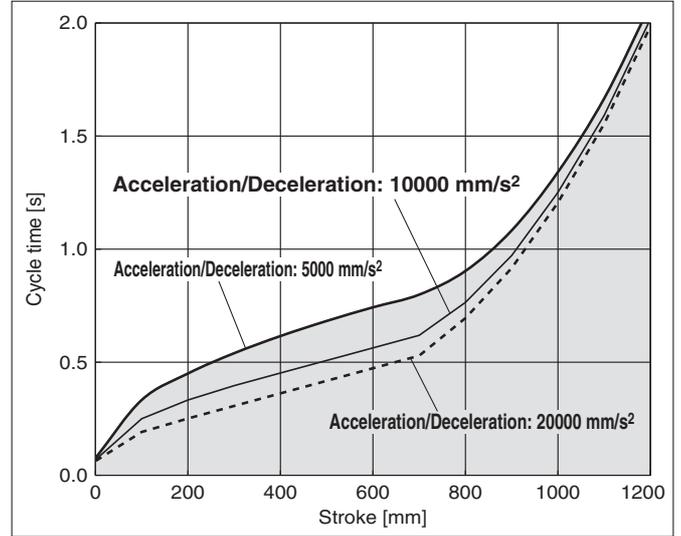


LEJS40□B

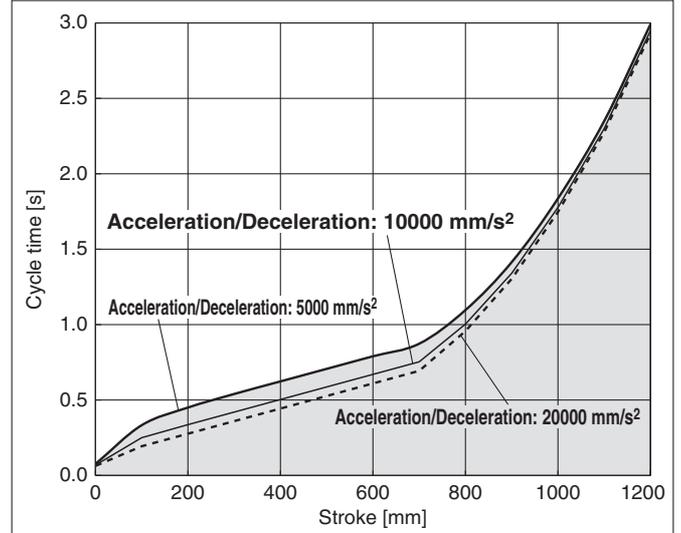


LEJS63/Ball Screw Drive

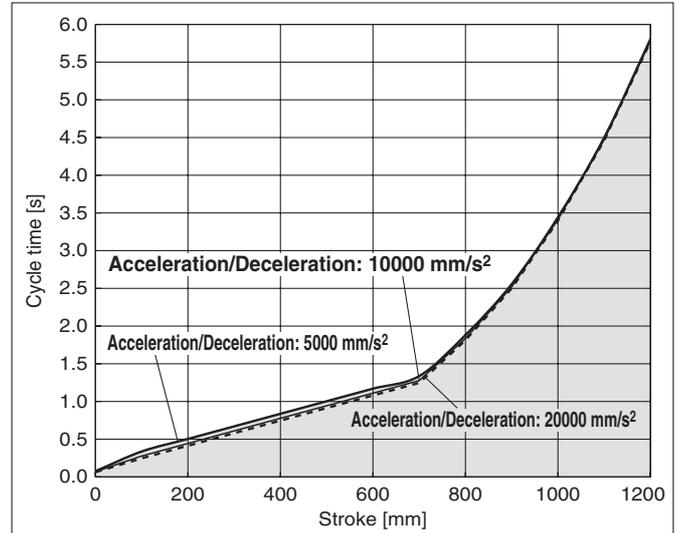
LEJS63□H



LEJS63□A



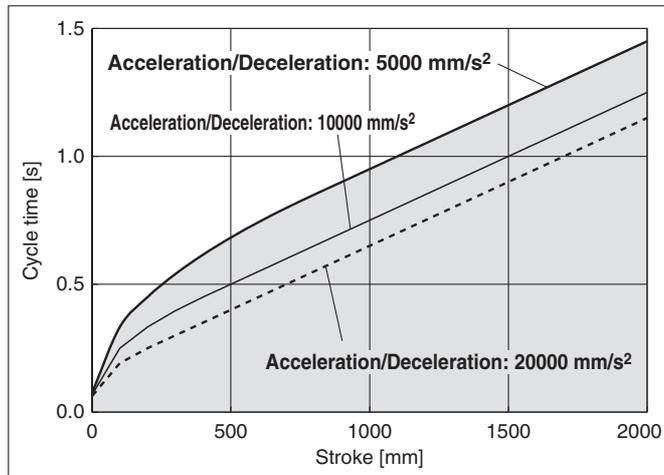
LEJS63□B



* Maximum speed/acceleration/deceleration values graph for each stroke

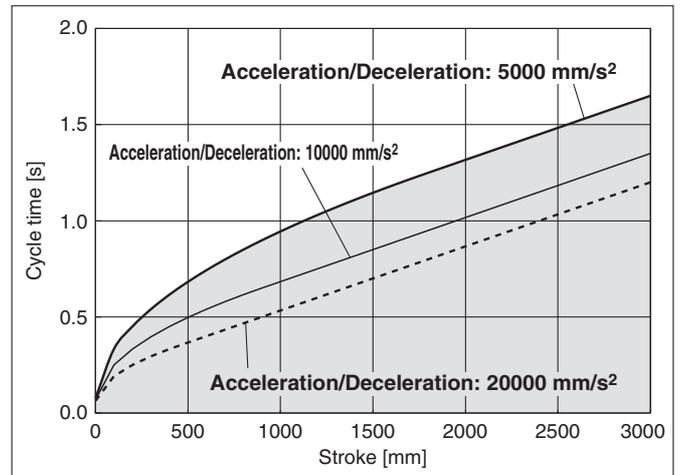
Cycle Time Graph (Guide)

LEJB40/Belt Drive



* Maximum speed/acceleration/deceleration values graph for each stroke

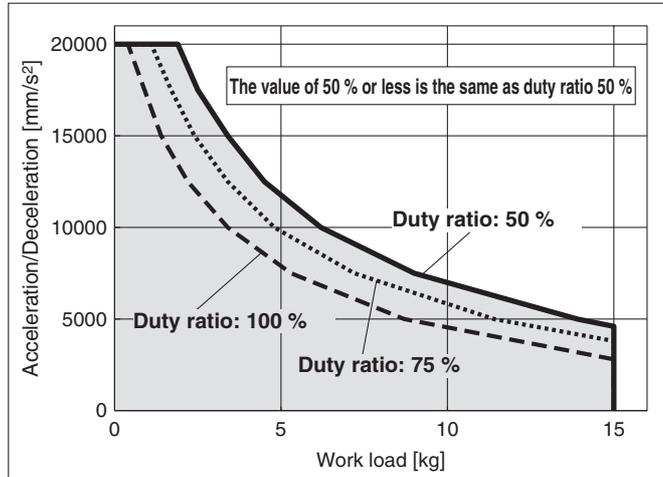
LEJB63/Belt Drive



Work Load–Acceleration/Deceleration Graph (Guide)

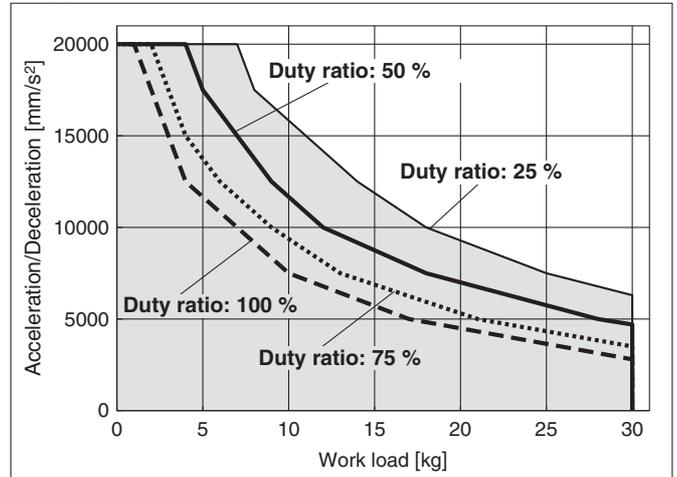
LEJS40/Ball Screw Drive: Horizontal

LEJS40□H

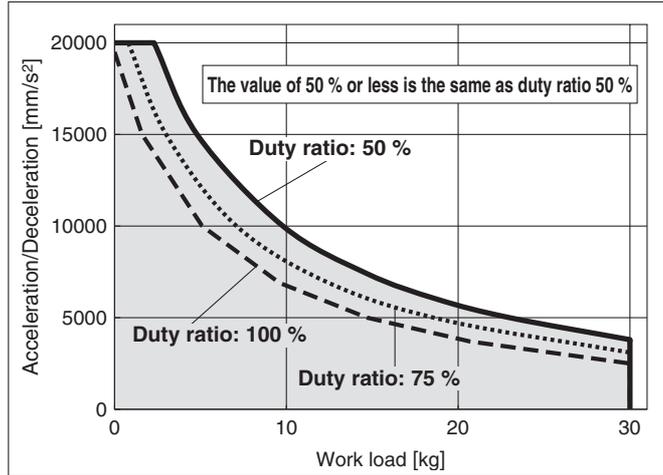


LEJS63/Ball Screw Drive: Horizontal

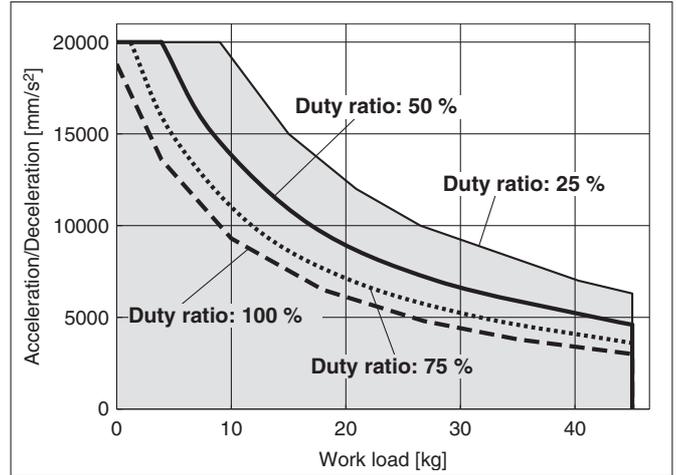
LEJS63□H



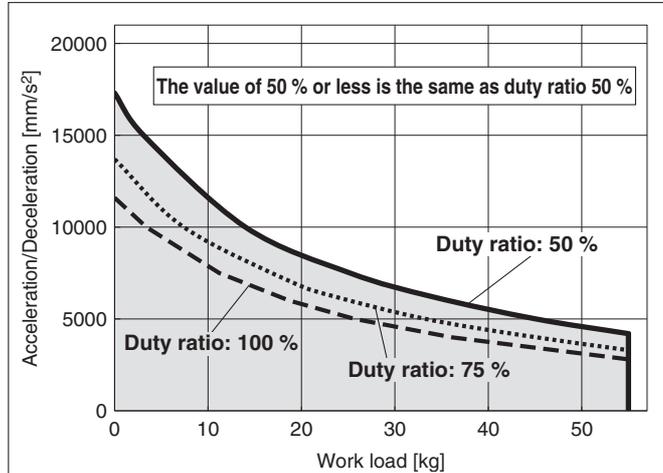
LEJS40□A



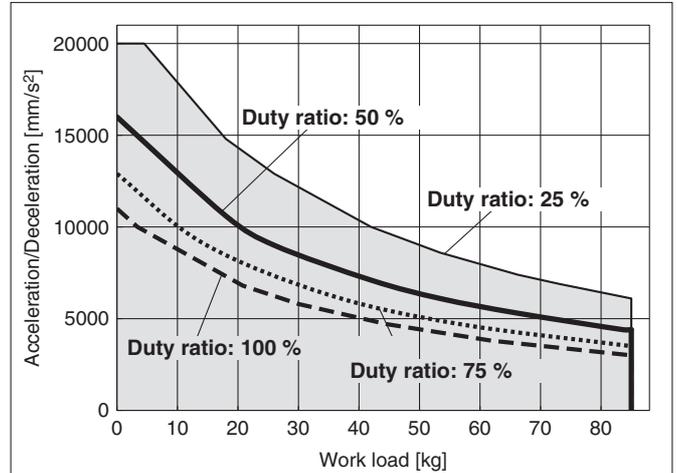
LEJS63□A



LEJS40□B



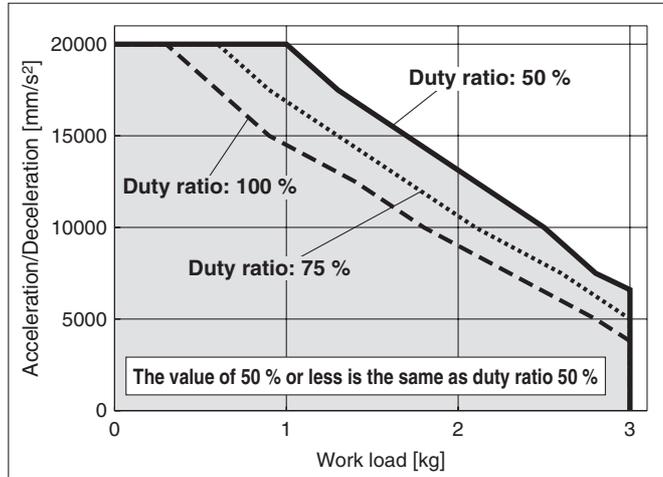
LEJS63□B



Work Load–Acceleration/Deceleration Graph (Guide)

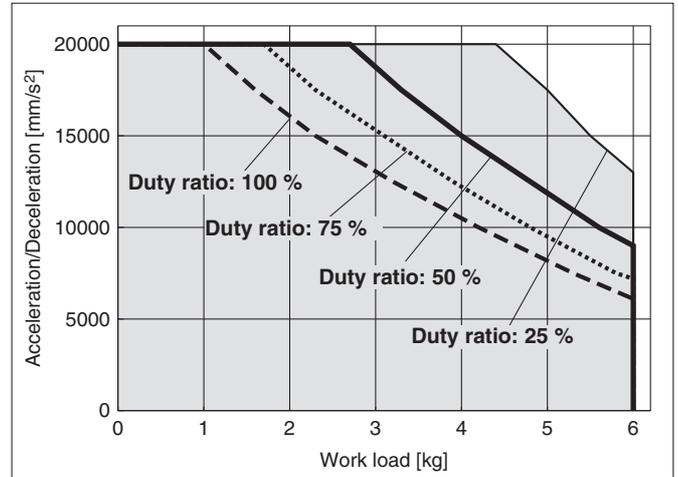
LEJS40/Ball Screw Drive: Vertical

LEJS40□H

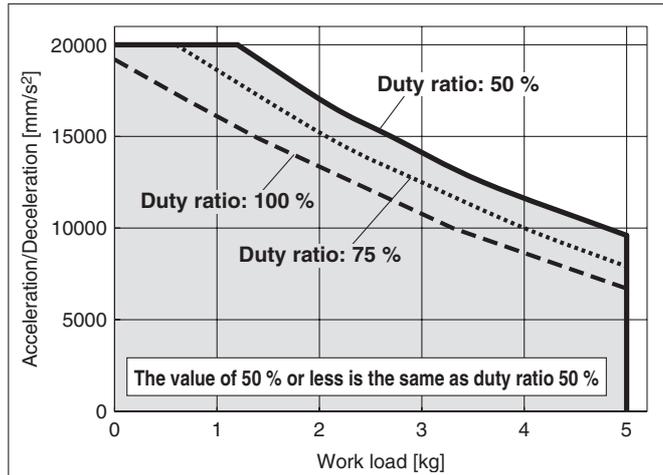


LEJS63/Ball Screw Drive: Vertical

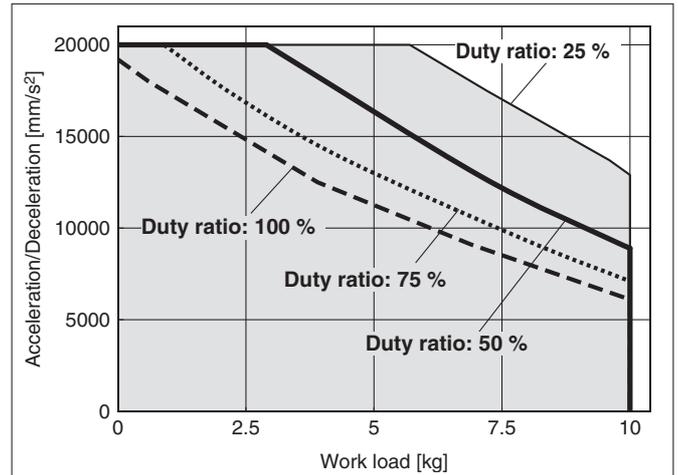
LEJS63□H



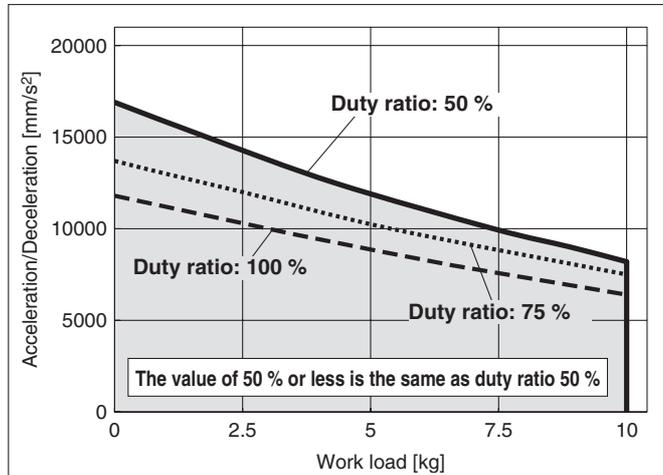
LEJS40□A



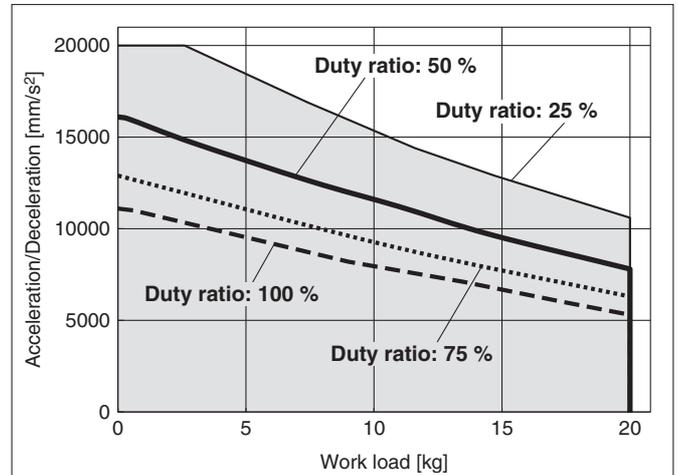
LEJS63□A



LEJS40□B

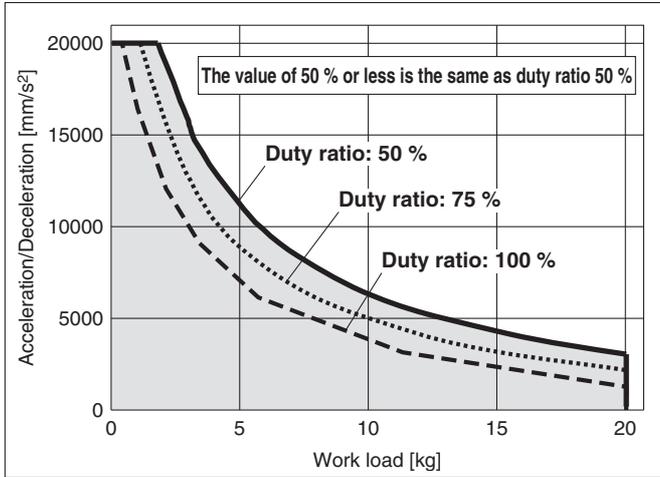


LEJS63□B

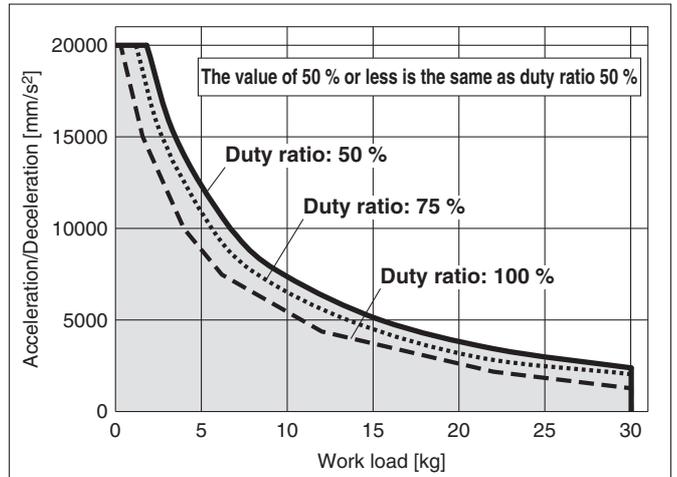


Work Load–Acceleration/Deceleration Graph (Guide)

LEJB40/Belt Drive: Horizontal



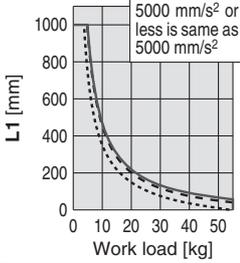
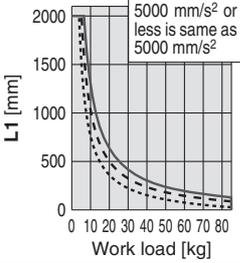
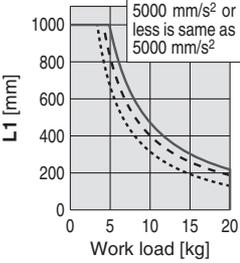
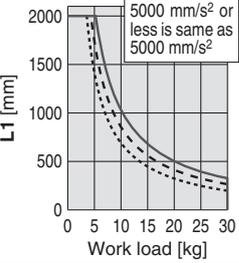
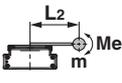
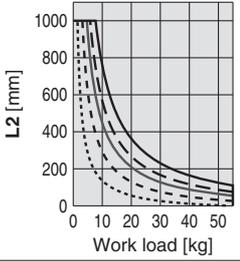
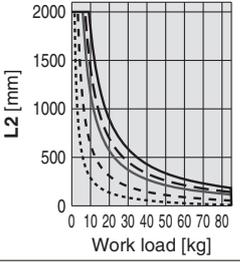
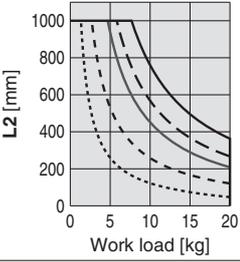
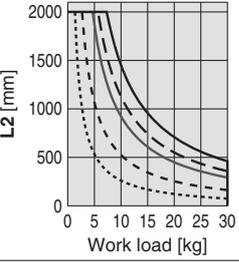
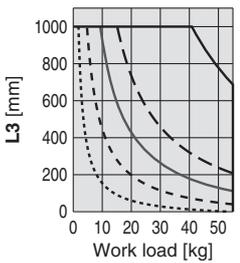
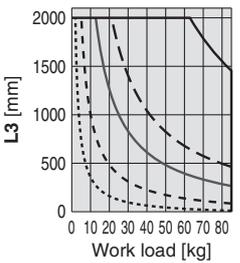
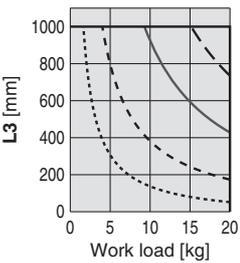
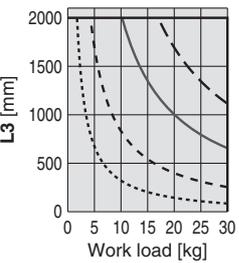
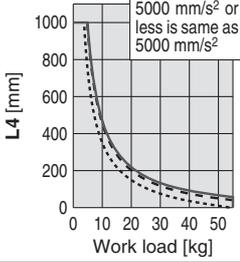
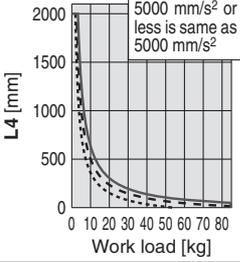
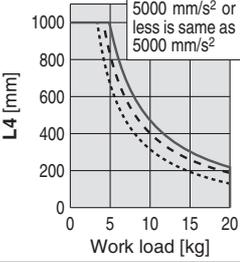
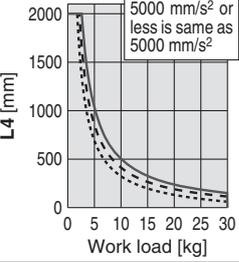
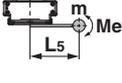
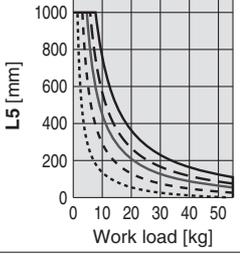
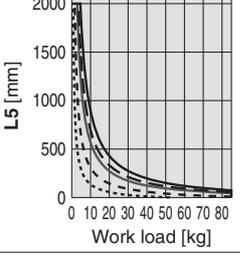
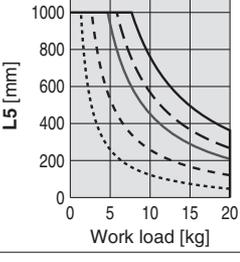
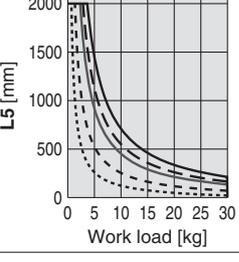
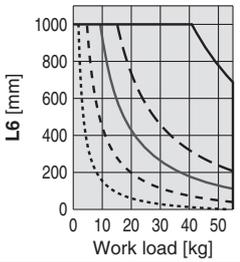
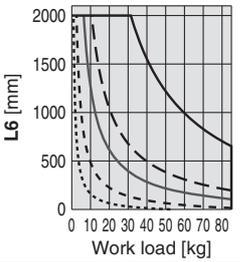
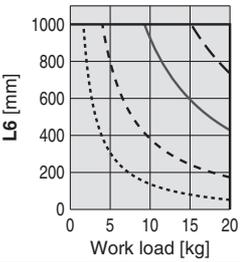
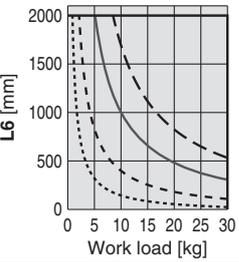
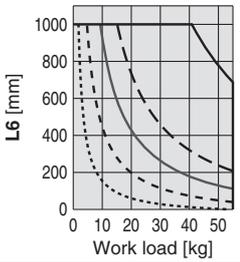
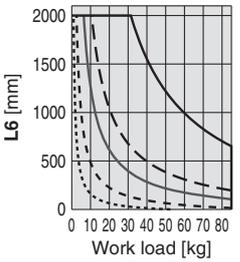
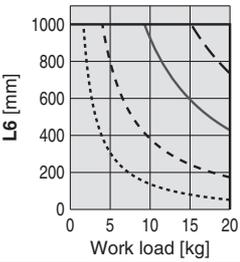
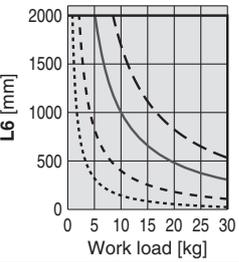
LEJB63/Belt Drive: Horizontal



Dynamic Allowable Moment

* This graph shows the amount of allowable overhang (guide unit) when the centre of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to "Calculation of Guide Load Factor" or the Electric Actuator Selection Software for confirmation, <http://www.smc.eu>

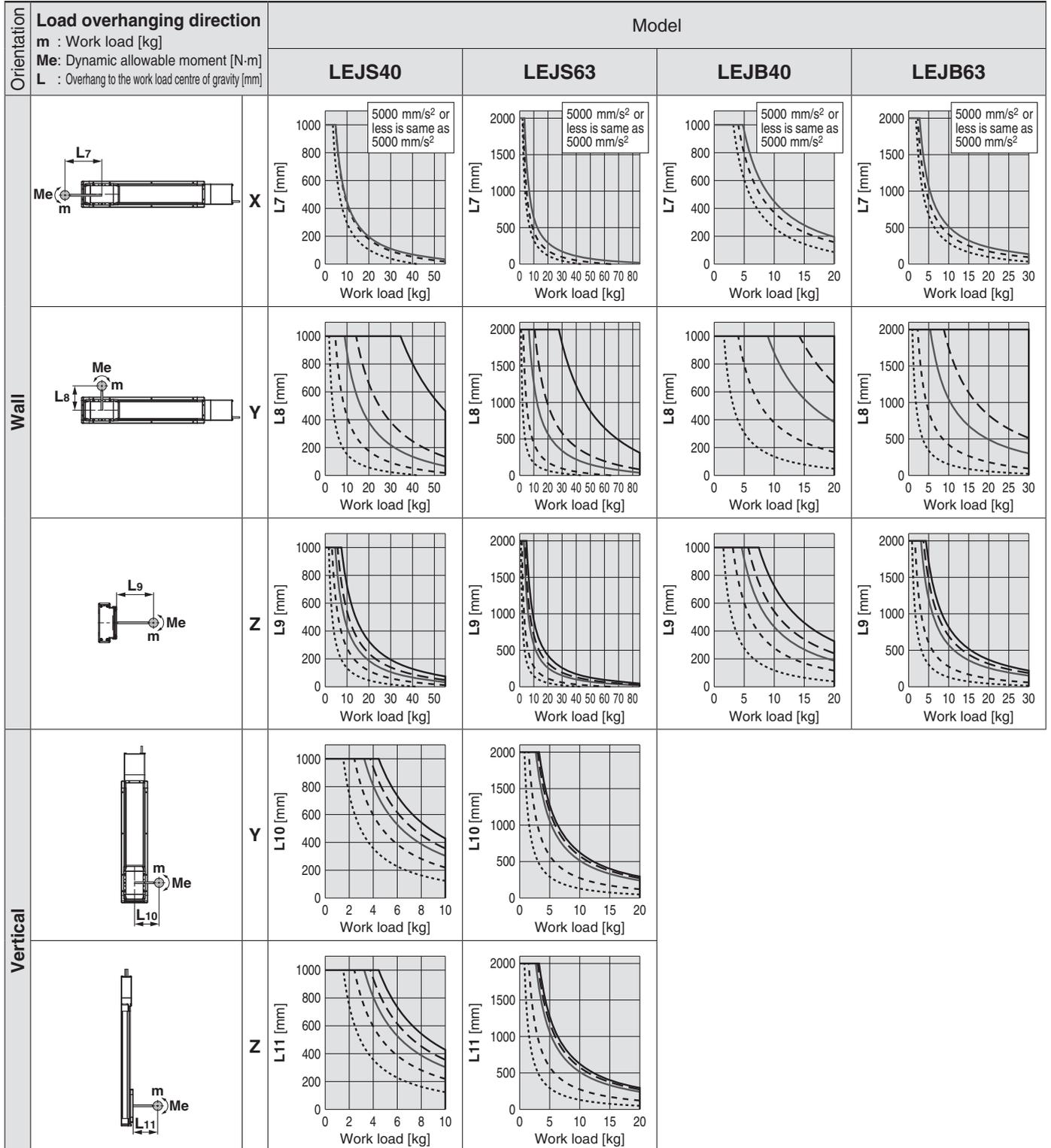
Acceleration/Deceleration ——— 1000 mm/s² - - - 3000 mm/s² ——— 5000 mm/s² - - - - 10000 mm/s² ······ 20000 mm/s²

Orientation		Model			
		LEJS40	LEJS63	LEJB40	LEJB63
Horizontal	Load overhanging direction m : Work load [kg] Me: Dynamic allowable moment [N·m] L : Overhang to the work load centre of gravity [mm]				
	 X				
	 Y				
	 Z				
	 X				
	 Y				
Bottom	 X				
	 Z				

* This graph shows the amount of allowable overhang (guide unit) when the centre of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to "Calculation of Guide Load Factor" or the Electric Actuator Selection Software for confirmation, <http://www.smc.eu>

Dynamic Allowable Moment

Acceleration/Deceleration ——— 1000 mm/s² - - - 3000 mm/s² ——— 5000 mm/s² - - - - 10000 mm/s² ······ 20000 mm/s²

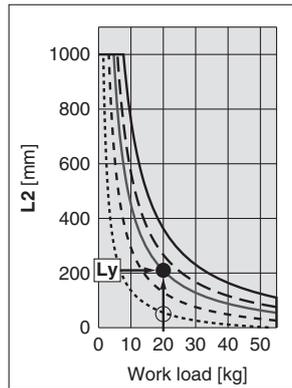
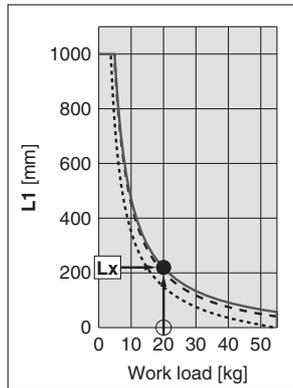


Calculation of Guide Load Factor

- Decide operating conditions.
 Model: LEJS/LEJB
 Size: 40/63
 Mounting orientation: Horizontal/Bottom/Wall/Vertical
 Acceleration [mm/s²]: **a**
 Work load [kg]: **m**
 Work load centre position [mm]: **Xc/Yc/Zc**
- Select the target graph with reference to the model, size and mounting orientation.
- Based on the acceleration and work load, obtain the overhang [mm]: **Lx/Ly/Lz** from the graph.
- Calculate the load factor for each direction.
 $\alpha_x = Xc/Lx$, $\alpha_y = Yc/Ly$, $\alpha_z = Zc/Lz$
- Confirm the total of α_x , α_y and α_z is 1 or less.
 $\alpha_x + \alpha_y + \alpha_z \leq 1$
 When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load centre position and series.

Example

- Operating conditions
 Model: LEJS
 Size: 40
 Mounting orientation: Horizontal
 Acceleration [mm/s²]: 5000
 Work load [kg]: 20
 Work load centre position [mm]: **Xc = 0, Yc = 50, Zc = 200**
- Select the graph on page 20, top and left side first row.



- Lx = 180 mm, Ly = 170 mm, Lz = 360 mm**
- The load factor for each direction can be obtained as follows.
 $\alpha_x = 0/180 = 0$
 $\alpha_y = 50/170 = 0.29$
 $\alpha_z = 200/360 = 0.56$
- $\alpha_x + \alpha_y + \alpha_z = 0.85 \leq 1$**

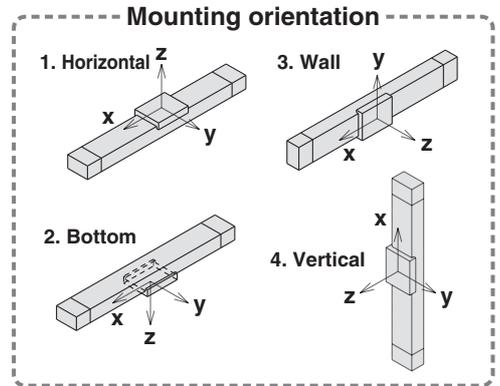
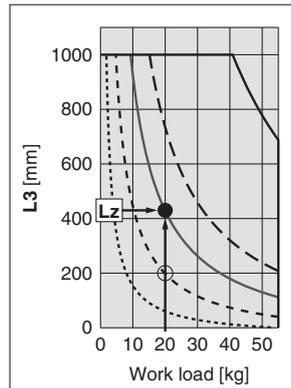
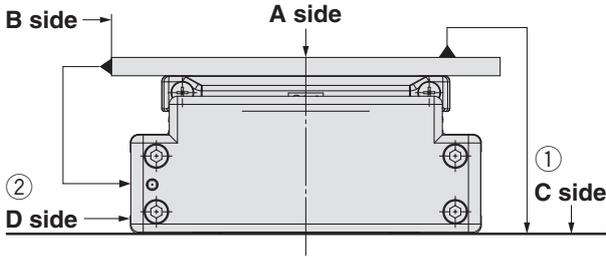


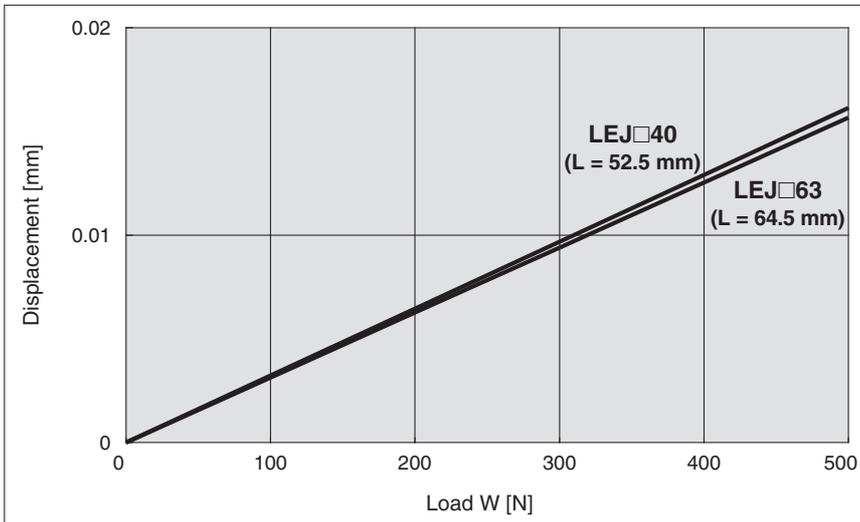
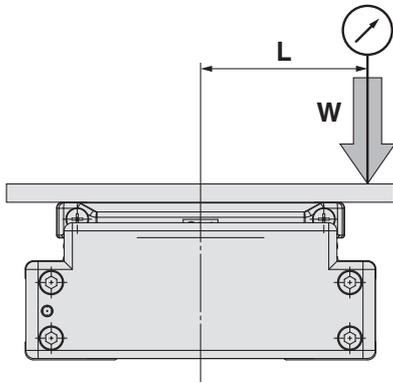
Table Accuracy (Reference Value)



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 flatness.

Table Displacement (Reference Value)



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

Particle Generation Characteristics

Particle Generation Measuring Method

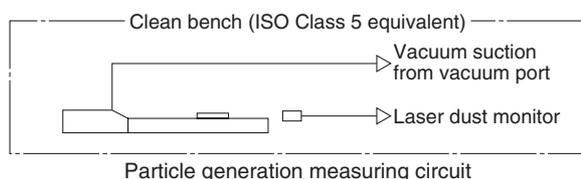
The particle generation data for 11-LEJS series are measured in the following test method.

Test Method (Example)

Operate the specimen that is placed in an ISO Class 5 equivalent clean bench, and measure the changes of the particle concentration over time until the number of cycles reaches the specified point.

Measuring Conditions

Measuring instrument	Description	Laser dust monitor (Automatic particle counter by lightscattering method)
	Minimum measurable particle diameter	0.1 μm
	Suction flow rate	28.3 l/min (ANR)
Setting conditions	Sampling time	5 min
	Interval time	55 min
	Sampling air flow	141.5 L (ANR)



Test Conditions

Size	Speed [mm/s]	Model	Workpiece mass [kg]	Acceleration [mm/s ²]	Duty ratio [%]
40	1200	11-LEJS40□A-200	4	13000	100
	600	11-LEJS40□B-200		10000	
63	1200	11-LEJS63□A-300		13000	
	600	11-LEJS63□B-300		10000	

* Mounting position: Horizontal

Evaluation Method

To obtain the measured values of particle concentration, the accumulated value ^{Note 1)} of particles captured every 5 minutes, by the laser dust monitor, is converted into the particle concentration in every 1 m³.

When determining particle generation grades, the 95 % upper confidence limit of the average particle concentration (average value), when each specimen is operated at a specified number of cycles ^{Note 2)} is considered.

The plots in the graphs indicate the 95 % upper confidence limit of the average particle concentration of particles with a diameter within the horizontal axis range.

Note 1) Sampling air flow rate: Number of particles contained in 141.5 L (ANR) of air

Note 2) Actuator: 1 million cycles

Note 3) The particle generation characteristics (Page 24) provide a guide for selection but is not guaranteed.

Series 11-LEJS

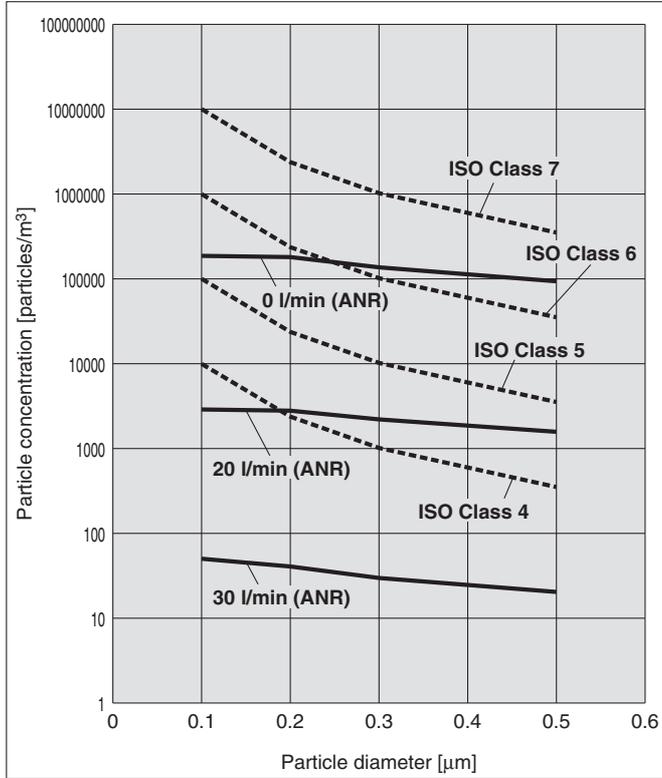
AC Servo Motor

Clean Room Specification

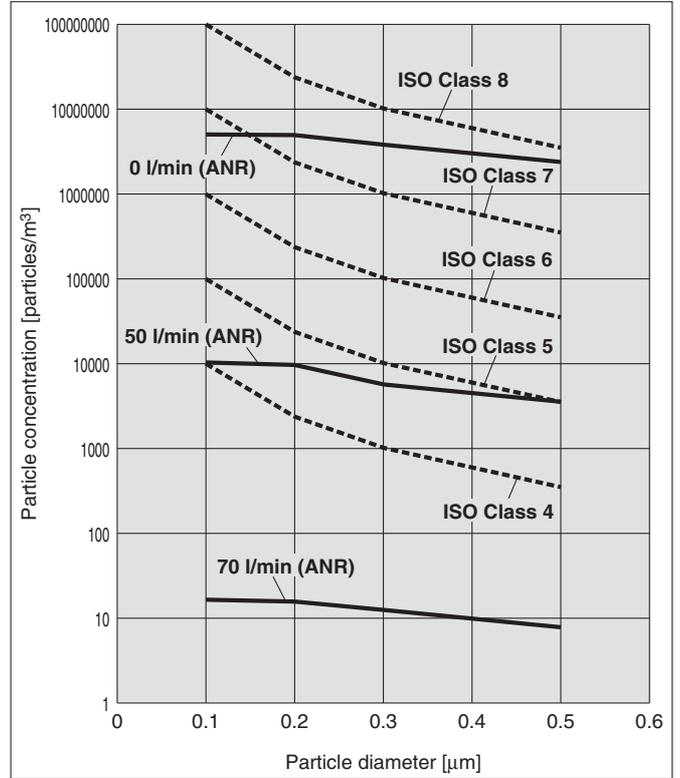
Particle Generation Characteristics

11-LEJS40/Ball Screw Drive

Speed 600 mm/s

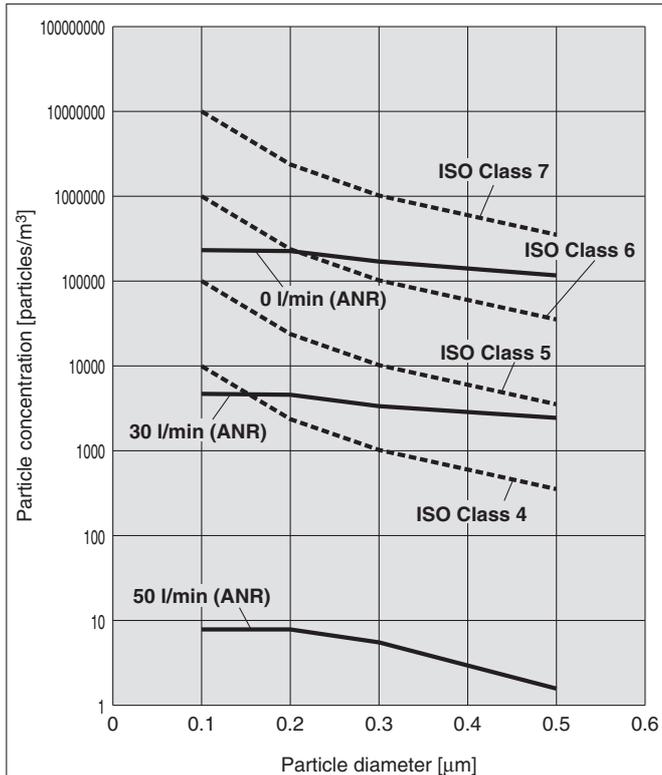


Speed 1200 mm/s

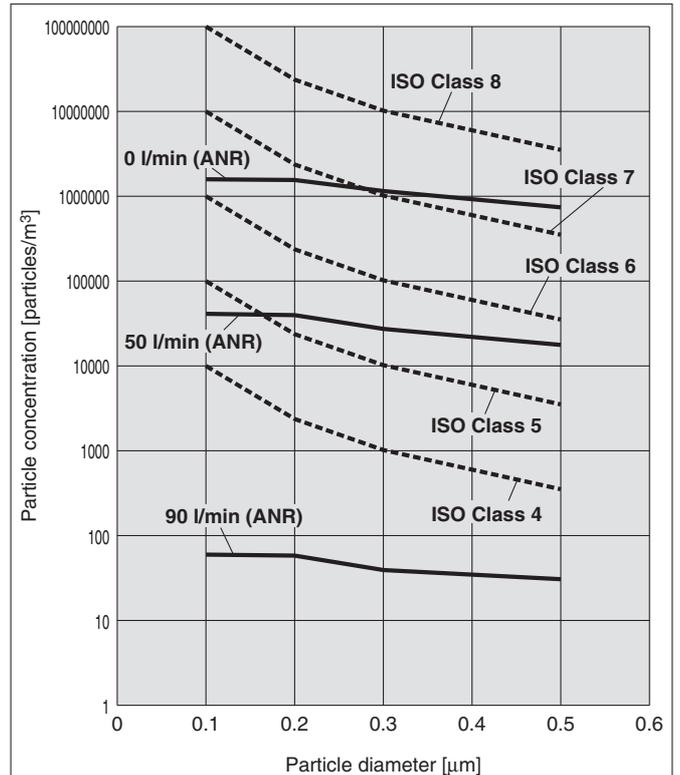


11-LEJS63/Ball Screw Drive

Speed 600 mm/s



Speed 1200 mm/s



AC Servo Motor

Ball Screw Drive **Page 27**

Series **LEJS**



Clean Room Specification

Ball Screw Drive **Page 32**

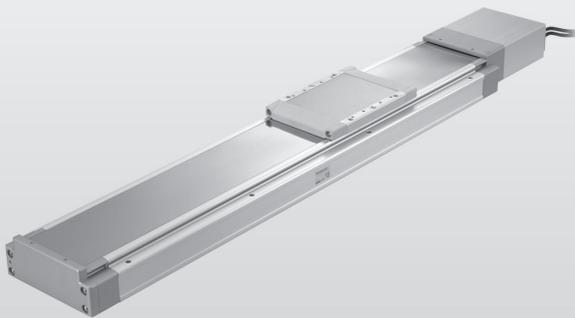
Series **11-LEJS**



Secondary battery Compatible

Ball Screw Drive **Page 36**

Series **25A-LEJS**



Belt Drive **Page 38**

Series **LEJB**



AC Servo Motor Driver **Page 50**

Series **LECS** □



Page 65

Series **LECSS-T**



Electric Actuator/High Rigidity Slider Type Ball Screw Drive AC Servo Motor

Series **LEJS** (C) (E) RoHS



Compatible ▶ Page 106

How to Order

LEJS H 40 S2 A - 500 -

1
2
3
4
5
6
7
8
9
10

1 Accuracy

—	Basic type
H	High precision type

2 Size

40
63

3 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
T6	AC servo motor (Absolute encoder)	100	40	LECSS2-T5
T7		200	63	LECSS2-T7

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

For motor type T6, the compatible driver part number suffix is T5.

*2: For details of the drivers, refer to pages 50 and 65.

4 Lead [mm]

Symbol	LEJS40	LEJS63
H	24	30
A	16	20
B	8	10

5 Stroke [mm]^{*3}

200
to
1500

*3: Refer to the table below for details.

6 Motor option

—	Without option
B	With lock

7 Cable type^{*5, *6, *7}

—	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". (Refer to page 61 for details.)

8 Cable length [m]^{*5, *8}

—	Without cable
2	2 m
5	5 m
A	10 m

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

9 Driver type^{*5}

—	Compatible drivers	Power supply voltage (V)
—	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
	LECSS2-S□	200 to 230
S2	LECSS2-T□	200 to 240

10 I/O cable length [m]^{*9}

—	Without cable
H	Without cable (Connector only)
1	1.5

*9: When "Without driver" is selected for driver type, only "—: Without cable" can be selected. Refer to page 62 if I/O cable is required. (Options are shown on page 62.)

Applicable stroke table^{*4}

Model	Stroke [mm]	● Standard											
		200	300	400	500	600	700	800	900	1000	1200	1500	
LEJS40		●	●	●	●	●	●	●	●	●	●	●	—
LEJS63		—	●	●	●	●	●	●	●	●	●	●	●

*4: Consult with SMC for non-standard strokes as they are produced as special orders.

*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)
— : Without cable and driver

For auto switches, refer to pages 44 and 45.

Compatible Drivers

Driver type	Pulse input type /Positioning type	Pulse input type	CC-Link direct input type	SSCNET III type	SSCNET III/H type
Series	LECSA	LECSB	LECSC	LECSS	LECSS-T
Number of point tables	Up to 7	—	Up to 255	—	—
Pulse input	○	○	—	—	—
Applicable network	—	—	CC-Link	SSCNET III	SSCNET III/H
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 22-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication	USB communication
Power supply voltage (V)	100 to 120 VAC (50 / 60 Hz) 200 to 230 VAC (50 / 60 Hz)				200 to 240 VAC (50/60 Hz)
Reference page	Page 50				Page 65

Specifications

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

Model		LEJS40S ²			LEJS63S ³			
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 [kg] ^{Note 2)}		Horizontal	15	30	55	30	45	85
		Vertical	3	5	10	6	10	20
Speed ^{Note 3)} [mm/s]	Stroke range	Up to 500	1800	1200	600	1800	1200	600
		501 to 600	1580	1050	520	1800	1200	600
		601 to 700	1170	780	390	1800	1200	600
		701 to 800	910	600	300	1390	930	460
		801 to 900	720	480	240	1110	740	370
		901 to 1000	580	390	190	900	600	300
		1001 to 1100	480	320	160	750	500	250
		1101 to 1200	410	270	130	630	420	210
		1201 to 1300	—	—	—	540	360	180
		1301 to 1400	—	—	—	470	310	150
1401 to 1500	—	—	—	410	270	130		
Max. acceleration/deceleration [mm/s ²]		20000 (Refer to page 17 for limit according to work load and duty ratio.)						
Positioning repeatability [mm]		Basic type	±0.02					
		High precision type	±0.01					
Lost motion [mm] ^{Note 4)}		Basic type	0.1 or less					
		High precision type	0.05 or less					
Lead [mm]		24	16	8	30	20	10	
Impact/Vibration resistance [m/s ²] ^{Note 5)}		50/20						
Actuation type		Ball screw						
Guide type		Linear guide						
Operating temperature range [°C]		5 to 40						
Operating humidity range [%RH]		90 or less (No condensation)						
Regeneration option		May be required depending on speed and work load. (Refer to page 14.)						
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)						
Power consumption [W] ^{Note 6)}		Horizontal	65			80		
		Vertical	165			235		
Standby power consumption when operating [W] ^{Note 7)}		Horizontal	2			2		
		Vertical	10			12		
Max. instantaneous power consumption [W] ^{Note 8)}		445			725			
Type ^{Note 9)}		Non-magnetizing lock						
Holding force [N]		67	101	203	220	330	660	
Power consumption at 20 °C [W] ^{Note 10)}		6.3			7.9			
Rated voltage [V]		24 VDC ⁰ / _{-10%}						

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) Check "Speed-Work Load Graph (Guide)" on page 14.

Note 3) The allowable speed changes according to the stroke.

Note 4) A reference value for correcting an error in reciprocal operation.

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) The power consumption (including the driver) is for when the actuator is operating.

Note 7) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.

Note 8) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

Note 9) Only when motor option "With lock" is selected.

Note 10) For an actuator with lock, add the power consumption for the lock.

Note 11) Sensor magnet position is located in the table center. For detailed dimensions, refer to "Auto Switch Mounting Position" on page 43.

Note 12) Do not allow collisions at either end of the table traveling distance. Additionally, when running the positioning operation, do not set within 2 mm of both ends.

Note 13) For "Manufacture of Intermediate Strokes", please contact SMC. (LEJS40/Manufacturable stroke range: 200 to 1200 mm, LEJS63/Manufacturable stroke range: 300 to 1500 mm)

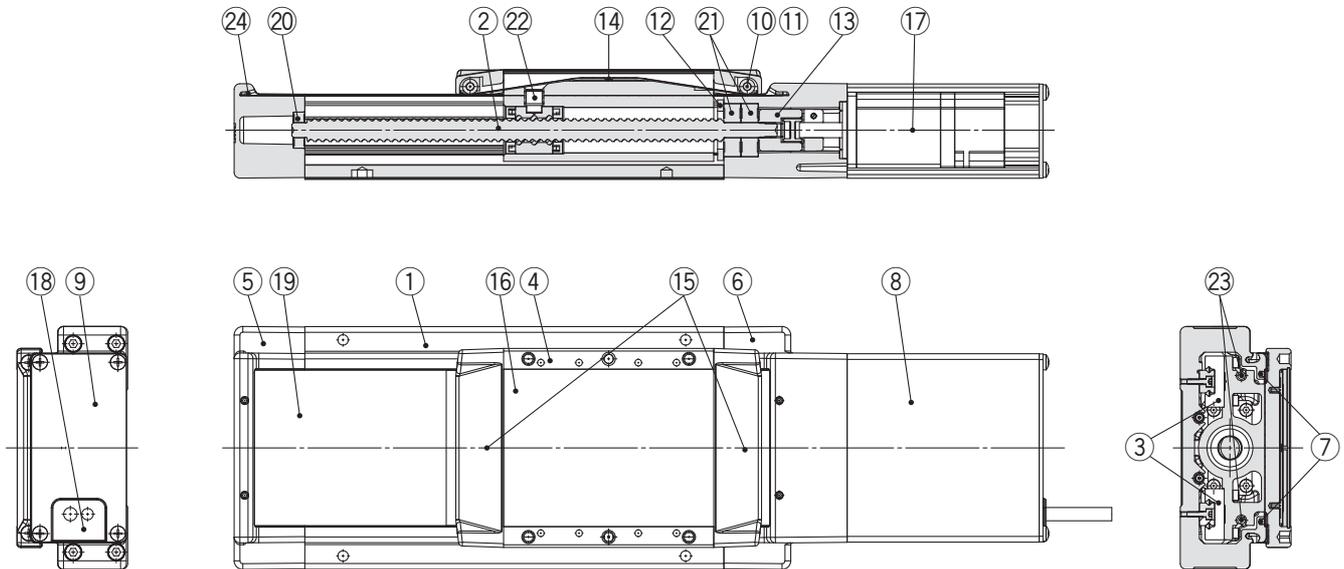
Weight

Model	LEJS40									
Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200
Product weight [kg]	5.6	6.4	7.1	7.9	8.7	9.4	10.2	11.0	11.7	13.3
Additional weight with lock [kg]	0.2 (Incremental encoder)/0.3 (Absolute encoder)									
Model	LEJS63									
Stroke [mm]	300	400	500	600	700	800	900	1000	1200	1500
Product weight [kg]	11.4	12.7	13.9	15.2	16.4	17.7	18.9	20.1	22.6	26.4
Additional weight with lock [kg]	0.4 (Incremental encoder)/0.7 (Absolute encoder)									

LEJS Series

AC Servo Motor

Construction



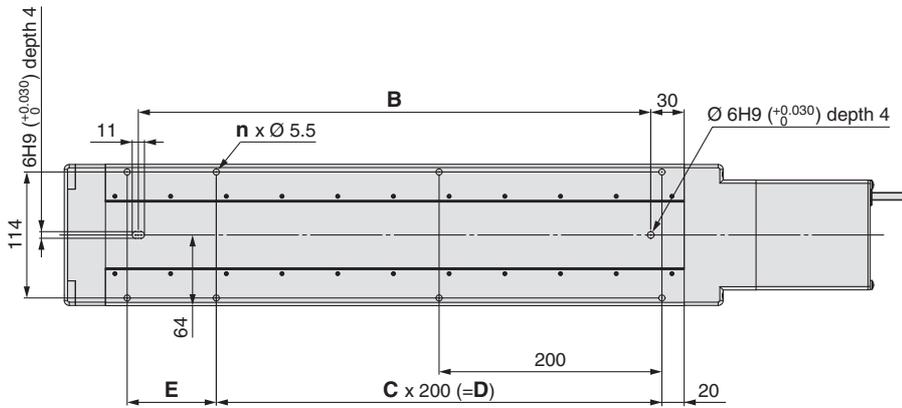
Component Parts

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

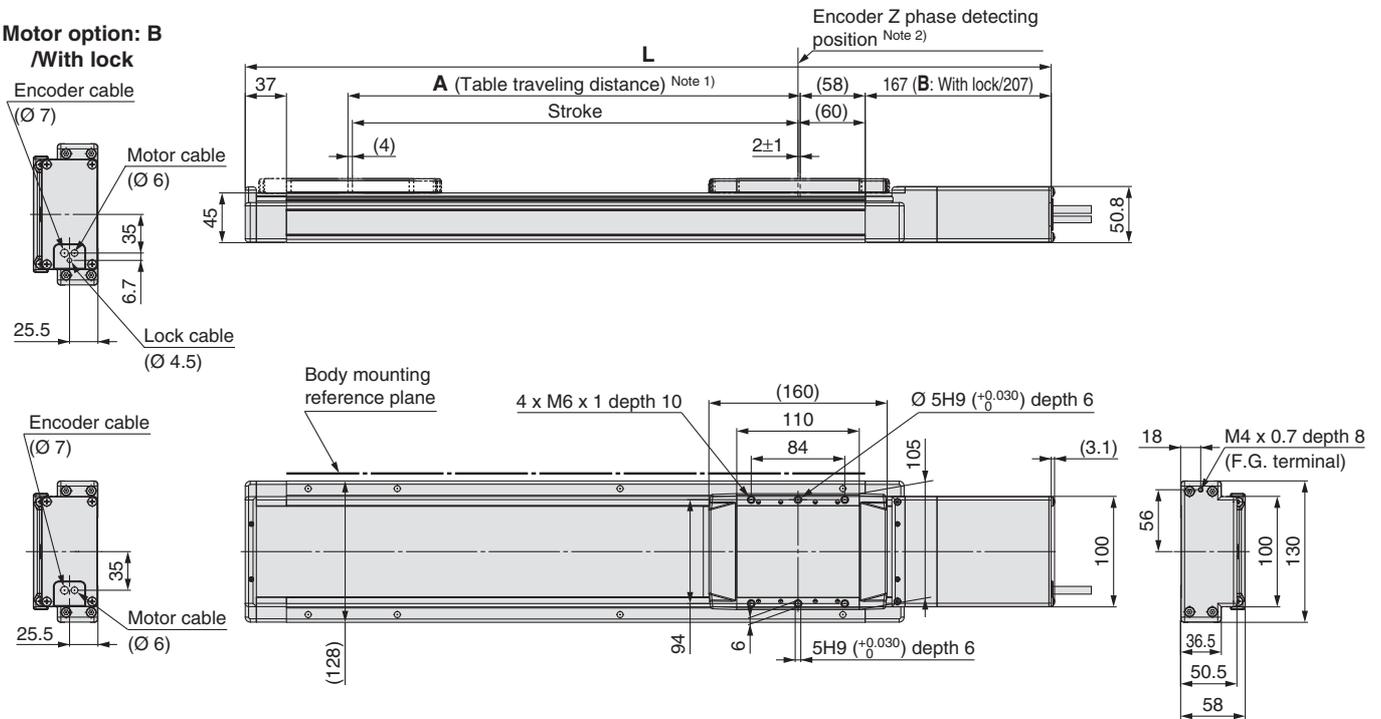
No	Description	Material	Note
13	Coupling	—	
14	Table cap	Synthetic resin	
15	Seal band holder	Synthetic resin	
16	Blanking plate	Aluminium alloy	Anodised
17	Motor	—	
18	Grommet	NBR	
19	Dust seal band	Stainless steel	
20	Bearing	—	
21	Bearing	—	
22	Nut fixing pin	Carbon steel	
23	Magnet	—	
24	Seal band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

Dimensions: Ball Screw Drive

LEJS40



**Motor option: B
/With lock**



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.

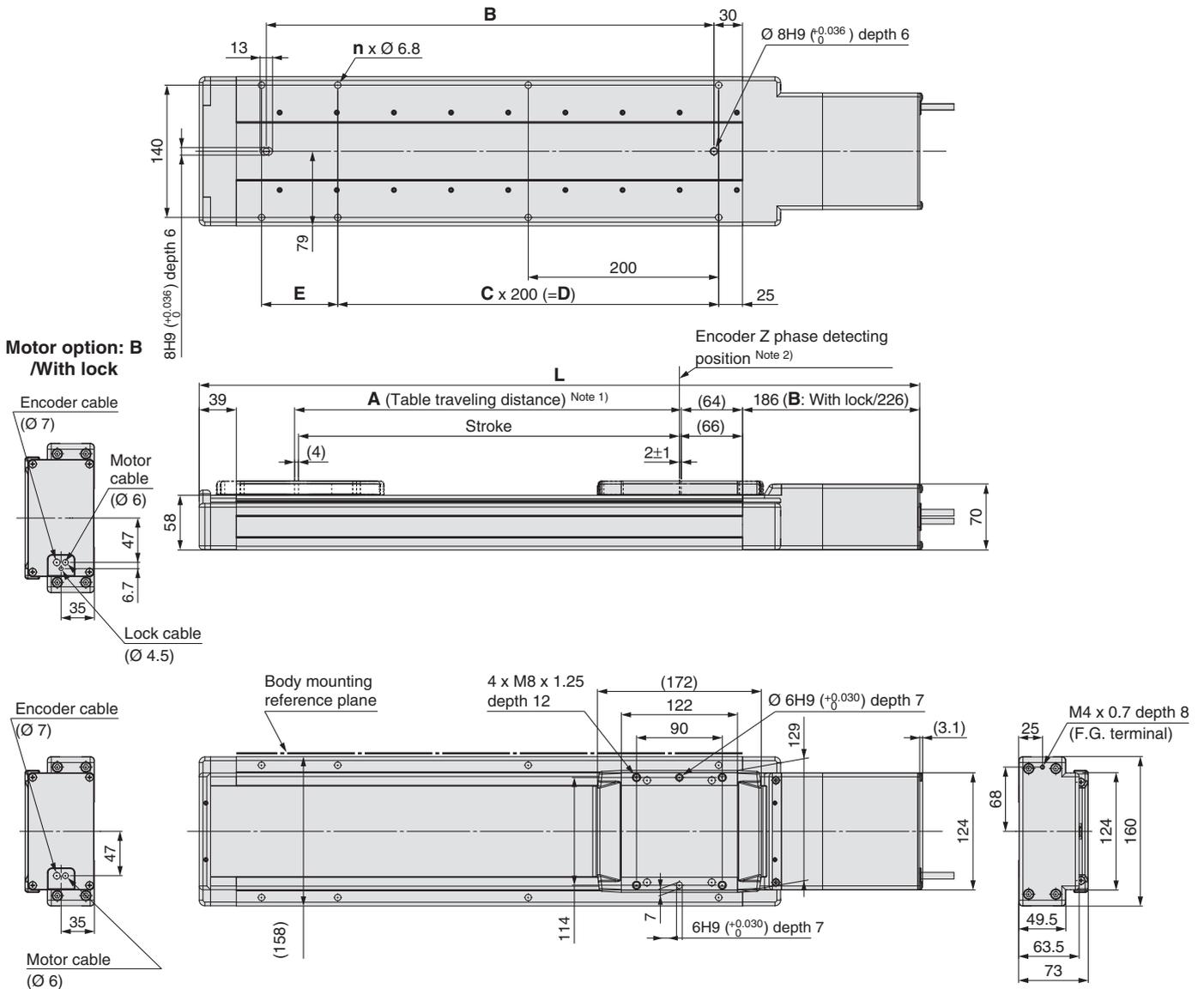
Note 3) Auto switch magnet is located in the table centre.

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

[mm]

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 centre.

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 Ball Screw Drive

AC Servo Motor

Clean Room Specification



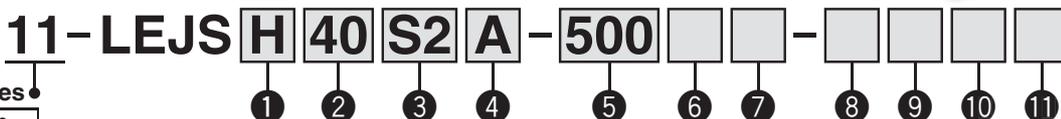
Series 11-LEJS

RoHS

LEJS40, 63



How to Order



Clean series

11	Vacuum type
----	-------------

1 Accuracy

—	Basic type
H	High precision type

2 Size

40
63

3 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 LECS□-S5 LECSC□-S5
S7	AC servo motor (Absolute encoder)	200	63	LECSB□-S7 LECS□-S7 LECSC□-S7 LECSC□-S7
T6	AC servo motor (Absolute encoder)	100	25	LECSS2-T5
T7		200	32	LECSS2-T7

4 Lead [mm]

Symbol	LEJS40	LEJS63
A	16	20
B	8	10

5 Stroke [mm]*3

200
to
1500

*3: Refer to the table below for details.

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

For motor type T6, the compatible driver part number suffix is T5.

*2: For details of the drivers, refer to pages 50 and 65.

6 Motor option

—	Without option
B	With lock

7 Vacuum port*5

—	Left
R	Right
D	Both left and right

*5: Select "D" for the vacuum port for suction of 50 l/min (ANR) or more.



8 Cable type*6, *7, *8

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

*6: 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)

—: Without cable and driver

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

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

9 Cable length [m]*6, *9

—	Without cable
2	2 m
5	5 m
A	10 m

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

10 Driver type*6

	Compatible drivers	Power supply voltage (V)
—	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	LECS1-S□	100 to 120
C2	LECS2-S□	200 to 230
S1	LECSC1-S□	100 to 120
S2	LECSC2-S□	200 to 230
	LECSC2-T□	200 to 240

11 I/O cable length [m]*10

—	Without cable
H	Without cable (Connector only)
1	1.5

*10: When "Without driver" is selected for driver type, only "—: Without cable" can be selected.

Refer to page 62 if I/O cable is required.

(Options are shown on page 62.)

Applicable stroke table*4

Model	Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200	1500
LEJS40		●	●	●	●	●	●	●	●	●	●	—
LEJS63		—	●	●	●	●	●	●	●	●	●	●

*4: Consult with SMC for non-standard strokes as they are produced as special orders.

Compatible Drivers

For auto switches, refer to pages 44 and 45.

Driver type	Pulse input type/ Positioning type	Pulse input type	CC-Link direct input type	SSCNET type	SSCNET III/H type
Series	LECSA	LECSB	LECSC	LECSS	LECSS-T
Number of point tables	Up to 7	—	Up to 255	—	—
Pulse input	○	○	—	—	—
Applicable network	—	—	CC-Link	SSCNET III	SSCNET III/H
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 22-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication	USB communication
Power supply voltage (V)	100 to 120 VAC (50 / 60 Hz), 200 to 230 VAC (50 / 60 Hz)				
Reference page	Page 50				

Series 11-LEJS

AC Servo Motor

Clean Room Specification

Specifications

11-LEJS40, 63 AC Servo Motor

Model		11-LEJS40S ²		11-LEJS63S ³			
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 [kg] ^{Note 2)}	Horizontal	30	55	45	85	
		Vertical	5	10	10	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/s ²]	20,000 (Refer to page 17 for limit according to work load and duty ratio.)					
Positioning repeatability [mm]	Basic type	±0.02					
	High precision type	±0.01					
Lost motion [mm] ^{Note 4)}	Basic type	0.1 or less					
	High precision type	0.05 or less					
Lead [mm]	16	8	20	10			
Impact/Vibration resistance [m/s ²] ^{Note 5)}	50/20						
Actuation type	Ball screw						
Guide type	Linear guide						
Grease	Ball screw/Linear guide portion						
Cleanliness class ^{Note 6)}	Low particle generation grease						
Allowable external force [N]	ISO Class 4 (ISO 14644-1)						
Operating temperature range [°C]	20						
Operating humidity range [%RH]	5 to 40						
Regeneration option	90 or less (No condensation)						
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)						
Power consumption [W] ^{Note 7)}	Horizontal	65		80			
	Vertical	165		235			
Standby power consumption when operating [W] ^{Note 8)}	Horizontal	2		2			
	Vertical	10		12			
Max. instantaneous power consumption [W] ^{Note 9)}	445		725				
Type ^{Note 10)}	Non-magnetizing lock						
Holding force [N]	101	203	330	660			
Power consumption [W] at 20 °C ^{Note 11)}	6.3			7.9			
Rated voltage [V]	24 VDC ⁰ / _{-10%}						

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) Refer to "Speed-Work Load Graph (Guide)" on page 14 for details.

Note 3) The allowable speed changes according to the stroke.

Note 4) A reference value for correcting an error in reciprocal operation.

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) The amount of particle generation changes according to the operating conditions and suction flow rate. Refer to the particle generation characteristics for details.

Note 7) The power consumption (including the driver) is for when the actuator is operating.

Note 8) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.

Note 9) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating. This value can be used for the selection of the power supply.

Note 10) Only when motor option "With lock" is selected.

Note 11) For an actuator with lock, add the power consumption for the lock.

Note 12) Sensor magnet position is located in the table center. For detailed dimensions, refer to "Auto Switch Mounting Position" on page 43.

Note 13) Do not allow collisions at either end of the table traveling distance. Additionally, when running the positioning operation, do not set within 2 mm of both ends.

Note 14) For "Manufacture of Intermediate Strokes", please contact SMC. (LEJS40/Manufacturable stroke range: 200 to 1200 mm, LEJS63/Manufacturable stroke range: 300 to 1500 mm)

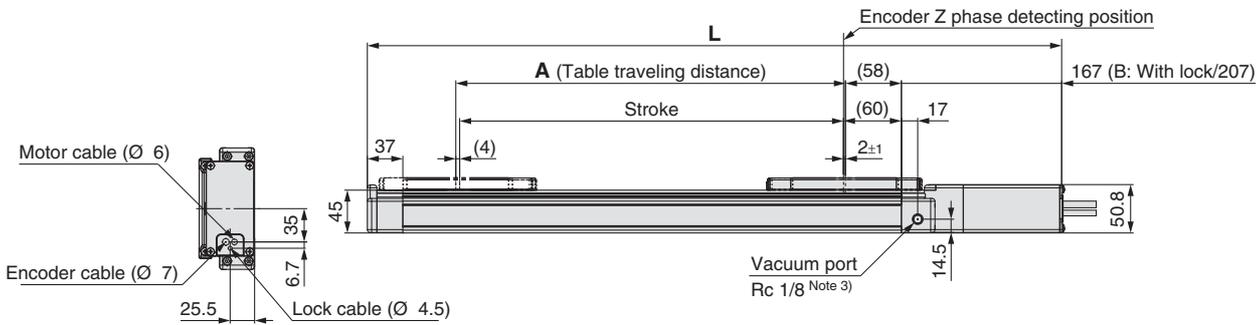
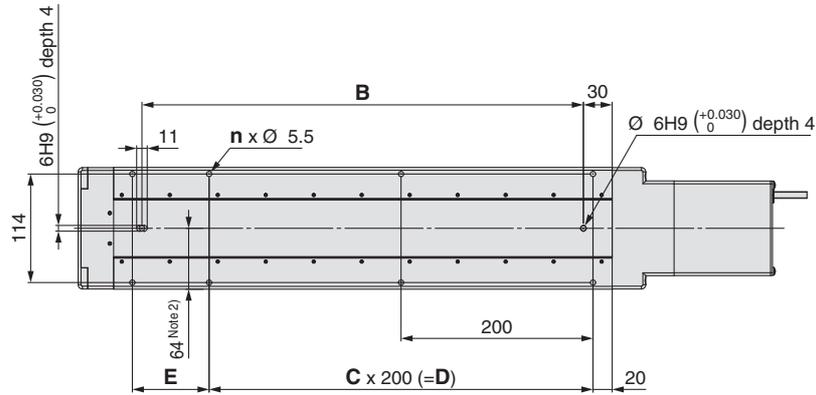
Weight

Model	11-LEJS40									
Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200
Product weight [kg]	5.6	6.4	7.1	7.9	8.7	9.4	10.2	11.0	11.7	13.3
Additional weight with lock [kg]	0.2 (Incremental encoder)/0.3 (Absolute encoder)									

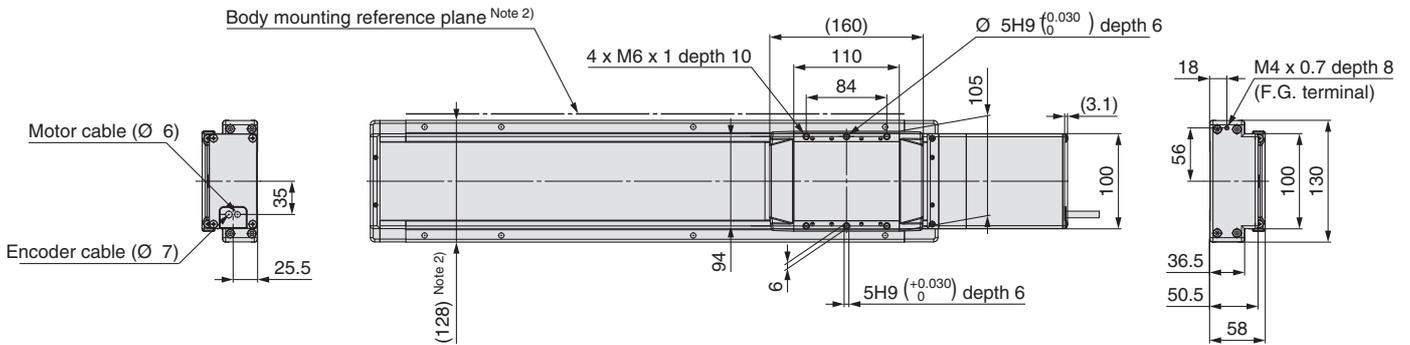
Model	11-LEJS63									
Stroke [mm]	300	400	500	600	700	800	900	1000	1200	1500
Product weight [kg]	11.4	12.7	13.9	15.2	16.4	17.7	18.9	20.1	22.6	26.4
Additional weight with lock [kg]	0.4 (Incremental encoder)/0.7 (Absolute encoder)									

Dimensions: Ball Screw Drive

11-LEJS40



**Motor option B:
With lock**



Note 1) Consult with SMC for adjusting the Z phase detecting position at the stroke end of the end side.

Note 2) 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)

Note 3) This drawing shows the left type.

Note 4) The amount of particle generation changes according to the operating conditions and suction flow rate.

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

[mm]

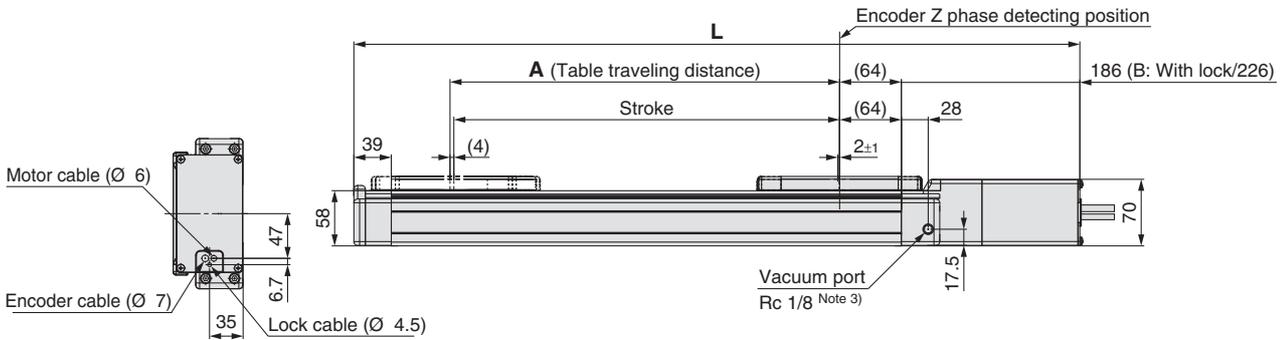
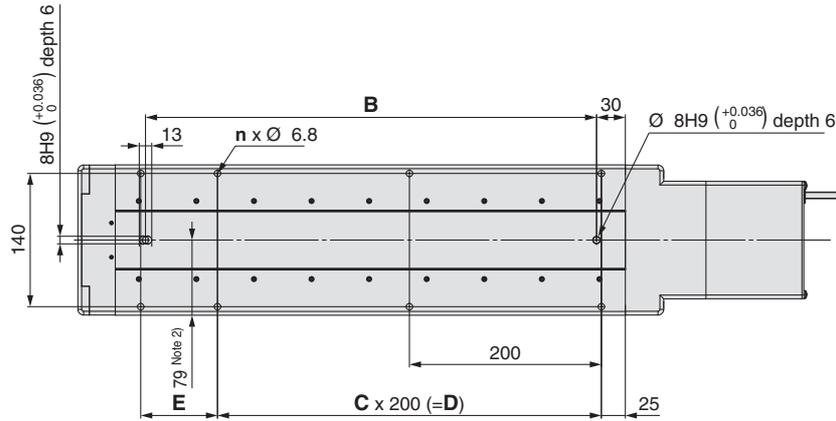
Series 11-LEJS

AC Servo Motor

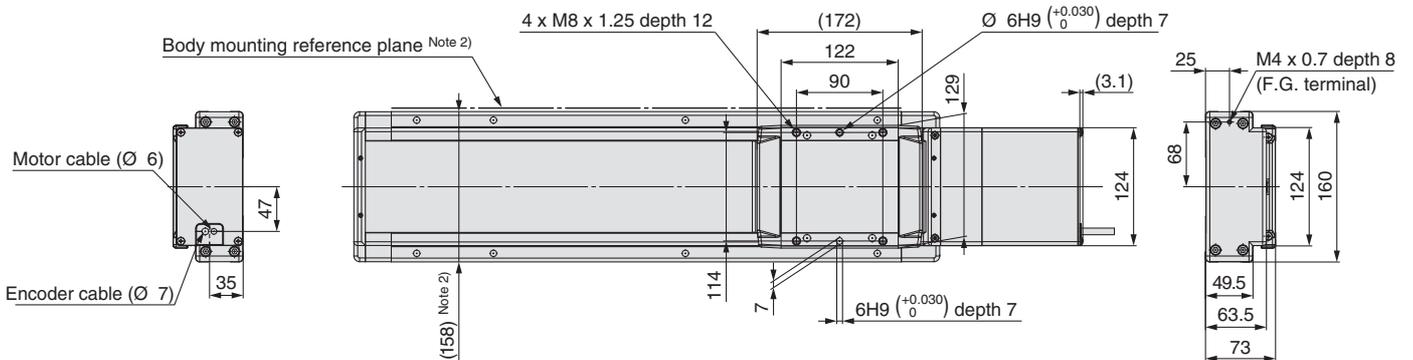
Clean Room Specification

Dimensions: Ball Screw Drive

11-LEJS63



Motor option B: With lock



- Note 1) Consult with SMC for adjusting the Z phase detecting position at the stroke end of the end side.
 Note 2) 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)
 Note 3) This drawing shows the left type.
 Note 4) The amount of particle generation changes according to the operating conditions and suction flow rate.

[mm]

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

Electric Actuator/High Rigidity Slider Type Ball Screw Drive

AC Servo Motor

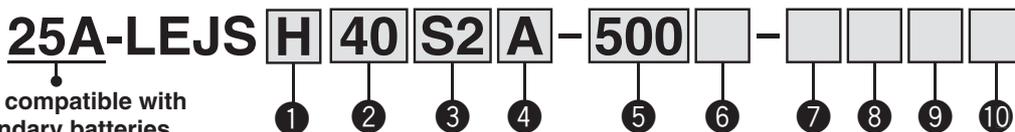
Secondary battery Compatible

Series 25A-LEJS

LEJS40, 63



How to Order



1 Accuracy

—	Basic Type
H	High precision type

2 Size

40
63

3 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 LECS□-S5 LECSS□-S5
S7	AC servo motor (Absolute encoder)	200	63	LECSB□-S7 LECS□-S7 LECSS□-S7
T6	AC servo motor (Absolute encoder)	100	25	LECSS2-T5
T7		200	32	LECSS2-T7

*1: For motor type S 2 and S 6, the compatible driver part number suffixes are S1 and S5 respectively.

For motor type T6, the compatible driver part number suffix is T5.

*2: For details of the drivers, refer to pages 50 and 65.

4 Lead [mm]

Symbol	LEJS40	LEJS63
H	24	30
A	16	20
B	8	10

5 Stroke [mm]*3

200	*3 Refer to the table below for details.
to	
1500	

6 Motor option

—	Without option
B	With lock

7 Cable type*5, *6, *7

—	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 is "(A) Axis side".

8 Cable length [m]*5, *8

—	Without cable
2	2
5	5
A	10

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

9 Driver type*5

	Compatible drivers	Power supply voltage [V]
—	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	LECSA1-S□	100 to 120
C2	LECSA2-S□	200 to 230
S1	LECSS1-S□	100 to 120
S2	LECSS2-S□	200 to 230
	LECSS2-T□	200 to 240

*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)

— : Without cable and driver

10 I/O Cable length [m]*9

—	Without cable
H	Without cable (Connector only)
1	1.5

*9 When "Without driver" is selected for driver type, only "—: Without cable" can be selected. Refer to the **LEJS catalogue** if I/O cable is required.

Applicable stroke table*4

Model	Stroke [mm]	Standard												
		200	300	400	500	600	700	800	900	1000	1200	1500		
LEJS40		●	●	●	●	●	●	●	●	●	●	●	●	—
LEJS63		—	●	●	●	●	●	●	●	●	●	●	●	●

*4 Consult with SMC as all non-standard and non-made-to-order strokes are produced as special orders.

Solid state auto switches should be ordered separately. For details about auto switches, refer to the web catalogue.

Applicable auto switches

D-M9N(V)-900, D-M9P(V)-900, D-M9B(V)-900

D-M9NW(V)-900, D-M9PW(V)-900, D-M9BW(V)-900

Compatible Drivers

* Specifications and dimensions for the 25A-series are the same as standard products.

Driver type	Pulse input type/ Positioning type	Pulse input type	CC-Link direct input type	SSCNET III type
Series	LECSA	LECSB	LECSA	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
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication
Power supply voltage [V]	100 to 120 VAC (50 / 60 Hz), 200 to 230 VAC (50 / 60 Hz)			

* Copper and zinc materials are used for the motors, cables, controllers/drivers.



Series 25A-LE □

Precautions

Be sure to read before handling.

Handling

Caution

■ Change of material

Series 25A- are copper- and zinc-free products, however, some parts including coils for motors, cables, drivers and auto switches, and connector pins and lead wires, whose material can not be changed, are made of copper.

■ Chemical environment

Refrain from using the products in such environments as exposed to chemicals. Otherwise, resin parts may deteriorate. If you want SMC to test the products for the effects of chemicals attached to them, send the products back to SMC after thoroughly cleaning them. Consult your SMC sales representative for further details.

■ Trademark

DeviceNet™ is a trademark of ODVA.

EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Be sure to read "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before using.

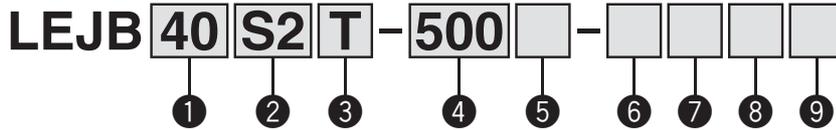
Electric Actuator/High Rigidity Slider Type Belt Drive AC Servo Motor

Series **LEJB** (C) (E) RoHS



MECHATROLINK Compatible ▶ Page 106

How to Order



1 Size

40
63

2 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 LECS□-S5 LECSS□-S5
S7	AC servo motor (Absolute encoder)	200	63	LECSB□-S7 LECS□-S7 LECSS□-S7
T6	AC servo motor (Absolute encoder)	100	25	LECSS2-T5
T7		200	32	LECSS2-T7

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

For motor type T6, the compatible driver part number suffix is T5.

*2: For details of the drivers, refer to pages 50 and 65.

3 Lead [mm]

Symbol	LEJB40	LEJB63
T	27	42

4 Stroke [mm]*2

200
to
3000

*2: Refer to the table below for details.

5 Motor option

—	Without option
B	With lock

6 Cable type*4, *5, *6

—	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". (Refer to page 61 for details.)

7 Cable length [m]*4, *7

—	Without cable
2	2 m
5	5 m
A	10 m

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

8 Driver type*4

	Compatible drivers	Power supply voltage [V]
—	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	LECS□1-S□	100 to 120
C2	LECS□2-S□	200 to 230
S1	LECSS1-S□	100 to 120
S2	LECSS2-S□	200 to 230
	LECSS2-T□	200 to 240

9 I/O cable length [m]*8

—	Without cable
H	Without cable (Connector only)
1	1.5

*8: When "Without driver" is selected for driver type, only "—: Without cable" can be selected. Refer to page 62 if I/O cable is required. (Options are shown on page 62.)

Applicable stroke table*3

Model	Stroke [mm]	●Standard													
		200	300	400	500	600	700	800	900	1000	1200	1500	2000	3000	
LEJB40		●	●	●	●	●	●	●	●	●	●	●	●	●	—
LEJB63		—	●	●	●	●	●	●	●	●	●	●	●	●	●

*3: Consult with SMC for non-standard strokes as they are produced as special orders.

*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)

— : Without cable and driver

For auto switches, refer to pages 44 and 45.

Compatible Drivers

Driver type	Pulse input type/ Positioning type	Pulse input type	CC-Link direct input type	SSCNET type	SSCNET III/H type
Series	LECSA	LECSB	LECS□	LECSS	LECSS-T
Number of point tables	Up to 7	—	Up to 255	—	—
Pulse input	○	○	—	—	—
Applicable network	—	—	CC-Link	SSCNET III	SSCNET III/H
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 22-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication	USB communication
Power supply voltage (V)	100 to 120 VAC (50 / 60 Hz), 200 to 230 VAC (50 / 60 Hz)				200 to 240 VAC (50/60 Hz)
Reference page	Page 50				Page 65

Specifications

LEJB40/63 AC Servo Motor

Model		LEJB40S ₆ ²	LEJB63S ₇ ³	
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 [kg]	20 (If the stroke exceeds 1000 mm: 10)	30	
	Speed [mm/s] ^{Note 2)}	2000	3000	
	Max. acceleration/deceleration [mm/s ²]	20000 (Refer to page 19 for limit according to work load and duty ratio.)		
	Positioning repeatability [mm]	±0.04		
	Lost motion [mm] ^{Note 3)}	0.1 or less		
	Lead [mm]	27	42	
	Impact/Vibration resistance [m/s ²] ^{Note 4)}	50/20		
	Actuation type	Belt		
	Guide type	Linear guide		
	Allowable external force [N]	20		
	Operating temperature range [°C]	5 to 40		
	Operating humidity range [%RH]	90 or less (No condensation)		
	Regeneration option	May be required depending on speed and work load. (Refer to page 14.)		
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)		
	Power consumption [W] ^{Note 5)}	Horizontal	65	190
		Vertical	—	—
	Standby power consumption when operating [W] ^{Note 6)}	Horizontal	2	2
		Vertical	—	—
Max. instantaneous power consumption [W] ^{Note 7)}	445	725		
Lock unit specifications	Type ^{Note 8)}	Non-magnetizing lock		
	Holding force [N]	60	157	
	Power consumption at 20 °C [W] ^{Note 9)}	6.3	7.9	
	Rated voltage [V]	24 VDC ⁰ / _{-10 %}		

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) Check "Speed-Work Load Graph (Guide)" on page 14.

Note 3) A reference value for correcting an error in reciprocal operation.

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) The power consumption (including the driver) is for when the actuator is operating.

Note 6) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.

Note 7) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

Note 8) Only when motor option "With lock" is selected.

Note 9) For an actuator with lock, add the power consumption for the lock.

Note 10) Sensor magnet position is located in the table center.

For detailed dimensions, refer to "Auto Switch Mounting Position" on page 43.

Note 11) Do not allow collisions at either end of the table traveling distance. Additionally, when running the positioning operation, do not set within 2 mm of both ends.

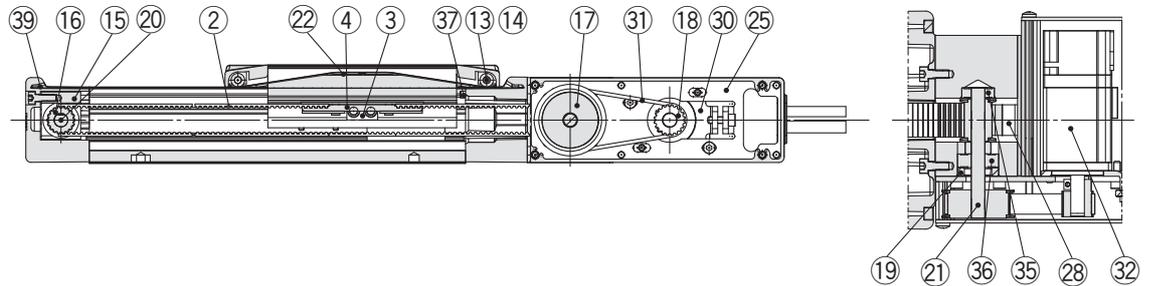
Note 12) For "Manufacture of Intermediate Strokes", please contact SMC.

(LEJB40/Manufacturable stroke range: 200 to 2000 mm, LEJB63/Manufacturable stroke range: 300 to 3000 mm)

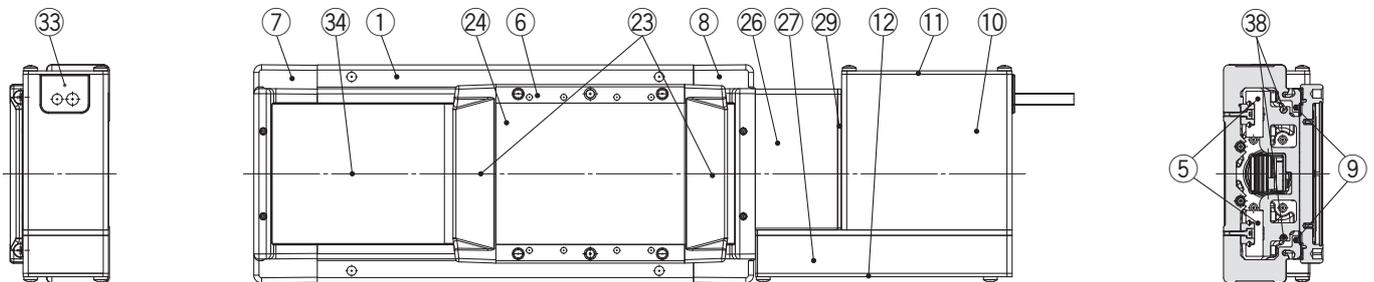
Weight

Model	LEJB40											
Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200	1500	2000
Product weight [kg]	5.7	6.4	7.1	7.7	8.4	9.1	9.8	10.5	11.2	12.6	14.7	18.1
Additional weight with lock [kg]	0.2 (Incremental encoder)/0.3 (Absolute encoder)											
Model	LEJB63											
Stroke [mm]	300	400	500	600	700	800	900	1000	1200	1500	2000	3000
Product weight [kg]	11.5	12.7	13.8	15.0	16.2	17.4	18.6	19.7	22.1	25.7	31.6	43.4
Additional weight with lock [kg]	0.4 (Incremental encoder)/0.7 (Absolute encoder)											

Construction



Motor details



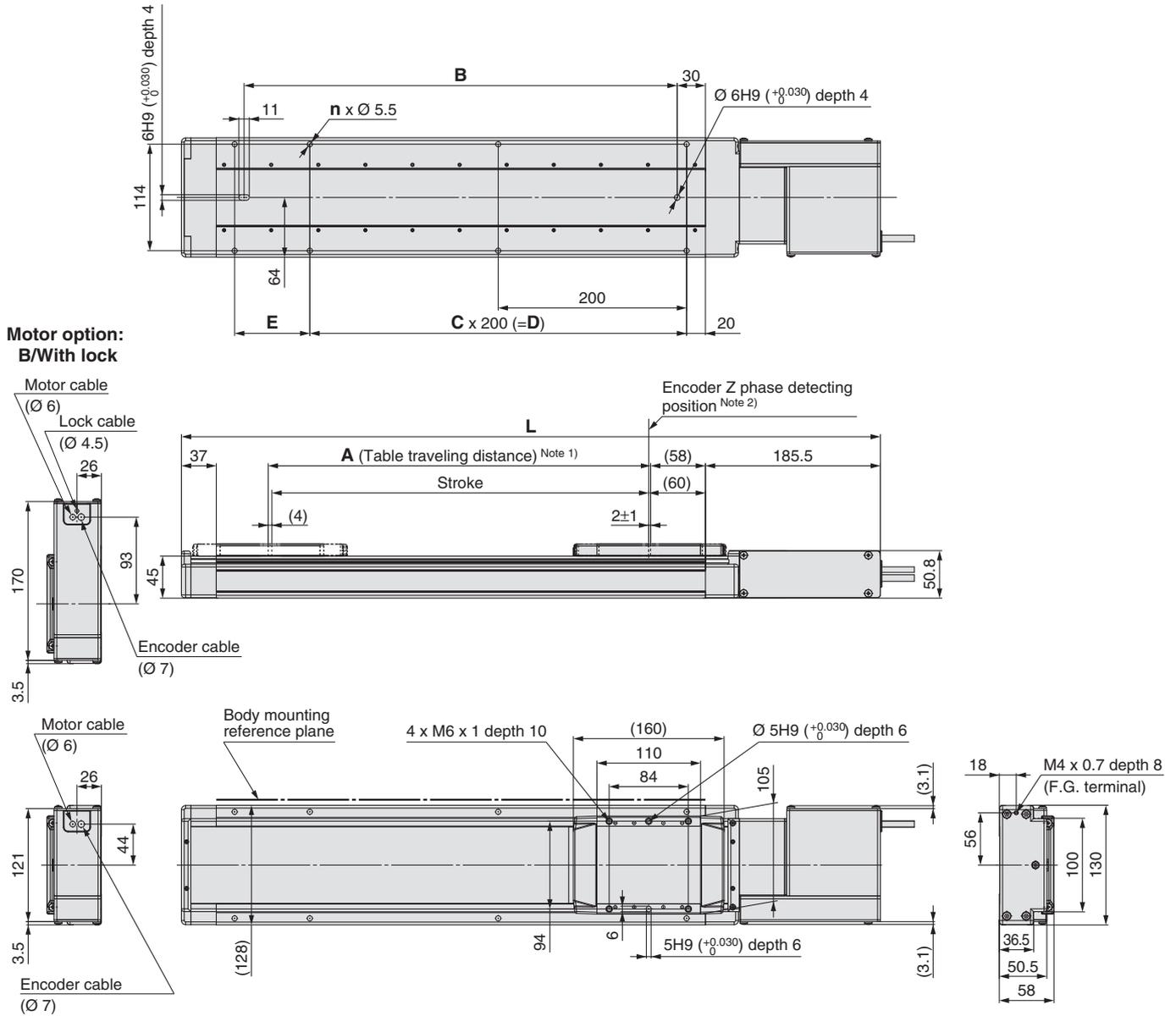
Component Parts

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

No.	Description	Material	Note
21	Pulley shaft B	Stainless steel	
22	Table cap	Synthetic resin	
23	Seal band holder	Synthetic resin	
24	Blanking plate	Aluminium alloy	Anodised
25	Motor mount plate	Carbon steel	
26	Pulley block	Aluminium alloy	Anodised
27	Pulley cover	Aluminium alloy	Anodised
28	Belt stopper	Aluminium alloy	
29	Side plate	Aluminium alloy	Anodised
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	—	
39	Seal band stopper	Stainless steel	

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.

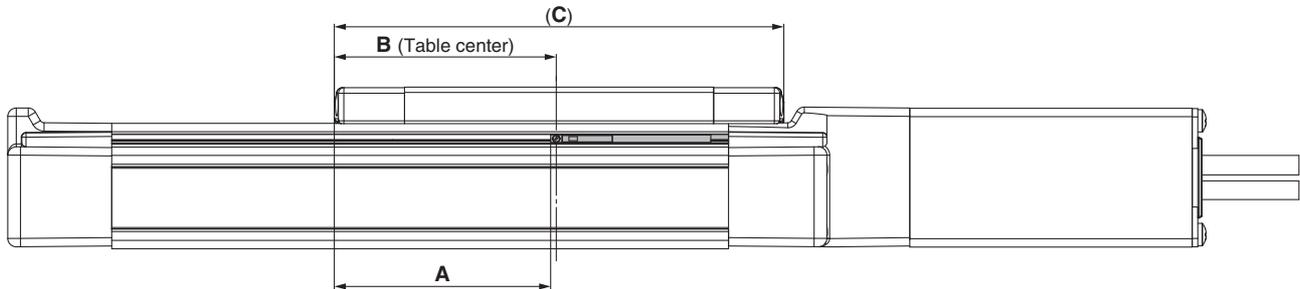
Note 2) The Z phase first detecting position from the stroke end of the motor side.

Note 3) Auto switch magnet is located in the table centre.

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

Series LEJS Auto Switch Mounting

Auto Switch Mounting Position



Model	Size	A	B	C	Operating range
LEJS	40	77	80	160	5.5
LEJB					5.0
LEJS	63	83	86	172	7.0
LEJB					6.5

[mm]

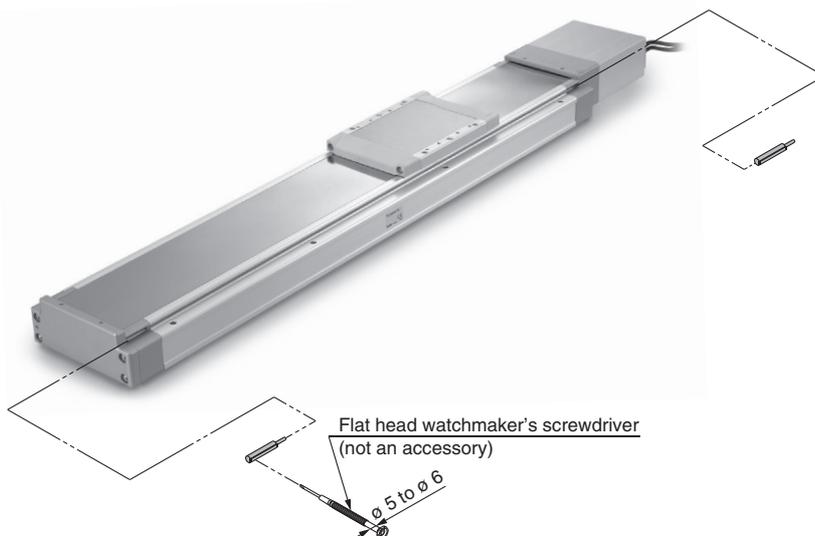
Note) The operating range is a guideline including hysteresis, not meant to be guaranteed. There may be large variations (as much as $\pm 30\%$) depending on the ambient environment.

Auto Switch Mounting

When mounting the auto switches, they should be inserted into the actuator's auto switches mounting groove from the direction shown in the drawing on the below. Once in the mounting position, use a flat head watchmaker's screwdriver to tighten the included auto switch mounting screw.

Auto Switch Mounting Screw Tightening Torque [N·m]

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



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

Solid State Auto Switch Direct Mounting Style

D-M9N(V)/D-M9P(V)/D-M9B(V)



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

Grommet

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



Caution

Precautions

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

Auto Switch Specifications

PLC: Programmable Logic Controller

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

Oilproof Heavy-duty Lead Wire Specifications

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

Note 1) Refer to the Best Pneumatics No. 2 for solid state auto switch common specifications.
Note 2) Refer to the Best Pneumatics No. 2 for lead wire lengths.

Weight

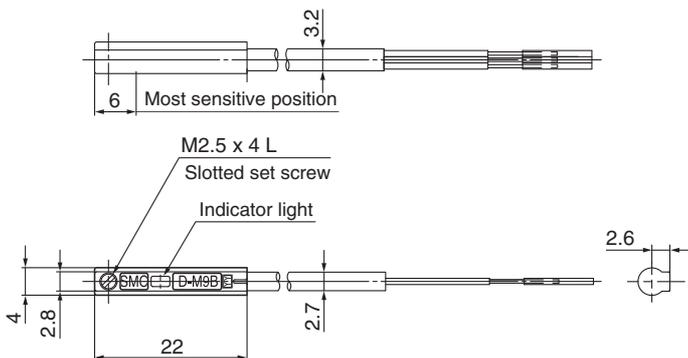
[g]

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

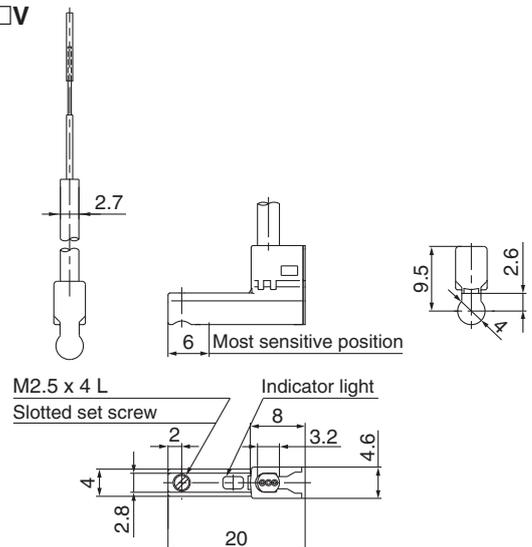
Dimensions

[mm]

D-M9□



D-M9□V



2-Colour Indication Solid State Auto Switch Direct Mounting Style

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



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

Grommet

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



Caution

Precautions

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

Auto Switch Specifications

PLC: Programmable Logic Controller

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

Oilproof Flexible Heavy-duty Lead Wire Specifications

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

Note 1) Refer to the Best Pneumatics No. 2 for solid state auto switch common specifications.
Note 2) Refer to the Best Pneumatics No. 2 for lead wire lengths.

Weight

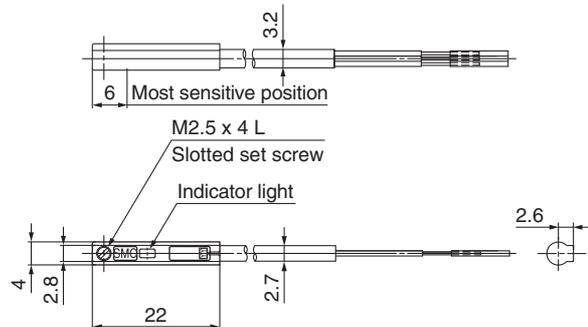
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Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
Lead wire length	0.5 m (—)	8	7	7
	1 m (M)	14	13	13
	3 m (L)	41	38	38
	5 m (Z)	68	63	63

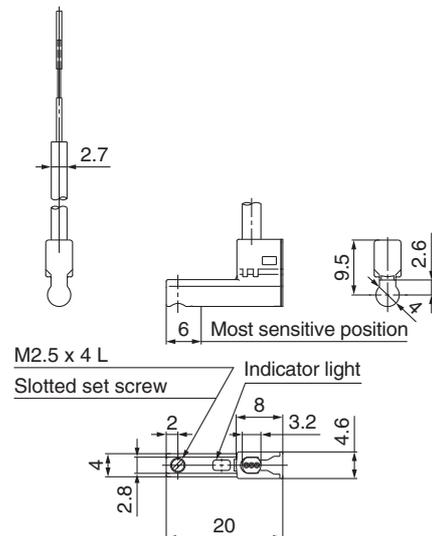
Dimensions

[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.
For Electric Actuator Precautions, refer to “Handling Precautions for SMC Products”
and the Operation Manual on SMC website, <http://www.smc.eu>

Design

Caution

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

Select a suitable actuator by work load and allowable moment. If the product is used outside of the operating limit, the eccentric load applied to the guide will be excessive and have adverse effects such as creating play on the guide, degrading accuracy and shortening the life of the product.
- 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 a malfunction or seizure.

Selection

Warning

- 1. Do not increase the speed in excess of the specification limits.**

Select a suitable actuator by the relationship of the allowable work load and speed, and the allowable speed of each stroke. If the product is used outside of the specification limits, it will have adverse effects such as creating noise, degrading accuracy and shortening the life of the product.
- 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 a thousand cycles.**
- 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.**

When incorrect instructions are inputted, such as using the product outside of the operating limit or operation outside of actual stroke through changes in the controller/driver setting and/or origin position, the table may collide against the stroke end of the actuator. Please check these points before use.
If the table collides against the stroke end of the actuator, the guide, belt or internal stopper can be broken. This may lead to abnormal operation.



- Handle the actuator with care when it is used in the vertical direction as the workpiece will fall freely from its own weight.
- 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 catalogue.
 - 3. Do not apply a load, impact or resistance in addition to the transferred load during return to origin.**
 - 4. Do not dent, scratch or cause other damage to the body and table mounting surfaces.**

This may cause unevenness in the mounting surface, play in the guide or an increase in the sliding resistance.
 - 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 play in the guide or an increase in the sliding resistance.
 - 6. The flatness of mounting surface should be within 0.1mm/500 mm.**

Unevenness of a workpiece or base mounted on the body of the product may cause play in the guide and an increase in the 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.
For Electric Actuator Precautions, refer to “Handling Precautions for SMC Products”
and the Operation Manual on SMC website, <http://www.smc.eu>

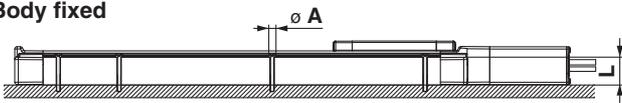
Handling

⚠ Caution

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

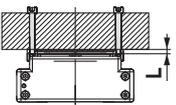
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed



Model	Bolt	Max. tightening torque [N·m]	Ø A [mm]	L [mm]
LEJ□40	M5	3.0	5.5	36.5
LEJ□63	M6	5.2	6.8	49.5

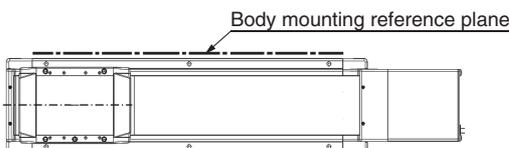
Workpiece fixed



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

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

11. Do not operate by fixing the table and moving the actuator body.
12. The belt drive actuator cannot be used vertically for 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*

 Type



Absolute Type
Series *LECSS-T*

AC Servo Motor Driver

Series LECS□

Power supply voltage	100 to 120 VAC 200 to 230 VAC
----------------------	----------------------------------

Motor capacity	100/200/400 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

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 LECSA (Pulse input type)



- 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)

CC-Link

Absolute Type

Series LECSB (Pulse input 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. one-way 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)

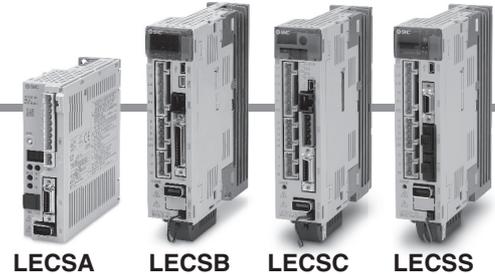


Absolute Type

Series LECSB/LECSB/LECSS

(Pulse Input Type) (CC-Link Direct Input Type) (SSCNET III Type)

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

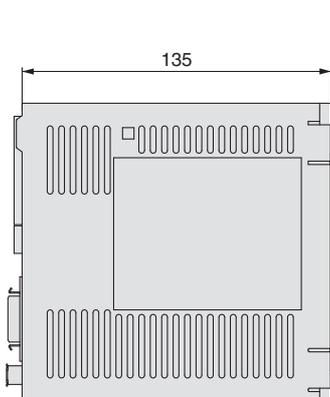
Compatible motor type

Symbol	Type	Capacity	Encoder
S1	AC servo motor (S2)	100 W	Incremental
S3	AC servo motor (S3)	200 W	
S4	AC servo motor (S4)*	400 W	
S5	AC servo motor (S6)	100 W	Absolute
S7	AC servo motor (S7)	200 W	
S8	AC servo motor (S8)*	400 W	

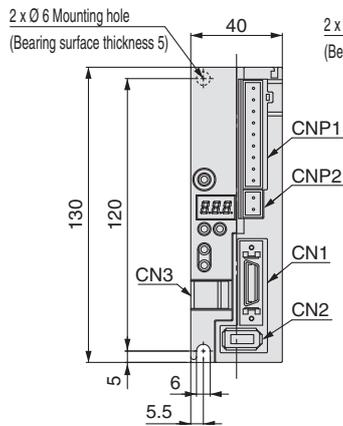
* Only available for power supply voltage "200 to 230 VAC".

Dimensions

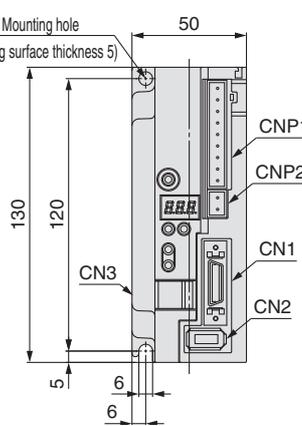
LECSA □



For LECSA □-S1,S3

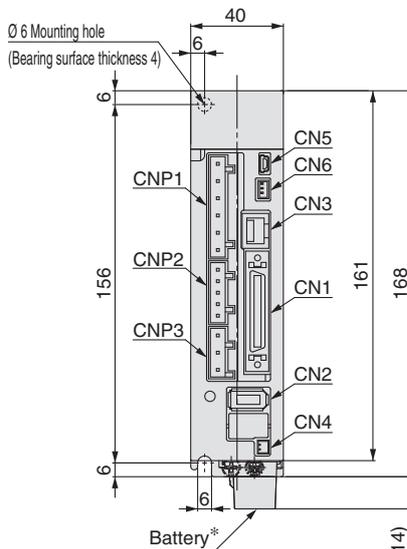
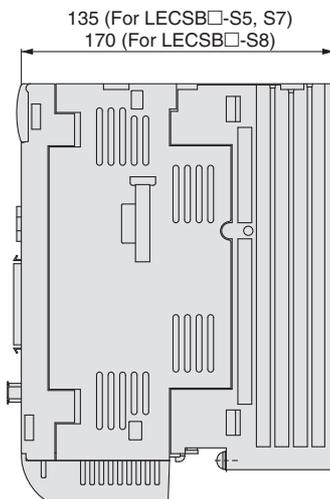


For LECSA □-S4



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 □

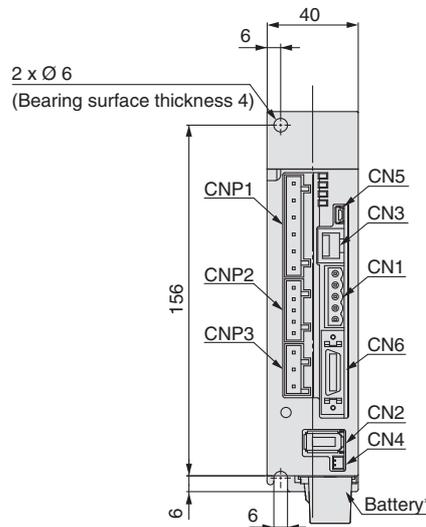
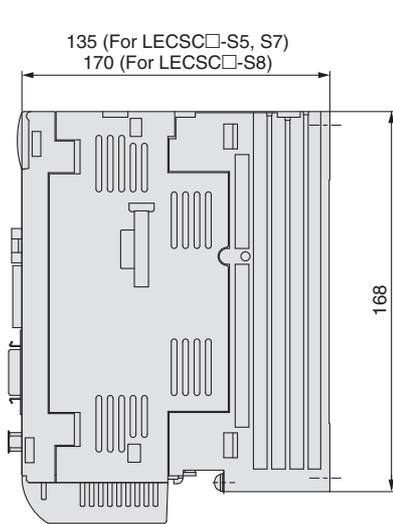


Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3	RS-422 communication connector
CN4	Battery connector
CN5	USB communication connector
CN6	Analogue monitor connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector
CNP3	Servo motor power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

*Battery included.

Dimensions

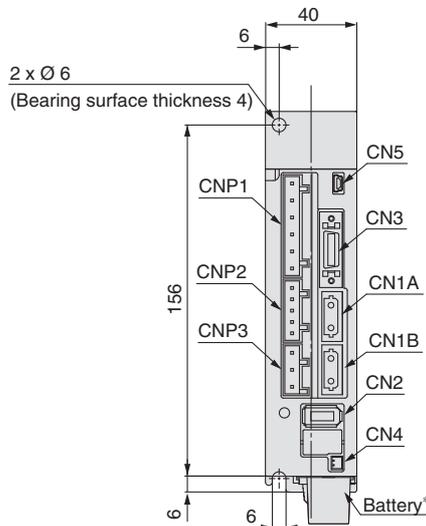
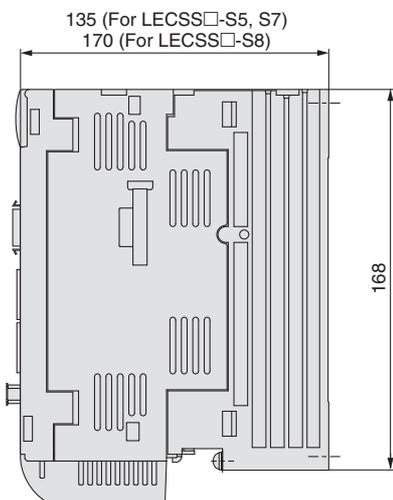
LECS □



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.

LECS □



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.

Series LECS□

Specifications

Series LECSA

Model		LECSA1-S1	LECSA1-S3	LECSA2-S1	LECSA2-S3	LECSA2-S4
Compatible motor capacity [W]		100	200	100	200	400
Compatible encoder		Incremental 17-bit encoder (Resolution: 131072 p/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	4.5
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 (for differential receiver), 200 k (for open collector)*2				
Function	In-position range setting [pulse]	0 to ±65535 (Command pulse unit)				
	Error excessive	±3 rotations				
	Torque limit	Parameter setting				
	Communication	USB communication				
Operating temperature range [°C]		0 to 55 (No freezing)				
Operating humidity range [%RH]		90 or less (No condensation)				
Storage temperature range [°C]		-20 to 65 (No freezing)				
Storage humidity range [%RH]		90 or less (No condensation)				
Insulation resistance [MΩ]		Between the housing and SG: 10 (500 VDC)				
Weight [g]		600				700

Series LECSB

Model		LECSB1-S5	LECSB1-S7	LECSB2-S5	LECSB2-S7	LECSB2-S8
Compatible motor capacity [W]		100	200	100	200	400
Compatible encoder		Absolute 18-bit encoder (Resolution: 262144 p/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	2.6
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 (for differential receiver), 200 k (for open collector)				
Function	In-position range setting [pulse]	0 to ±10000 (Command pulse unit)				
	Error excessive	±3 rotations				
	Torque limit	Parameter setting or external analog input setting (0 to 10 VDC)				
	Communication	USB communication, RS422 communication*1				
Operating temperature range [°C]		0 to 55 (No freezing)				
Operating humidity range [%RH]		90 or less (No condensation)				
Storage temperature range [°C]		-20 to 65 (No freezing)				
Storage humidity range [%RH]		90 or less (No condensation)				
Insulation resistance [MΩ]		Between the housing and SG: 10 (500 VDC)				
Weight [g]		800				1000

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

*2 If the command pulse train input is open collector method, it supports only to the sink (NPN) type interface. It does not correspond to the source (PNP) type interface.

Specifications

Series LECSC

Model		LECSC1-S5	LECSC1-S7	LECSC2-S5	LECSC2-S7	LECSC2-S8	
Compatible motor capacity [W]		100	200	100	200	400	
Compatible encoder		Absolute 18-bit encoder (Resolution: 262144 p/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	2.6	
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	10 M
		Maximum overall cable length [m]	1200	900	400	160	100
		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					
Communication function		USB communication, RS-422 communication*2					
Operating temperature range [°C]		0 to 55 (No freezing)					
Operating humidity range [%RH]		90 or less (No condensation)					
Storage temperature range [°C]		-20 to 65 (No freezing)					
Storage humidity range [%RH]		90 or less (No condensation)					
Insulation resistance [MΩ]		Between the housing and SG: 10 (500 VDC)					
Weight [g]		800			1000		

*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 overall cable length and the cable length between stations.

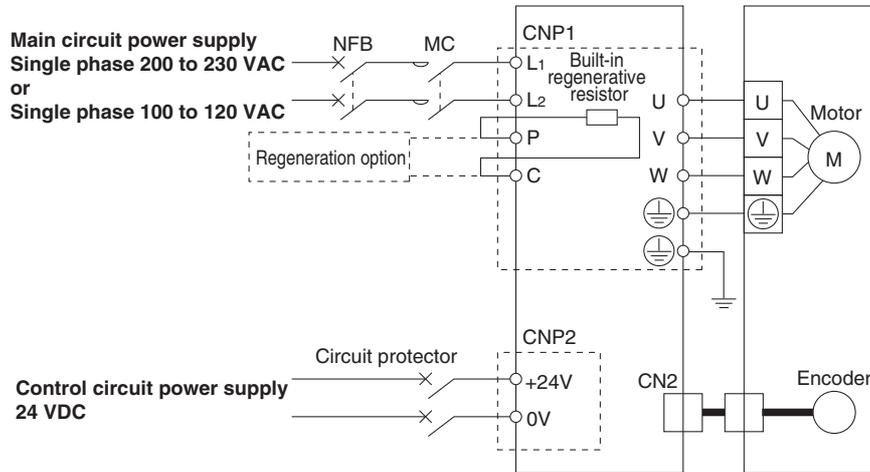
*2 USB communication and RS422 communication cannot be performed at the same time.

Series LECSS

Model		LECSS1-S5	LECSS1-S7	LECSS2-S5	LECSS2-S7	LECSS2-S8
Compatible motor capacity [W]		100	200	100	200	400
Compatible encoder		Absolute 18-bit encoder (Resolution: 262144 p/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	2.6
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)				
Communication function		USB communication				
Operating temperature range [°C]		0 to 55 (No freezing)				
Operating humidity range [%RH]		90 or less (No condensation)				
Storage temperature range [°C]		-20 to 65 (No freezing)				
Storage humidity range [%RH]		90 or less (No condensation)				
Insulation resistance [MΩ]		Between the housing and SG: 10 (500 VDC)				
Weight [g]		800			1000	

Power Supply Wiring Example: LECSA

LECSA□-□

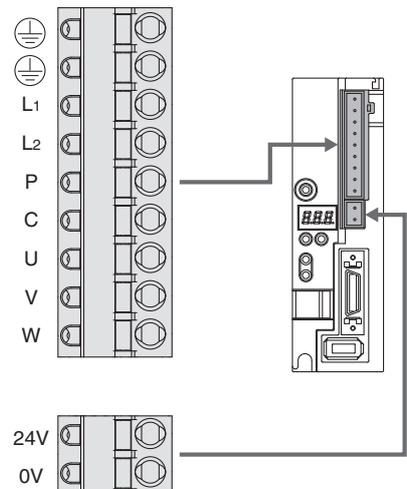


Main Circuit Power Supply Connector: CNP1 * Accessory

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).
L1	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
L2		
P	Regeneration option	Terminal to connect regeneration option LECSA□-S1: Not connected at time of shipping. 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)	

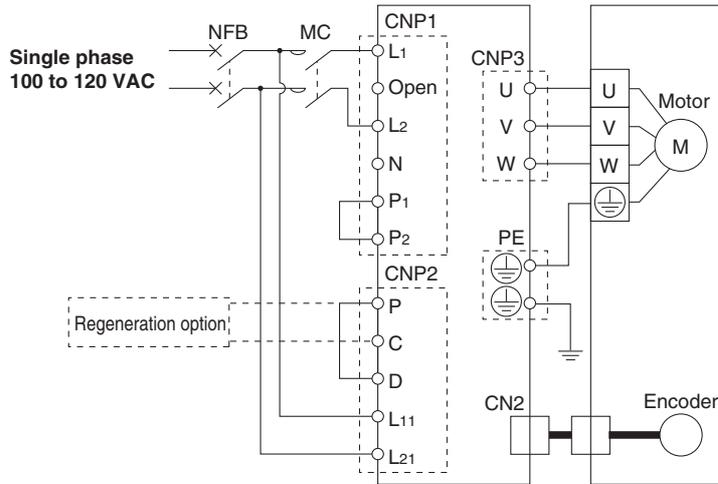
Control Circuit Power Supply Connector: CNP2 * Accessory

Terminal name	Function	Details
24V	Control circuit power supply (24 V)	24 V side of the control circuit power supply (24 VDC) supplied to the driver
0V	Control circuit power supply (0 V)	0 V side of the control circuit power supply (24 VDC) supplied to the driver



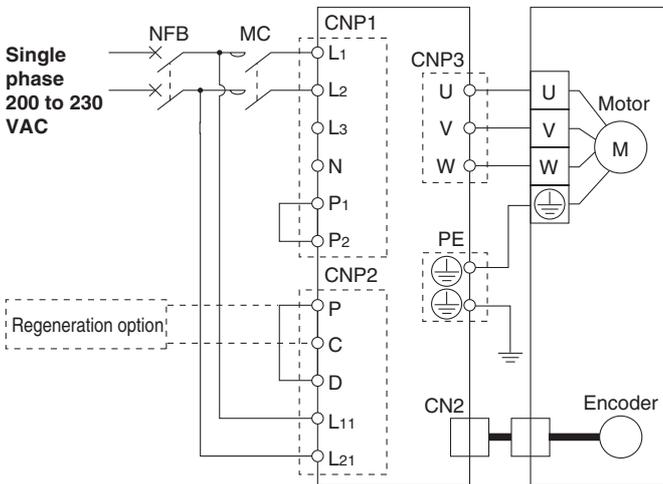
Power Supply Wiring Example: LECSB, LECS, LECS

LECSB1-□
LECS1-□
LECS1-□

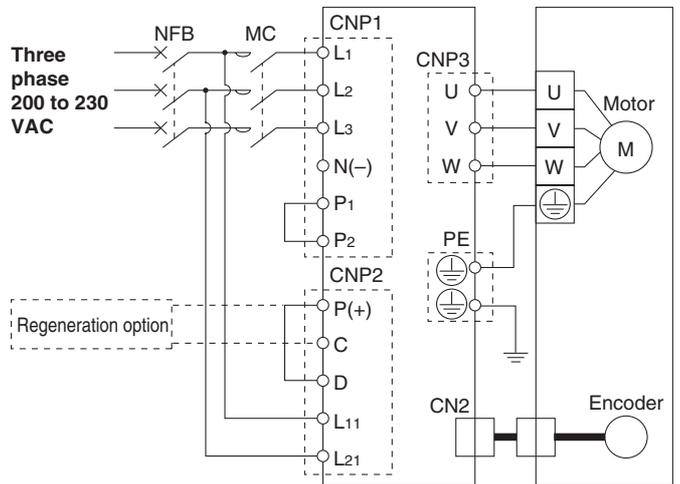


LECSB2-□
LECS2-□
LECS2-□

For single phase 200 VAC



For three phase 200 VAC



Note) For single phase 200 to 230 VAC, power supply should be connected to L1 and L2 terminals, with nothing connected to L3.

Main Circuit Power Supply Connector: CNP1 * Accessory

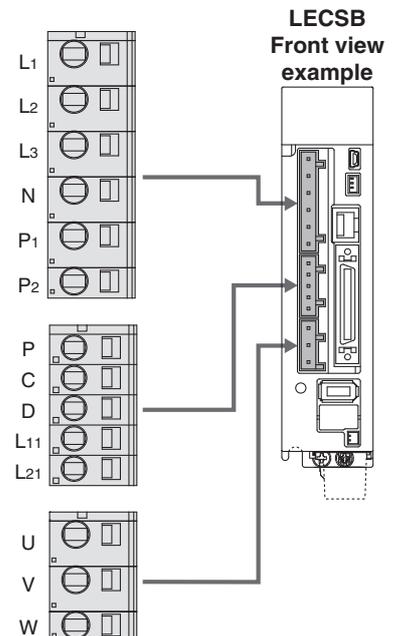
Terminal name	Function	Details
L1	Main circuit power supply	Connect the main circuit power supply. LECSB1/LECS1/LECS1: Single phase 100 to 120 VAC, 50 / 60 Hz Connection terminal: L1, L2 LECSB2/LECS2/LECS2: Single phase 200 to 230 VAC, 50 / 60 Hz Connection terminal: L1, L2 Three phase 200 to 230 VAC, 50 / 60 Hz Connection terminal: L1, L2, L3
L2		
L3		
N		Do not connect.
P1		Connect between P1 and P2. (Connected at time of shipping.)
P2		

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		
L11	Control circuit power supply	Connect the control circuit power supply. LECSB1/LECS1/LECS1: Single phase 100 to 120 VAC, 50 / 60 Hz Connection terminal: L11, L21 LECSB2/LECS2/LECS2: Single phase 200 to 230 VAC, 50 / 60 Hz Connection terminal: L11, L21 Three phase 200 to 230 VAC, 50 / 60 Hz Connection terminal: L11, L21
L21		

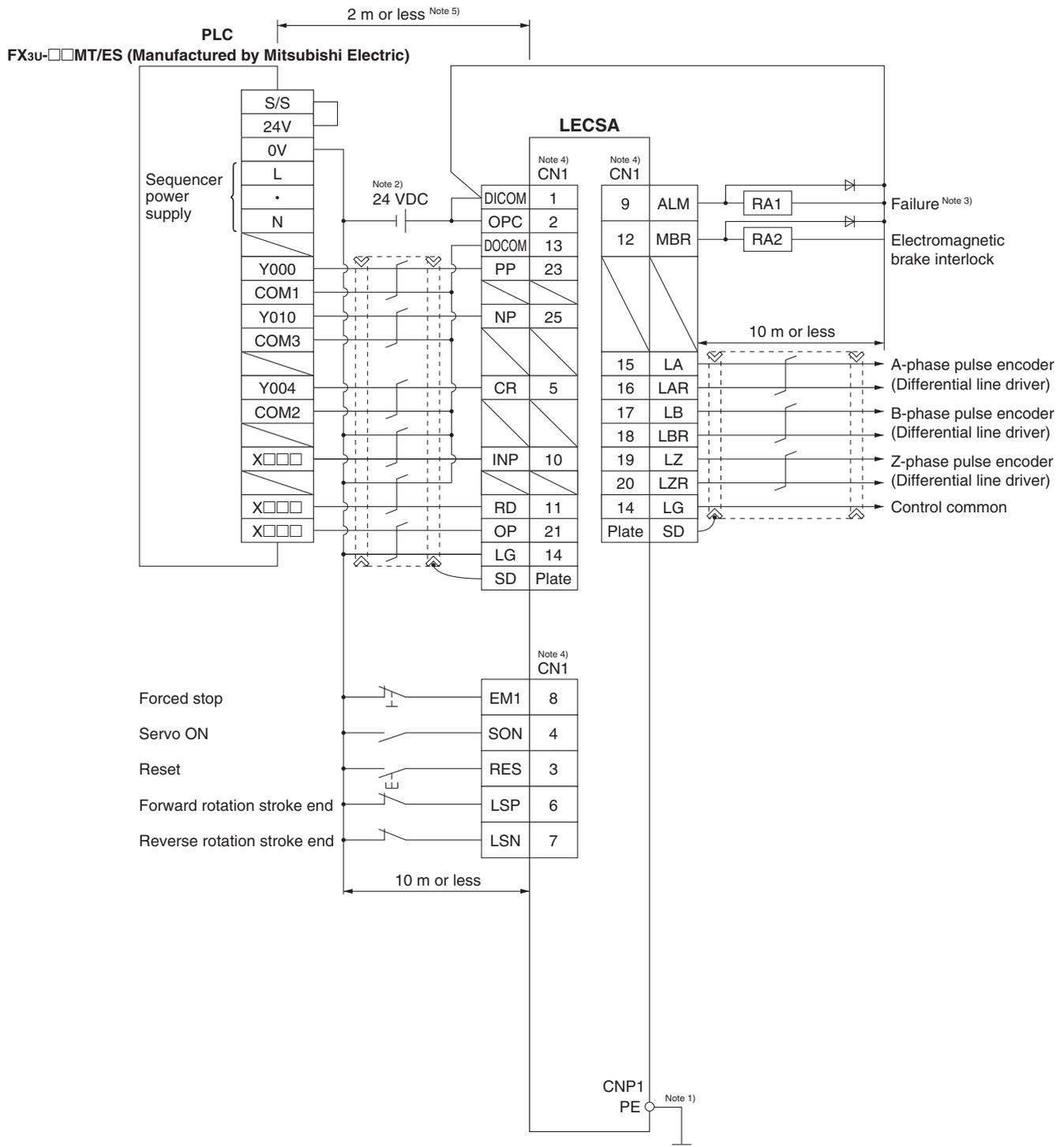
Motor Connector: CNP3 * Accessory

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)	



Control Signal Wiring Example: LECSA

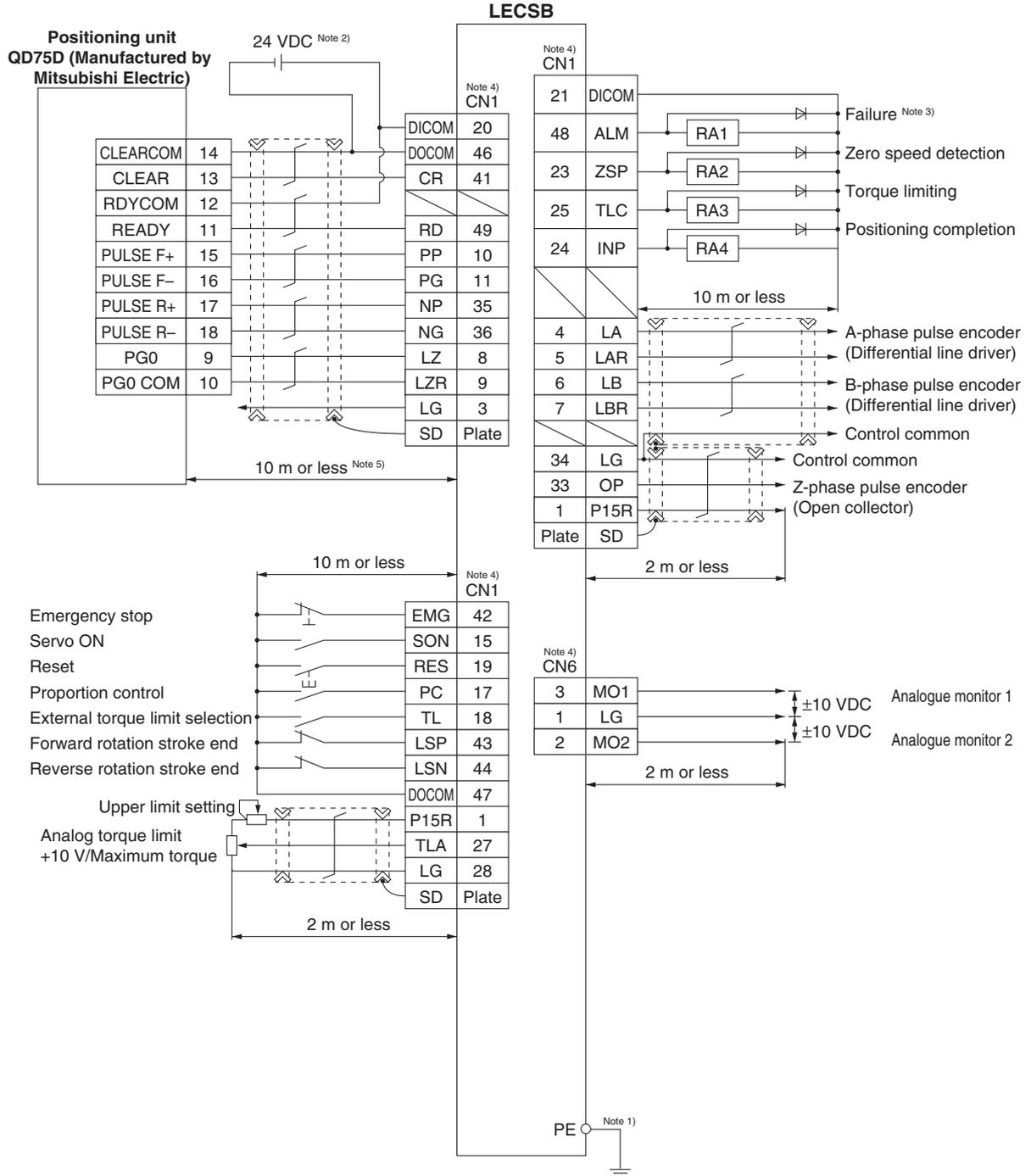
This wiring example shows connection with a PLC (FX3U-□□MT/ES) manufactured by Mitsubishi Electric as when used in position control mode. Refer to the LECSA operation manual and any technical literature or operation manuals for your PLC and positioning unit before connecting to another PLC or positioning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



- Note 1) For preventing electric shock, be sure to connect the driver circuit power supply connector (CNP1)'s protective earth (PE) terminal (marked ⊕) to the control panel's protective earth (PE).
- Note 2) For interface use, supply 24 VDC $\pm 10\%$ 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.
- Note 6) If the command pulse train input is open collector method, it supports only to the sink (NPN) type interface. It does not correspond to the source (PNP) type interface.

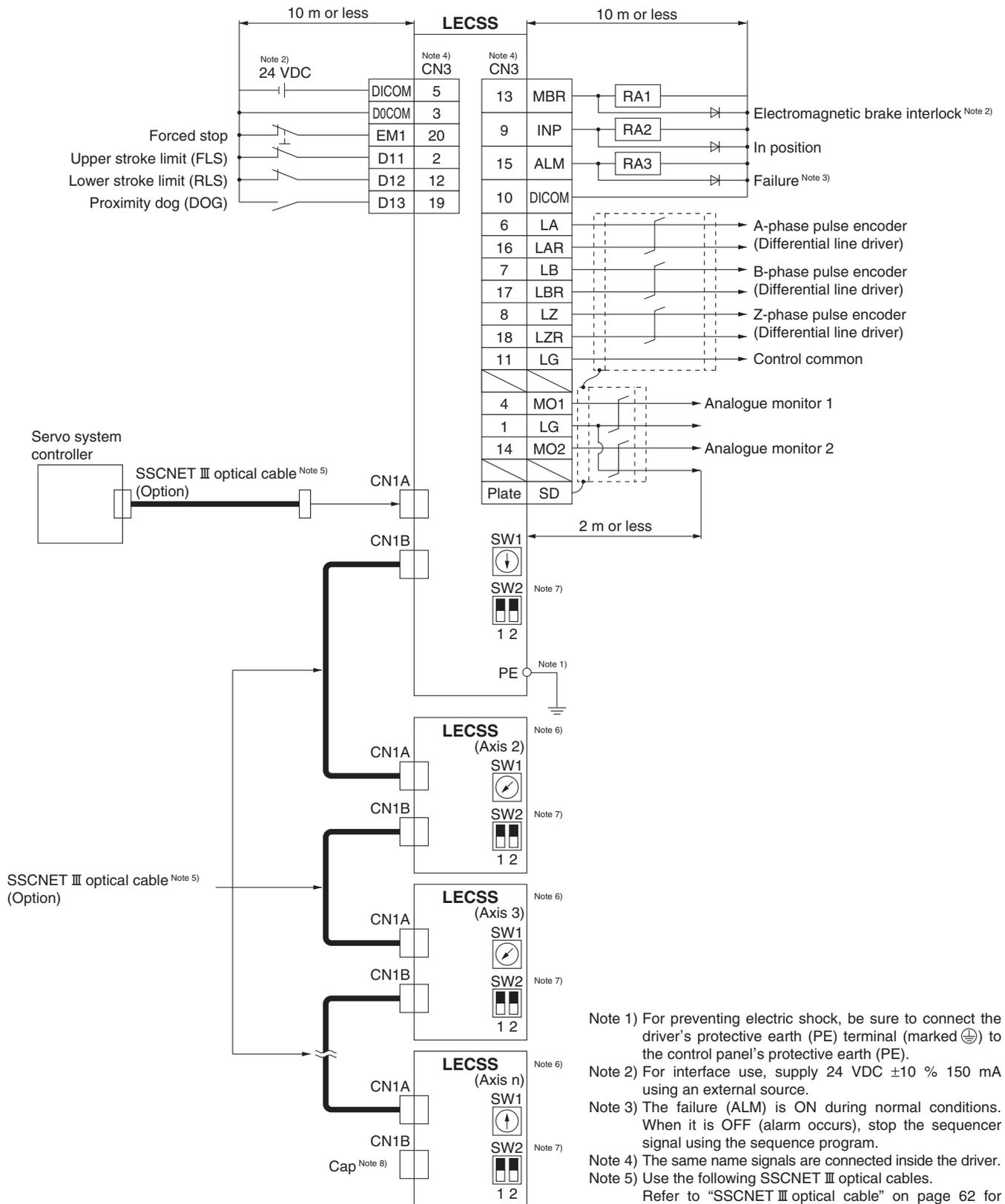
Control Signal Wiring Example: LECSB

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 before connecting to another PLC or positioning unit.



- 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 $\pm 10\%$ 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.
- Note 6) If the command pulse train input is open collector method, it supports only to the sink (NPN) type interface. It does not correspond to the source (PNP) type interface.

Control Signal Wiring Example: LECS



- 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 62 for cable models.

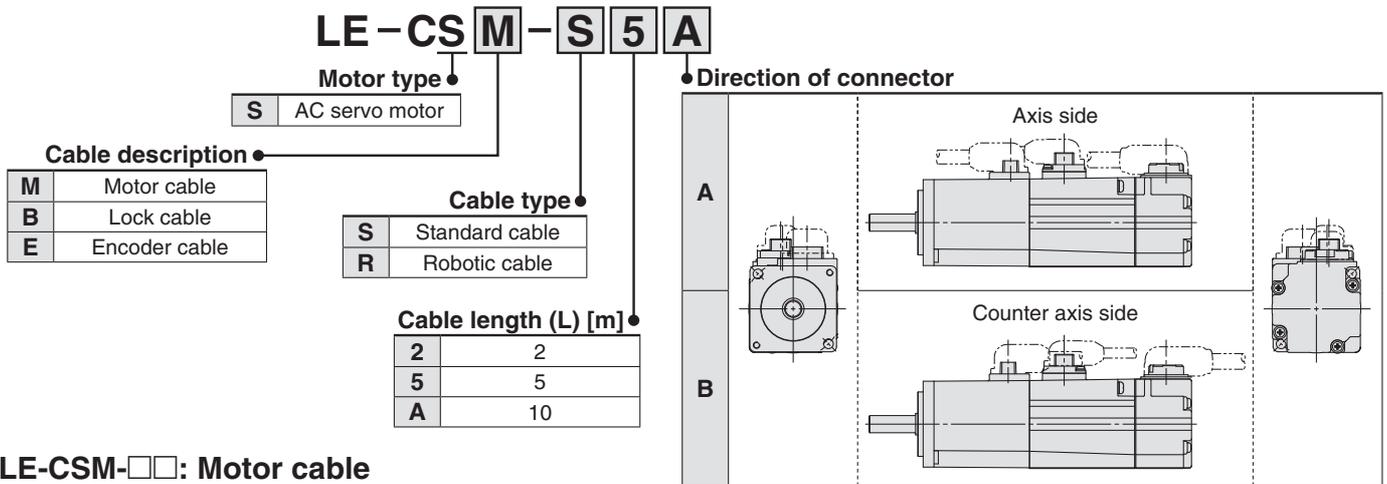
Cable	Cable model	Cable length
SSCNET III optical cable	LE-CSS-□	0.15 m to 3 m

- 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.

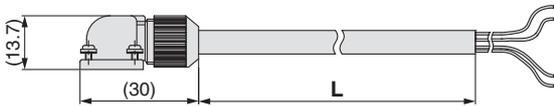
Series LECS□

Options

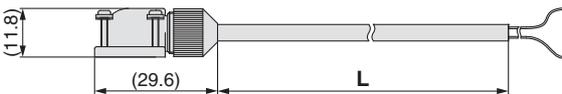
Motor cable, Lock cable, Encoder cable (LECS□ common)



LE-CSM-□□: Motor cable



LE-CSB-□□: Lock cable

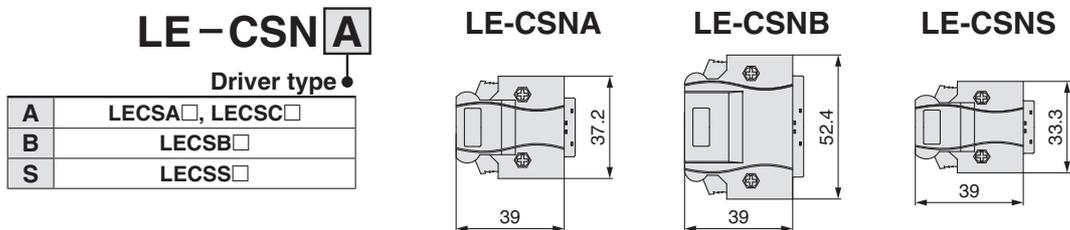


LE-CSE-□□: Encoder cable



Product no.	Ø D
LEC-CSM-S□A	6.2
LEC-CSM-S□B	6.2
LEC-CSM-R□A	5.7
LEC-CSM-R□B	5.7
LEC-CSB-S□A	4.7
LEC-CSB-S□B	4.7
LEC-CSB-R□A	4.5
LEC-CSB-R□B	4.5

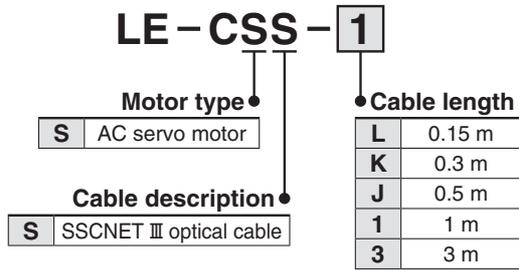
I/O connector (Without cable, Connector only)



* LE-CSNA: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
 LE-CSNB: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
 LE-CSNS: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
 * Applicable conductor size: AWG24 to 30

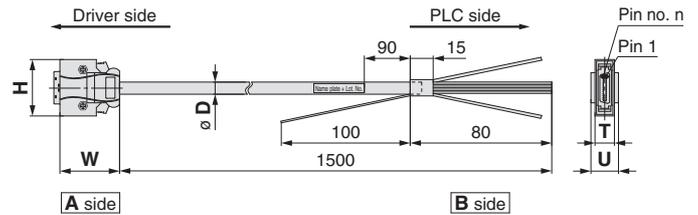
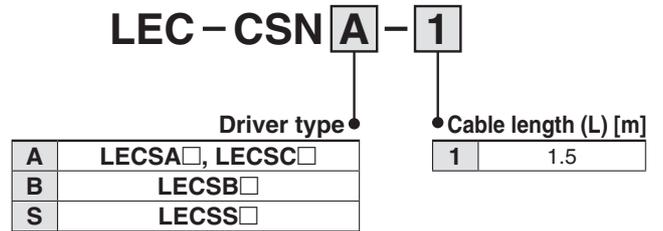
Options

SSCNET III optical cable



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

I/O cable



* LEC-CSNA-1: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
 LEC-CSNB-1: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
 LEC-CSNS-1: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
 * Conductor size: AWG24

Cable O.D.

Product no.	∅ D
LEC-CSNA-1	11.1
LEC-CSNB-1	13.8
LEC-CSNS-1	9.1

Dimensions/Pin No.

Product no.	W	H	T	U	Pin no. n
LEC-CSNA-1	39	37.2	12.7	14	14
LEC-CSNB-1		52.4		18	26
LEC-CSNS-1		33.3		14	21

Wiring

LEC-CSNA-1: Pin no. 1 to 26

LEC-CSNB-1: Pin no. 1 to 50

LEC-CSNS-1: Pin no. 1 to 20

A side	1	1	Orange	■	Red	Connector pin no.	Pair no. of wire	Insulation colour	Dot mark	Dot colour	A side	19	10	Pink	■ ■	Red	Connector pin no.	Pair no. of wire	Insulation colour	Dot mark	Dot colour
	2	2	Light grey	■	Black							20	11	Orange	■ ■ ■	Black					
3	3	White	■	Red	21	12	Light Grey	■ ■ ■ ■ ■	Red	37	20	Pink	■ ■ ■ ■ ■	Red	38	21	Orange	■ ■ ■ ■ ■	Black		
4	4	Yellow	■	Black	22	13	White	■ ■ ■ ■ ■	Black	39	22	Light grey	■ ■ ■ ■ ■	Black	40	23	White	■ ■ ■ ■ ■	Black		
5	5	Pink	■	Red	23	14	Yellow	■ ■ ■ ■ ■	Red	41	24	Yellow	■ ■ ■ ■ ■	Red	42	25	Pink	■ ■ ■ ■ ■	Black		
6	6	Orange	■ ■	Red	24	15	Pink	■ ■ ■ ■ ■	Black	43	26	Orange	■ ■ ■ ■ ■	Red	44	27	Light grey	■ ■ ■ ■ ■	Black		
7	7	Light grey	■ ■	Black	25	16	Orange	■ ■ ■ ■ ■	Black	45	28	White	■ ■ ■ ■ ■	Black	46	29	White	■ ■ ■ ■ ■	Black		
8	8	White	■ ■	Red	26	17	Light Grey	■ ■ ■ ■ ■	Red	47	30	Pink	■ ■ ■ ■ ■	Red	48	31	Orange	■ ■ ■ ■ ■	Black		
9	9	Yellow	■ ■	Black	27	18	White	■ ■ ■ ■ ■	Black	49	32	Orange	■ ■ ■ ■ ■	Black	49	32	Orange	■ ■ ■ ■ ■	Black		
10	10	Pink	■ ■	Red	28	19	Light Grey	■ ■ ■ ■ ■	Red	50	33	Light Grey	■ ■ ■ ■ ■	Red	50	33	Light Grey	■ ■ ■ ■ ■	Red		
11	11	Orange	■ ■ ■	Red	29	20	Pink	■ ■ ■ ■ ■	Black												
12	12	Light grey	■ ■ ■	Black	30	21	White	■ ■ ■ ■ ■	Black												
13	13	White	■ ■ ■	Red	31	22	Yellow	■ ■ ■ ■ ■	Red												
14	14	Yellow	■ ■ ■	Black	32	23	Light grey	■ ■ ■ ■ ■	Black												
15	15	Pink	■ ■ ■	Red	33	24	White	■ ■ ■ ■ ■	Black												
16	16	Orange	■ ■ ■	Black	34	25	Yellow	■ ■ ■ ■ ■	Red												
17	17	Light grey	■ ■ ■	Red																	
18	18	White	■ ■ ■	Black																	

Options

Regeneration option (LECS□ common)

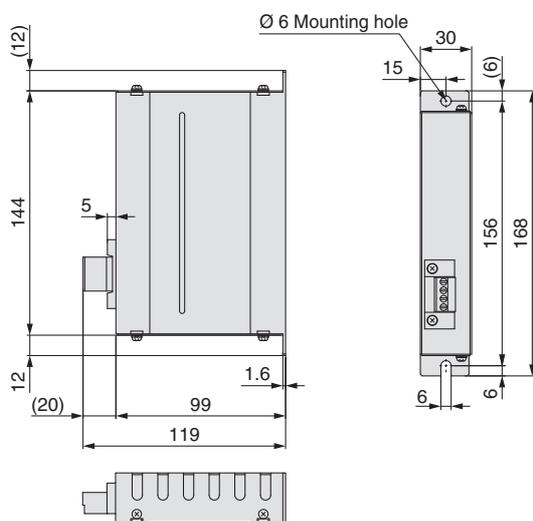
LEC-MR-RB-12

Regeneration option type

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

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

LEC-MR-RB-032

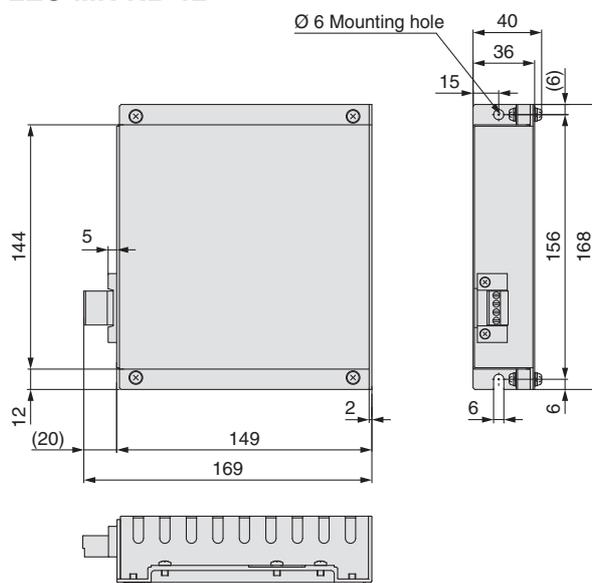


Weight

Model	Weight [kg]
LEC-MR-RB-032	0.5

* MR-RB032 manufactured by Mitsubishi Electric Corporation.

LEC-MR-RB-12

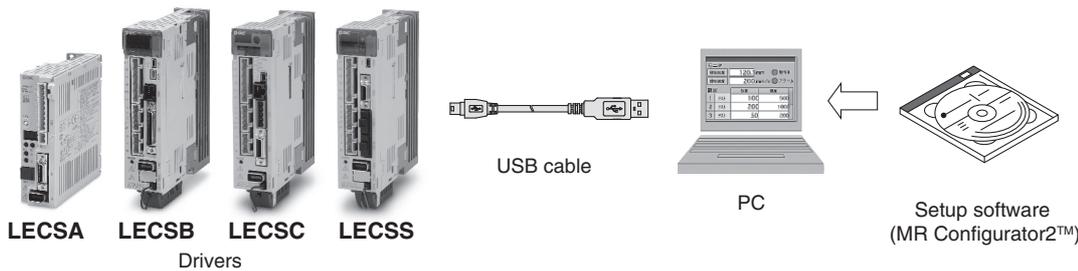


Weight

Model	Weight [kg]
LEC-MR-RB-12	1.1

* MR-RB12 manufactured by Mitsubishi Electric Corporation.

Options



Setup software (MR Configurator2™) (LECSA, LECSB, LECS, LECSS common)

LEC-MRC2 E

● Display language

—	Japanese version
E	English version
C	Chinese version

* SW1DNC-MRC2-□ manufactured by Mitsubishi Electric Corporation. Refer to Mitsubishi Electric Corporation's website for operating environment and version upgrade information. MR Configurator2™ is a registered trademark or trademark of Mitsubishi Electric Corporation.

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

Compatible PC

When using setup software (MR Configurator2™), use an IBM PC/AT compatible PC that meets the following operating conditions.

Hardware Requirements

Equipment		Setup software (MR Configurator2™) LEC-MRC2 □	
Note 1) 2) 3) 4) 5) 6) 7) 9) PC	OS	Microsoft® Windows®8 Enterprise Operating System Microsoft® Windows®8 Pro Operating System Microsoft® Windows®8 Operating System Microsoft® Windows®7 Enterprise Operating System Microsoft® Windows®7 Ultimate Operating System Microsoft® Windows®7 Professional Operating System Microsoft® Windows®7 Home Premium Operating System Microsoft® Windows®7 Starter Operating System Microsoft® Windows Vista® Enterprise Operating System Microsoft® Windows Vista® Ultimate Operating System Microsoft® Windows Vista® Business Operating System Microsoft® Windows Vista® Home Premium Operating System Microsoft® Windows Vista® Home Basic Operating System Microsoft® Windows®XP Professional Operating System, Service Pack 2 or later Microsoft® Windows®XP Home Edition Operating System, Service Pack 2 or later Microsoft® Windows®2000 Professional Operating System, Service Pack 4 or later	Note 1) Before using a PC for setting LECSA point table method/program operation method, upgrade to version 1.18U (Japanese version)/ version 1.19V (English version) or later. Refer to Mitsubishi Electric Corporation's website for version upgrade information. Note 2) Windows® and Windows Vista® are registered trademarks of Microsoft Corporation in the United States and other countries. Note 3) On some PCs, setup software (MR Configurator2™) may not run properly. Note 4) When Windows®XP or later is used, the following functions cannot be used. · Windows Program Compatibility mode · Fast User Switching · Remote Desktop · Large Fonts Mode (Display property) · DPI settings other than 96 DPI (Display property) · 64-bit OSs are not supported, except for Microsoft® Windows®7 or later.
	Available HD space	1 GB or more	Note 5) When Windows®7 is used, the following functions cannot be used. · Windows XP Mode · Windows Touch
	Communication interface	Use USB port.	Note 6) When using this software with Windows Vista® or later, log in as a user having USER authority or higher. Note 7) When Windows®8 is used, the following functions cannot be used. · Hyper-V · Modern UI style
Display	Resolution 1024 x 768 or more Must be capable of high color (16-bit) display. The connectable with the above PC	Note 8) Order USB cable separately.	Note 9) Using a PC for setting Windows®8.1, upgrade to version 1.25B or later. Refer to Mitsubishi Electric Corporation's website for version upgrade information.
Keyboard	The connectable with the above PC		
Mouse	The connectable with the above PC		
Printer	The connectable with the above PC		
USB cable <small>Note 8)</small>	LEC-MR-J3USB		

Setup Software Compatible Driver

Compatible driver	Setup software
	MR Configurator2™
	LEC-MRC2 □
LECSA	○
LECSB	○
LECS	○
LECS□-S□	○
LECS2-T□	○

USB cable (3 m)

LEC-MR-J3USB

* MR-J3USBCBL3M manufactured by Mitsubishi Electric Corporation.

Cable for connecting PC and driver when using the setup software (MR Configurator2™).

Do not use any cable other than this cable.

Battery (only for LECSB, LECS or LECSS)

LEC-MR-J3BAT

* MR-J3BAT manufactured by Mitsubishi Electric Corporation.

Battery for replacement.

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



AC Servo Motor Driver

Absolute Type



Series LECSS-T

(SSCNET III/H Type)



How to Order

Driver

LECSS2-T5

Driver type

S	SSCNET III/H type (For absolute encoder)
---	---

Power supply voltage

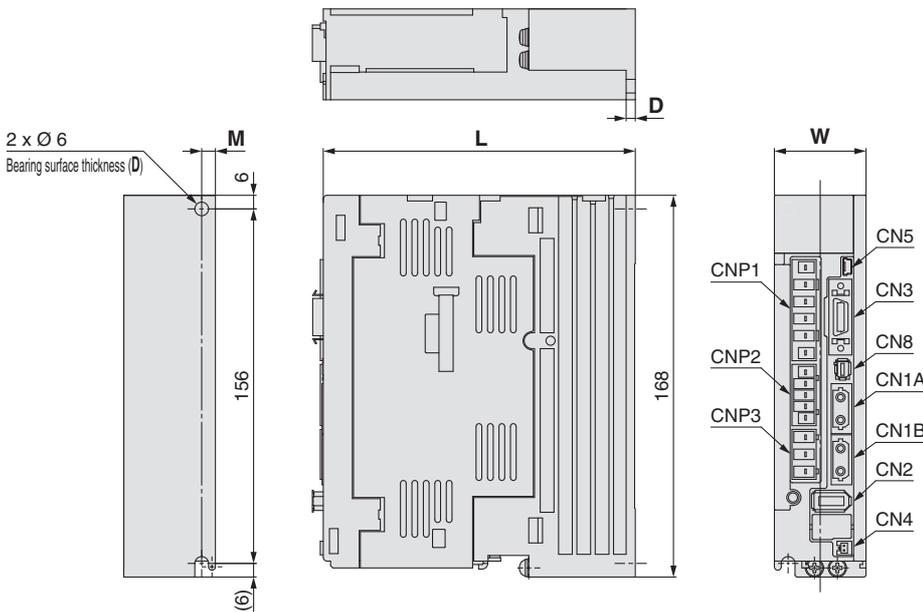
2	200 to 240 VAC, 50/60 Hz
---	--------------------------

Compatible motor type

Symbol	Type	Capacity	Encoder
T5	AC servo motor (T6)	100 W	Absolute
T7	AC servo motor (T7)	200 W	
T8	AC servo motor (T8)	400 W	

Dimensions

LECSS2-T□



Connector name	Description
CN1A	Front axis connector for SSCNET III/H
CN1B	Rear axis connector for SSCNET III/H
CN2	Encoder connector
CN3	I/O signal connector
CN4	Battery connector
CN5	USB communication connector
CN8	STO input signal connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector
CNP3	Servo motor power connector

Dimensions

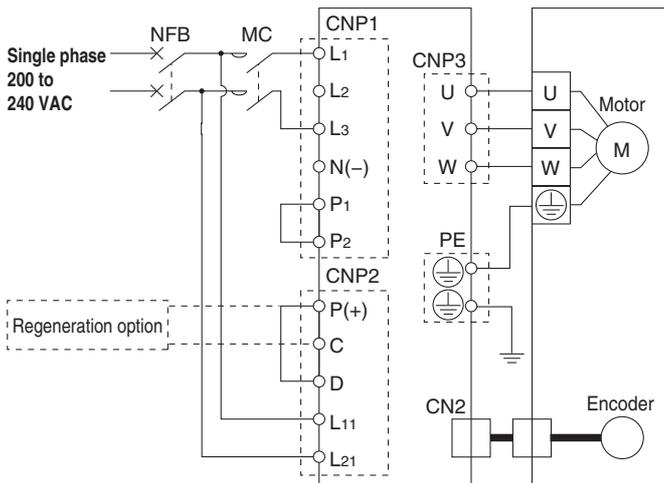
Model	W	L	D	M
LECSS2-T5	40	135	4	6
LECSS2-T7		170	5	
LECSS2-T8				

Specifications

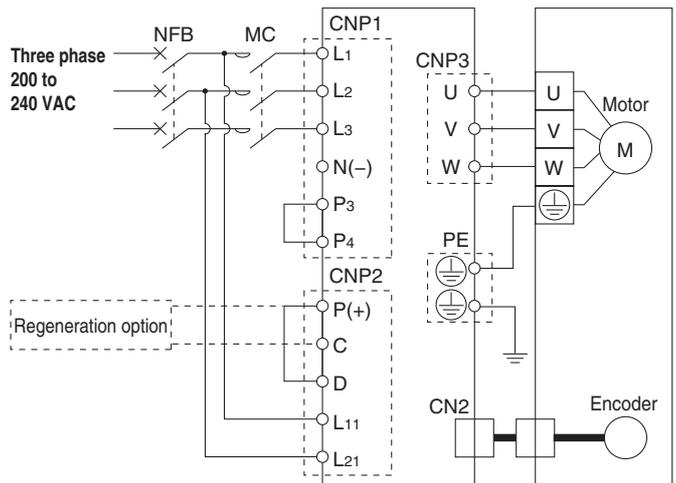
Model		LECSS2-T5	LECSS2-T7	LECSS2-T8
Compatible motor capacity [W]		100	200	400
Compatible encoder		Absolute 22-bit encoder (Resolution: 4194304 p/rev)		
Main power supply	Power voltage [V]	Three phase 200 to 240 VAC (50/60 Hz), Single phase 200 to 240 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Three phase 170 to 264 VAC (50/60 Hz), Single phase 170 to 264 VAC (50/60 Hz)		
	Rated current [A]	0.9	1.5	2.6
Control power supply	Control power supply voltage [V]	Single phase 200 to 240 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Single phase 170 to 264 VAC		
	Rated current [A]	0.2		
Applicable Fieldbus protocol		SSCNET III/H (High-speed optical communication)		
Communication function		USB communication		
Operating temperature range [°C]		0 to 55 (No freezing)		
Operating humidity range [%RH]		90 or less (No condensation)		
Storage temperature range [°C]		-20 to 65 (No freezing)		
Storage humidity range [%RH]		90 or less (No condensation)		
Insulation resistance [MΩ]		Between the housing and SG: 10 (500 VDC)		
Weight [g]		800		1000

Power Supply Wiring Example: LECSS2-T□

For single phase 200 VAC



For three phase 200 VAC



Note) For single phase 200 to 240 VAC, power supply should be connected to L1 and L3 terminals, with nothing connected to L2.

Main Circuit Power Supply Connector: CNP1 * Accessory

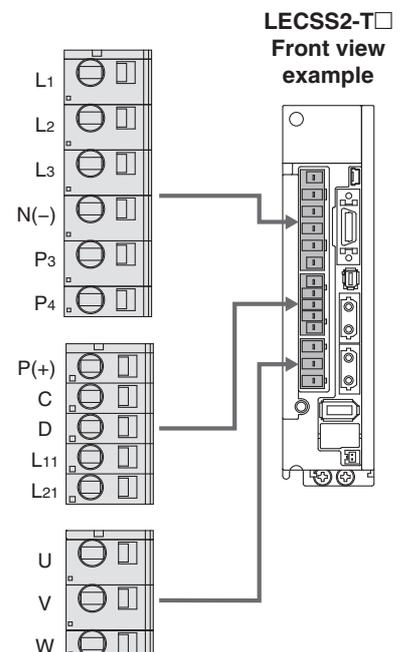
Terminal name	Function	Details
L1	Main circuit power supply	Connect the main circuit power supply. LECSS2: Single phase 200 to 240 VAC, 50/60 Hz Connection terminal: L1,L3 Three phase 200 to 240 VAC, 50/60 Hz Connection terminal: L1,L2,L3
L2		
L3		
N(-)	Do not connect.	
P3	Connect between P3 and P4. (Connected at time of shipping.)	
P4		

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		
L11	Control circuit power supply	Connect the control circuit power supply. LECSS2: Single phase 200 to 240 VAC, 50/60 Hz Connection terminal: L11,L21 Three phase 200 to 240 VAC, 50/60 Hz Connection terminal: L11,L21
L21		

Motor Connector: CNP3 * Accessory

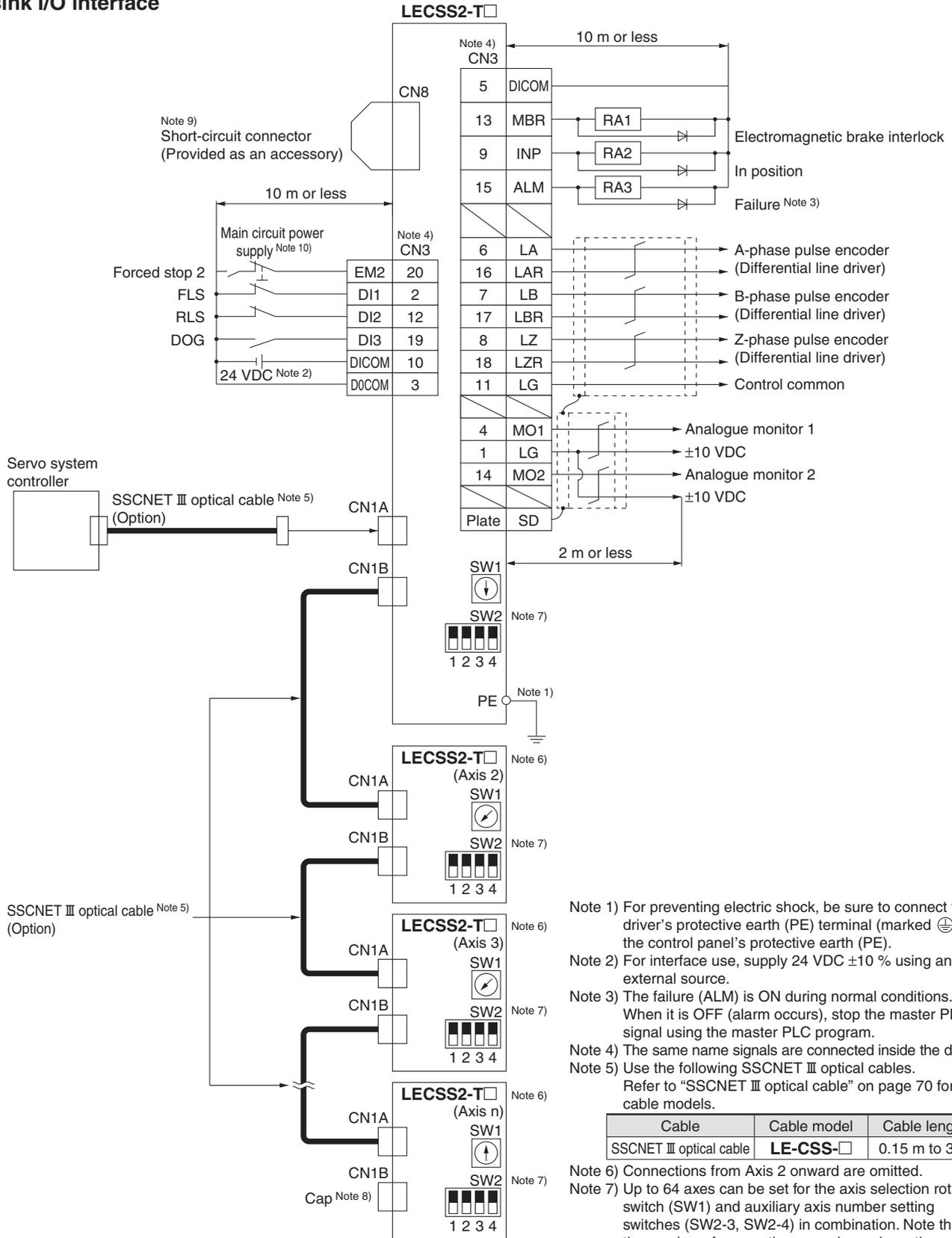
Terminal name	Function	Details
U	Servo motor power [U]	Connect to motor cable (U, V, W).
V	Servo motor power [V]	
W	Servo motor power [W]	



Series LECSS-T

Control Signal Wiring Example: LECSS2-T□

For sink I/O interface



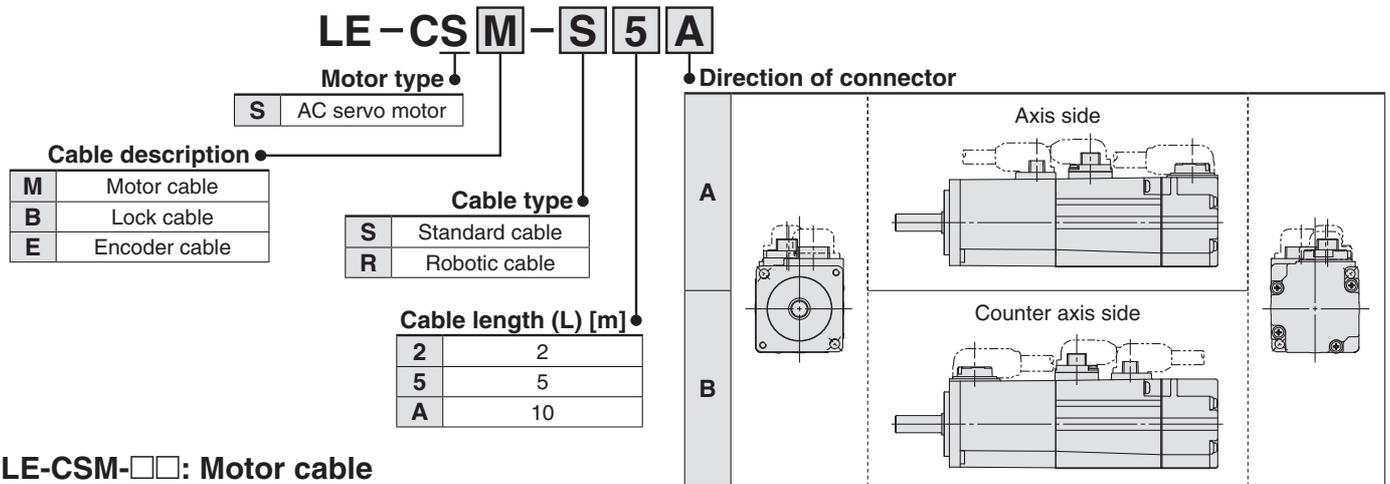
- Note 1) For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked ⊕) to the control panel's protective earth (PE).
- Note 2) For interface use, supply 24 VDC $\pm 10\%$ using an external source.
- Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the master PLC signal using the master PLC 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 70 for cable models.

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

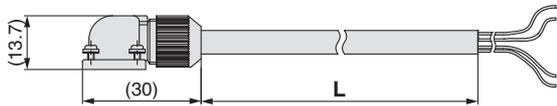
- Note 6) Connections from Axis 2 onward are omitted.
- Note 7) Up to 64 axes can be set for the axis selection rotary switch (SW1) and auxiliary axis number setting switches (SW2-3, SW2-4) in combination. Note that the number of connection axes depends on the specifications of the master PLC.
- Note 8) Be sure to place a cap on unused CN1A/CN1B.
- Note 9) When not using the STO function, use the driver with the short-circuit connector (provided as an accessory) inserted.
- Note 10) Configure a circuit to turn off EM2 when the main circuit power is turned off to prevent an unexpected restart of the driver.

Options

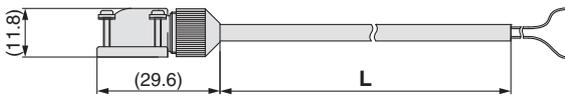
Motor cable, Lock cable, Encoder cable (LECS□ common)



LE-CSM-□□: Motor cable



LE-CSB-□□: Lock cable

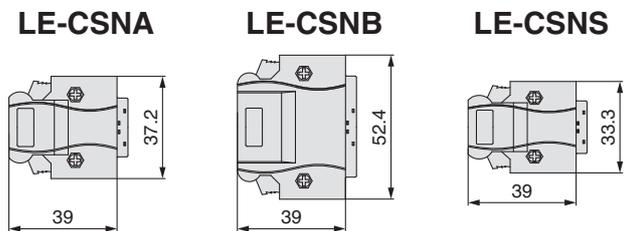
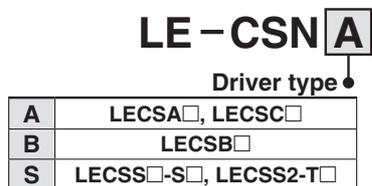


LE-CSE-□□: Encoder cable



Product no.	∅ D
LEC-CSM-S□A	6.2
LEC-CSM-S□B	
LEC-CSM-R□A	5.7
LEC-CSM-R□B	
LEC-CSB-S□A	4.7
LEC-CSB-S□B	
LEC-CSB-R□A	4.5
LEC-CSB-R□B	

I/O connector (Without cable, Connector only)

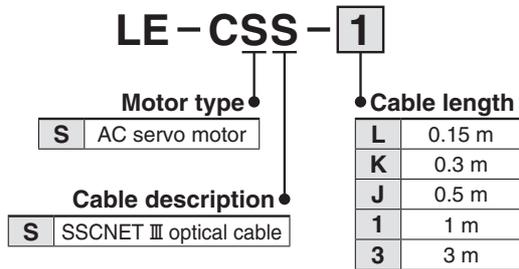


* LE-CSNA: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M or equivalent item.
 LE-CSNB: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by 3M or equivalent item.
 LE-CSNS: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by 3M or equivalent item.
 * Conductor size: AWG24 to 30

Series LECSS-T

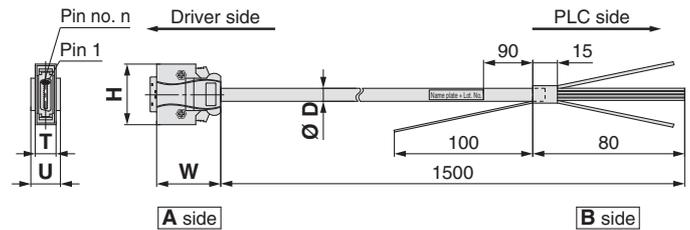
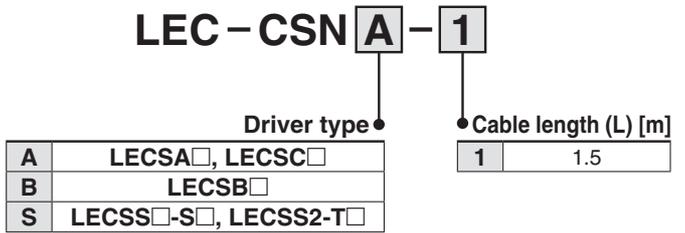
Options

SSCNET III optical cable (LECSS□-S□, LECSS2-T□)



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

I/O cable



* LEC-CSNA-1: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
 LEC-CSNB-1: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
 LEC-CSNS-1: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
 * Conductor size: AWG24

Cable O.D.

Product no.	ØD
LEC-CSNA-1	11.1
LEC-CSNB-1	13.8
LEC-CSNS-1	9.1

Dimensions/Pin No.

Product no.	W	H	T	U	Pin no. n
LEC-CSNA-1	39	37.2	12.7	14	14
LEC-CSNB-1		52.4		18	26
LEC-CSNS-1		33.3		14	21

Wiring

LEC-CSNA-1: Pin no. 1 to 26

LEC-CSNB-1: Pin no. 1 to 50

LEC-CSNS-1: Pin no. 1 to 20

Connector pin no.	Pair no. of wire	Insulation colour	Dot mark	Dot colour
1	1	Orange	■	Red
2			■	Black
3	2	Light Grey	■	Red
4			■	Black
5	3	White	■	Red
6			■	Black
7	4	Yellow	■	Red
8			■	Black
9	5	Pink	■	Red
10			■	Black
11	6	Orange	■ ■	Red
12			■ ■	Black
13	7	Light Grey	■ ■	Red
14			■ ■	Black
15	8	White	■ ■	Red
16			■ ■	Black
17	9	Yellow	■ ■	Red
18			■ ■	Black

Connector pin no.	Pair no. of wire	Insulation colour	Dot mark	Dot colour
19	10	Pink	■ ■	Red
20			■ ■	Black
21	11	Orange	■ ■ ■	Red
22			■ ■ ■	Black
23	12	Light Grey	■ ■ ■	Red
24			■ ■ ■	Black
25	13	White	■ ■ ■	Red
26			■ ■ ■	Black
27	14	Yellow	■ ■ ■	Red
28			■ ■ ■	Black
29	15	Pink	■ ■ ■	Red
30			■ ■ ■	Black
31	16	Orange	■ ■ ■ ■	Red
32			■ ■ ■ ■	Black
33	17	Light Grey	■ ■ ■ ■	Red
34			■ ■ ■ ■	Black

Connector pin no.	Pair no. of wire	Insulation colour	Dot mark	Dot colour
35	18	White	■ ■ ■ ■	Red
36			■ ■ ■ ■	Black
37	19	Yellow	■ ■ ■ ■	Red
38			■ ■ ■ ■	Black
39	20	Pink	■ ■ ■ ■	Red
40			■ ■ ■ ■	Black
41	21	Orange	■ ■ ■ ■ ■	Red
42			■ ■ ■ ■ ■	Black
43	22	Light Grey	■ ■ ■ ■ ■	Red
44			■ ■ ■ ■ ■	Black
45	23	White	■ ■ ■ ■ ■	Red
46			■ ■ ■ ■ ■	Black
47	24	Yellow	■ ■ ■ ■ ■	Red
48			■ ■ ■ ■ ■	Black
49	25	Pink	■ ■ ■ ■ ■	Red
50			■ ■ ■ ■ ■	Black

Options

Regeneration option (LECS□ common)

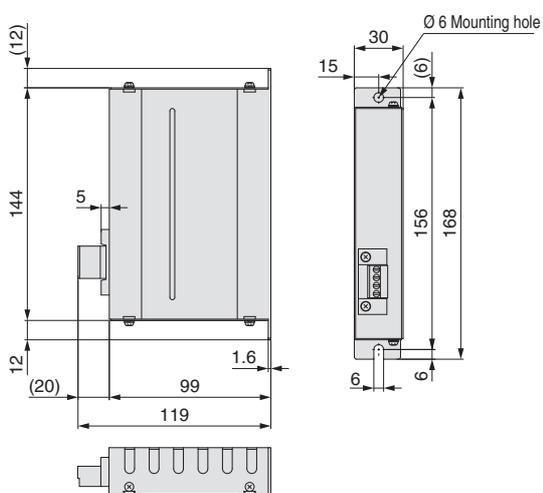
LEC-MR-RB-12

Regeneration option type

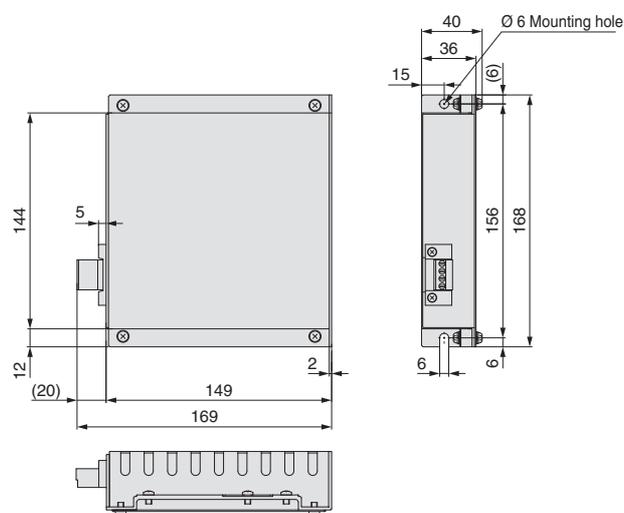
032	Allowable regenerative power 30 W
12	Allowable regenerative power 100 W

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

LEC-MR-RB-032



LEC-MR-RB-12



Weight

Model	Weight [kg]
LEC-MR-RB-032	0.5

* MR-RB032 manufactured by Mitsubishi Electric Corporation.

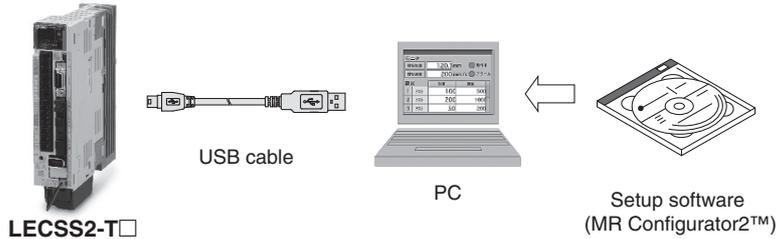
Weight

Model	Weight [kg]
LEC-MR-RB-12	1.1

* MR-RB12 manufactured by Mitsubishi Electric Corporation.

Series LECSS-T

Options



Setup software (MR Configurator2™) (LECSA, LECSB, LECS, LECSS common)

LEC-MRC2 E

Display language

—	Japanese version
E	English version
C	Chinese version

* SW1DNC-MRC2□ manufactured by Mitsubishi Electric Corporation. Refer to Mitsubishi Electric Corporation's website for operating environment and version upgrade information. MR Configurator2™ is a registered trademark or trademark of Mitsubishi Electric Corporation.

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

Compatible PC

When using setup software (MR Configurator2™), use an IBM PC/AT compatible PC that meets the following operating conditions.

Hardware Requirements

Equipment		Setup software (MR Configurator2™) LEC-MRC2□	
Note 1) 2) 3) 4) 5) 6) 7) 9) PC	OS	Microsoft® Windows®8.1 Enterprise Operating System Microsoft® Windows®8.1 Pro Operating System Microsoft® Windows®8.1 Operating System Microsoft® Windows®8 Enterprise Operating System Microsoft® Windows®8 Pro Operating System Microsoft® Windows®8 Operating System Microsoft® Windows®7 Ultimate Operating System Microsoft® Windows®7 Enterprise Operating System Microsoft® Windows®7 Professional Operating System Microsoft® Windows®7 Home Premium Operating System Microsoft® Windows®7 Starter Operating System Microsoft® Windows Vista® Ultimate Operating System Microsoft® Windows Vista® Enterprise Operating System Microsoft® Windows Vista® Business Operating System Microsoft® Windows Vista® Home Premium Operating System Microsoft® Windows Vista® Home Basic Operating System Microsoft® Windows®XP Professional Operating System, Service Pack 2 or later Microsoft® Windows®XP Home Edition Operating System, Service Pack 2 or later	Note 1) Before using a PC for setting LECSA point table method/program method, upgrade to version 1.18U (Japanese version)/version 1.19V (English version). Refer to Mitsubishi Electric Corporation's website for version upgrade information. Note 2) Windows and Windows Vista are registered trademarks of Microsoft Corporation in the United States and other countries. Note 3) On some PCs, MR Configurator2 may not run properly. Note 4) When Windows®XP or later is used, the following functions cannot be used. · Windows Program Compatibility mode · Fast User Switching · Remote Desktop · Large Fonts Mode (Display property) · DPI settings other than 96 DPI (Display property) For 64-bit operating system, this software is compatible with Windows®7 and Windows®8.
	Available HD space	1 GB or more	Note 5) When Windows®7 is used, the following functions cannot be used. · Windows XP Mode · Windows Touch
	Communication interface	Use USB port.	Note 6) When using this software with Windows Vista® or later, log in as a user having USER authority or higher. Note 7) When Windows®8 is used, the following functions cannot be used. · Hyper-V · Modern UI style
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 <small>Note 8)</small>	LEC-MR-J3USB		Note 8) Order USB cable separately. Note 9) Using a PC for setting Windows®8.1, upgrade to version 1.25B or later. Refer to Mitsubishi Electric Corporation's website for version upgrade information.

Setup Software Compatible Driver

Compatible driver	Setup software
	MR Configurator2™
	LEC-MRC2□
LECSA	○
LECSB	○
LECS	○
LECSS□-S□	○
LECSS2-T□	○

Options

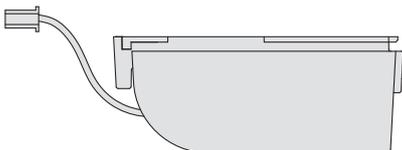
Battery (only for LECSS2-T□)

LEC – MR – BAT6V1SET

* MR-BAT6V1SET manufactured by Mitsubishi Electric Corporation.

Battery for replacement.

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



Note) The LEC-MR-BAT6V1SET is an assembled battery that uses lithium metal battery 2CR17335A. When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in the United Nations Recommendations on the Transport of Dangerous Goods, the Technical Instructions (ICAO-TI) of the International Civil Aviation Organization (ICAO), and the International Maritime Dangerous Goods Code (IMDG CODE) of the International Maritime Organization (IMO). If a customer is transporting products such as shown above, it is necessary to confirm the latest regulations, or the laws and regulations of the country of transport on your own, in order to apply the proper measures. Please contact SMC sales representative for details.

USB cable (3 m)

LEC – MR – J3USB

* MR-J3USB manufactured by Mitsubishi Electric Corporation.

Cable for connecting PC and driver when using the setup software (MR Configurator2™).

Do not use any cable other than this cable.

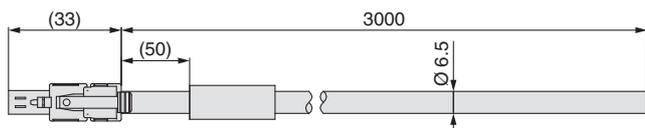
STO cable (3 m)

LEC – MR – D05UDL3M

* MR-D05UDL3M manufactured by Mitsubishi Electric Corporation.

Cable for connecting the driver and device, when using the safety function.

Do not use any cable other than this cable.





Specific Product Precautions 1

Be sure to read before handling. Refer to back cover for Safety Instructions.

For Electric Actuator Precautions, refer to “Handling Precautions for SMC Products” and the Operation Manual on SMC website, <http://www.smc.eu>

Design/Selection

Warning

1. Use the specified voltage.

If the applied voltage is higher than the specified voltage, malfunction and damage to the driver 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.

6. The parameters of the driver are set to initial values. Please change parameters according to the specifications of the customer's equipment before use. Refer to the operation manual for details of parameters.

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.



Series LECS□

Specific Product Precautions 2

Be sure to read before handling. Refer to back cover for Safety Instructions.

For Electric Actuator Precautions, refer to “Handling Precautions for SMC Products” and the Operation Manual on SMC website, <http://www.smc.eu>

Power Supply

⚠ Caution

1. Use a power supply with low noise between lines and between power and ground.
In cases where noise is high, use an isolation transformer.
2. Take appropriate measures to prevent surges from lightning. Ground the surge absorber for lightning separately from the grounding of the driver and its peripheral devices.

Wiring

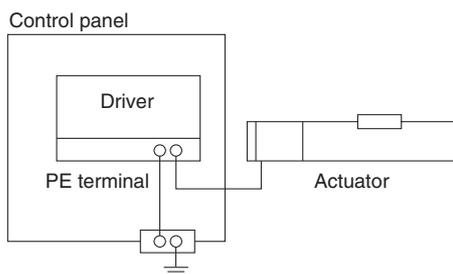
⚠ Warning

1. The driver will be damaged if a commercial power supply (100V/200V) is added to the driver's servo motor power (U, V, W). Be sure to check wiring such as wiring mistakes when the power supply is turned on.
2. Connect the ends of the U, V, W wires from the motor cable correctly to the phases (U, V, W) of the servo motor power. If these wires do not match up, it is unable to control the servo motor.

Grounding

⚠ Warning

1. For grounding actuator, connect the copper wire of the actuator to the driver's protective earth (PE) terminal and connect the copper wire of the driver to the earth via the control panel's protective earth (PE) terminal. Do not connect them directly to the control panel's protective earth (PE) terminal.



2. In the unlikely event that malfunction is caused by the ground, it may be disconnected.

Maintenance

⚠ Warning

1. Perform maintenance checks periodically.
Confirm wiring and screws are not loose.
Loose screws or wires may cause unexpected malfunction.
2. Conduct an appropriate functional inspection and test after completed maintenance.
In case of any abnormalities (if the actuator does not move or the equipment does not operate properly, etc.), stop the operation of the system.
Otherwise, unexpected malfunction may occur and safety cannot be assured.
Conduct a test of the emergency stop to confirm the safety of the equipment.
3. Do not disassemble, modify or repair the driver or its peripheral devices.
4. Do not put anything conductive or flammable inside the driver.
Otherwise, fire can result.
5. Do not conduct an insulation resistance test or insulation withstand voltage test.
6. Reserve sufficient space for maintenance.
Design the system so that it allows required space for maintenance.

AC Servo Motor Driver



Power supply voltage (V)
200 to 230 VAC

Motor capacity (W)
100/200/400

- Position control, speed control and torque control can be used.
- Control encoder: Absolute 20-bit encoder (Resolution: 1048576 p/rev)

MECHATROLINK-II Type

Series LECYM

- Applicable Fieldbus protocol: **MECHATROLINK-II**
- Number of connectable drivers: **30 units**
(Transmission distance: Max. 50 m in total)

Max. communication speed
10 Mbps

Min. communication cycle
250 μs



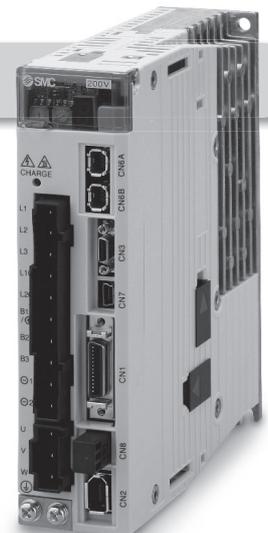
MECHATROLINK-III Type

Series LECYU

- Applicable Fieldbus protocol: **MECHATROLINK-III**
- Number of connectable drivers: **62 units**
(Transmission distance: Max. 75 m between stations)

Max. communication speed
100 Mbps

Min. communication cycle
125 μs



Compatible Actuators

High Rigidity Slider Type

Ball screw drive
Series LEJS

- Clean room compatible
- Secondary battery compatible



Belt drive
Series LEJB



Size	Max. work load [kg]	Stroke [mm]
40	55	Up to 1200
63	85	Up to 1500

Size	Max. work load [kg]	Stroke [mm]
40	20	Up to 2000
63	30	Up to 3000

Series LECYM/LECYU



Series LECYM/LECYU

System Construction

Absolute encoder compatible Series LECYM

(MECHATROLINK-II type)

Provided by customer

Power supply

Single phase 200 to 230 VAC (50/60 Hz)
Three phase 200 to 230 VAC (50/60 Hz)

Provided by customer

External regenerative resistor

* If the external regenerative resistor is required, it should be provided by the customer. For selection of the external regenerative resistor, refer to the compatible actuator catalogue.

Motor cable

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

Motor cable for lock option

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

Electric actuator

Slider type
Series LEF

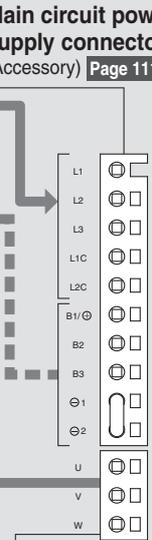
High rigidity slider type
Series LEJ

Rod type
Series LEY/LEYG

Encoder cable

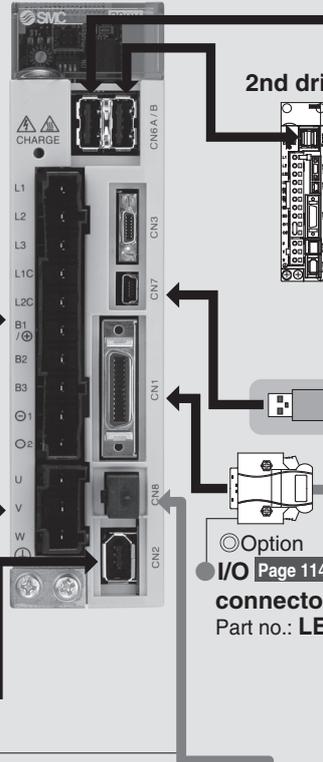
Standard cable	Robotic cable
LE-CYE-S□□	LE-CYE-R□□

● Main circuit power supply connector (Accessory) Page 111



● Motor connector (Accessory) Page 111

Driver



● Cable for safety function device (3 m) Page 116
Part no.: LEC-JZ-CVSAF

2nd driver

Provided by customer

PLC (Positioning unit/Motion controller)

Power supply for I/O signal
24 VDC



Option

● USB cable Page 116
Part no.: LEC-JZ-CVUSB

Setup software

(SigmaWin+™)
Please download it via our website.



PC

* Order USB cable (Part no.: LEC-JZ-CVUSB) separately to use this software.

Absolute encoder compatible Series LECYU

(MECHATROLINK-III type)

Provided by customer

Power supply

Single phase 200 to 230 VAC (50/60 Hz)
Three phase 200 to 230 VAC (50/60 Hz)

Provided by customer

External regenerative resistor

* If the external regenerative resistor is required, it should be provided by the customer. For selection of the external regenerative resistor, refer to the compatible actuator catalogue.

Motor cable

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

Motor cable for lock option

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

Electric actuator

Slider type
Series LEF

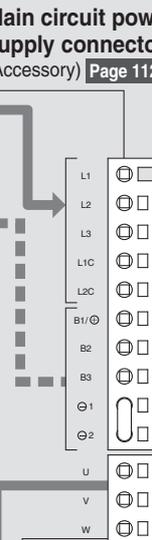
High rigidity slider type
Series LEJ

Rod type
Series LEY/LEYG

Encoder cable

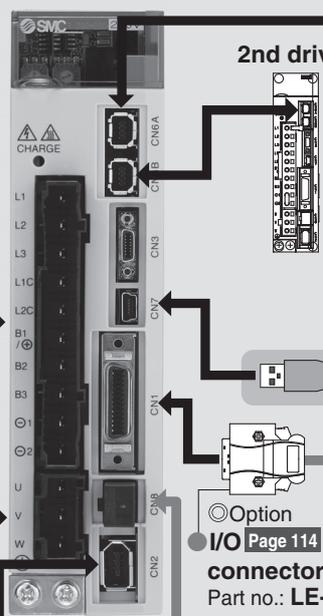
Standard cable	Robotic cable
LE-CYE-S□□	LE-CYE-R□□

● Main circuit power supply connector (Accessory) Page 112



● Motor connector (Accessory) Page 112

Driver



● Cable for safety function device (3 m) Page 116
Part no.: LEC-JZ-CVSAF

2nd driver

Provided by customer

PLC (Positioning unit/Motion controller)

Power supply for I/O signal
24 VDC



Option

● USB cable Page 116
Part no.: LEC-JZ-CVUSB

Setup software

(SigmaWin+™)
Please download it via our website.



PC

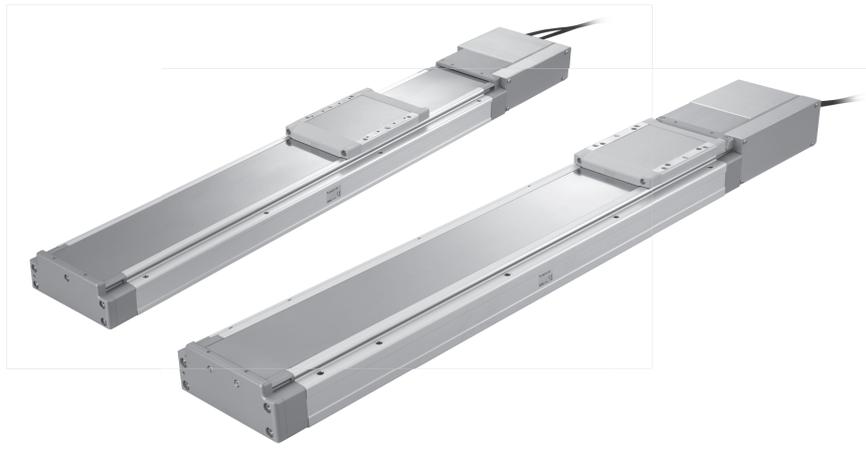
* Order USB cable (Part no.: LEC-JZ-CVUSB) separately to use this software.

AC Servo Motor

Ball Screw Drive *Series LEJS*



Belt Drive *Series LEJB*



AC Servo Motor Driver *Series LECYM/LECYU*



Ball Screw Drive/Series **LEJS** Belt Drive/Series **LEJB** Model Selection



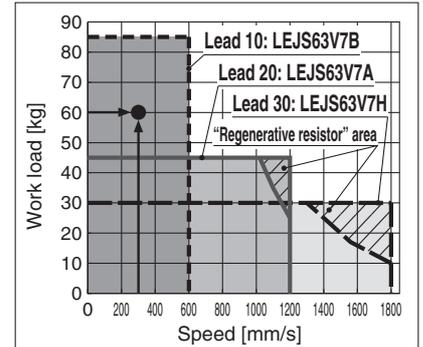
Selection Procedure



Selection Example

Operating conditions

- Work load: 60 [kg]
 - Speed: 300 [mm/s]
 - Acceleration/Deceleration: 3000 [mm/s²]
 - Stroke: 300 [mm]
 - Mounting orientation: Horizontal
 - External force: 10 [N]
- Workpiece mounting condition:
-



<Speed-Work load graph>
(LEJS63)

Step 1 Check the speed-work load.

Select the product by referring to “Speed-Work Load Graph” (Page 80).
Selection example) The **LEJS63V7B-300** is temporarily selected based on the graph shown on the right side.

The regenerative resistor may be necessary.
Refer to page 80 for “Conditions for Regenerative Resistor (Guide)”.

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 (Pages 81 and 82)

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

Method 2: Calculation

Cycle time T can be found from the following equation.

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

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

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

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)” (Pages 83 to 85).

For the ball screw type, there is an upper limit of the speed depending on the stroke. Check that it does not exceed the upper limit, by referring to the specifications (Page 91).

- 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.

$$T4 = 0.05 \text{ [s]}$$

Calculation example)

T1 to T4 can be calculated as follows.

$$T1 = V/a1 = 300/3000 = 0.1 \text{ [s]}$$

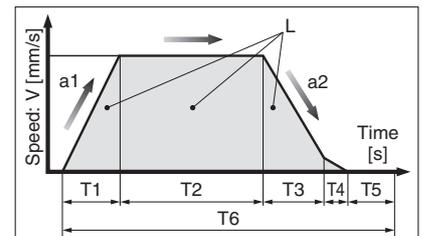
$$T3 = V/a2 = 300/3000 = 0.1 \text{ [s]}$$

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{300 - 0.5 \cdot 300 \cdot (0.1 + 0.1)}{300} = 0.90 \text{ [s]}$$

$$T4 = 0.05 \text{ [s]}$$

Therefore, the cycle time can be obtained as follows.

$$T = T1 + T2 + T3 + T4 = 0.1 + 0.90 + 0.1 + 0.05 = 1.15 \text{ [s]}$$



L : Stroke [mm]

V : Speed [mm/s]

a1 : Acceleration [mm/s²]

a2 : Deceleration [mm/s²]

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

$$T \div T6 \times 100$$

Step 3 Check the allowable moment.

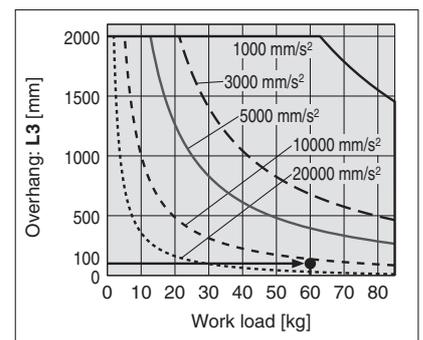
Refer to “Dynamic Allowable Moment” graphs (Pages 86 and 88).



Selection example) Select the **LEJS63V7B-300** from the graph on the right side.

Confirm that the external force is 20 [N] or less.

(The external force is the resistance due to cable duct, flexible trunking or air tubing.)

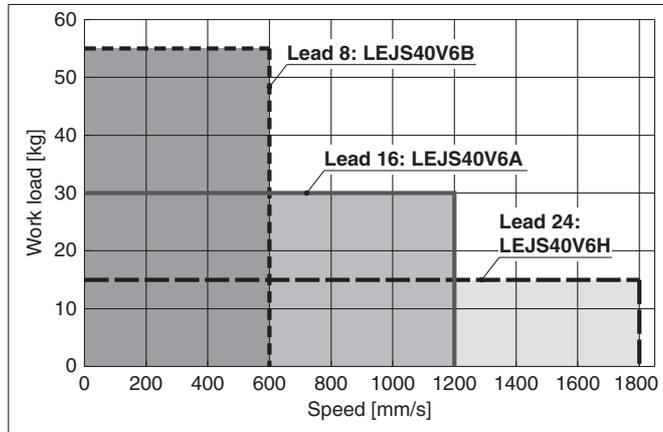


<Dynamic allowable moment>
(LEJS63)

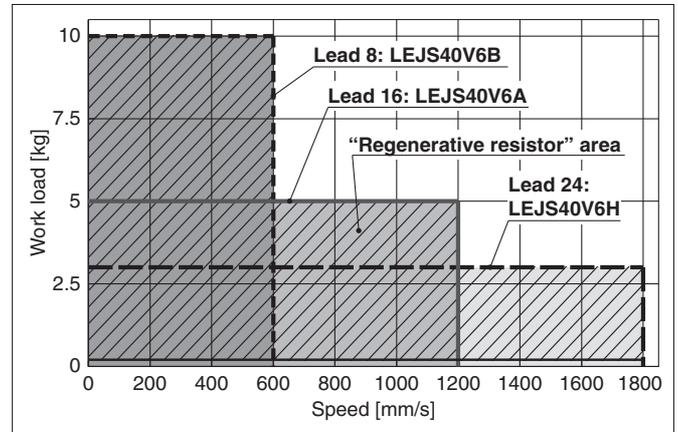
Speed-Work Load Graph/Conditions for “Regenerative Resistor” (Guide)

LEJS40V6□/Ball Screw Drive

Horizontal

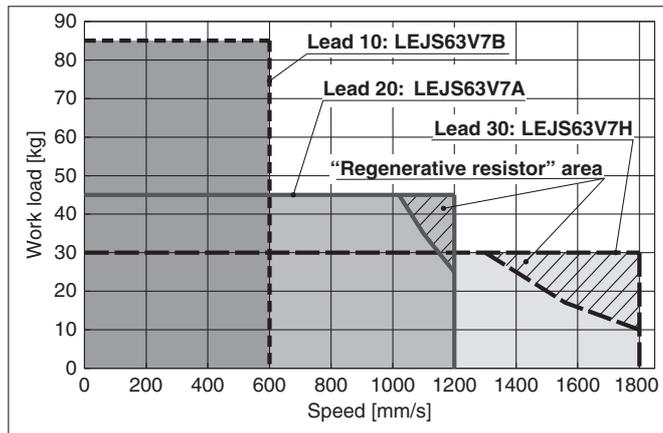


Vertical

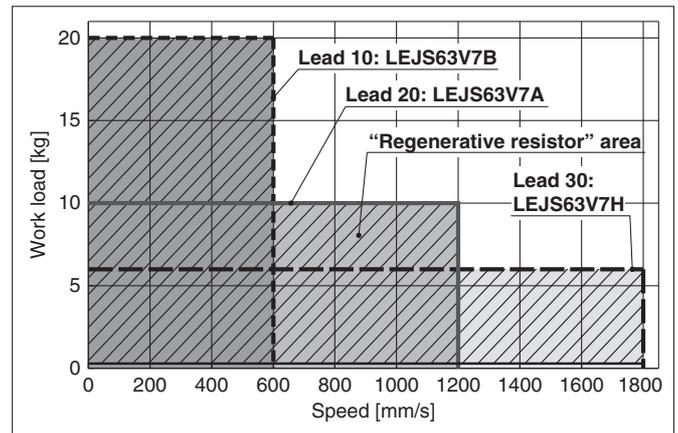


LEJS63V7□/Ball Screw Drive

Horizontal

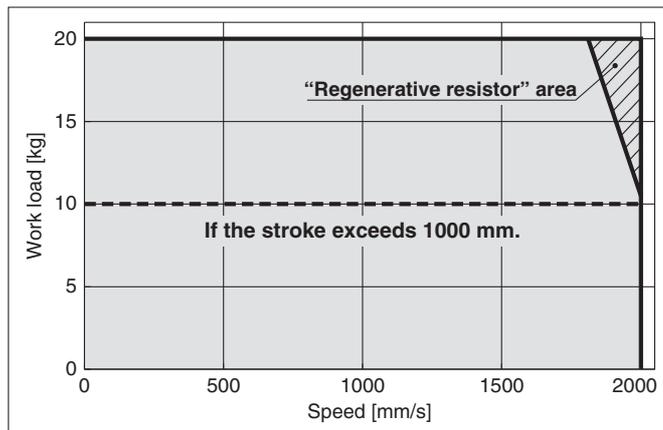


Vertical



LEJB40V6T/Belt Drive

Horizontal



* When the stroke of the LEJB40 series exceeds 1000 mm, the work load is 10 kg.

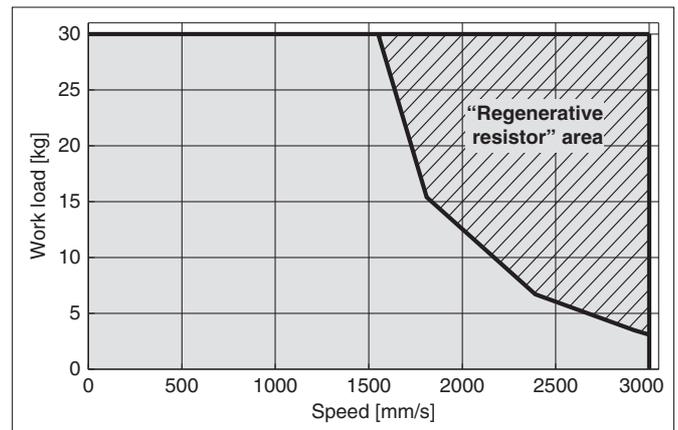
“Regenerative resistor” area

* When using the actuator in the “Regenerative resistor” area, download the “AC servo capacity selection program/SigmaJunmaSize+” from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.

* Regenerative resistor should be provided by the customer.

LEJB63V7T/Belt Drive

Horizontal



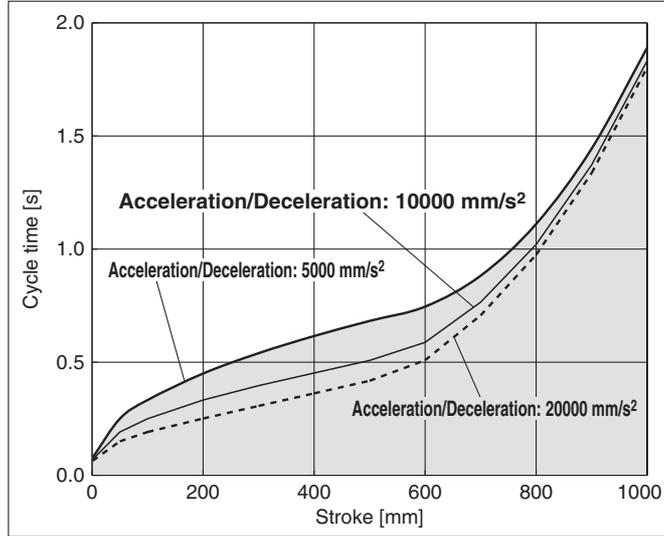
Applicable Motor/Driver

Model	Applicable model	
	Motor	Servopack (SMC driver)
LEJ□40□	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)
LEJ□63□	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)

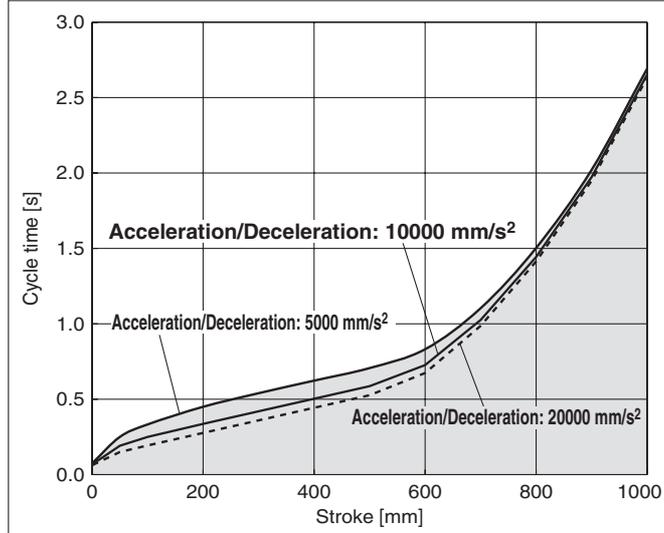
Cycle Time Graph (Guide)

LEJS40/Ball Screw Drive

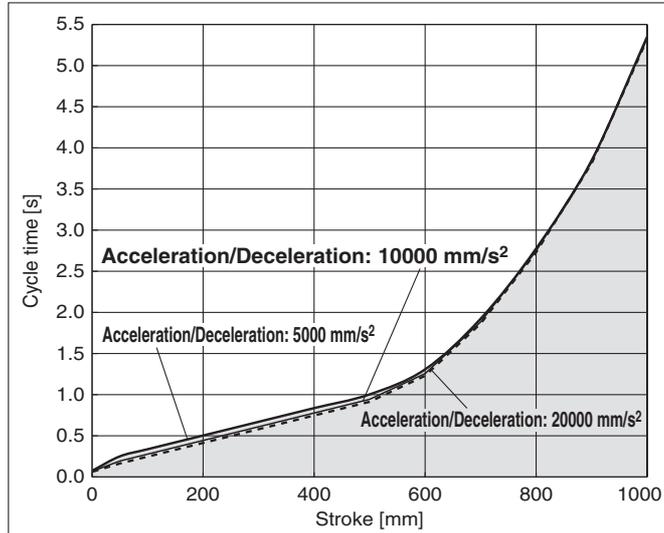
LEJS40□H



LEJS40□A

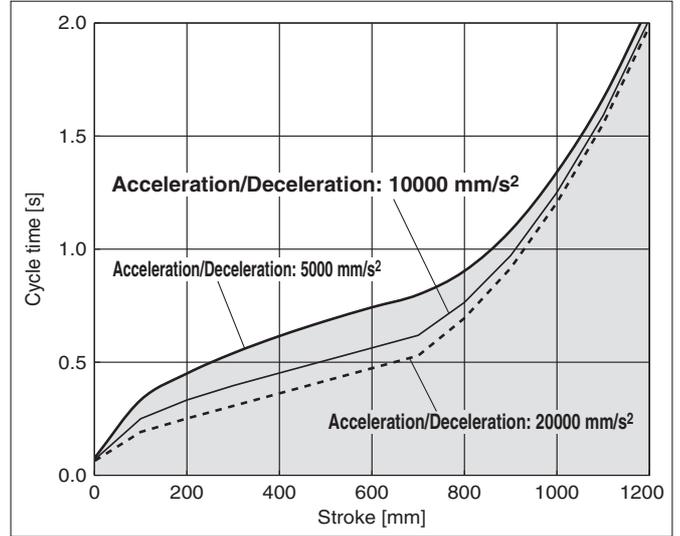


LEJS40□B

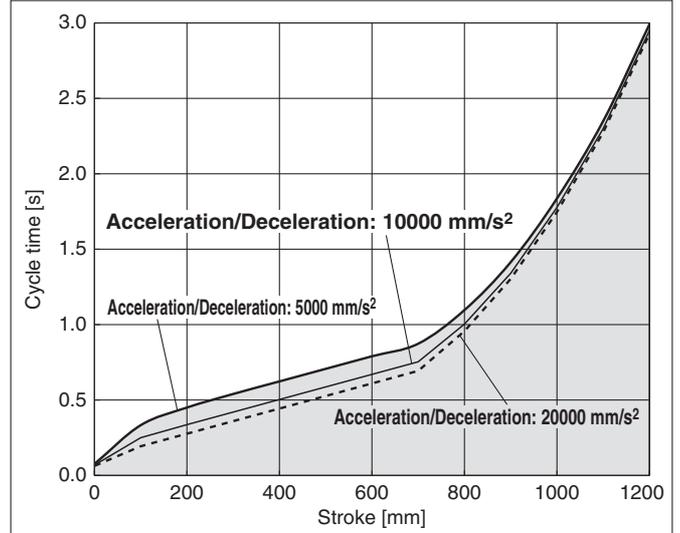


LEJS63/Ball Screw Drive

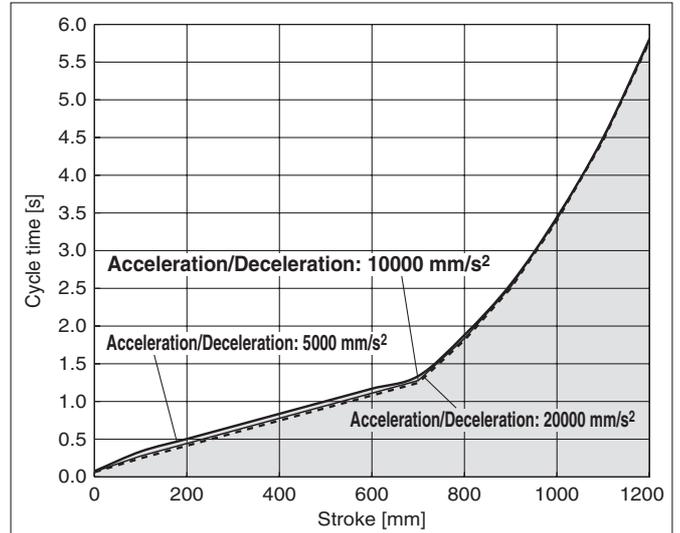
LEJS63□H



LEJS63□A



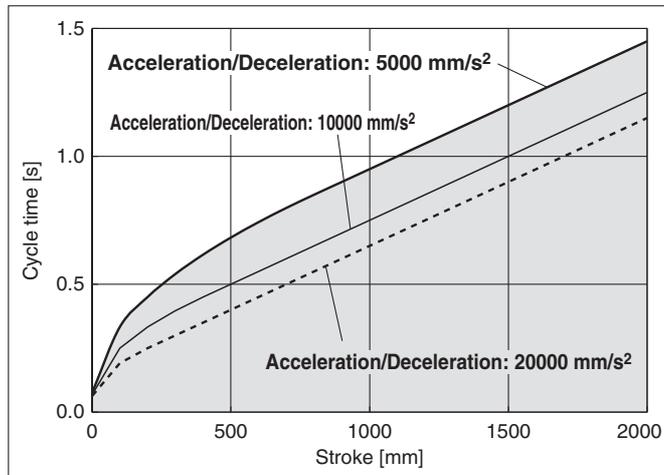
LEJS63□B



* Work load/acceleration/deceleration graph
 * Maximum speed/acceleration/deceleration values graph for each stroke

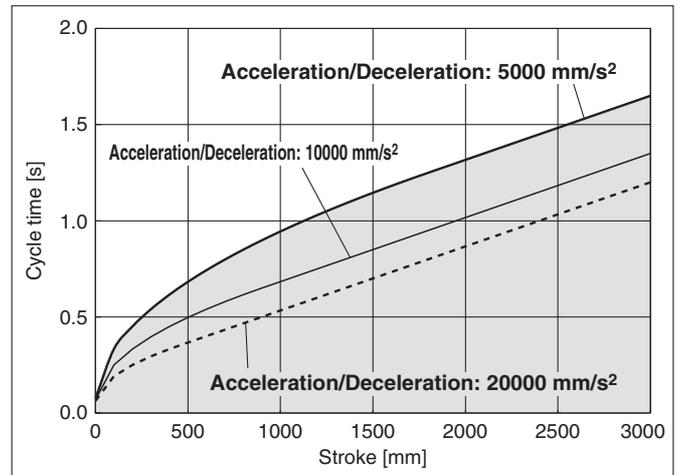
Cycle Time Graph (Guide)

LEJB40/Belt Drive



* Maximum speed/acceleration/deceleration values graph for each stroke

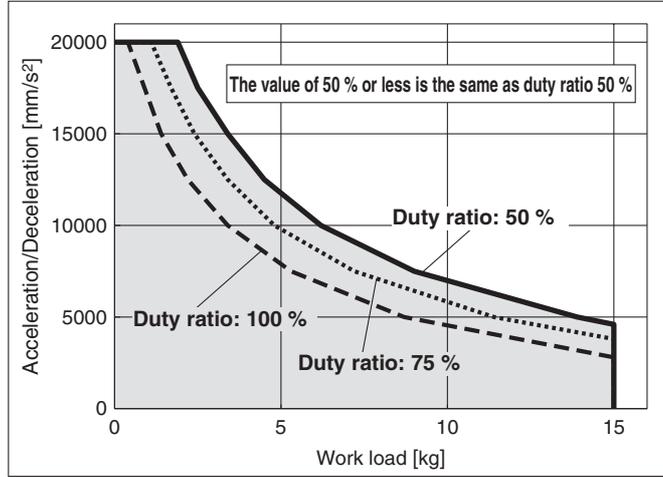
LEJB63/Belt Drive



Work Load–Acceleration/Deceleration Graph (Guide)

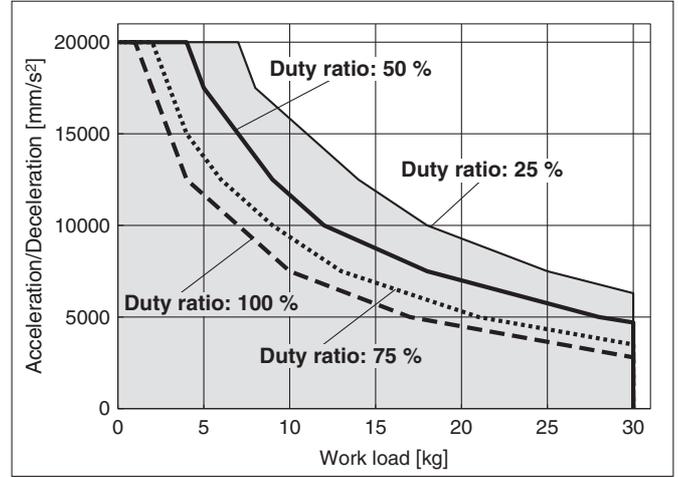
LEJS40/Ball Screw Drive: Horizontal

LEJS40□H

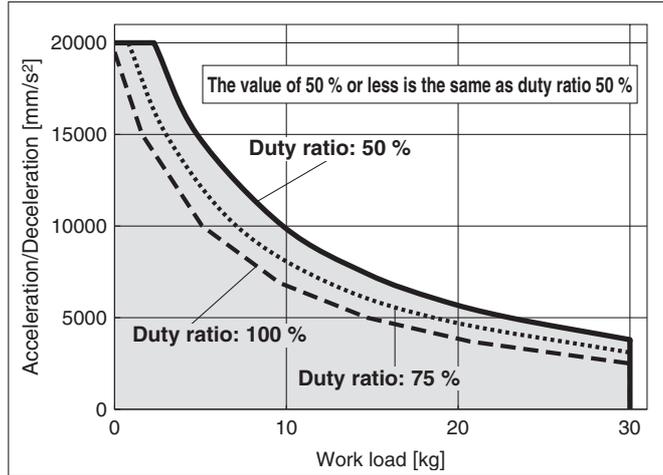


LEJS63/Ball Screw Drive: Horizontal

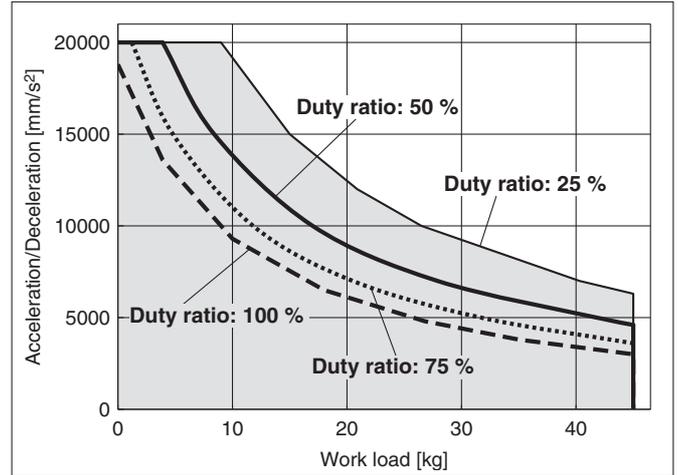
LEJS63□H



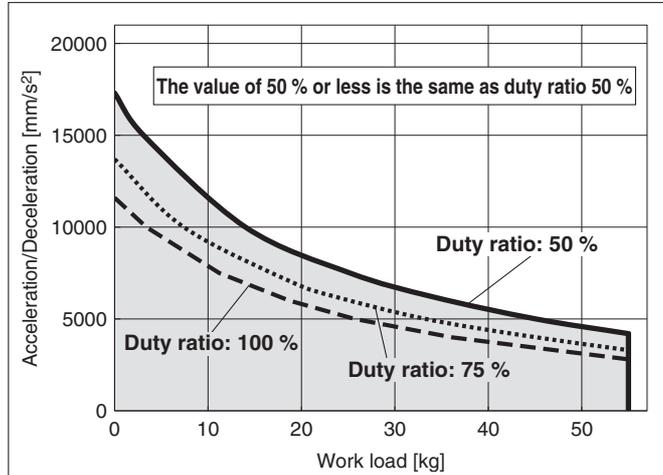
LEJS40□A



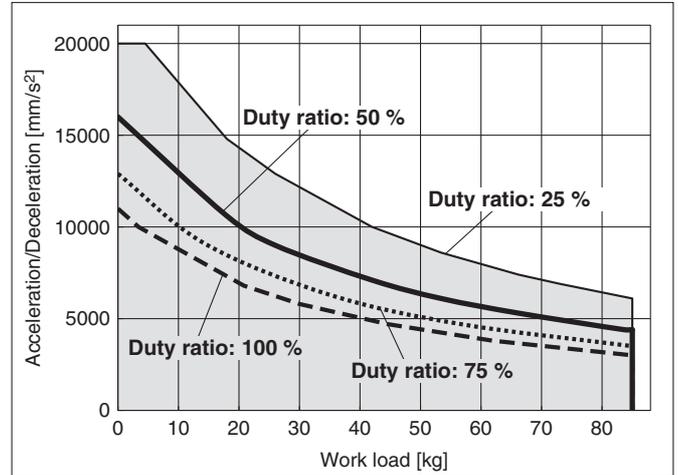
LEJS63□A



LEJS40□B



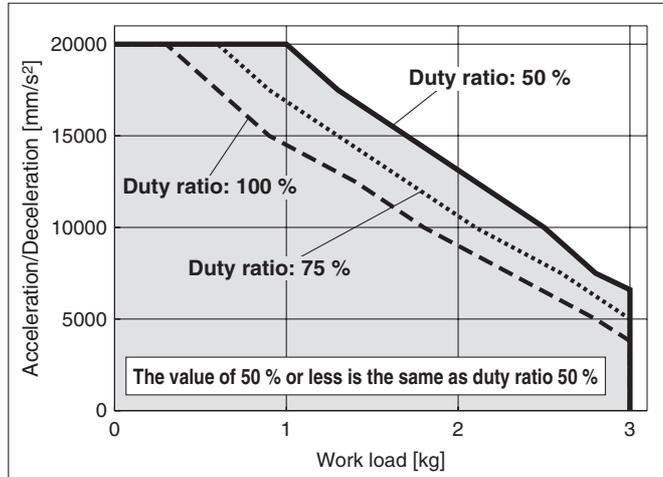
LEJS63□B



Work Load–Acceleration/Deceleration Graph (Guide)

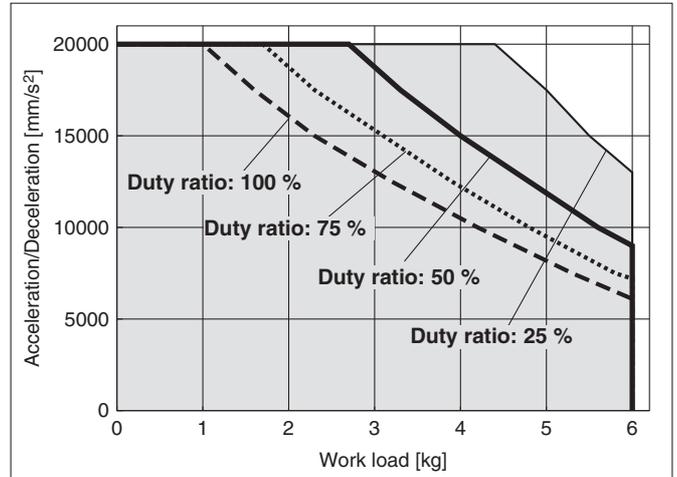
LEJS40/Ball Screw Drive: Vertical

LEJS40□H

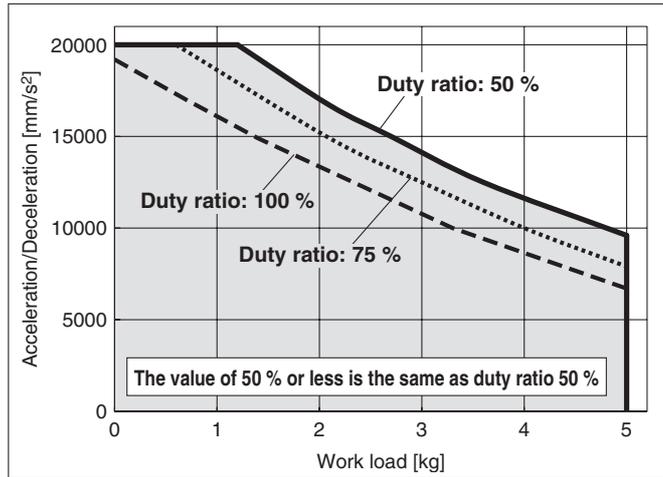


LEJS63/Ball Screw Drive: Vertical

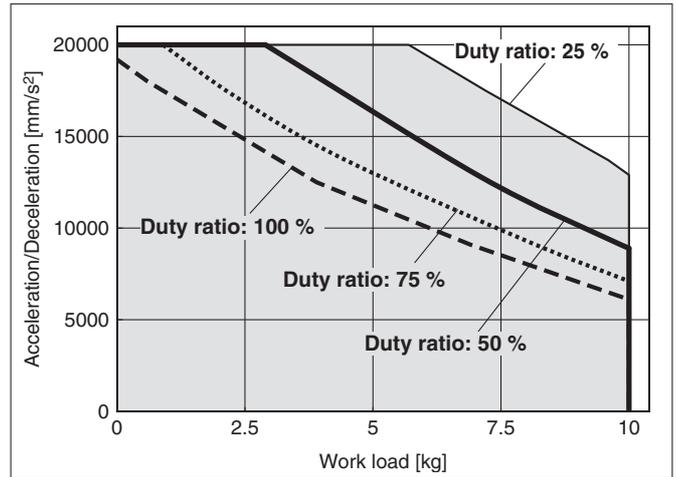
LEJS63□H



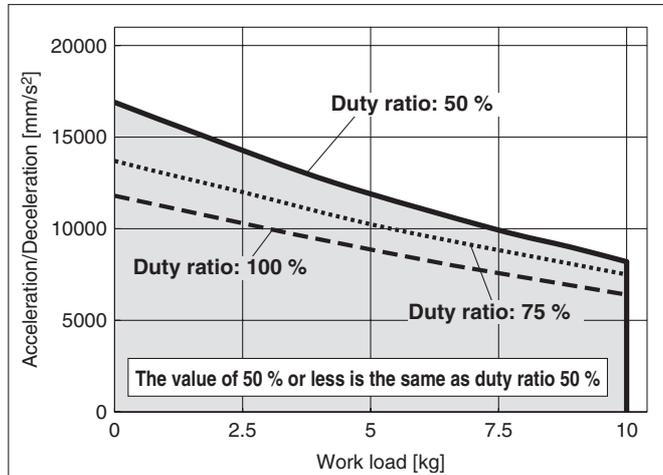
LEJS40□A



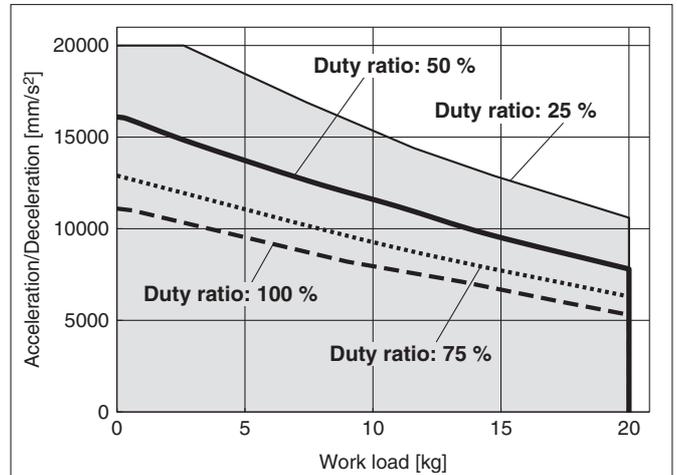
LEJS63□A



LEJS40□B

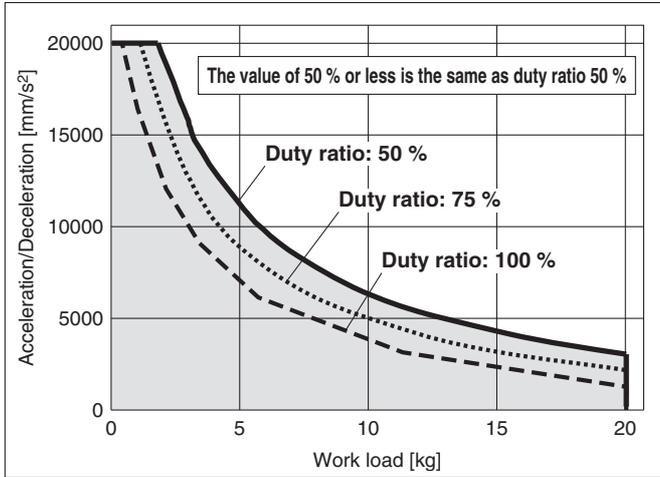


LEJS63□B

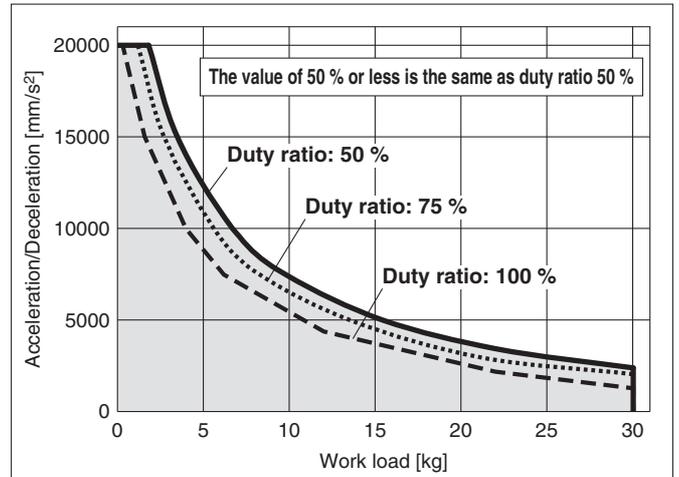


Work Load–Acceleration/Deceleration Graph (Guide)

LEJB40/Belt Drive: Horizontal



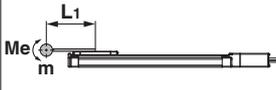
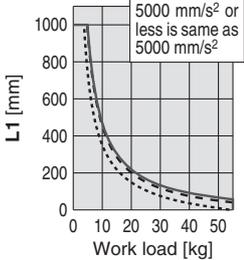
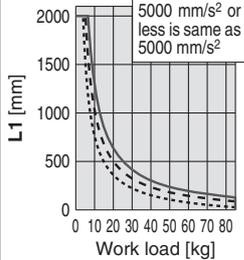
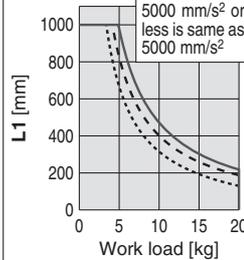
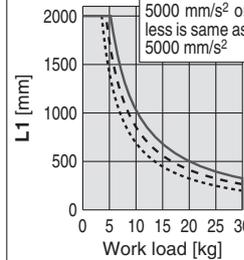
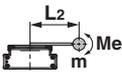
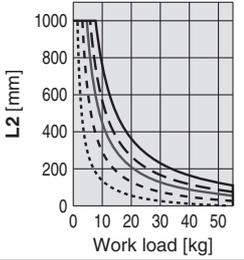
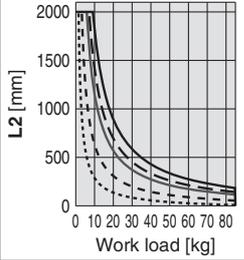
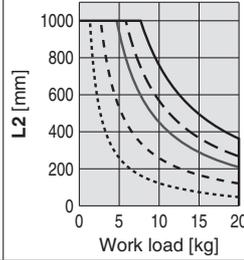
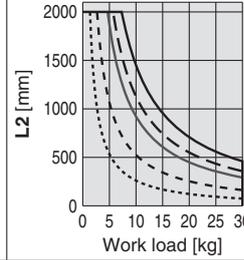
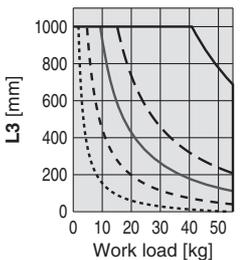
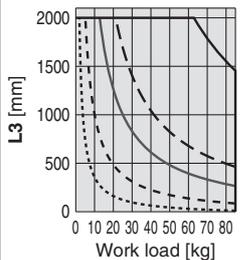
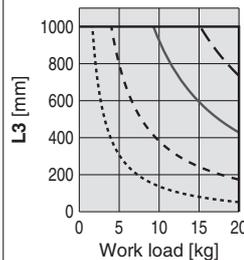
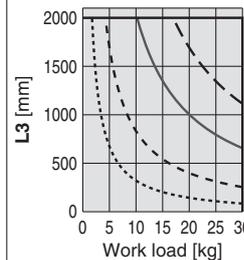
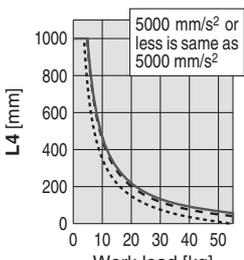
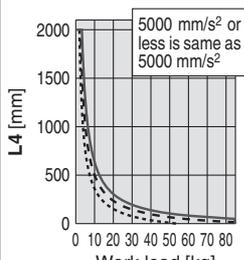
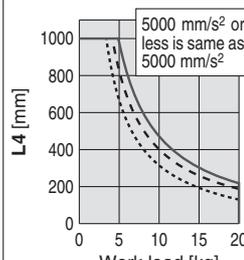
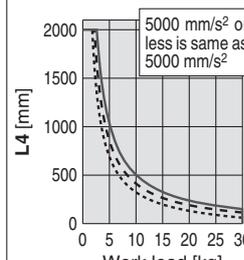
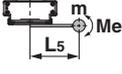
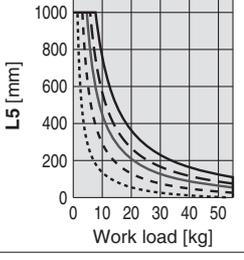
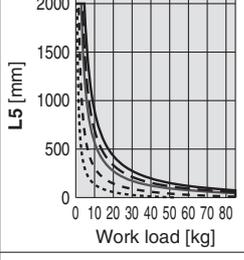
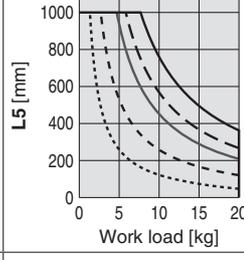
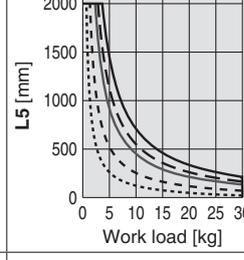
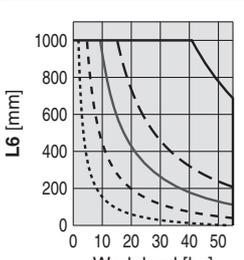
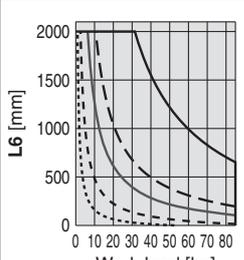
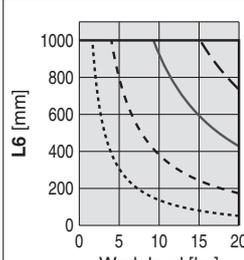
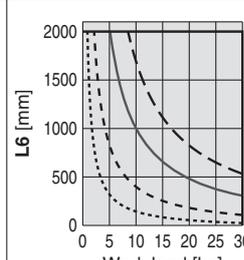
LEJB63/Belt Drive: Horizontal



Dynamic Allowable Moment

* This graph shows the amount of allowable overhang (guide unit) when the centre of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to "Calculation of Guide Load Factor" or the Electric Actuator Selection Software for confirmation, <http://www.smc.eu>

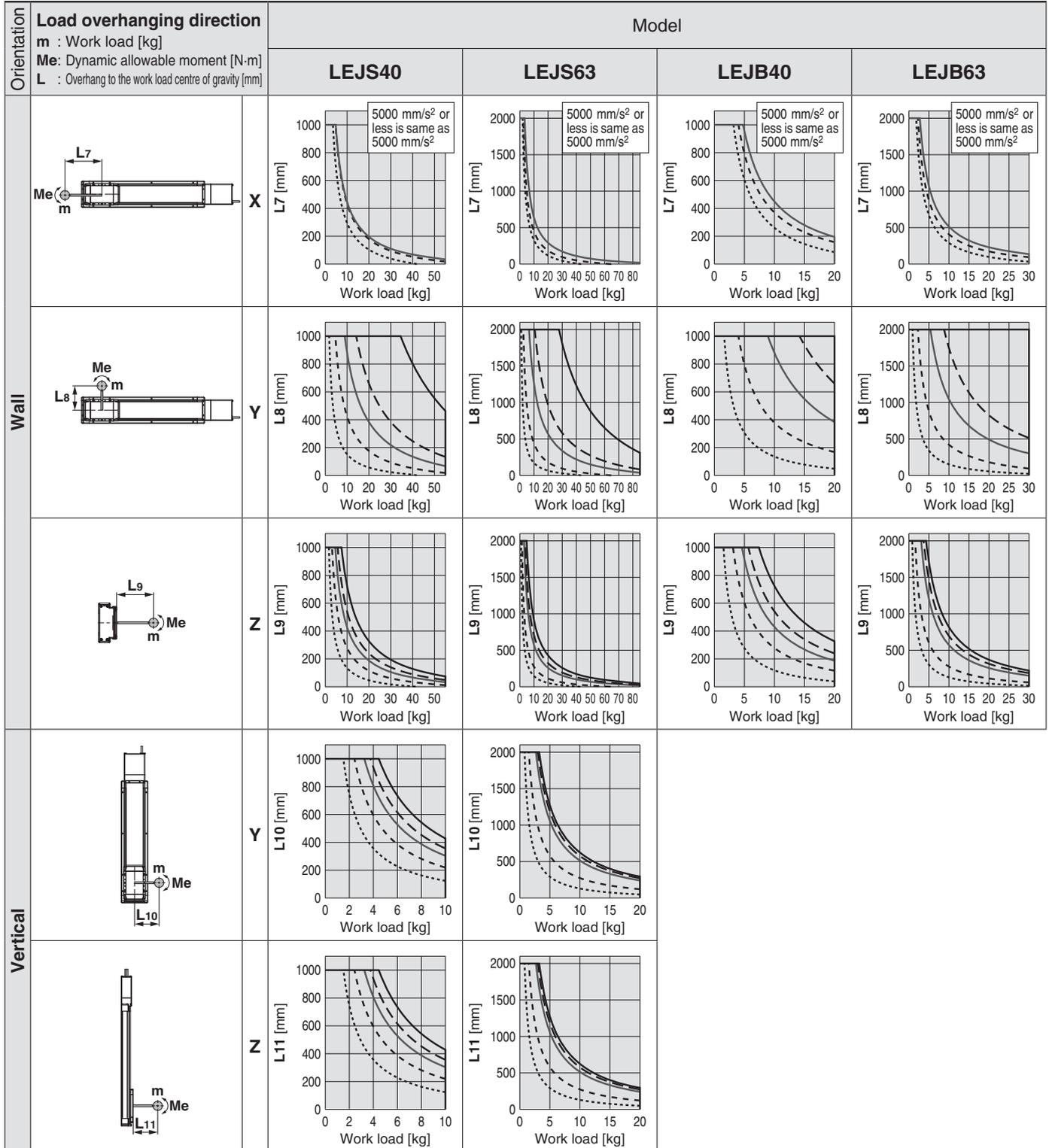
Acceleration/Deceleration ——— 1000 mm/s² - - - 3000 mm/s² ——— 5000 mm/s² - - - 10000 mm/s² ······ 20000 mm/s²

Orientation		Model			
Load overhanging direction m : Work load [kg] Me: Dynamic allowable moment [N·m] L : Overhang to the work load centre of gravity [mm]		LEJS40	LEJS63	LEJB40	LEJB63
Horizontal	X 				
	Y 				
	Z 				
Bottom	X 				
	Y 				
	Z 				

* This graph shows the amount of allowable overhang (guide unit) when the centre of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to "Calculation of Guide Load Factor" or the Electric Actuator Selection Software for confirmation, <http://www.smc.eu>

Dynamic Allowable Moment

Acceleration/Deceleration ——— 1000 mm/s² - - - - 3000 mm/s² ——— 5000 mm/s² - - - - 10000 mm/s² ······ 20000 mm/s²



Calculation of Guide Load Factor

1. Decide operating conditions.

Model: LEJS/LEJB

Size: 40/63

Mounting orientation: Horizontal/Bottom/Wall/Vertical

Acceleration [mm/s²]: **a**

Work load [kg]: **m**

Work load centre position [mm]: **Xc/Yc/Zc**

2. Select the target graph with reference to the model, size and mounting orientation.

3. Based on the acceleration and work load, obtain the overhang [mm]: **Lx/Ly/Lz** from the graph.

4. Calculate the load factor for each direction.

$$\alpha_x = X_c/L_x, \alpha_y = Y_c/L_y, \alpha_z = Z_c/L_z$$

5. Confirm the total of α_x , α_y and α_z is 1 or less.

$$\alpha_x + \alpha_y + \alpha_z \leq 1$$

When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load centre position and series.

Example

1. Operating conditions

Model: LEJS

Size: 40

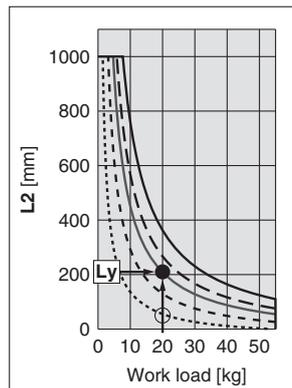
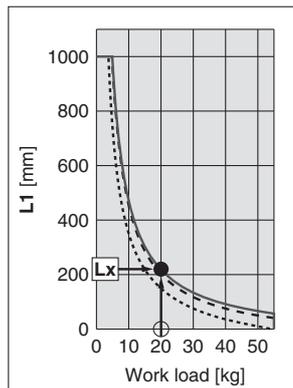
Mounting orientation: Horizontal

Acceleration [mm/s²]: 5000

Work load [kg]: 20

Work load centre position [mm]: **Xc = 0, Yc = 50, Zc = 200**

2. Select the graph on page 86, top and left side first row.



3. **Lx = 220 mm, Ly = 210 mm, Lz = 430 mm**

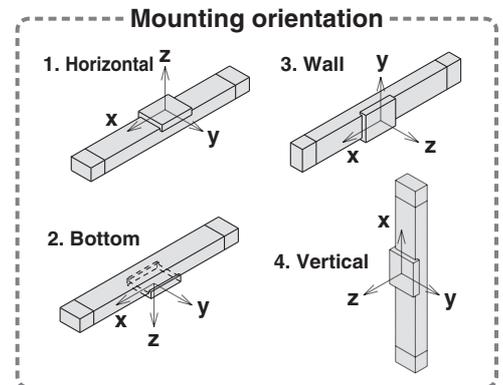
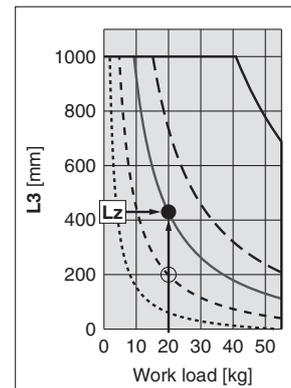
4. The load factor for each direction can be obtained as follows.

$$\alpha_x = 0/220 = 0$$

$$\alpha_y = 50/210 = 0.24$$

$$\alpha_z = 200/430 = 0.47$$

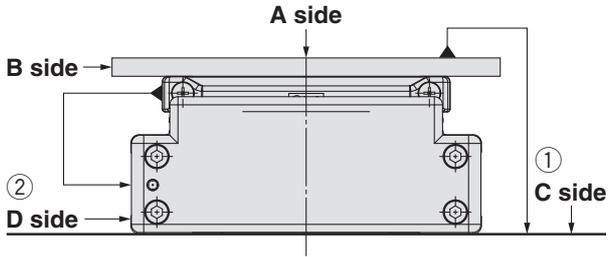
5. $\alpha_x + \alpha_y + \alpha_z = 0.71 \leq 1$



Series LEJ

AC Servo Motor

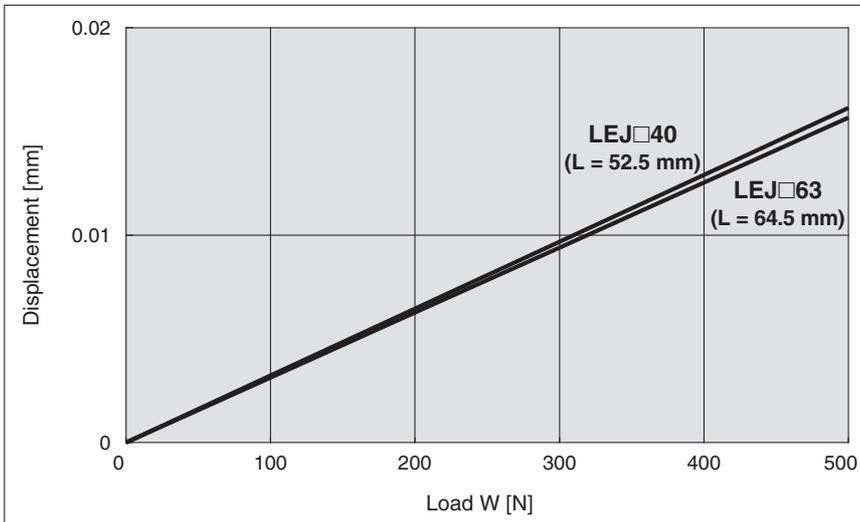
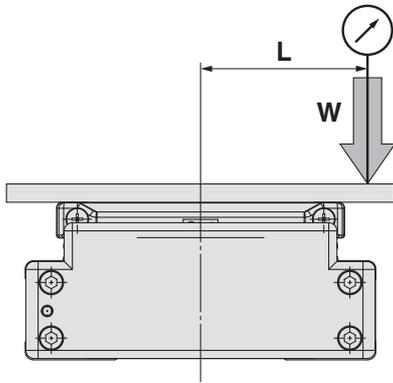
Table Accuracy (Reference Value)



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)



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

Electric Actuator/High Rigidity Slider Type Ball Screw Drive AC Servo Motor

Series **LEJS** LEJS40, 63

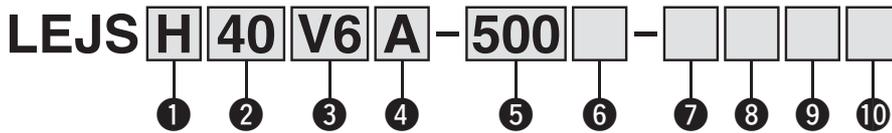


Please contact SMC for clean room specification and the models compatible with secondary batteries.

Clean room compatible Secondary battery compatible
Consult with SMC for details.



How to Order



1 Accuracy

—	Basic type
H	High precision type

2 Size

40
63

3 Motor type *1

Symbol	Type	Output [W]	Actuator size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	40	LECYM2-V5 LECYU2-V5
V7	AC servo motor (Absolute encoder)	200	63	LECYM2-V7 LECYU2-V7

*1 For motor type V6, the compatible driver part number suffix is V5.

4 Lead [mm]

Symbol	LEJS40	LEJS63
H	24	30
A	16	20
B	8	10

5 Stroke [mm] *2

200
to
1500

*2 Refer to the applicable stroke table for details.

6 Motor option

—	Without option
B	With lock

7 Cable type *4, *5

—	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.)

8 Cable length [m] *4, *6

—	Without cable
3	3
5	5
A	10
C	20

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

*4 When the driver type is selected, the cable is included. Select cable type and cable length.

9 Driver type *4

	Compatible driver	Power supply voltage [V]
—	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

10 I/O cable length [m] *7

—	Without cable
H	Without cable (Connector only)
1	1.5

*7 When "Without driver" is selected for driver type, only "—: Without cable" can be selected. Refer to Page 114 if I/O cable is required. (Options are shown on Page 114.)

Applicable Stroke Table *3

●: Standard

Model	Stroke [mm]	Stroke [mm]												
		200	300	400	500	600	700	800	900	1000	1200	1500		
LEJS40		●	●	●	●	●	●	●	●	●	●	●	●	—
LEJS63		—	●	●	●	●	●	●	●	●	●	●	●	●

*3: Please consult with SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 41 to 43.

Compatible Drivers

Driver type	MECHATROLINK-II type	MECHATROLINK-III type
		
Series	LECYM	
Applicable network	MECHATROLINK-II	MECHATROLINK-III
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	Page 107	

Series LEJS

AC Servo Motor

Specifications

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

Model		LEJS40V6			LEJS63V7				
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 [kg] ^{Note 2)}	Horizontal	15	30	55	30	45	85	
		Vertical	3	5	10	6	10	20	
	Speed [mm/s] ^{Note 3)}	Stroke range	Up to 500	1800	1200	600	1800	1200	600
			501 to 600	1580	1050	520	1800	1200	600
			601 to 700	1170	780	390	1800	1200	600
			701 to 800	910	600	300	1390	930	460
			801 to 900	720	480	240	1110	740	370
			901 to 1000	580	390	190	900	600	300
			1001 to 1100	480	320	160	750	500	250
			1101 to 1200	410	270	130	630	420	210
			1201 to 1300	—	—	—	540	360	180
	1301 to 1400	—	—	—	470	310	150		
	1401 to 1500	—	—	—	410	270	130		
Max. acceleration/deceleration [mm/s ²]	20000 (Refer to pages 83 and 84 for limit according to work load and duty ratio.)								
Positioning repeatability [mm]	Basic type	±0.02							
	High precision type	±0.01							
Lost motion [mm] ^{Note 4)}	Basic type	0.1 or less							
	High precision type	0.05 or less							
Lead [mm]	24	16	8	30	20	10			
Impact/Vibration resistance [m/s ²] ^{Note 5)}	50/20								
Actuation type	Ball screw								
Guide type	Linear guide								
Operating temperature range [°C]	5 to 40								
Operating humidity range [%RH]	90 or less (No condensation)								
Regenerative resistor	May be required depending on speed and work load. (Refer to page 80.)								
Motor output [W]/Size [mm]	100/□40			200/□60					
Motor type	AC servo motor (200 VAC)								
Encoder	Absolute 20-bit encoder (Resolution: 1048576 p/rev)								
Power consumption [W] ^{Note 6)}	Horizontal	65			80				
	Vertical	165			235				
Standby power consumption when operating [W] ^{Note 7)}	Horizontal	2			2				
	Vertical	10			12				
Max. instantaneous power consumption [W] ^{Note 8)}	445			725					
Type ^{Note 9)}	Non-magnetizing lock								
Holding force [N]	67	101	202	108	162	324			
Power consumption at 20°C [W] ^{Note 10)}	5.5			6					
Rated voltage [V]	24 VDC								

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) Check "Speed-Work Load Graph (Guide)" on page 80.

Note 3) The allowable speed changes according to the stroke.

Note 4) A reference value for correcting an error in reciprocal operation.

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) The power consumption (including the driver) is for when the actuator is operating.

Note 7) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.

Note 8) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

Note 9) Only when motor option "With lock" is selected.

Note 10) For an actuator with lock, add the power consumption for the lock.

Note 11) Sensor magnet position is located in the table centre. For detailed dimensions, refer to "Auto Switch Mounting Position".

Note 12) Do not allow collisions at either end of the table traveling distance. Additionally, when running the positioning operation, do not set within 2 mm of both ends.

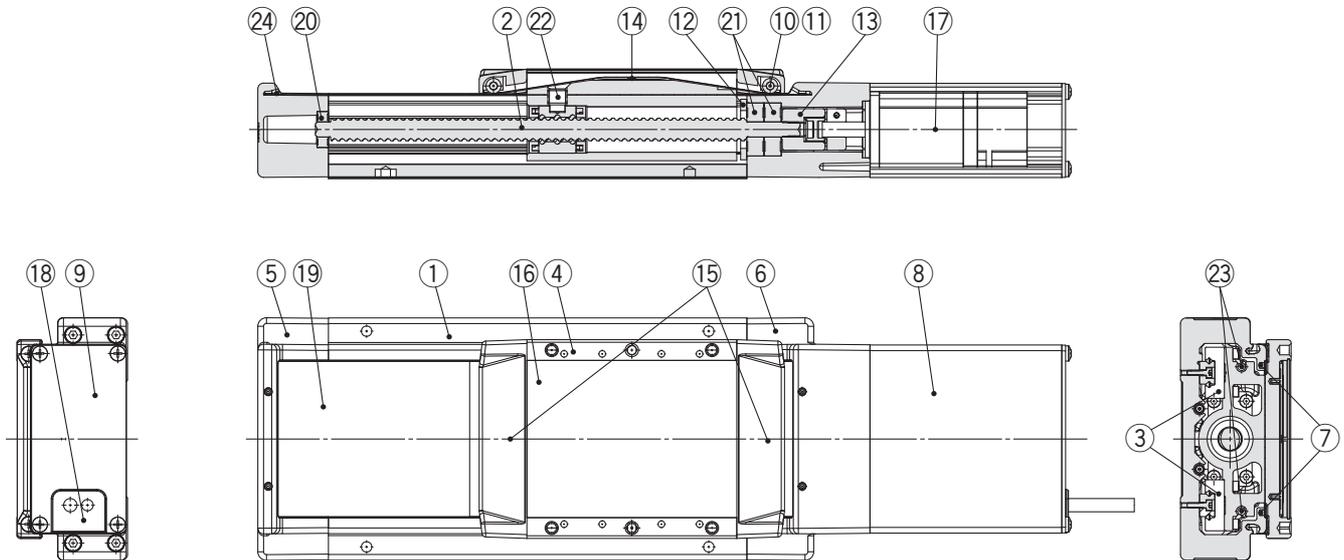
Note 13) For the manufacture of intermediate strokes, please contact SMC. (LEJS40/Manufacturable stroke range: 200 to 1200 mm, LEJS63/Manufacturable stroke range: 300 to 1500 mm)

Weight

Model	LEJS40									
Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200
Product weight [kg]	5.6	6.4	7.1	7.9	8.7	9.4	10.2	11.0	11.7	13.3
Additional weight with lock [kg]	0.3 (Absolute encoder)									

Model	LEJS63									
Stroke [mm]	300	400	500	600	700	800	900	1000	1200	1500
Product weight [kg]	11.4	12.7	13.9	15.2	16.4	17.7	18.9	20.1	22.6	26.4
Additional weight with lock [kg]	0.7 (Absolute encoder)									

Construction



Component Parts

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

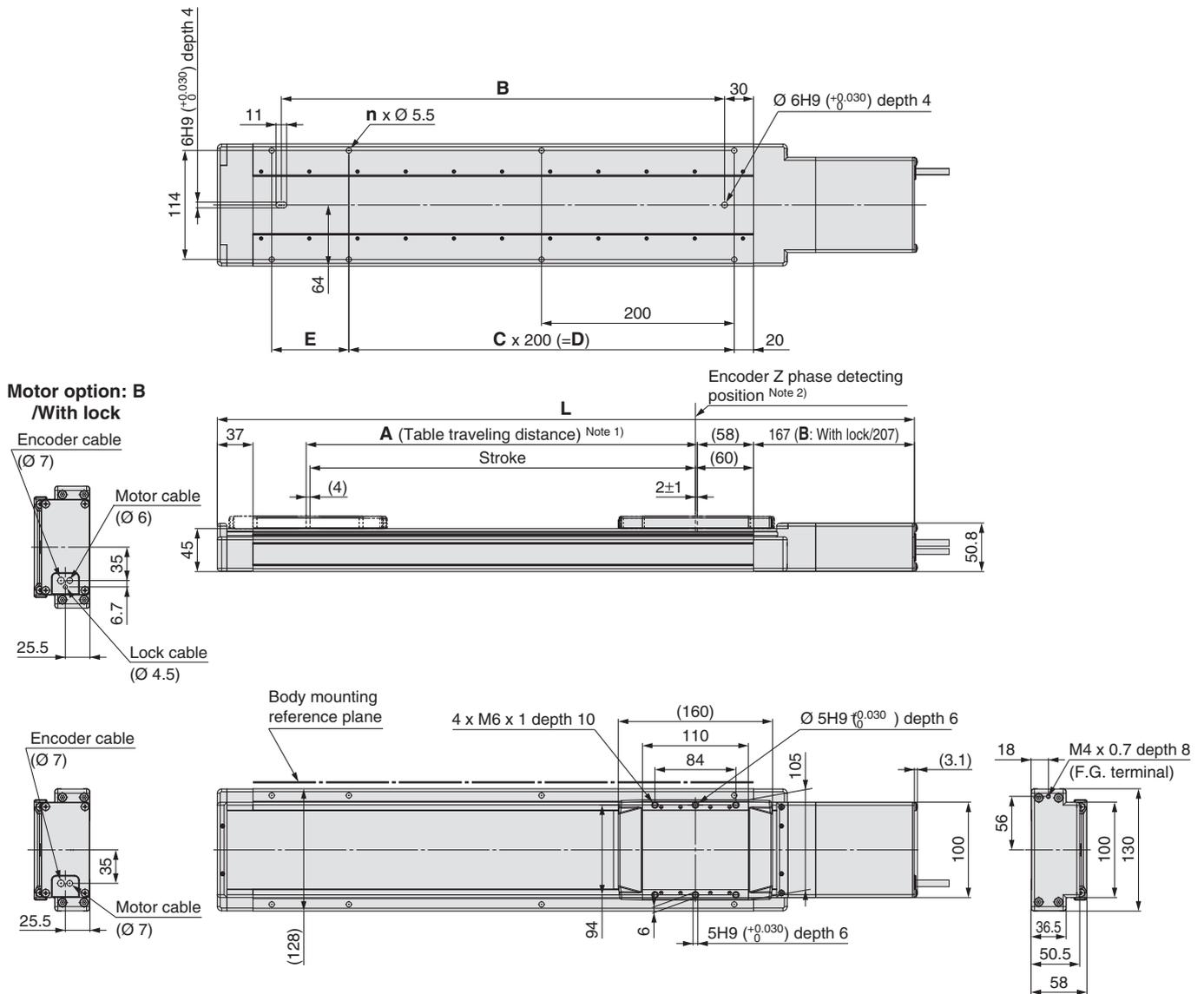
No	Description	Material	Note
13	Coupling	—	
14	Table cap	Synthetic resin	
15	Seal band holder	Synthetic resin	
16	Blanking plate	Aluminium alloy	Anodised
17	Motor	—	
18	Grommet	NBR	
19	Dust seal band	Stainless steel	
20	Bearing	—	
21	Bearing	—	
22	Nut fixing pin	Carbon steel	
23	Magnet	—	
24	Seal band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

Series LEJS

AC Servo Motor

Dimensions: Ball Screw Drive

LEJS40



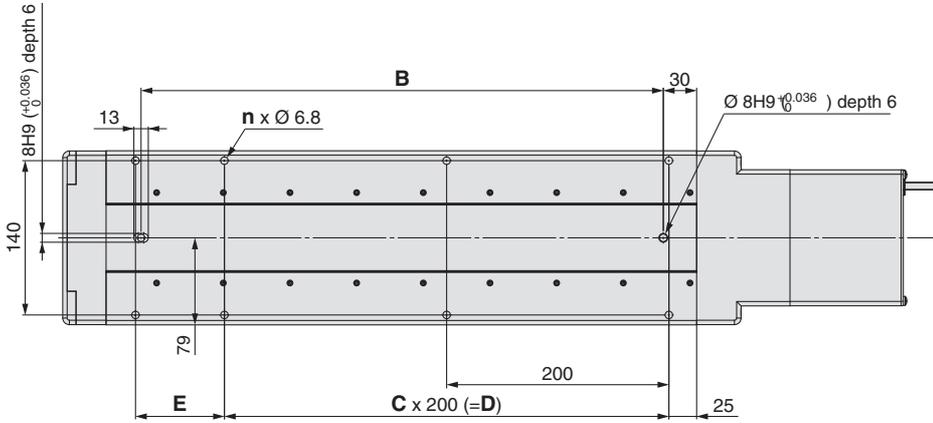
Note 1) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

Note 2) The Z-phase first detecting position from the stroke end of the motor side

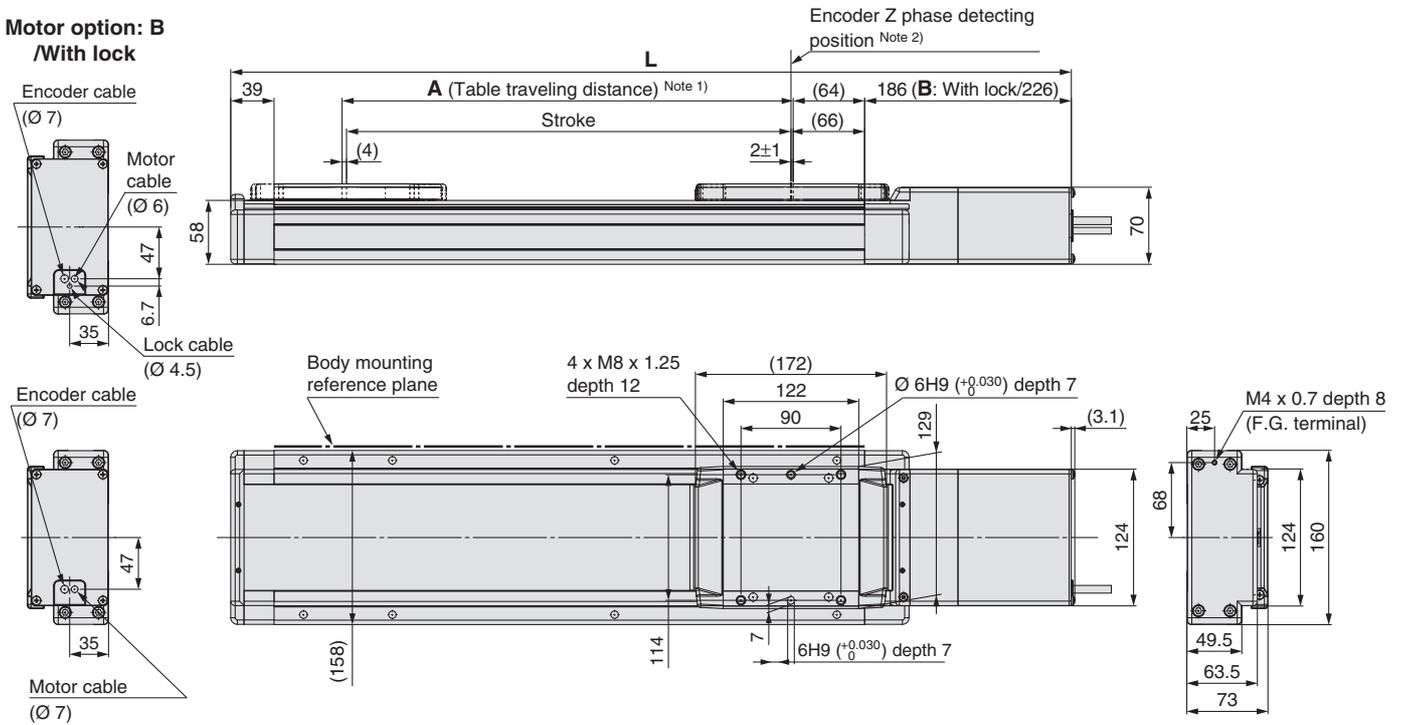
Note 3) Auto switch magnet is located in the table centre.

Model	L		A	B	n	C	D	E
	Without lock	With lock						
LEJS40V□□-200□-□□□□	523.5	563.5	206	260	6	1	200	80
LEJS40V□□-300□-□□□□	623.5	663.5	306	360	6	1	200	180
LEJS40V□□-400□-□□□□	723.5	763.5	406	460	8	2	400	80
LEJS40V□□-500□-□□□□	823.5	863.5	506	560	8	2	400	180
LEJS40V□□-600□-□□□□	923.5	963.5	606	660	10	3	600	80
LEJS40V□□-700□-□□□□	1023.5	1063.5	706	760	10	3	600	180
LEJS40V□□-800□-□□□□	1123.5	1163.5	806	860	12	4	800	80
LEJS40V□□-900□-□□□□	1223.5	1263.5	906	960	12	4	800	180
LEJS40V□□-1000□-□□□□	1323.5	1363.5	1006	1060	14	5	1000	80
LEJS40V□□-1200□-□□□□	1523.5	1563.5	1206	1260	16	6	1200	80

Dimensions: Ball Screw Drive
LEJS63



Motor option: B
/With lock



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 centre.

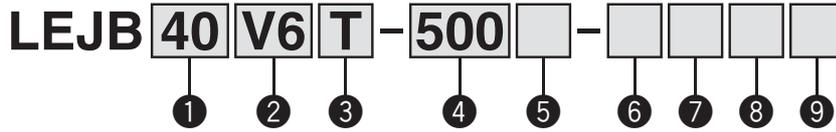
Model	L		A	B	n	C	D	E
	Without lock	With lock						
LEJS63V□□-300□-□□□□	656.5	696.5	306	370	6	1	200	180
LEJS63V□□-400□-□□□□	756.5	796.5	406	470	8	2	400	80
LEJS63V□□-500□-□□□□	856.5	896.5	506	570	8	2	400	180
LEJS63V□□-600□-□□□□	956.5	996.5	606	670	10	3	600	80
LEJS63V□□-700□-□□□□	1056.5	1096.5	706	770	10	3	600	180
LEJS63V□□-800□-□□□□	1156.5	1196.5	806	870	12	4	800	80
LEJS63V□□-900□-□□□□	1256.5	1296.5	906	970	12	4	800	180
LEJS63V□□-1000□-□□□□	1356.5	1396.5	1006	1070	14	5	1000	80
LEJS63V□□-1200□-□□□□	1556.5	1596.5	1206	1270	16	6	1200	80
LEJS63V□□-1500□-□□□□	1856.5	1896.5	1506	1570	18	7	1400	180

Electric Actuator/High Rigidity Slider Type Belt Drive AC Servo Motor

Series **LEJB** LEJB40, 63



How to Order



1 Size

40
63

2 Motor type *1

Symbol	Type	Output [W]	Actuator size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	40	LECYM2-V5 LECYU2-V5
V7	AC servo motor (Absolute encoder)	200	63	LECYM2-V7 LECYU2-V7

*1: For motor type V6, the compatible driver part number suffix is V5.

3 Lead [mm]

Symbol	LEJB40	LEJB63
T	27	42

4 Stroke [mm] *2

200
to
3000

*2: Refer to the table below for details.

5 Motor option

—	Without option
B	With lock

6 Cable type *4, *5

—	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.)

7 Cable length [m] *4, *6

—	Without cable
3	3 m
5	5 m
A	10 m
C	20 m

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

8 Driver type *4

	Compatible driver	Power supply voltage [V]
—	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

9 I/O cable length [m] *7

—	Without cable
H	Without cable (Connector only)
1	1.5

*7 When "Without driver" is selected for driver type, only "—: Without cable" can be selected. Refer to Page 114 if I/O cable is required. (Options are shown on Page 114.)

Applicable Stroke Table *3

Model	Stroke [mm]													
	200	300	400	500	600	700	800	900	1000	1200	1500	2000	3000	
LEJB40	●	●	●	●	●	●	●	●	●	●	●	●	●	—
LEJB63	—	●	●	●	●	●	●	●	●	●	●	●	●	●

●: Standard

*3: Please consult with SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 41 to 43.

Compatible Drivers

Driver type	MECHATROLINK-II type	MECHATROLINK-III type
		
Series	LECYM	
Applicable network	MECHATROLINK-II	MECHATROLINK-III
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	Page 107	

Specifications

AC Servo Motor

Model		LEJB40V6	LEJB63V7	
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 [kg]	20 (If the stroke exceeds 1000 mm: 10)	30	
	Speed [mm/s] ^{Note 2)}	2000	3000	
	Max. acceleration/deceleration [mm/s ²]	20000 (Refer to page 85 for limit according to work load and duty ratio.)		
	Positioning repeatability [mm]	±0.04		
	Lost motion [mm] ^{Note 3)}	0.1 or less		
	Lead [mm]	27	42	
	Impact/Vibration resistance [m/s ²] ^{Note 4)}	50/20		
	Actuation type	Belt		
	Guide type	Linear guide		
	Allowable external force [N]	20		
	Operating temperature range [°C]	5 to 40		
	Operating humidity range [%RH]	90 or less (No condensation)		
Regenerative resistor	May be required depending on speed and work load. (Refer to page 80.)			
Electric specifications	Motor output [W]/Size [mm]	100/□40	200/□60	
	Motor type	AC servo motor (200 VAC)		
	Encoder	Absolute 20-bit encoder (Resolution: 1048576 p/rev)		
	Power consumption [W] ^{Note 5)}	Horizontal	65	190
		Vertical	—	—
	Standby power consumption when operating [W] ^{Note 6)}	Horizontal	2	2
		Vertical	—	—
Max. instantaneous power consumption [W] ^{Note 7)}	445	725		
Lock unit specifications	Type ^{Note 8)}	Non-magnetizing lock		
	Holding force [N]	59	77	
	Power consumption at 20°C [W] ^{Note 9)}	5.5	6	
	Rated voltage [V]	24 VDC		

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) Check "Speed-Work Load Graph (Guide)" on page 80.

Note 3) A reference value for correcting an error in reciprocal operation.

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) The power consumption (including the driver) is for when the actuator is operating.

Note 6) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.

Note 7) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

Note 8) Only when motor option "With lock" is selected.

Note 9) For an actuator with lock, add the power consumption for the lock.

Note 10) Sensor magnet position is located in the table centre.

For detailed dimensions, refer to "Auto Switch Mounting Position".

Note 11) Do not allow collisions at either end of the table traveling distance. Additionally, when running the positioning operation, do not set within 2 mm of both ends.

Note 12) For the manufacture of intermediate strokes, please contact SMC.

(LEJB40/Manufacturable stroke range: 200 to 2000 mm, LEJB63/Manufacturable stroke range: 300 to 3000 mm)

Weight

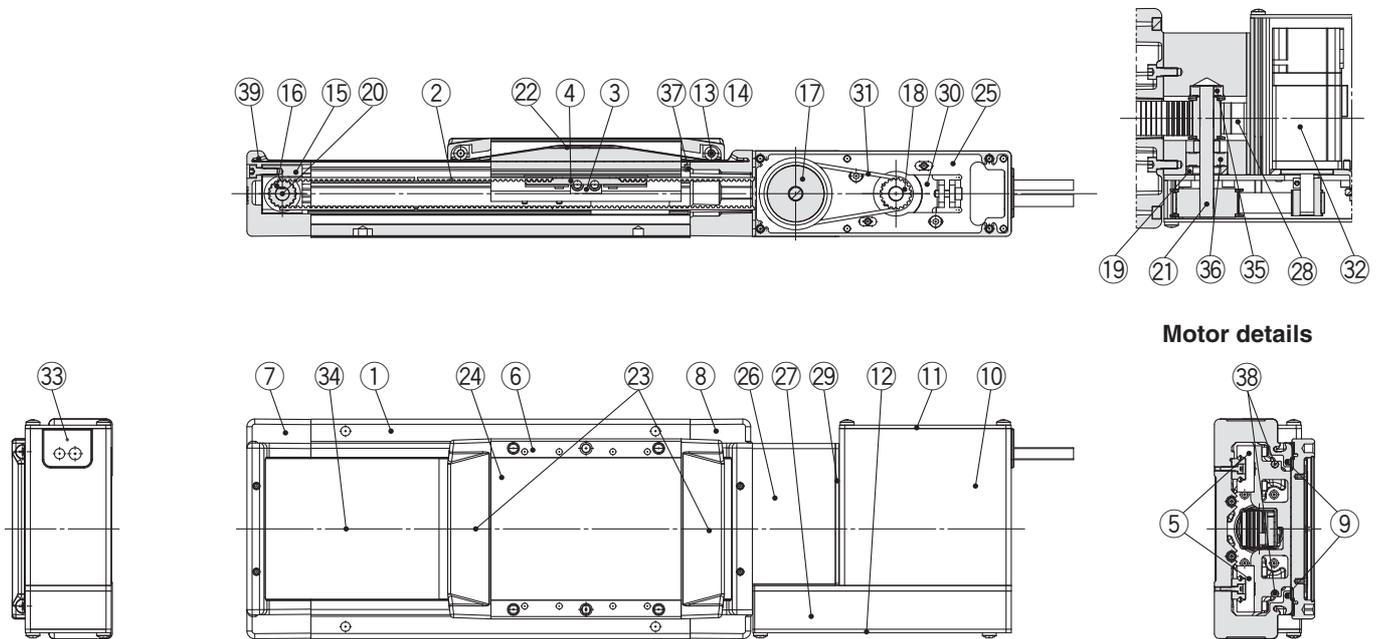
Model	LEJB40											
Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200	1500	2000
Product weight [kg]	5.7	6.4	7.1	7.7	8.4	9.1	9.8	10.5	11.2	12.6	14.7	18.1
Additional weight with lock [kg]	0.3 (Absolute encoder)											

Model	LEJB63											
Stroke [mm]	300	400	500	600	700	800	900	1000	1200	1500	2000	3000
Product weight [kg]	11.5	12.7	13.8	15.0	16.2	17.4	18.6	19.7	22.1	25.7	31.6	43.4
Additional weight with lock [kg]	0.7 (Absolute encoder)											

Series LEJB

AC Servo Motor

Construction



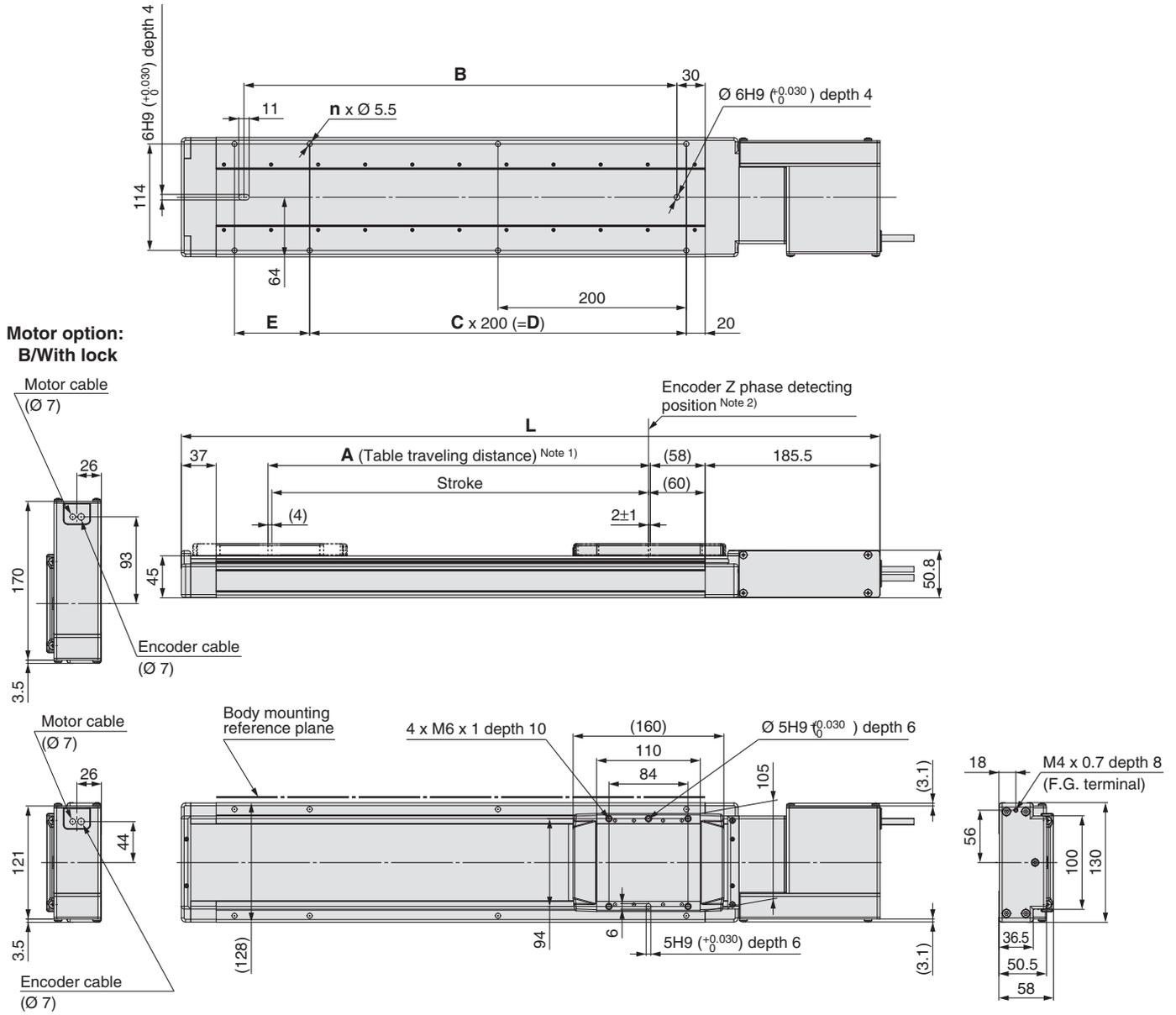
Component Parts

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

No.	Description	Material	Note
21	Pulley shaft B	Stainless steel	
22	Table cap	Synthetic resin	
23	Seal band holder	Synthetic resin	
24	Blanking plate	Aluminium alloy	Anodised
25	Motor mount plate	Carbon steel	
26	Pulley block	Aluminium alloy	Anodised
27	Pulley cover	Aluminium alloy	Anodised
28	Belt stopper	Aluminium alloy	
29	Side plate	Aluminium alloy	Anodised
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	—	
39	Seal band stopper	Stainless steel	

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 centre.

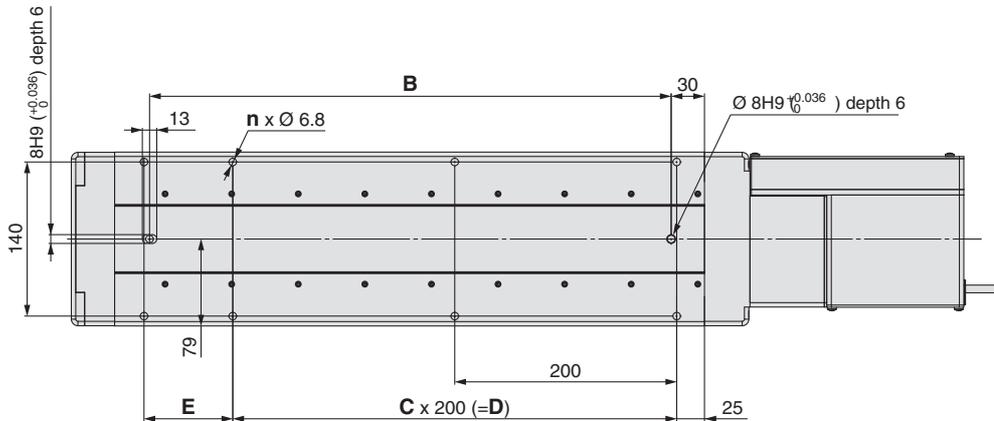
Model	L	A	B	n	C	D	E	[mm]
LEJB40V□□-200□-□□□□	542	206	260	6	1	200	80	
LEJB40V□□-300□-□□□□	642	306	360	6	1	200	180	
LEJB40V□□-400□-□□□□	742	406	460	8	2	400	80	
LEJB40V□□-500□-□□□□	842	506	560	8	2	400	180	
LEJB40V□□-600□-□□□□	942	606	660	10	3	600	80	
LEJB40V□□-700□-□□□□	1042	706	760	10	3	600	180	
LEJB40V□□-800□-□□□□	1142	806	860	12	4	800	80	
LEJB40V□□-900□-□□□□	1242	906	960	12	4	800	180	
LEJB40V□□-1000□-□□□□	1342	1006	1060	14	5	1000	80	
LEJB40V□□-1200□-□□□□	1542	1206	1260	16	6	1200	80	
LEJB40V□□-1500□-□□□□	1842	1506	1560	18	7	1400	180	
LEJB40V□□-2000□-□□□□	2342	2006	2060	24	10	2000	80	

Series LEJB

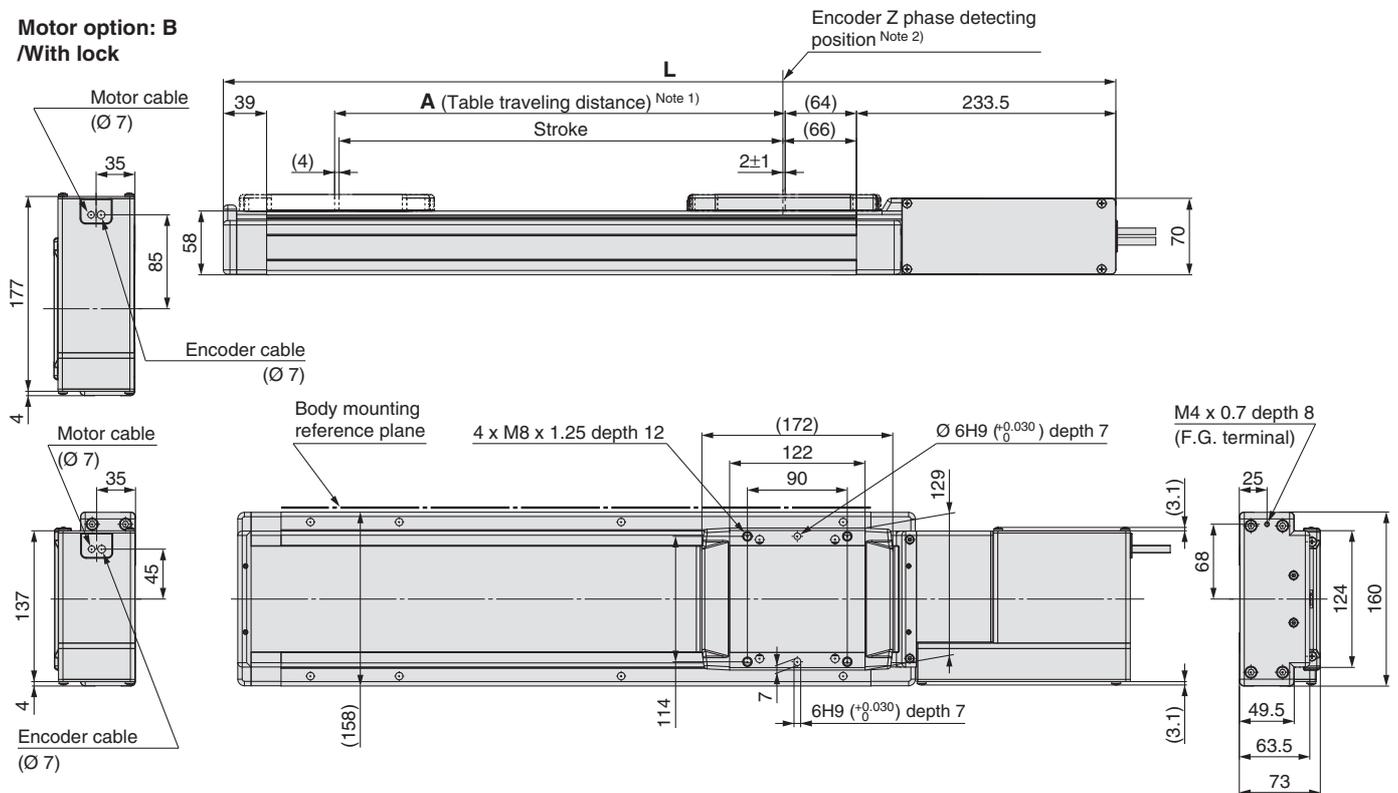
AC Servo Motor

Dimensions: Belt Drive

LEJB63



Motor option: B /With lock



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.

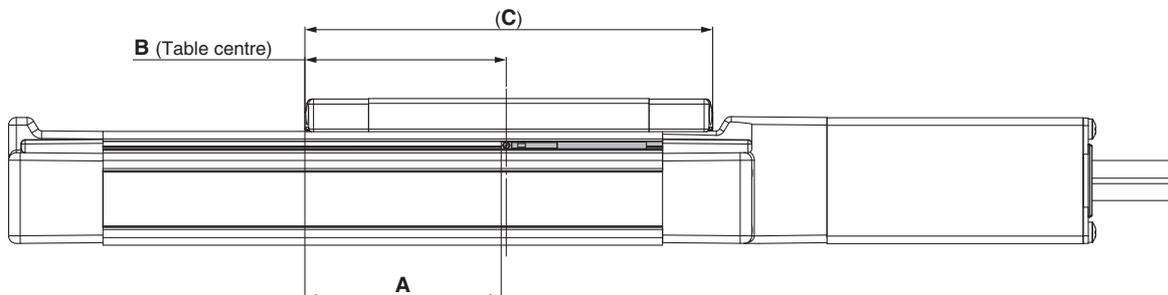
Note 2) The Z-phase first detecting position from the stroke end of the motor side

Note 3) Auto switch magnet is located in the table centre.

Model	L	A	B	n	C	D	E
LEJB63V□□-300□-□□□□	704	306	370	6	1	200	180
LEJB63V□□-400□-□□□□	804	406	470	8	2	400	80
LEJB63V□□-500□-□□□□	904	506	570	8	2	400	180
LEJB63V□□-600□-□□□□	1004	606	670	10	3	600	80
LEJB63V□□-700□-□□□□	1104	706	770	10	3	600	180
LEJB63V□□-800□-□□□□	1204	806	870	12	4	800	80
LEJB63V□□-900□-□□□□	1304	906	970	12	4	800	180
LEJB63V□□-1000□-□□□□	1404	1006	1070	14	5	1000	80
LEJB63V□□-1200□-□□□□	1604	1206	1270	16	6	1200	80
LEJB63V□□-1500□-□□□□	1904	1506	1570	18	7	1400	180
LEJB63V□□-2000□-□□□□	2404	2006	2070	24	10	2000	80
LEJB63V□□-3000□-□□□□	3404	3006	3070	34	15	3000	80

Series LEJ Auto Switch Mounting

Auto Switch Mounting Position



[mm]					
Model	Size	A	B	C	Operating range
LEJS	40	77	80	160	5.5
LEJB					5.0
LEJS	63	83	86	172	7.0
LEJB					6.5

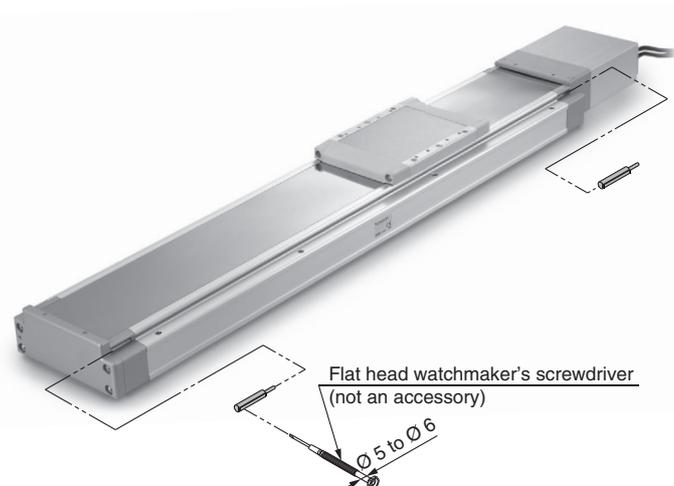
Note) The operating range is a guideline including hysteresis, not meant to be guaranteed. There may be large variations (as much as $\pm 30\%$) depending on the ambient environment.

Auto Switch Mounting

When mounting the auto switches, they should be inserted into the actuator's auto switches mounting groove from the direction shown in the drawing on the below. Once in the mounting position, use a flat head watchmaker's screwdriver to tighten the included auto switch mounting screw.

Auto Switch Mounting Screw Tightening Torque [N·m]

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



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

Solid State Auto Switch Direct Mounting Style

D-M9N(V)/D-M9P(V)/D-M9B(V)



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

Auto Switch Specifications

PLC: Programmable Logic Controller

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

Grommet

- 2-wire load current is reduced (2.5 to 40 mA).
- Using flexible cable as standard.



Oilproof Heavy-duty Lead Wire Specifications

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

Note 1) Refer to the Best Pneumatics No. 2 for solid state auto switch common specifications.
Note 2) Refer to the Best Pneumatics No. 2 for lead wire lengths.

Caution

Precautions

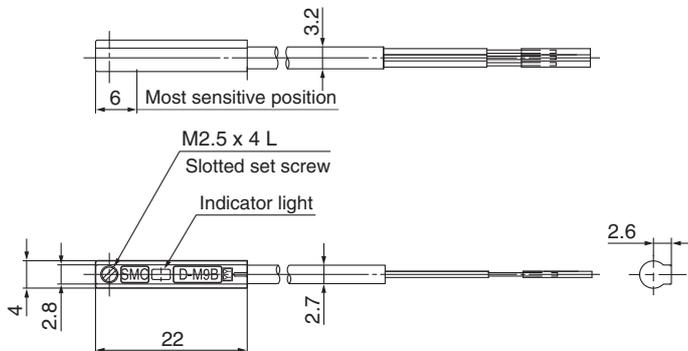
Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Weight

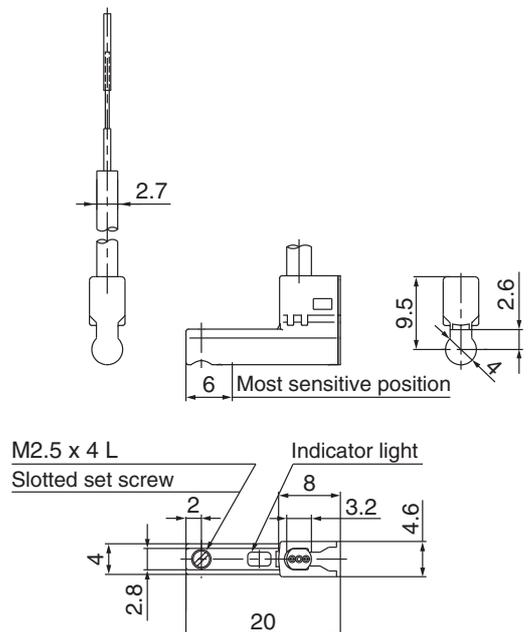
Auto switch model	D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length	0.5 m (—)	8	7
	1 m (M)	14	13
	3 m (L)	41	38
	5 m (Z)	68	63

Dimensions

D-M9□



D-M9□V



2-Colour Indication Solid State Auto Switch Direct Mounting Style

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



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

Grommet

- 2-wire load current is reduced (2.5 to 40 mA).
- Using flexible cable as standard.
- The optimum operating range can be determined by the colour of the light. (Red → Green ← Red)



Caution

Precautions

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

Auto Switch Specifications

PLC: Programmable Logic Controller

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

Oilproof Flexible Heavy-duty Lead Wire Specifications

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

Note 1) Refer to the Best Pneumatics No. 2 for solid state auto switch common specifications.
Note 2) Refer to the Best Pneumatics No. 2 for lead wire lengths.

Weight

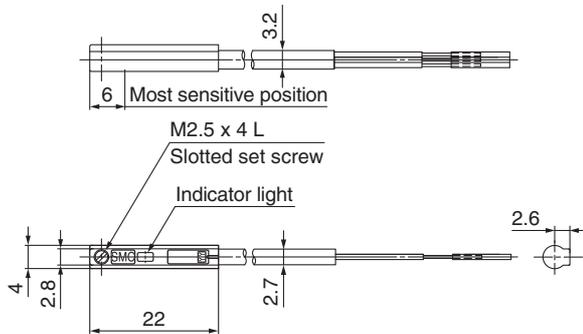
[g]

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

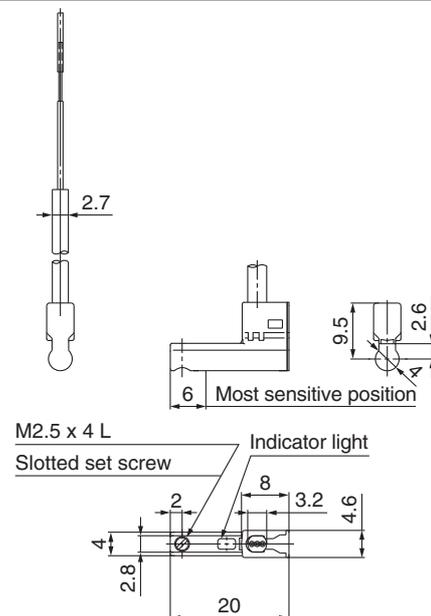
Dimensions

[mm]

D-M9□W



D-M9□WV





Electric Actuator/ Specific Product Precautions 1

Be sure to read this before handling. For Safety Instructions and Electric Actuator Precautions, refer to “Handling Precautions for SMC Products” and the Operation Manual on SMC website, <http://www.smc.eu>

Design

Caution

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

Select a suitable actuator by work load and allowable moment. If the product is used outside of the operating limit, the eccentric load applied to the guide will be excessive and have adverse effects such as creating play on the guide, degrading accuracy and shortening the life of the product.
- 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 a malfunction or seizure.

Selection

Warning

- 1. Do not increase the speed in excess of the specification limits..**

Select a suitable actuator by the relationship of the allowable work load and speed, and the allowable speed of each stroke. If the product is used outside of the specification limits, it will have adverse effects such as creating noise, degrading accuracy and shortening the life of the product.
- 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 a thousand cycles.**
- 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.**

When incorrect instructions are inputted, such as using the product outside of the operating limit or operation outside of actual stroke through changes in the controller/driver setting and/or origin position, the table may collide against the stroke end of the actuator. Please check these points before use.
If the table collides against the stroke end of the actuator, the guide, belt or internal stopper can be broken. This may lead to abnormal operation.



- Handle the actuator with care when it is used in the vertical direction as the workpiece will fall freely from its own weight.
- 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 catalogue.
 - 3. Do not apply a load, impact or resistance in addition to the transferred load during return to origin.**
 - 4. Do not dent, scratch or cause other damage to the body and table mounting surfaces.**

This may cause unevenness in the mounting surface, play in the guide or an increase in the sliding resistance.
 - 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 play in the guide or an increase in the sliding resistance.
 - 6. The flatness of mounting surface should be within 0.1mm/500 mm.**

Unevenness of a workpiece or base mounted on the body of the product may cause play in the guide and an increase in the 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 this before handling. For Safety Instructions and Electric Actuator Precautions, refer to “Handling Precautions for SMC Products” and the Operation Manual on SMC website, <http://www.smc.eu>

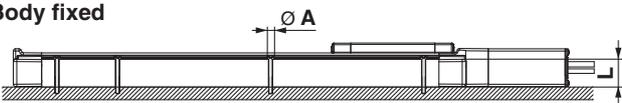
Handling

⚠ Caution

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

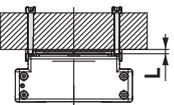
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed



Model	Bolt	Max. tightening torque [N·m]	Ø A [mm]	L [mm]
LEJ□40	M5	3.0	5.5	36.5
LEJ□63	M6	5.2	6.8	49.5

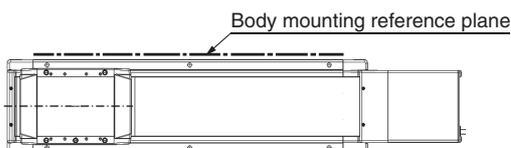
Workpiece fixed



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

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

11. Do not operate by fixing the table and moving the actuator body.
12. The belt drive actuator cannot be used vertically for applications.
13. Vibration may occur during operation, this could be caused by the operating conditions.
If it occurs, refer to the operation manuals of the driver and actuator.
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

MECHATROLINK Compatible AC Servo Motor Driver

Absolute Type Series *LECYM*

MECHATROLINK-II Type



Absolute Type Series *LECYU*

MECHATROLINK-III Type



MECHATROLINK Compatible

AC Servo Motor Driver

Absolute Type

Series **LECYM/LECYU**

(MECHATROLINK-II Type)

(MECHATROLINK-III Type)



How to Order

Driver

LECYM2-

Driver type

M	MECHATROLINK-II type (For absolute encoder)
U	MECHATROLINK-III type (For absolute encoder)

Power supply voltage

2	200 to 230 VAC, 50/60 Hz
----------	--------------------------

Compatible motor type

Symbol	Type	Capacity	Encoder
V5	AC servo motor (V6 *2)	100 W	Absolute
V7	AC servo motor (V7 *2)	200 W	
V8	AC servo motor (V8 *2)	400 W	

*1 If the I/O signal connector (CN 1) is required, order the part number "LECYNA" separately.

*2 The symbol shows the motor type (actuator).

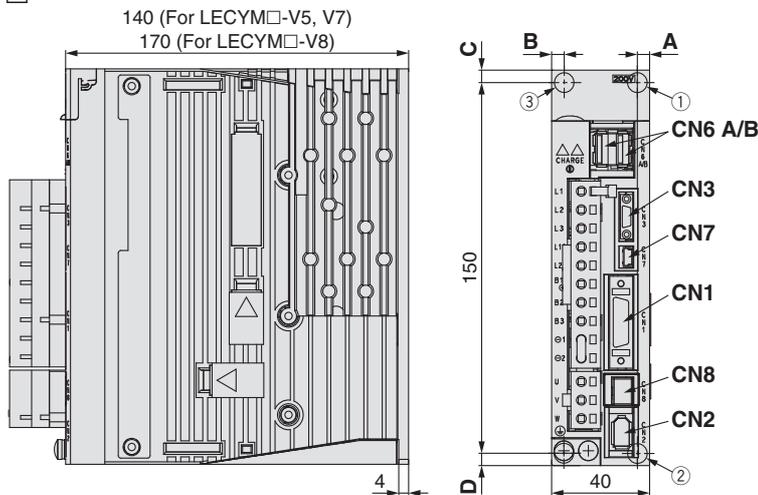


LECYM LECYU

Dimensions

MECHATROLINK-II type

LECYM2-V □



Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3 (Note)	Digital operator connector
CN6A	MECHATROLINK-II communication connector
CN6B	MECHATROLINK-II communication connector
CN7	PC connector
CN8	Safety connector

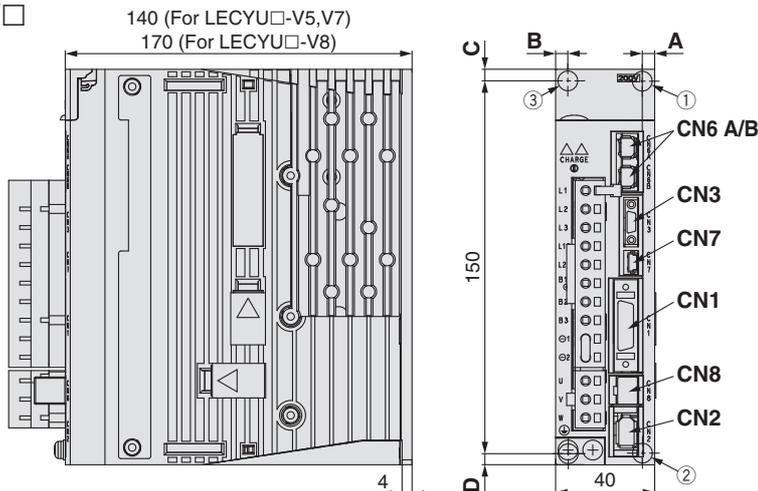
Note) Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

Motor capacity	Hole position	Mounting dimensions				Mounting hole
		A	B	C	D	
V5 (100 W)	①②	5	—	5	5	Ø 5
V7 (200 W)	①②	5	—	5	5	
V8 (400 W)	②③	5	5	5	5	

* The mounting hole position varies depending on the motor capacity.

MECHATROLINK-III type

LECYU2-V □



Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3 (Note)	Digital operator connector
CN6A	MECHATROLINK-III communication connector
CN6B	MECHATROLINK-III communication connector
CN7	PC connector
CN8	Safety connector

Note) Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

Motor capacity	Hole position	Mounting dimensions				Mounting hole
		A	B	C	D	
V5 (100 W)	①②	5	—	5	5	Ø 5
V7 (200 W)	①②	5	—	5	5	
V8 (400 W)	②③	5	5	5	5	

* The mounting hole position varies depending on the motor capacity.

Specifications

MECHATROLINK-II Type

Model		LECYM2-V5	LECYM2-V7	LECYM2-V8
Compatible motor capacity [W]		100	200	400
Compatible encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)		
Main circuit power supply	Power voltage [V]	Three phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Three phase 170 to 253 VAC		
Control power supply	Power voltage [V]	Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Single phase 170 to 253 VAC		
Power supply capacity (at rated output) [A]		0.91	1.6	2.8
Input circuit		NPN (Sink circuit)/PNP (Source circuit)		
Parallel input (7 inputs)	Number of optional allocations	7 inputs	[Initial allocation] · Homing deceleration switch (/DEC) · External latch (/EXT 1 to 3) · Forward run prohibited (P-OT), reverse run prohibited (N-OT) [Can be allocated by setting the parameters.] · Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) Signal allocations can be performed, and positive and negative logic can be changed.	
Parallel output (4 outputs)	Number of fixed allocations	1 output	· Servo alarm (ALM)	
	Number of optional allocations	3 outputs	[Initial allocation] · Lock (/BK) [Can be allocated by setting the parameters.] · Positioning completion (/COIN) · Speed limit detection (/VLT) · Speed coincidence detection (/V-CMP) · Rotation detection (/TGON) · Warning (/WARN) · Servo ready (/S-RDY) · Near (/NEAR) · Torque limit detection (/CLT) Signal allocations can be performed, and positive and negative logic can be changed.	
MECHATROLINK communication	Communication protocol	MECHATROLINK-II		
	Station address	41H to 5FH		
	Communication speed	10 Mbps		
	Communication cycle	250 μs, 0.5 ms to 4 ms (Multiples of 0.5 ms)		
	Number of transmission bytes	17 bytes, 32 bytes		
	Max. number of stations	30		
	Cable length	Overall cable length: 50 m or less, Cable length between the stations: 0.5 m or more		
Command method	Control method	Position, speed, or torque control with MECHATROLINK-II communication		
	Command input	MECHATROLINK-II command (Motion, data setting, monitoring or adjustment)		
Function	Gain adjustment	Tuning-less/Advanced autotuning/One-parameter tuning		
	Communication setting	USB communication, RS-422 communication		
	Torque limit	Internal torque limit, external torque limit, and torque limit by analogue command		
	Encoder output	Phase A, B, Z: Line driver output		
	Emergency stop	CN8 Safety function		
	Overtravel	Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT		
Alarm	Alarm signal, MECHATROLINK-II command			
Operating temperature range [°C]		0 to 55 (No freezing)		
Operating humidity range [%RH]		90 or less (No condensation)		
Storage temperature range [°C]		-20 to 85 (No freezing)		
Storage humidity range [%RH]		90 or less (No condensation)		
Insulation resistance [MΩ]		10 MΩ (500 VDC)		
Weight [g]		900		1000

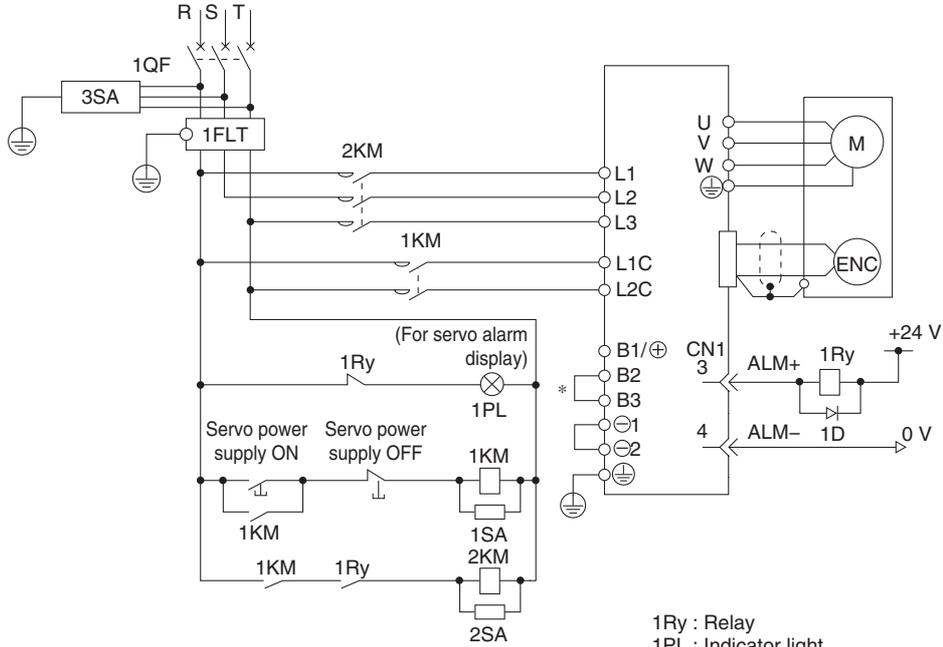
Specifications

MECHATROLINK-III Type

Model		LECYU2-V5	LECYU2-V7	LECYU2-V8
Compatible motor capacity [W]		100	200	400
Compatible encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)		
Main circuit power supply	Power voltage [V]	Three phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Three phase 170 to 253 VAC		
Control power supply	Power voltage [V]	Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Single phase 170 to 253 VAC		
Power supply capacity (at rated output) [A]		0.91	1.6	2.8
Input circuit		NPN (Sink circuit)/PNP (Source circuit)		
Parallel input (7 inputs)	Number of optional allocations	7 inputs	[Initial allocation] · Homing deceleration switch (/DEC) · External latch (/EXT 1 to 3) · Forward run prohibited (P-OT), reverse run prohibited (N-OT) [Can be allocated by setting the parameters.] · Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) Signal allocations can be performed, and positive and negative logic can be changed.	
Parallel output (4 outputs)	Number of fixed allocations	1 output	· Servo alarm (ALM)	
	Number of optional allocations	3 outputs	[Initial allocation] · Lock (/BK) [Can be allocated by setting the parameters.] · Positioning completion (/COIN) · Speed limit detection (/VLT) · Speed coincidence detection (/V-CMP) · Rotation detection (/TGON) · Warning (/WARN) · Servo ready (/S-RDY) · Near (/NEAR) · Torque limit detection (/CLT) Signal allocations can be performed, and positive and negative logic can be changed.	
MECHATROLINK communication	Communication protocol	MECHATROLINK-III		
	Station address	03H to EFH		
	Communication speed	100 Mbps		
	Communication cycle	125 μs, 250 μs, 500 μs, 750 μs, 1 ms to 4 ms (Multiples of 0.5 ms)		
	Number of transmission bytes	16 bytes, 32 bytes, 48 bytes,		
	Max. number of stations	62		
	Cable length	Cable length between the stations: 0.5 m or more, 75 m or less		
Command method	Control method	Position, speed, or torque control with MECHATROLINK-III communication		
	Command input	MECHATROLINK-III command (Motion, data setting, monitoring or adjustment)		
Function	Gain adjustment	Tuning-less/Advanced autotuning/One-parameter tuning		
	Communication setting	USB communication, RS-422 communication		
	Torque limit	Internal torque limit, external torque limit, and torque limit by analogue command		
	Encoder output	Phase A, B, Z: Line driver output		
	Emergency stop	CN8 Safety function		
	Overtravel	Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT		
Alarm	Alarm signal, MECHATROLINK-III command			
Operating temperature range [°C]		0 to 55 (No freezing)		
Operating humidity range [%RH]		90 or less (No condensation)		
Storage temperature range [°C]		-20 to 85 (No freezing)		
Storage humidity range [%RH]		90 or less (No condensation)		
Insulation resistance [MΩ]		10 MΩ (500 VDC)		
Weight [g]		900		1000

Power Supply Wiring Example: LECY□

■ Three phase 200 V LECYM2-□
LECYU2-□



1QF : Molded-case circuit breaker
1FLT: Noise filter
1KM : Magnetic contactor (for control power supply)
2KM : Magnetic contactor (for main circuit power supply)

1Ry : Relay
1PL : Indicator light
1SA : Surge absorber
2SA : Surge absorber
3SA : Surge absorber
1D : Flywheel diode

* For the LECY□2-V5, LECY□2-V7 and LECY□2-V8, terminals B2 and B3 are not short-circuited. Do not short-circuit these terminals.

Main Circuit Power Supply Connector * Accessory

Terminal name	Function	Details
L1	Main circuit power supply	Connect the main circuit power supply. Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2 Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2, L3
L2		
L3		
L1C	Control power supply	Connect the control power supply. Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1C, L2C
L2C		
B1(⊕)	External regenerative resistor connection terminal	When the regenerative resistor is required, connect it between terminals B1(⊕) and B2.
B2		
⊖1	Main circuit negative terminal	⊖1 and ⊖2 are connected at shipment.
⊖2		

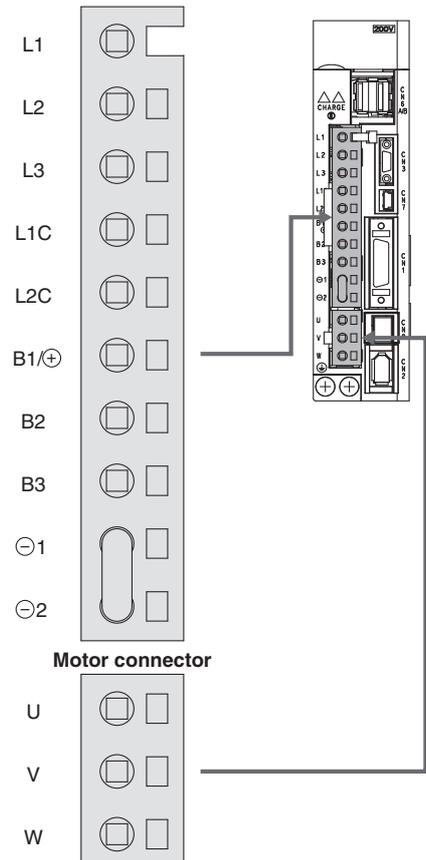
Motor Connector * Accessory

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)	

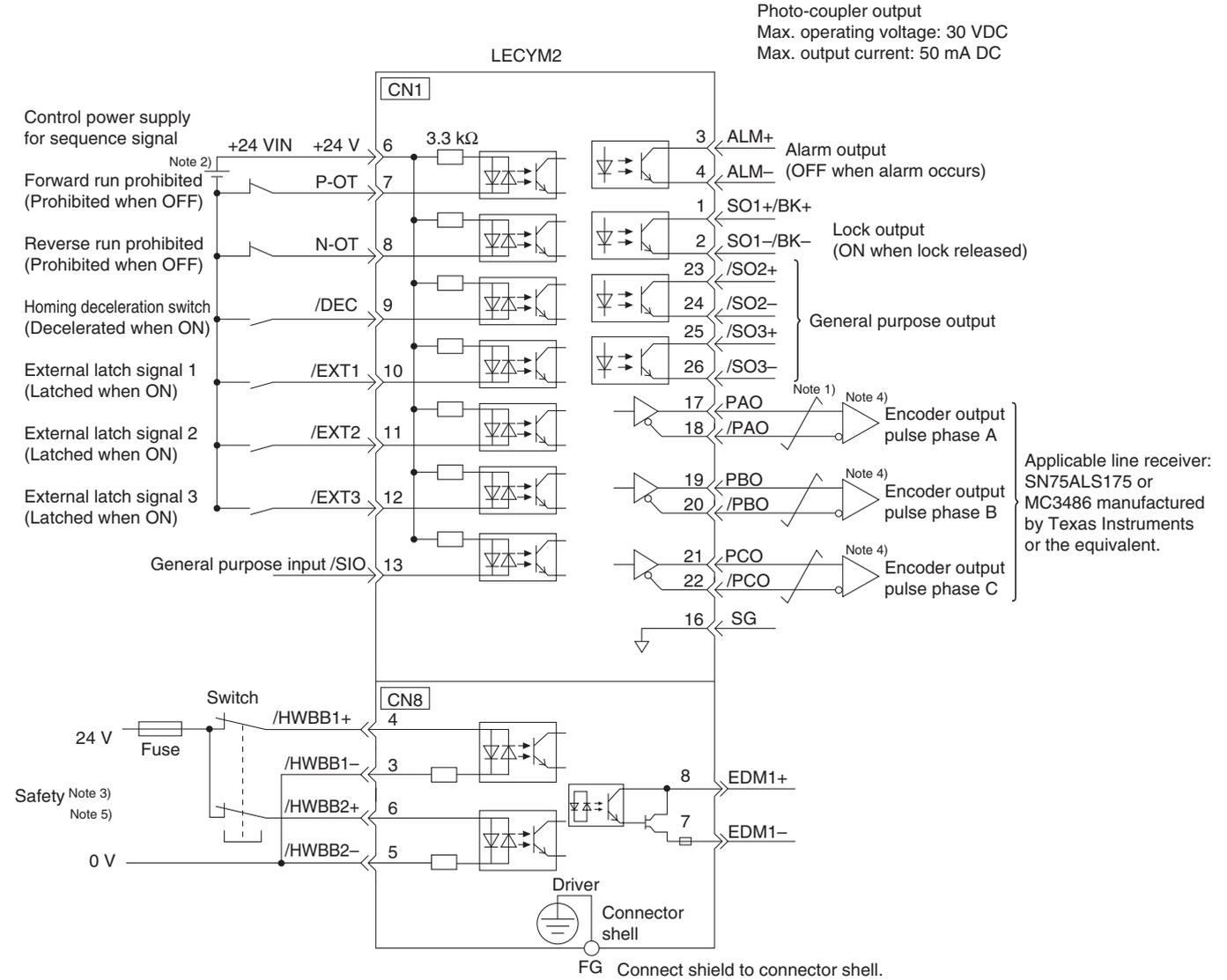
Power Supply Wire Specifications

Item	Specifications
Applicable wire size	L1, L2, L3, L1C, L2C Single wire, Twisted wire, AWG14 (2.0 mm ²)
Stripped wire length	8 to 9 mm

Main circuit power supply connector



Control Signal Wiring Example: LECYM



Note 1) $\overline{\text{---}}$ shows twisted-pair wires.

Note 2) The 24 VDC power supply is not included. Use a 24 VDC power supply with double insulation or reinforced insulation.

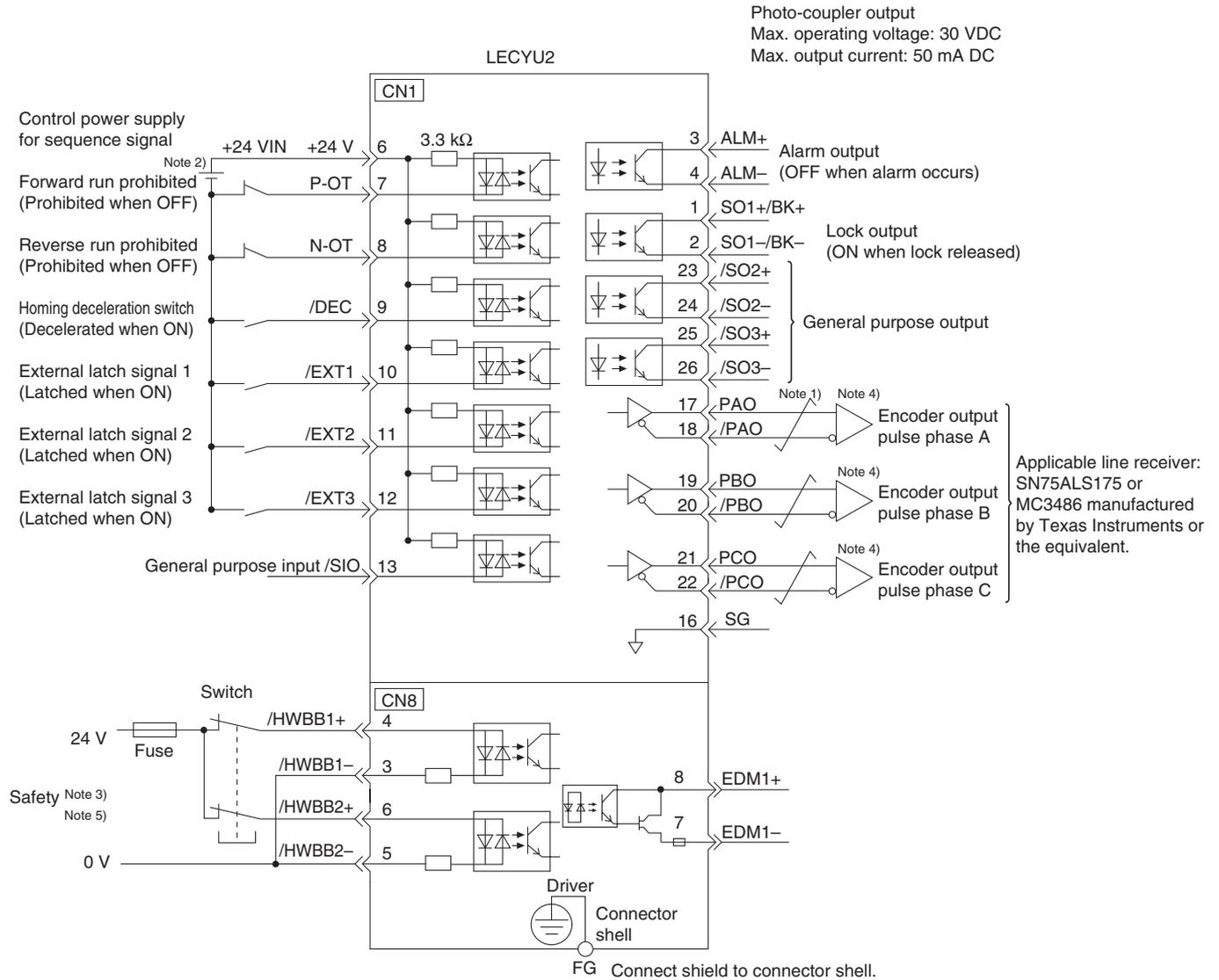
Note 3) When using the safety function, a safety function device must be connected to the wiring that is necessary to activate the safety function. Otherwise, the servo motor is not turned ON. When not using the safety function, use the driver with the Safety Jumper Connector (provided as an accessory) inserted into the CN8.

Note 4) Always use line receivers to receive the output signals.

* The functions allocated to the input signals /DEC, P-OT, N-OT, /EXT1, /EXT2 and /EXT3, and the output signals /SO1, /SO2 and /SO3 can be changed by setting the parameters.

Note 5) Compatible with the HWBB function (STO function (IEC61800-5-2)).

Control Signal Wiring Example: LECYU



Note 1) $\overline{\text{---}}$ shows twisted-pair wires.

Note 2) The 24 VDC power supply is not included. Use a 24 VDC power supply with double insulation or reinforced insulation.

Note 3) When using the safety function, a safety function device must be connected to the wiring that is necessary to activate the safety function. Otherwise, the servo motor is not turned ON. When not using the safety function, use the driver with the Safety Jumper Connector (provided as an accessory) inserted into the CN8.

Note 4) Always use line receivers to receive the output signals.

* The functions allocated to the input signals /DEC, P-OT, N-OT, /EXT1, /EXT2 and /EXT3, and the output signals /SO1, /SO2 and /SO3 can be changed by setting the parameters.

Note 5) Compatible with the HWBB function (STO function (IEC61800-5-2)).

Series **LECY^M** **U**

Options

Motor cable, Motor cable for lock option, Encoder cable (LECYM/LECYU common)

LE-CY M-S 5 A-5

Motor type

Y	AC servo motor
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Cable description

M	Motor cable
B	Motor cable for lock option
E	Encoder cable (With battery case)

Cable type

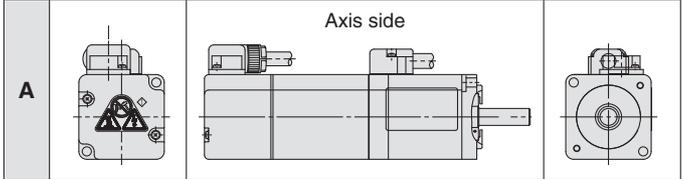
S	Standard cable
R	Robotic cable

Motor capacity

5	100 W
7	200/400 W

* For encoder cable, the suffix “-□” (Motor capacity) is not necessary.

Direction of connector

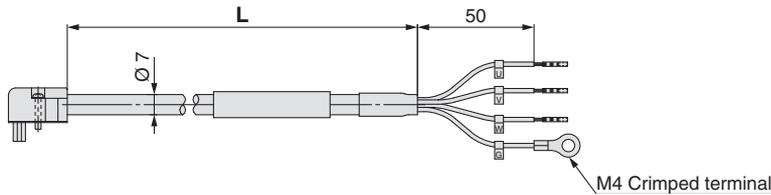


* The cable entry direction is axis side only.

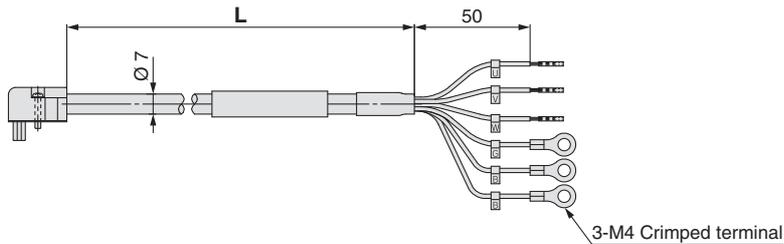
Cable length (L) [m]

3	3
5	5
A	10
C	20

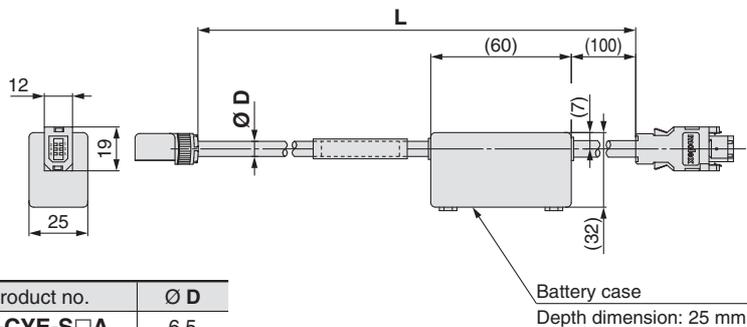
LE-CYM-□□A-□: Motor cable



LE-CYB-□□A-□: Motor cable for lock option



LE-CYE-□□A: Encoder cable

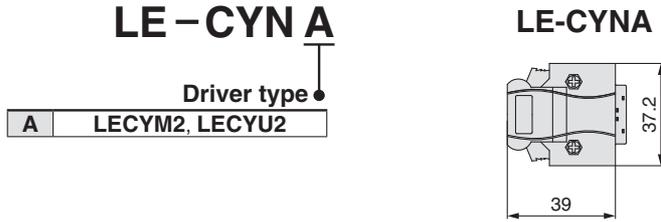


Product no.	Ø D
LE-CYE-S□A	6.5
LE-CYE-R□A	6.8

* LE-CYM-S□A-□ is JZSP-CSM0□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
 LE-CYB-S□A-□ is JZSP-CSM1□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
 LE-CYE-S□A is JZSP-CSP05-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
 LE-CYM-R□A-□ is JZSP-CSM2□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
 LE-CYB-R□A-□ is JZSP-CSM3□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
 LE-CYE-R□A is JZSP-CSP25-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

Options

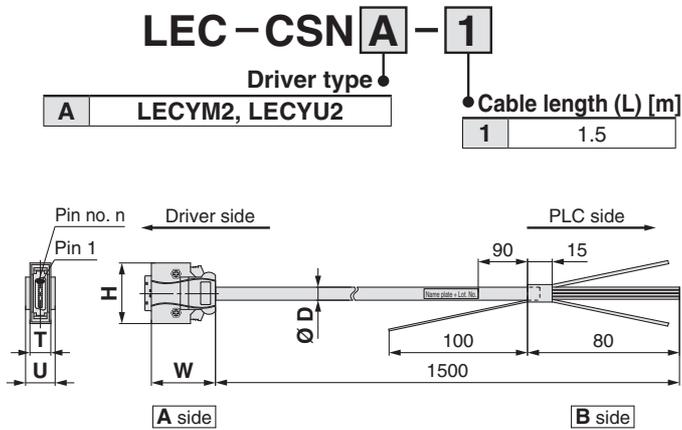
I/O connector



* LE-CYNA: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.

* Conductor size: AWG24 to 30.

I/O cable



* LEC-CSNA-1: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.

* Conductor size: AWG24

Wiring

LEC-CSNA-1: Pin no. 1 to 26

	Connector pin no.	Pair no. of wire	Insulation colour	Dot mark	Dot colour	Connector pin no.	Pair no. of wire	Insulation colour	Dot mark	Dot colour	Connector pin no.	Pair no. of wire	Insulation colour	Dot mark	Dot colour
	A side	1	1	Orange	■	Red	11	6	Orange	■ ■	Red	21	11	Orange	■ ■ ■ ■
2		1	Orange	■	Black	12	6	Orange	■ ■	Black	22	11	Orange	■ ■ ■ ■	Black
3		2	Light grey	■	Red	13	7	Light grey	■ ■ ■	Red	23	12	Light grey	■ ■ ■ ■	Red
4		2	Light grey	■	Black	14	7	Light grey	■ ■ ■	Black	24	12	Light grey	■ ■ ■ ■	Black
5		3	White	■	Red	15	8	White	■ ■ ■ ■	Red	25	13	White	■ ■ ■ ■	Red
6		3	White	■	Black	16	8	White	■ ■ ■ ■	Black	26	13	White	■ ■ ■ ■	Black
7		4	Yellow	■	Red	17	9	Yellow	■ ■ ■ ■	Red					
8		4	Yellow	■	Black	18	9	Yellow	■ ■ ■ ■	Black					
9		5	Pink	■	Red	19	10	Pink	■ ■ ■ ■	Red					
10		5	Pink	■	Black	20	10	Pink	■ ■ ■ ■	Black					

Cable O.D.

Product no.	Ø D
LEC-CSNA-1	11.1

Dimensions/Pin No.

Product no.	W	H	T	U	Pin no. n
LEC-CSNA-1	39	37.2	12.7	14	14

Series **LECY^M_U**

Options

MECHATROLINK cable type

LEC-CY **M** - **1**

Motor type

Y AC servo motor

Cable description

M MECHATROLINK-II cable
U MECHATROLINK-III cable

Cable length (L)

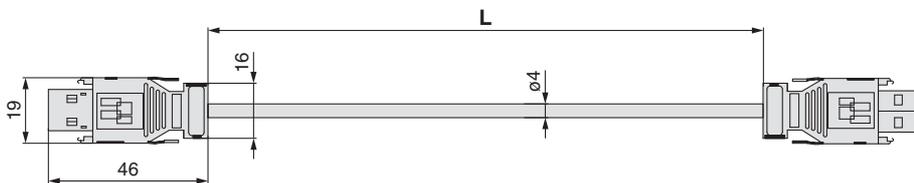
L*	0.2 m
J	0.5 m
1	1 m
3	3 m

* Not available for the MECHATROLINK-II cable.

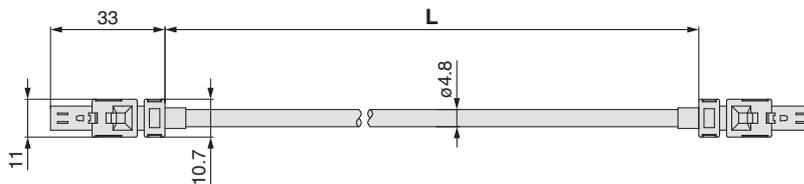
* LEC-CYM-□ is JEPMC-W6002-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

* LEC-CYU-□ is JEPMC-W6012-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

MECHATROLINK-II cable



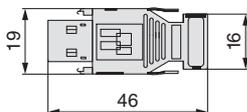
MECHATROLINK-III cable



Terminating connector for MECHATROLINK-II

LEC-CYRM

* LEC-CYRM is JEPMC-W6022-E manufactured by YASKAWA CONTROLS CO., LTD.



Options



LECYM2 LECYU2
Drivers



USB cable



PC

Setup software (SigmaWin+™) (LECYM/LECYU common)

* Please download the SigmaWin+™ via our website.
SigmaWin+™ is a registered trademark or trademark of YASKAWA Electric Corporation.

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

Compatible PC

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

Hardware Requirements

Equipment		Setup software (SigmaWin+™)
Note 1) 2) 3) 4) PC	OS	Windows® XP ^{Note 5)} , Windows Vista®, Windows® 7 (32-bit/64-bit)
	Available HD space	350 MB or more (When the software is installed, 400 MB or more is recommended.)
	Communication interface	Use USB port.
Display	XVGA monitor (1024 x 768 or more, "The small font is used.") 256 colour or more (65536 colour or more is recommended.) 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-JZ-CVUSB ^{Note 6)}	
Other	Adobe Reader Ver. 5.0 or higher (* Except Ver. 6.0)	

Note 1) Windows, Windows Vista®, Windows® 7 are registered trademarks of Microsoft Corporation in the United States and/or other countries.

Note 2) On some PCs, this software may not run properly.

Note 3) Not compatible with 64-bit Windows® XP and 64-bit Windows Vista®.

Note 4) For Windows® XP, please use it by the administrator authority (When installing and using it.).

Note 5) In PC that uses the program to correct the problem of HotfixQ328310, it is likely to fail in the installation. In that case, please use the program to correct the problem of HotfixQ329623.

Note 6) Order USB cable separately.

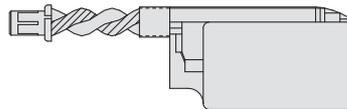
Battery (LECYM/LECYU common)

LEC-JZ-CVBAT

* JZSP-BA01 manufactured by YASKAWA CONTROLS CO., LTD.

Battery for replacement.

Absolute position data is maintained by installing the battery to the battery case of the encoder cable.



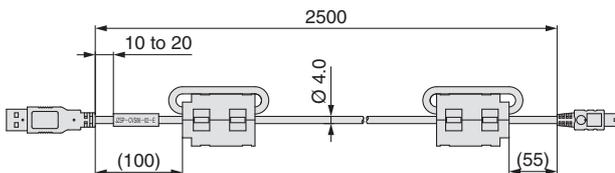
USB cable (2.5 m)

LEC-JZ-CVUSB

* JZSP-CVS06-02-E manufactured by YASKAWA CONTROLS CO., LTD.

Cable for connecting PC and driver when using the setup software (SigmaWin+™).

Do not use any cable other than this cable.



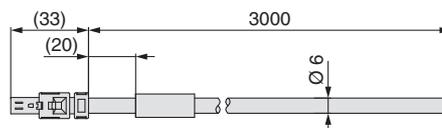
Cable for safety function device (3 m)

LEC-JZ-CVSAF

* JZSP-CVH03-03-E manufactured by YASKAWA CONTROLS CO., LTD.

Cable for connecting the driver and device when using the safety function.

Do not use any cable other than this cable.





Series **LECYM/LECYU** AC Servo Motor Driver/ Specific Product Precautions 1

Be sure to read this before handling. For Safety Instructions and Electric Actuator Precautions, refer to “Handling Precautions for SMC Products” and the Operation Manual on SMC website, <http://www.smc.eu>

Design/Selection

Warning

1. Use the specified voltage.

If the applied voltage is higher than the specified voltage, malfunction and damage to the driver 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 before 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 energised 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.



Series **LECYM/LECYU** AC Servo Motor Driver/ Specific Product Precautions 2

Be sure to read this before handling. For Safety Instructions and Electric Actuator Precautions, refer to “Handling Precautions for SMC Products” and the Operation Manual on SMC website, <http://www.smc.eu>

Power Supply

⚠ Caution

1. Use a power supply with low noise between lines and between power and ground.
In cases where noise is high, use an isolation transformer.
2. Take appropriate measures to prevent surges from lightning. Ground the surge absorber for lightning separately from the grounding of the driver and its peripheral devices.

Wiring

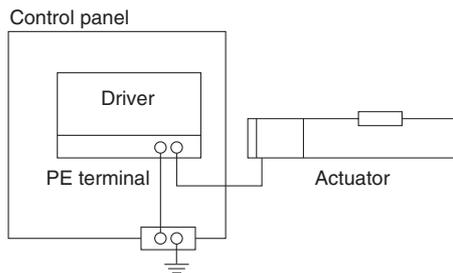
⚠ Warning

1. The driver will be damaged if a commercial power supply (100V/200V) is added to the driver's servo motor power (U, V, W). Be sure to check wiring such as wiring mistakes when the power supply is turned on.
2. Connect the ends of the U, V, W wires from the motor cable correctly to the phases (U, V, W) of the servo motor power. If these wires do not match up, it is unable to control the servo motor.

Grounding

⚠ Warning

1. For grounding actuator, connect the copper wire of the actuator to the driver's protective earth (PE) terminal and connect the copper wire of the driver to the earth via the control panel's protective earth (PE) terminal. Do not connect them directly to the control panel's protective earth (PE) terminal.



2. In the unlikely event that malfunction is caused by the ground, it may be disconnected.

Maintenance

⚠ Warning

1. Perform maintenance checks periodically.
Confirm wiring and screws are not loose.
Loose screws or wires may cause unexpected malfunction.
2. Conduct an appropriate functional inspection and test after completed maintenance.
In case of any abnormalities (if the actuator does not move or the equipment does not operate properly etc.), stop the operation of the system.
Otherwise, unexpected malfunction may occur and safety cannot be assured.
Conduct a test of the emergency stop to confirm the safety of the equipment.
3. Do not disassemble, modify or repair the driver or its peripheral devices.
4. Do not put anything conductive or flammable inside the driver.
Otherwise, fire can result.
5. Do not conduct an insulation resistance test or insulation withstand voltage test.
6. Reserve sufficient space for maintenance.
Design the system so that it allows required space for maintenance.

Safety Instructions

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

-  **Caution:** Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
-  **Warning:** Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
-  **Danger:** Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

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

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

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

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

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

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

*2) Vacuum pads are excluded from this 1 year warranty.

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

Compliance Requirements

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

Caution

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.

Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country.

Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

Safety Instructions

Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

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