

Electric Rotary Table



Step Motor (Servo/24 VDC)



Low profile



Basic type [mm]

Model	H
LER10	42
LER30	53
LER50	68

High precision type [mm]

Model	H
LERH10	49
LERH30	62
LERH50	78

Continuous rotation specification

● Rotation angle: 360°



● **Shock-less/High speed actuation**

Max. speed: 420°/sec (7.33 rad/sec)

Max. acceleration/deceleration: 3000°/sec² (52.36 rad/sec²)

● **Positioning repeatability: ±0.03°** (High precision type)

Repeatability at the end: ±0.01° (Pushing control/With external stopper)

● **Rotation angle**

360°, 320° (310°), 180°, 90°

The value indicated in brackets shows the value for the LER10.

● **Possible to set speed, acceleration/deceleration, and position. Max. 64 points**

● **Energy-saving product**

Automatic 40 % power reduction after the table has stopped.

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

* Value when an external stopper is mounted.

Step Motor (Servo/24 VDC)

Controller/Driver

▶ Step data input type
Series LECP6

▶ Step data input type
Series JXC73/83

▶ Programless type
Series LECP1

▶ Pulse input type
Series LECPA

▶ Fieldbus compatible Network
Series JXC□1
Series JXC92/93



Series LER

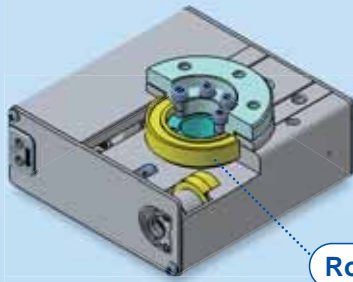


CAT.EUS100-94Ccc-UK

Electric Rotary Table

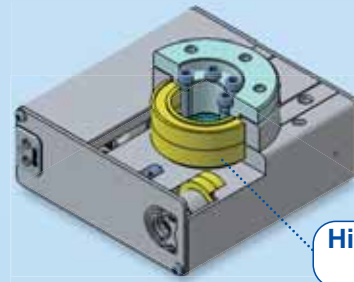
Basic and high precision types are available.

Basic type/LER



Rolling bearing

High precision type/LERH



High precision bearing

The movement in the table's radial thrust direction is reduced.

Rotation angle

360°, 320° (310°), 180°, 90°
The value indicated in brackets shows the value for the LER10.

Built-in step motor (Servo/24 VDC)

Space-saving

High torque

Output is 30 times with special worm gear. Special worm gear with reduced backlash is used.

Maximum rotation torque can be selected.

Belt deceleration ratio can be selected.

Model	Basic	High torque
LER10	0.22	0.32
LER30	0.8	1.2
LER50	6.6	10.0

[N·m]

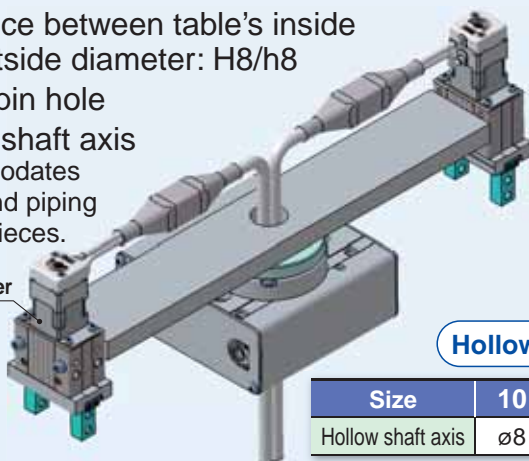
Manual override screw (Both sides)

Possible to rotate the table with power OFF by manual override.

Easy Mounting of Workpieces

- Tolerance between table's inside and outside diameter: H8/h8
- Dowel pin hole
- Hollow shaft axis
Accommodates wiring and piping of workpieces.

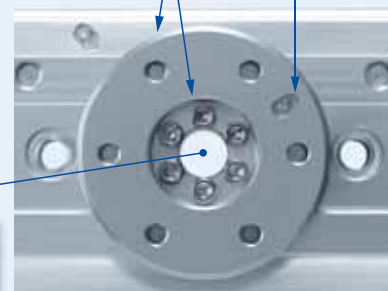
Electric gripper
Series LEH



For alignment of rotation centre and workpiece

Dowel pin hole

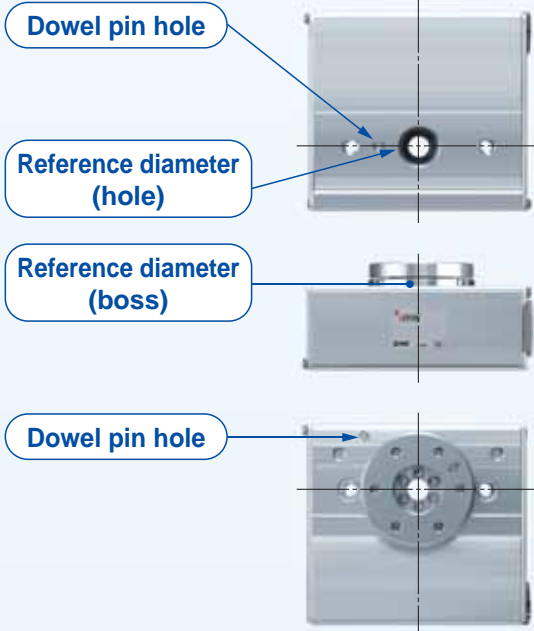
Positioning of rotating direction



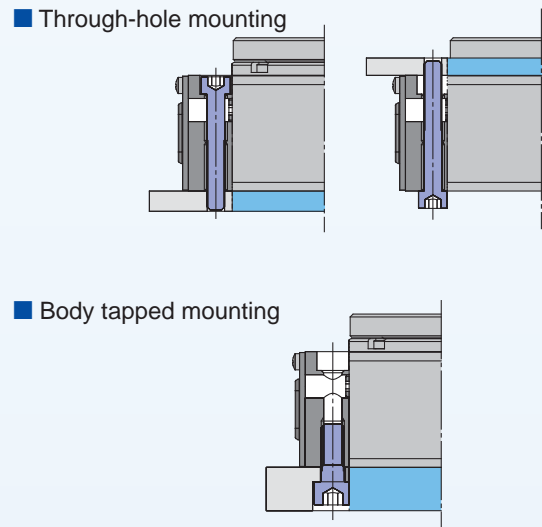
Hollow shaft axis

Size	10	30	50
Hollow shaft axis	ø8	ø17	ø20

Easy Mounting of the Main Body

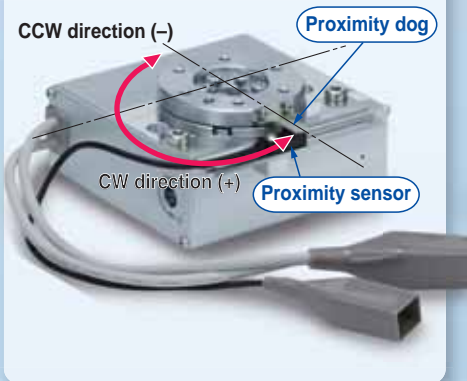


Mounting Variations



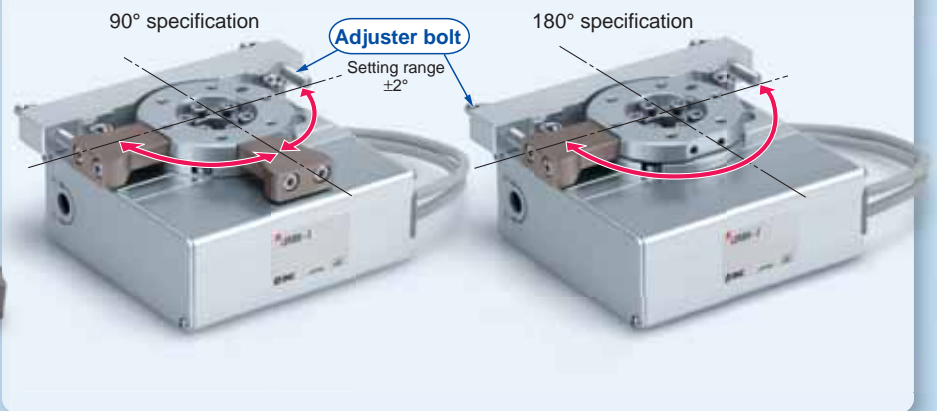
Continuous Rotation Specification

Rotation angle: 360°
Return to origin with proximity sensor



With External Stopper/Rotation Angle: 90°/180° Specification

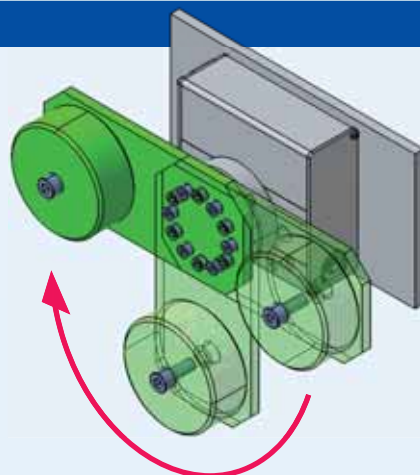
Repeatability at the end: $\pm 0.01^\circ$



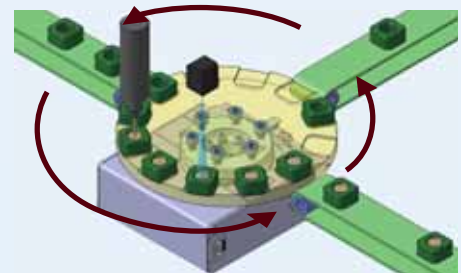
Application Examples



Rotation transfer after gripping in combination with a gripper



Vertical transfer: No change in speed due to load fluctuation



Continuous operation of multiple processes with 360° continuous rotation



Simple Setting to Use Straight Away

◎ Easy Mode for Simple Setting

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

Step motor
(Servo/24 VDC)
LECP6

<When a PC is used> Controller setting software

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

Setting of jog and speed of the constant rate

Move jog

Start testing

Step data setting

Move for the constant rate

<When a TB (teaching box) is used>

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



Example of setting the step data

1st screen

2nd screen

Step Axis 1

Step No.	0
Posn	123.45 mm
Speed	100 mm/s

It can be registered by “SET” after entering the values.

Example of checking the operation status

1st screen

2nd screen

Monitor	Axis 1
Step No.	1
Posn	12.34 mm
Speed	10 mm/s

Operation status can be checked.

Teaching box screen

- Data can be set with position and speed. (Other conditions are already set.)

Step	Axis 1
Step No.	0
Posn	50.00 mm
Speed	200 mm/s



Step	Axis 1
Step No.	1
Posn	80.00 mm
Speed	100 mm/s

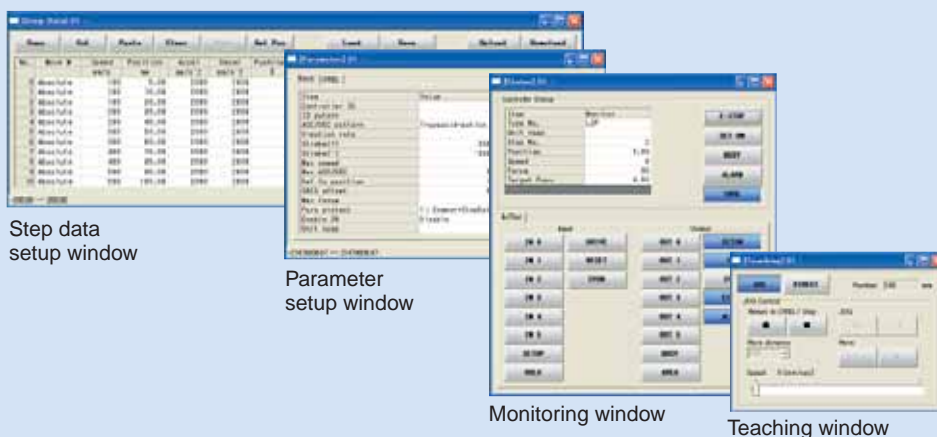
⊙ Normal Mode for Detailed Setting

Select normal mode when detailed setting is required.

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

<When a PC is used> Controller setting software

- Step data setting, parameter setting, monitor, teaching, etc., are indicated in different windows.

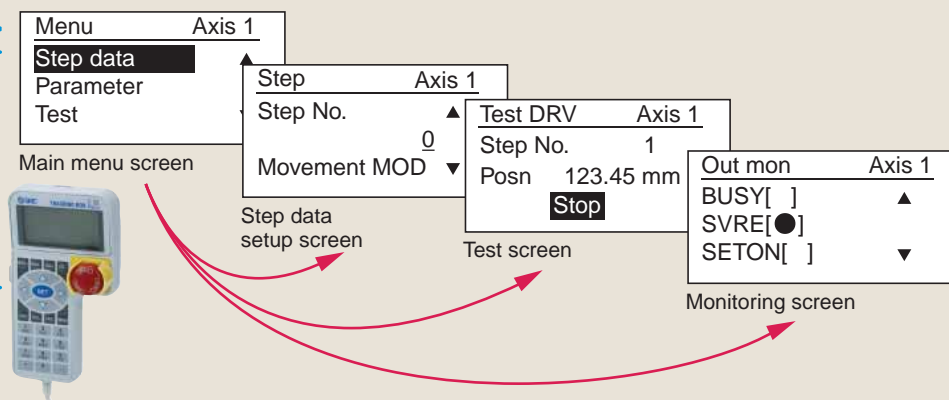


<When a TB (teaching box) is used>

- Multiple step data can be stored in the teaching box, and transferred to the controller.
- Continuous test operation by up to 5 step data.

Teaching box screen

- Each function (step data setting, test, monitor, etc.) can be selected from the main menu.

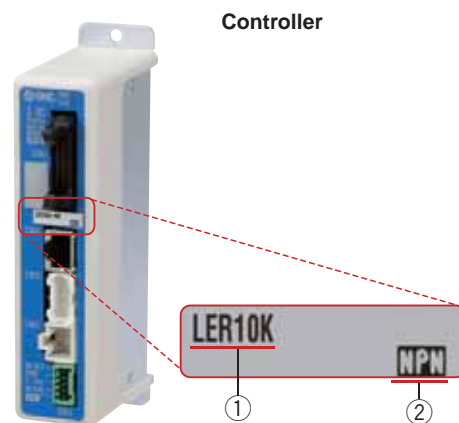


The actuator and controller are provided as a set. (They can be ordered separately.)

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

<Check the following before use.>

- ① Check the actuator label for model number. This matches the controller.
- ② Check Parallel I/O configuration matches (NPN or PNP).



Fieldbus Network

Fieldbus-compatible Gateway (GW) Unit Series LEC-G



- Conversion unit for Fieldbus network and LEC serial communication

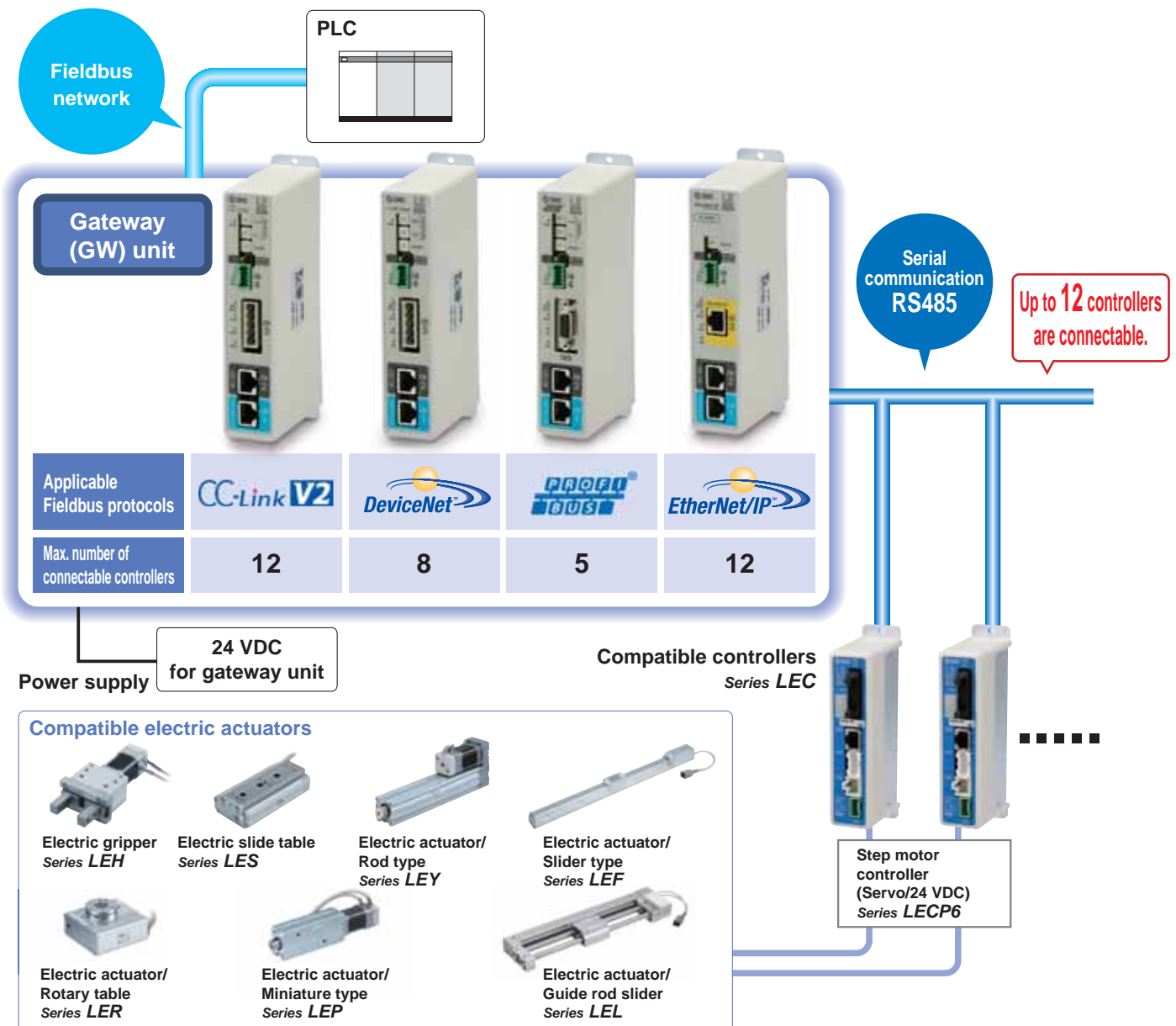
Applicable Fieldbus protocols:

- Two methods of operation

Step data input: Operate using preset step data in the controller.

Numerical data input: The actuator operates using values such as position and speed from the PLC.

- Values such as position, speed can be checked on the PLC.



Programless Type *Series LECP1*

No Programming

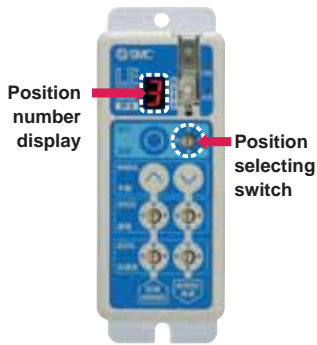
Capable of setting up an electric actuator operation without using a PC or teaching box



Step motor
(Servo/24 VDC)
LECP1

1 Setting position number

Setting a registered number for the stop position
Maximum 14 points



2 Setting a stop position

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

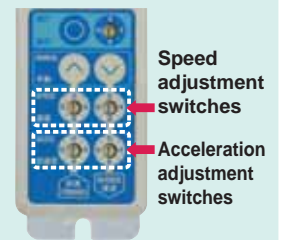


3 Registration

Registering the stop position using SET button

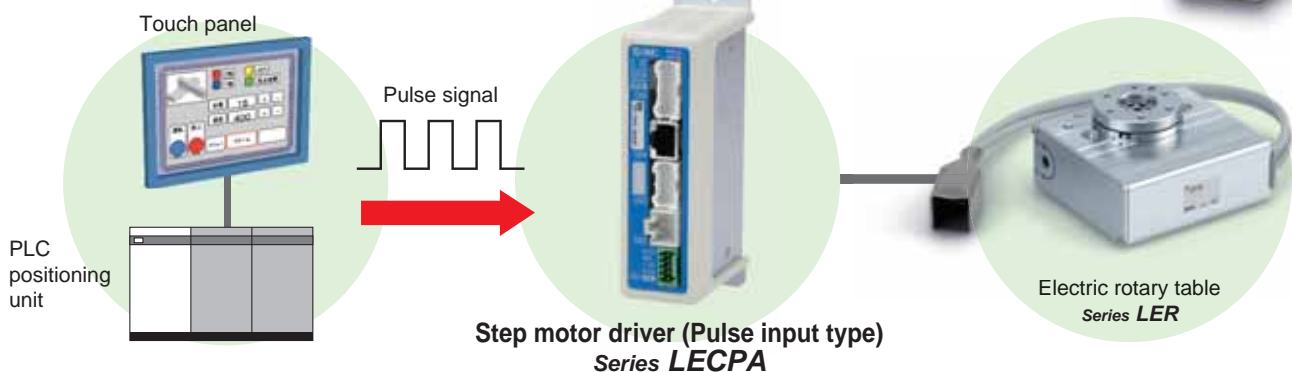


Speed/Acceleration 16-level adjustment



Pulse Input Type *Series LECPA*

- A driver that uses pulse signals to allow positioning at any position. The actuator can be controlled from the customers' positioning unit.



- **Return-to-origin command signal**
Enables automatic return-to-origin action.
- **With force limit function (Pushing force/Gripping force operation available)**
Pushing force/Positioning operation possible by switching signals.

Function

Item	Step data input type LECP6	Programless type LECP1	Pulse input type LECPA
Step data and parameter setting	<ul style="list-style-type: none"> Input from controller setting software (PC) Input from teaching box 	<ul style="list-style-type: none"> Select using controller operation buttons 	<ul style="list-style-type: none"> Input from controller setting software (PC) Input from teaching box
Step data "position" setting	<ul style="list-style-type: none"> Input the numerical value from controller setting software (PC) or teaching box Input the numerical value Direct teaching JOG teaching 	<ul style="list-style-type: none"> Direct teaching JOG teaching 	<ul style="list-style-type: none"> No "Position" setting required Position and speed set by pulse signal
Number of step data	64 points	14 points	—
Operation command (I/O signal)	Step No. [IN*] input ⇒ [DRIVE] input	Step No. [IN*] input only	Pulse signal
Completion signal	[INP] output	[OUT*] output	[INP] output

Setting Items

TB: Teaching box PC: Controller setting software

Item	Contents	Easy mode		Normal mode	Step data input type LECP6	Pulse input type LECPA	Programless type LECP1*	
		TB	PC	TB·PC				
Step data setting (Excerpt)	Movement MOD	Selection of "absolute position" and "relative position"		△ ● ●	Set at ABS/INC	No setting required	Fixed value (ABS)	
	Speed	Transfer speed		● ● ●	Set in units of 1 mm/s		Select from 16-level	
	Position	[Position]: Target position [Pushing]: Pushing start position		● ● ●	Set in units of 0.01 mm		Direct teaching JOG teaching	
	Acceleration/Deceleration	Acceleration/deceleration during movement		● ● ●	Set in units of 1 mm/s ²		Select from 16-level	
	Pushing force	Rate of force during pushing operation		● ● ●	Set in units of 1 %		Set in units of 1 %	Select from 3-level (weak, medium, strong)
	Trigger LV	Target force during pushing operation		△ ● ●	Set in units of 1 %		Set in units of 1 %	No setting required (same value as pushing force)
	Pushing speed	Speed during pushing operation		△ ● ●	Set in units of 1 mm/s		Set in units of 1 mm/s	No setting required
	Moving force	Force during positioning operation		△ ● ●	Set to 100 %		Set to (Different values for each actuator) %	
	Area output	Conditions for area output signal to turn ON		△ ● ●	Set in units of 0.01 mm		Set in units of 0.01 mm	
In position	[Position]: Width to the target position [Pushing]: How much it moves during pushing		△ ● ●	Set to 0.5 mm or more (Units: 0.01 mm)	Set to (Different values for each actuator) or more (Units: 0.01 mm)			
Parameter setting (Excerpt)	Stroke (+)	+ side limit of position		× × ●	Set in units of 0.01 mm	Set in units of 0.01 mm	Compatible	
	Stroke (-)	- side limit of position		× × ●	Set in units of 0.01 mm	Set in units of 0.01 mm		
	ORIG direction	Direction of the return to origin can be set.		× × ●	Compatible	Compatible	No setting required	
	ORIG speed	Speed during return to origin		× × ●	Set in units of 1 mm/s	Set in units of 1 mm/s		
	ORIG ACC	Acceleration during return to origin		× × ●	Set in units of 1 mm/s ²	Set in units of 1 mm/s		
Test	JOG			● ● ●	Continuous operation at the set speed can be tested while the switch is being pressed.	Continuous operation at the set speed can be tested while the switch is being pressed.	Hold down MANUAL button (⊙) for uniform sending (speed is specified value)	
	MOVE			× ● ●	Operation at the set distance and speed from the current position can be tested.	Operation at the set distance and speed from the current position can be tested.	Press MANUAL button (⊙) once for sizing operation (speed, sizing amount are specified values)	
	Return to ORIG			● ● ●	Compatible	Compatible	Compatible	
	Test drive	Operation of the specified step data		● ● ● (Continuous operation)	Compatible	Not compatible	Compatible	
	Forced output	ON/OFF of the output terminal can be tested.		× × ●	Compatible	Compatible	Not compatible	
Monitor	DRV mon	Current position, speed, force and the specified step data can be monitored.		● ● ●	Compatible	Compatible		
	In/Out mon	Current ON/OFF status of the input and output terminal can be monitored.		× × ●	Compatible	Compatible		
ALM	Status	Alarm currently being generated can be confirmed.		● ● ●	Compatible	Compatible	Compatible (display alarm group)	
	ALM Log record	Alarm generated in the past can be confirmed.		× × ●	Compatible	Compatible		
File	Save/Load	Step data and parameter can be saved, forwarded and deleted.		× × ●	Compatible	Compatible	Not compatible	
Other	Language	Can be changed to Japanese or English.		● ● ●	Compatible	Compatible		

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

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

System Construction/General Purpose I/O

● Electric Rotary Table



Programless type Page 36
LECP1

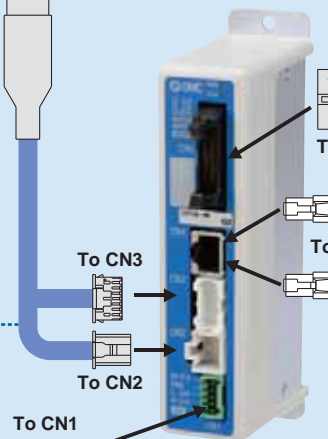
Note) The teaching box, controller setting kit and Touch Operator Interface cannot be connected.

● Power supply for controller 24 VDC (Note)
Note) When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

● Actuator cable* Pages 28, 41

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

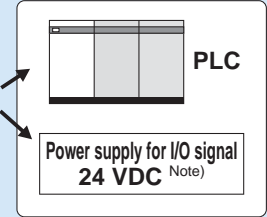
● Controller* Page 22



Step data input type LECP6 Page 22

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

Provided by customer



● I/O cable Pages 29, 42

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

● Touch Operator Interface (Provided by customer)

GP4501T/GP3500T

Manufactured by Digital Electronics Corp.

Pro-face
for the best interface



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

GOT2000 Series

Mitsubishi Electric Corporation

GOT2000
Graphic Operation Terminal



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

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

Options

● Teaching box Page 31

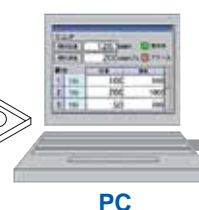
(With 3 m cable)
LEC-T1-3EG□



● Controller setting kit Page 30

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

Or



PC

Communication cable (3 m)

● USB cable (A-mini B type) (0.3 m)

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

System Construction/Pulse Signal

● **Electric Rotary Table**

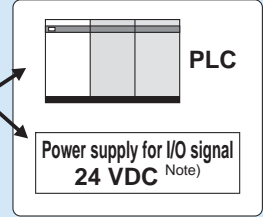


Page 49

● **Current limit resistor**
LEC-PA-R-□

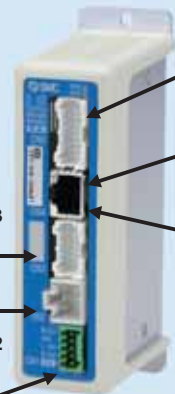
* The current limit resistor is used when the pulse signal output of the positioning unit is open collector output. For details, refer to page 49.

Provided by customer



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

● **Driver*** Page 43



● **I/O cable** Page 49

Driver type	Part no.
LECPA	LEC-CL5-□

Provided by customer

Power supply for driver
24 VDC Note)

Note) When conformity to UL is required, the electric actuator and driver should be used with a UL 1310 Class 2 power supply.

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

● **Actuator cable*** Page 48

Driver type	Standard cable	Robotic cable
LECPA (Pulse input type)	LE-CP-□-S	LE-CP-□

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

Options

● **Teaching box** Page 51

(With 3 m cable)
LEC-T1-3EG□



● **Controller setting software** Page 50

Communication cable (With conversion unit) and USB cable are included.
LEC-W2



Communication cable ●

Or



PC

● **USB cable**
(A-mini B type)

System Construction/Fieldbus Network

Options

● **Controller setting software** Page 30
(Communication cable and USB cable are included.)
LEC-W2



● **Communication cable**
● **USB cable** (A-mini B type)
● **PC** (Provided by customer)



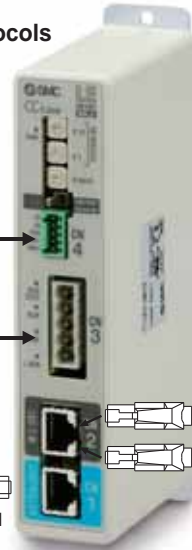
Or

● **Teaching box** Page 31
(With 3 m cable)
LEC-T1-3JG



Gateway (GW) unit Page 33

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



- **Power supply connector** (Accessory)
To CN4
- **Communication connector** (Accessory)*
* CC-Link Ver. 2.0
DeviceNet™
To CN3
- To CN1
- To CN2

PLC (Provided by customer)

Power supply for gateway unit 24 VDC (Note 1)

Power supply

Fieldbus network

Page 33

● **Communication cable**
LEC-CG1

Page 33

● **Cable between branches**
LEC-CG2

● **Branch connector** Page 33
LEC-CGD

● **Terminating resistor connector 120 Ω**
LEC-CGR

● **Communication cable** Page 33
LEC-CG1

● **Controller** Page 22

● **Controller** Page 22

To CN4

● **Power supply connector** (Accessory)
To CN1

Controller input power supply (Note 1)

Controller input power supply (Note 1)

● **Electric Rotary Table**



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

Compatible Controller

Step motor controller (Servo/24 VDC)	Series LECP6
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Note 1) Connect the 0 V terminals for both the controller input power supply and gateway unit power supply.
When conformity to UL is required, the electric actuator and controller should be used with a UL 1 3 1 0 Class 2 power supply.

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



Series LEHZ

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

2-finger type
With dust cover
Series LEHZJ



Series LEHZJ

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

2-finger type
Long stroke
Series LEHF



Series LEHF

Size	Max. gripping force [N]	Stroke/both sides [mm]	
		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



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



4-Axis Controller

Step Data Input Type

Series **JXC73/83**



Step Motor (Servo/24 VDC)

Programless Type

Series **LECP1**

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



Programless Type (With Stroke Study)

Series **LECP2**

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



Specialized for Series LEM

Step Motor (Servo/24 VDC)

Pulse Input Type

Series **LECPA**



Fieldbus-compatible Network Controller/Gateway Unit

Series **JXC□1**

EtherCAT
DeviceNet
EtherNet/IP
IO-Link



Series **JXC92**

EtherNet/IP



Series **JXC93**

EtherNet/IP



Series **LEC-G**

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 **LECS**

CC-Link



SSCNET III Type

Series **LECSS**

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



Series Variations

Electric Rotary Table *Series LER*



Type	Rotating torque [N·m]		Max. speed [°/s]		Positioning repeatability [°]		Controller /Driver series	Reference page
	Basic	High torque	Basic	High torque	Basic	High torque		
LER10	0.22	0.32	420	280	±0.05 (End: ±0.01)*		Series LECP6	Page 1
LER30	0.8 (0.8)	1.2 (1.2)					Series LECP1	
LER50	6.6 (6.6)	10 (10)					Series LECPA	

* Value when an external stopper is mounted.

Controller/Driver *LEC*



LEC6



LEC1



LECPA

Type	Series	Compatible motor	Power supply voltage	Parallel I/O		Number of positioning pattern points	Reference page
				Input	Output		
Step data input type	LECP6	Step motor (Servo/24 VDC)	24 VDC ±10 %	11 inputs (Photo-coupler isolation)	13 outputs (Photo-coupler isolation)	64	Page 22
Programless type	LECP1	Step motor (Servo/24 VDC)	24 VDC ±10 %	6 inputs (Photo-coupler isolation)	6 outputs (Photo-coupler isolation)	14	Page 36
Pulse input type	LECPA	Step motor (Servo/24 VDC)	24 VDC ±10 %	5 inputs (Photo-coupler isolation)	9 outputs (Photo-coupler isolation)	—	Page 43

INDEX

Model Selection

Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

JXC□1

JXC73/83/92/93

Specific Product Precautions

Step Motor (Servo/24 VDC) Type

◎ Electric Rotary Table Series LER



Model Selection	Page 1
How to Order	Page 7
Specifications	Page 8
Construction	Page 9
Dimensions	Page 10

◎ Continuous Rotation Specification Electric Rotary Table Series LER



How to Order	Page 13
Specifications	Page 14
Construction	Page 15
Dimensions	Page 16
Specific Product Precautions	Page 19

◎ Step Motor (Servo/24 VDC) Controller/Driver



Step Data Input Type/Series LECP6	Page 22
Controller Setting Kit/ LEC-W2	Page 30
Teaching Box/ LEC-T1	Page 31
Gateway Unit/Series LEC-G	Page 33
Programless Controller/Series LECP1	Page 36
Step Motor Driver/Series LECPA	Page 43
Controller Setting Kit/ LEC-W2	Page 50
Teaching Box/ LEC-T1	Page 51
Direct Input Type Controller/Series JXC□1	Page 54
Multi-Axis Step Motor Controller/Series JXC73/83/92/93	Page 64

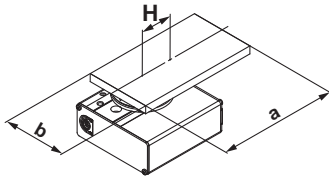
Electric Rotary Table Series LER Model Selection

Step Motor (Servo/24 VDC)



Selection Procedure

Operating conditions



Electric rotary table: LER30J
 Mounting position: Horizontal
 Load type: Inertial load T_a
 Configuration of load: 150 mm x 80 mm
 (Rectangular plate)
 Rotation angle θ : 180°

Angular acceleration/
 angular deceleration $\dot{\omega}$: 1,000°/sec²
 Angular speed ω : 420°/sec
 Load weight (m): 2.0 kg
 Distance between shaft and centre
 of gravity H: 40 mm

Step1 Moment of inertia—Angular acceleration/deceleration

① Calculation of moment of inertia

Formula

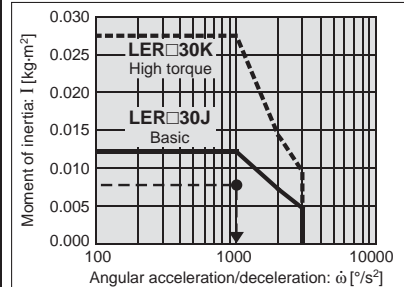
$$I = m \times (a^2 + b^2)/12 + m \times H^2$$

② **Moment of inertia—Check the angular acceleration/deceleration**
 Select the target model based on the moment of inertia and angular acceleration and deceleration with reference to the (Moment of Inertia—Angular Acceleration/Deceleration graph).

Selection example

$$I = 2.0 \times (0.15^2 + 0.08^2)/12 + 2.0 \times 0.04^2 = 0.00802 \text{ kg}\cdot\text{m}^2$$

LER30



Step2 Necessary torque

① Load type

- Static load: T_s
- Resistance load: T_f
- Inertial load: T_a

Formula

$$\begin{aligned} \text{Effective torque} &\geq T_s \\ \text{Effective torque} &\geq T_f \times 1.5 \\ \text{Effective torque} &\geq T_a \times 1.5 \end{aligned}$$

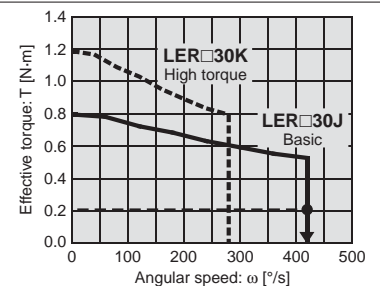
② Check the effective torque

Confirm whether it is possible to control the speed based on the effective torque corresponding with the angular speed with reference to the (Effective Torque—Angular Speed graph).

Selection example

$$\begin{aligned} \text{Inertial load: } T_a \\ T_a \times 1.5 &= I \times \dot{\omega} \times 2 \pi / 360 \times 1.5 \\ &= 0.00802 \times 1,000 \times 0.0175 \times 1.5 \\ &= 0.21 \text{ N}\cdot\text{m} \end{aligned}$$

LER30



Step3 Allowable load

① Check the allowable load

- Radial load
- Thrust load
- Moment

Formula

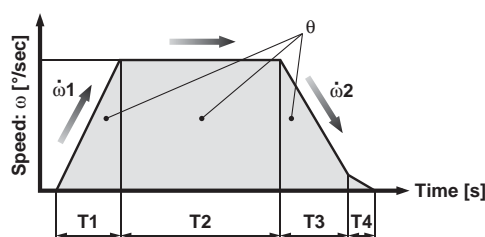
$$\begin{aligned} \text{Allowable thrust load} &\geq m \times 9.8 \\ \text{Allowable moment} &\geq m \times 9.8 \times H \end{aligned}$$

Selection example

- Thrust load
 $2.0 \times 9.8 = 19.6 \text{ N} < \text{Allowable load OK}$
- Allowable moment
 $2.0 \times 9.8 \times 0.04 = 0.784 \text{ N}\cdot\text{m} < \text{Allowable moment OK}$

Step4 Rotation time

① Calculation of cycle time (rotation time)



θ : Rotation angle [°]
 ω : Angular speed [°/sec]
 $\dot{\omega}1$: Angular acceleration [°/sec²]
 $\dot{\omega}2$: Angular deceleration [°/sec²]

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 constant speed operation to stop
 T4: Settling time [s]... Time until in position is completed

Formula

$$\begin{aligned} \text{Angular acceleration time } T1 &= \omega / \dot{\omega}1 \\ \text{Angular deceleration time } T3 &= \omega / \dot{\omega}2 \\ \text{Constant speed time } T2 &= \{\theta - 0.5 \times \omega \times (T1 + T3)\} / \omega \\ \text{Settling time } T4 &= 0.2 \text{ (sec)} \\ \text{Cycle time } T &= T1 + T2 + T3 + T4 \end{aligned}$$

Selection example

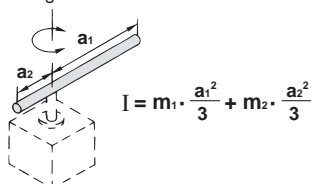
- Angular acceleration time $T1 = 420/1,000 = 0.42 \text{ sec}$
- Angular deceleration time $T3 = 420/1,000 = 0.42 \text{ sec}$
- Constant speed time
 $T2 = \{180 - 0.5 \times 420 \times (0.42 + 0.42)\} / 420 = 0.009 \text{ sec}$
- Cycle time
 $T = T1 + T2 + T3 + T4 = 0.42 + 0.009 + 0.42 + 0.2 = 1.049 \text{ (sec)}$

Formulas for Moment of Inertia (Calculation of moment of inertia I)

I: Moment of inertia [kg·m²] m: Load weight [kg]

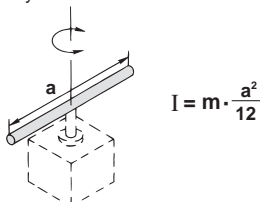
1. Thin bar

Position of rotation shaft: Perpendicular to a bar through one end



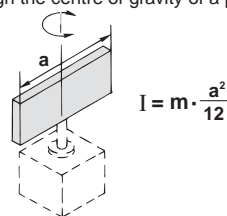
2. Thin bar

Position of rotation shaft: Passes through the centre of gravity of the bar.



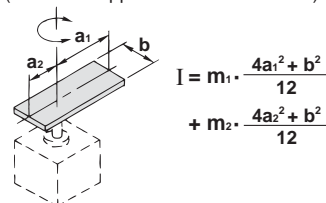
3. Thin rectangular plate (cuboid)

Position of rotation shaft: Passes through the centre of gravity of a plate.



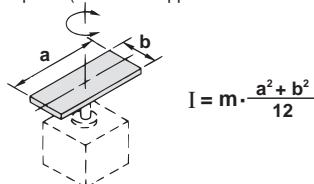
4. Thin rectangular plate (cuboid)

Position of rotation shaft: Perpendicular to the plate and passes through one end. (The same applies to thicker cuboids.)



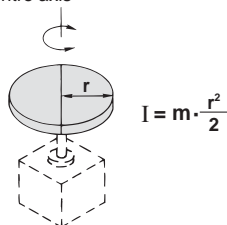
5. Thin rectangular plate (cuboid)

Position of the rotation shaft: Passes through the centre of gravity of the plate and perpendicular to the plate. (The same applies to thicker cuboids.)



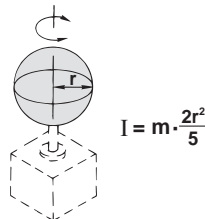
6. Cylindrical shape (including a thin disk)

Position of rotation shaft: Centre axis



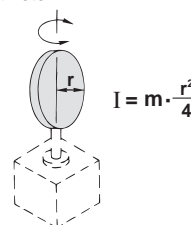
7. Sphere

Position of rotation shaft: Diameter

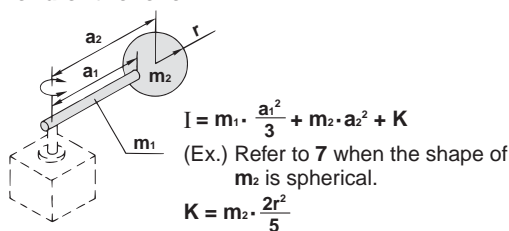


8. Thin disk (mounted vertically)

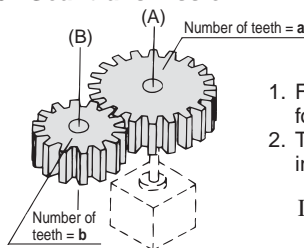
Position of rotation shaft: Diameter



9. When a load is mounted on the end of the lever



10. Gear transmission



1. Find the moment of inertia I_b for the rotation of shaft (B).
2. Then, replace the moment of inertia I_b around the shaft (A) by I_a ,

$$I_a = \left(\frac{a}{b}\right)^2 \cdot I_b$$

Load Type

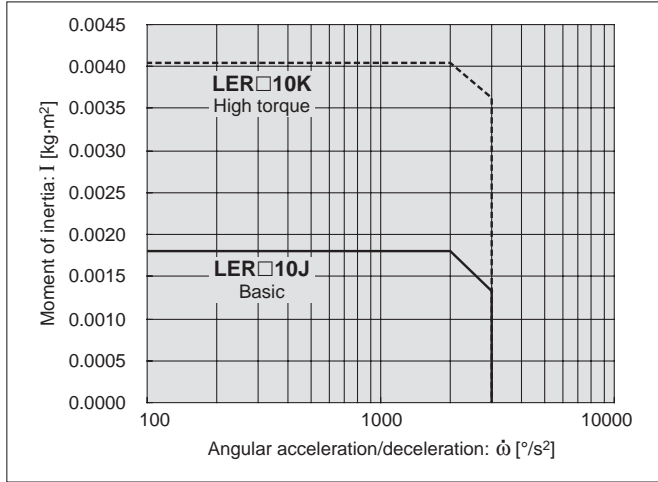
Load type		
Static load: Ts	Resistance load: Tf	Inertial load: Ta
Only pressing force is necessary. (e.g. for clamping)	Gravity or friction force is applied to rotating direction.	Rotate the load with inertia.
	Gravity is applied.	Centre of rotation and centre of gravity of the load are concentric.
Friction force is applied.	Rotation shaft is vertical (up and down).	
Ts = F · L Ts: Static load (N·m) F: Clamping force (N) L: Distance from the rotation centre to the clamping position (m)	Gravity is applied to rotating direction. Tf = m · g · L Tf: Resistance load (N·m) m: Load weight (kg) g: Gravitational acceleration 9.8 (m/s ²) L: Distance from the rotation centre to the point of application of the gravity or friction force (m) μ: Friction coefficient	Ta = I · ω̇ · 2 π / 360 (Ta = I · ω̇ · 0.0175) Ta: Inertial load (N·m) I: Moment of inertia (kg·m ²) ω̇: Angular acceleration/deceleration (°/sec ²) ω: Angular speed (°/sec)
Necessary torque: T = Ts	Necessary torque: T = Tf x 1.5 Note 1)	Necessary torque: T = Ta x 1.5 Note 1)
<ul style="list-style-type: none"> • Resistance load: Gravity or friction force is applied to rotating direction. Ex. 1) Rotation shaft is horizontal (lateral), and the rotation centre and the centre of gravity of the load are not concentric. Ex. 2) Load moves by sliding on the floor. * The total of resistance load and inertial load is the necessary torque. T = (Tf + Ta) x 1.5 	<ul style="list-style-type: none"> • Not resistance load: Neither gravity or friction force is applied to rotating direction. Ex. 1) Rotation shaft is vertical (up and down). Ex. 2) Rotation shaft is horizontal (lateral), and rotation centre and the centre of gravity of the load are concentric. * Necessary torque is inertial load only. T = Ta x 1.5 	

Note 1) To adjust the speed, margin is necessary for Tf and Ta.

For Step Motor (Servo/24 VDC) LECP6, LECP1

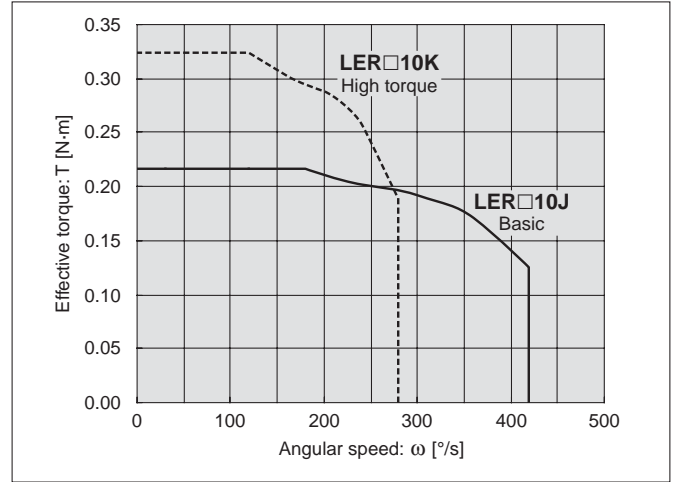
Moment of Inertia—Angular Acceleration/Deceleration

LER10

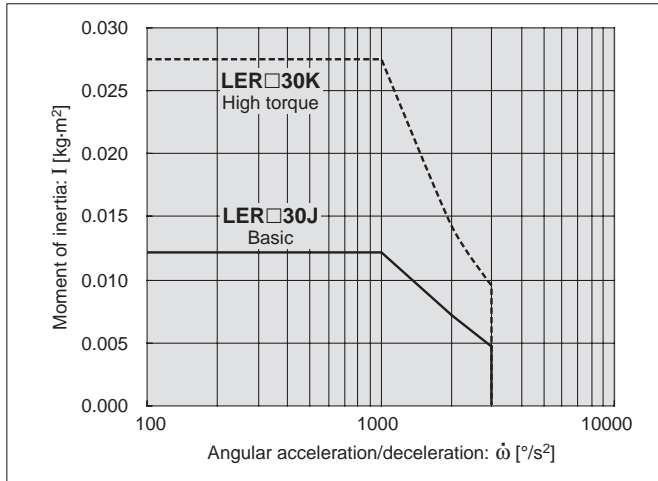


Effective Torque—Angular Speed

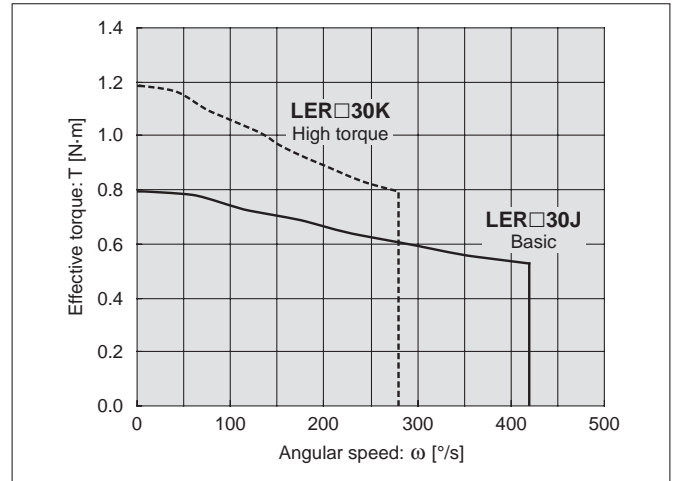
LER10



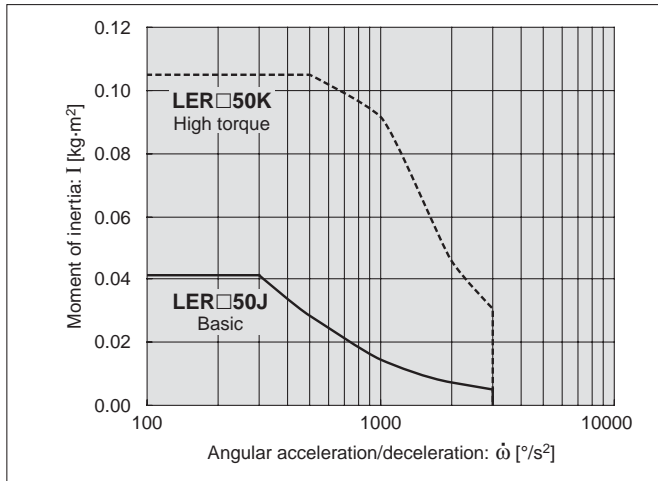
LER30



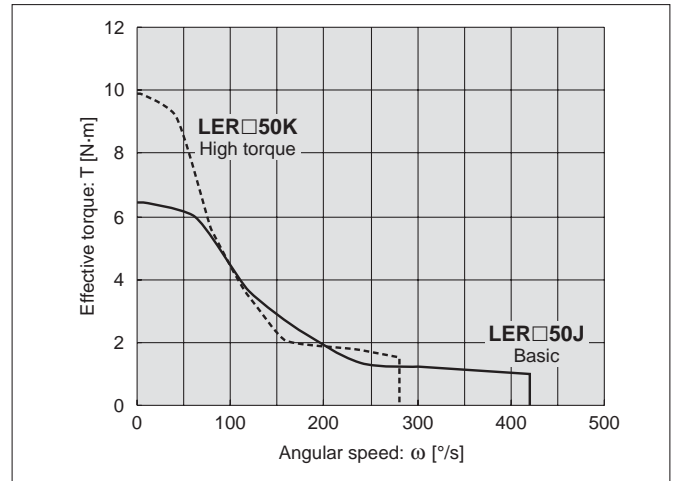
LER30



LER50



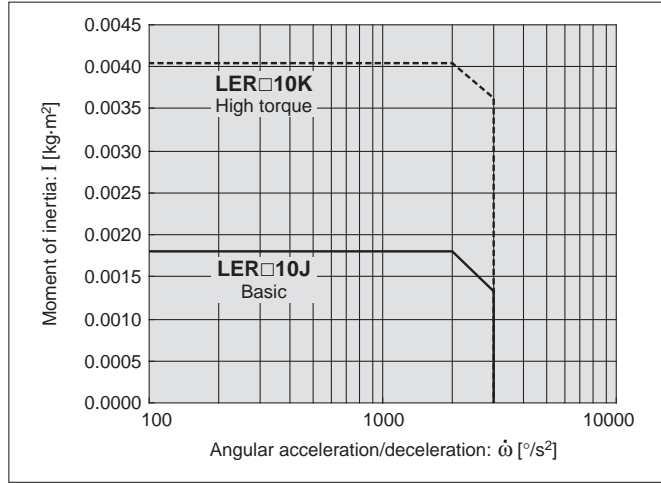
LER50



For Step Motor (Servo/24 VDC) LECPA

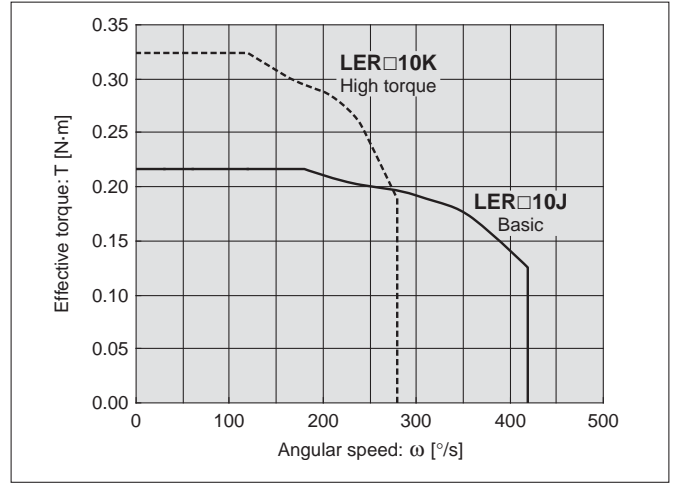
Moment of Inertia—Angular Acceleration/Deceleration

LER10

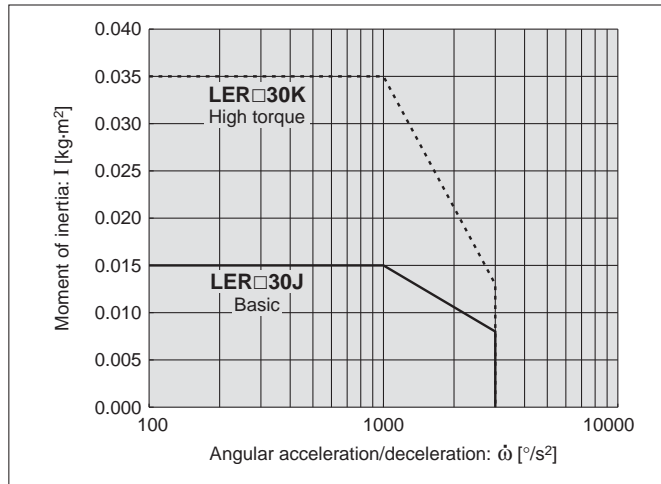


Effective Torque—Angular Speed

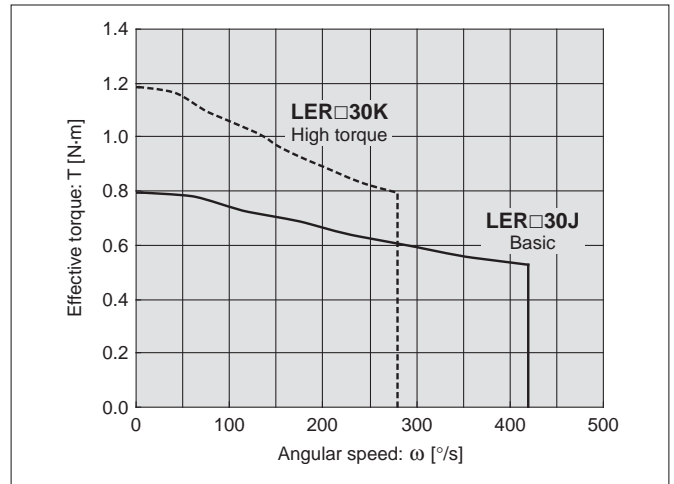
LER10



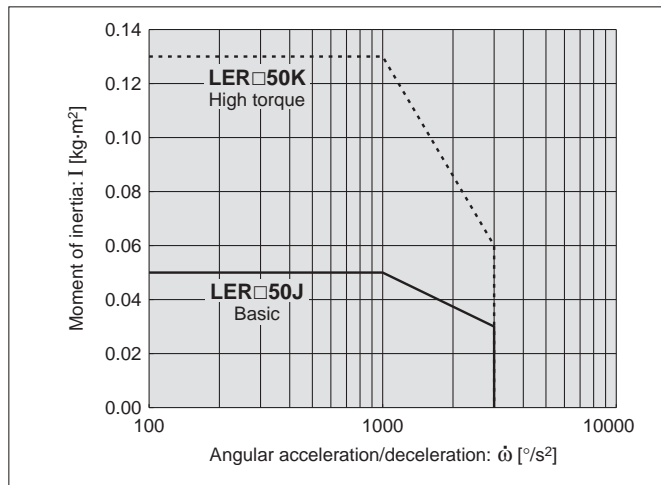
LER30



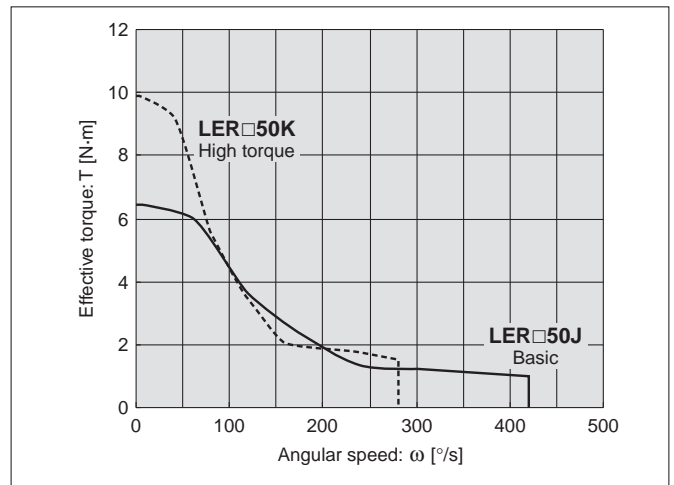
LER30



LER50



LER50



Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

JXC□1

JXC73/83/92/93

Specific Product Precautions

Series LER

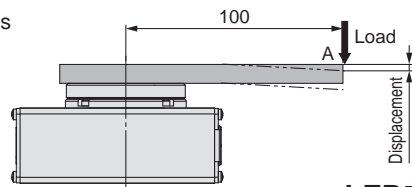
Step Motor (Servo/24 VDC)

Allowable Load

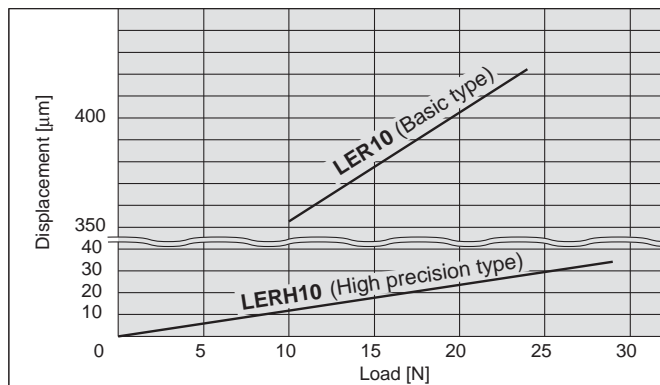
Size	Allowable radial load [N]		Allowable thrust load [N]				Allowable moment [N·m]	
	Basic type	High precision type	(a)		(b)		Basic type	High precision type
			Basic type	High precision type	Basic type	High precision type		
10	78	86	74		78	107	2.4	2.9
30	196	233	197		363	398	5.3	6.4
50	314	378	296		398	517	9.7	12.0

Table Displacement (Reference Value)

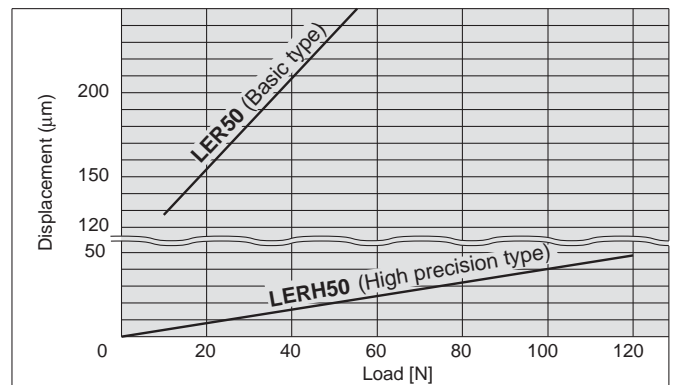
- Displacement at point A when a load is applied to point A 100 mm away from the rotation centre.



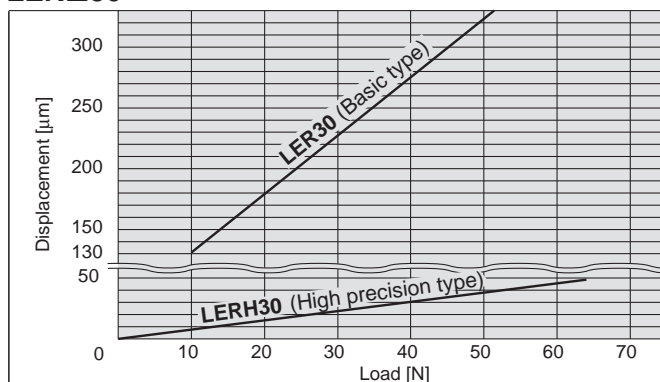
LER□10



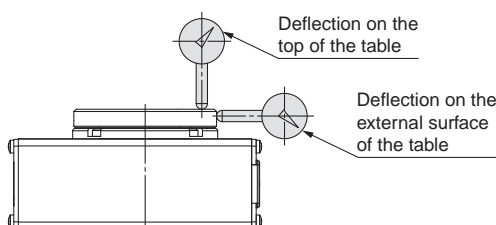
LER□50



LER□30



Deflection Accuracy: Displacement at 180° Rotation (Guide)



Measured part	LER (Basic type)	LERH (High precision type)
Deflection on the top of the table	0.1	0.03
Deflection on the external surface of the table	0.1	0.03

Specific Product Precautions

JXC73/83/92/93

JXC□1

LECPA

LECP1

LEC-G

LECP6

Step Motor (Servo/24-VDC)

LER

Model Selection

Electric Rotary Table

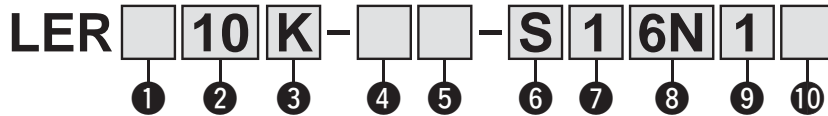
Series *LER* LER10, 30, 50



EtherNet/IP IO-Link
 DeviceNet EtherCAT Compatible ▶ Page 54

Multi-Axis Step Motor Controller Compatible ▶ Page 64

How to Order



1 Table accuracy

—	Basic type
H	High precision type

2 Size

10
30
50

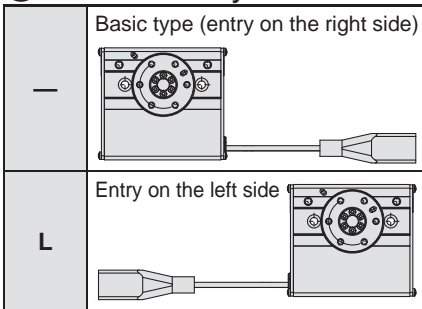
3 Max. rotating torque [N·m]

Symbol	Type	LER10	LER30	LER50
K	High torque	0.32	1.2	10
J	Basic	0.22	0.8	6.6

4 Rotation angle [°]

Symbol	LER10	LER30	LER50
—	310	320	
2	External stopper: 180		
3	External stopper: 90		

5 Motor cable entry



6 Actuator cable type*1

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

*1 The standard cable should be used on fixed parts. For using on moving parts, select the robotic cable.
 *2 Fix the motor cable protruding from the actuator to keep it unmovable. For details about fixing method, refer to Wiring/Cables in the Electric Actuators Precautions.

7 Actuator cable length [m]

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

* Produced upon receipt of order (Robotic cable only). Refer to the specifications Note 3) on page 8.

8 Controller/Driver type*1

Without controller/driver		
6N	LECP6	NPN
6P	(Step data input type)	PNP
1N	LECP1	NPN
1P	(Programless type)	PNP
AN	LECPA*2	NPN
AP	(Pulse input type)	PNP

*1 For details about controller/driver and compatible motor, refer to the compatible controller/driver below.
 *2 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) on page 49 separately.

9 I/O cable length [m]*1, Communication plug

—	Without cable (Without communication plug connector)
1	1.5
3	3*2
5	5*2

*1 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 29 (For LECP6), page 42 (For LECP1) or page 49 (For LECPA) if I/O cable is required.
 *2 When "Pulse input type" is selected for controller/driver types, pulse input usable only with differential. Only 1.5 m cables usable with open collector.

10 Controller/Driver mounting

—	Screw mounting
D	DIN rail mounting*

* DIN rail is not included. Order it separately.

⚠ Caution

[CE-compliant products]

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

[UL-compliant products]

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

Compatible Controller/Driver

Type	Step data input type	Programless type	Pulse input type
Series	LECP6	LECP1	LECPA
Features	Value (Step data) input/Standard controller	Capable of setting up operation (step data) without using a PC or teaching box	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)		
Maximum number of step data	64 points	14 points	—
Power supply voltage	24 VDC		
Reference page	Page 22	Page 36	Page 43

The actuator and controller/driver are sold as a package.

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

<Check the following before use.>

- ① Check the actuator label for model number. This matches the controller/driver.
- ② Check Parallel I/O configuration matches (NPN or PNP).

LER10K-2

①

②



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

Specifications

Step Motor (Servo/24 VDC)

Model		LER□10K	LER□10J	LER□30K	LER□30J	LER□50K	LER□50J
Rotation angle [°]		310			320		
Lead [°]		8	12	8	12	7.5	12
Max. rotating torque [N·m]		0.32	0.22	1.2	0.8	10	6.6
Max. pushing torque 40 to 50 % [N·m] ^{Note 1) 3)}		0.13 to 0.16	0.09 to 0.11	0.48 to 0.60	0.32 to 0.40	4.0 to 5.0	2.6 to 3.3
Max. moment of inertia [kg·m ²] ^{Note 2) 3)}	LECP6/LECP1	0.0040	0.0018	0.035	0.015	0.13	0.05
	LECPA			0.027	0.012	0.10	0.04
Angular speed [°/sec] ^{Note 2) 3)}		20 to 280	30 to 420	20 to 280	30 to 420	20 to 280	30 to 420
Pushing speed [°/sec]		20	30	20	30	20	30
Max. angular acceleration/deceleration [°/sec ²] ^{Note 2)}		3000					
Backlash [°]	Basic type	±0.3			±0.2		
	High precision type				±0.1		
Positioning repeatability [°]	Basic type	±0.05			±0.05		
	High precision type				±0.03		
Lost motion [°] ^{Note 4)}	Basic type	0.3 or less			0.3 or less		
	High precision type				0.2 or less		
Impact/Vibration resistance [m/s ²] ^{Note 5)}		150/30					
Actuation type		Special worm gear + Belt drive					
Max. operating frequency [c.p.m]		60					
Operating temp. range [°C]		5 to 40					
Operating humidity range [%RH]		90 or less (No condensation)					
Weight [kg]	Basic type	0.49		1.1		2.2	
	High precision type	0.52		1.2		2.4	
Rotation angle [°]	-2/ arm (1 pc.)				180		
	-3/ arm (2 pcs.)				90		
Repeatability at the end [°]/ with external stopper		±0.01					
External stopper setting range [°]		±2					
Weight [kg]	-2/external arm (1 pc.)	Basic type		0.55		1.2	2.5
		High precision type		0.61		1.4	2.7
	-3/external arm (1 pc.)	Basic type		0.57		1.2	2.6
	High precision type		0.63		1.4	2.8	
Motor size		□20		□28		□42	
Motor type		Step motor (Servo/24 VDC)					
Encoder		Incremental A/B phase (800 pulse/rotation)					
Power supply [V]		24 VDC ±10 %					
Power consumption [W] ^{Note 6)}		11		22		34	
Standby power consumption when operating [W] ^{Note 7)}		7		12		13	
Max. instantaneous power consumption [W] ^{Note 8)}		14		42		57	



Note 1) Pushing force accuracy is LER10: ±30 % (F.S.), LER30: ±25 % (F.S.), LER50: ±20 % (F.S.).

Note 2) The angular acceleration, angular deceleration and angular speed may fluctuate due to variations in the moment of inertia. Refer to "Moment of Inertia—Angular Acceleration/Deceleration, Effective Torque—Angular Speed" graphs on pages 3 and 4 for confirmation.

Note 3) The speed and force may change depending on the cable length, load and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10 % for each 5 m. (At 15 m: Reduced by up to 20%)

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

Note 5) Impact resistance: No malfunction occurred when the slide table 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.)

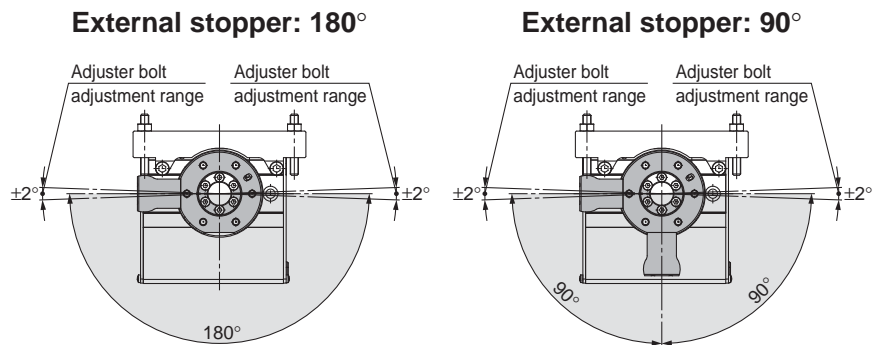
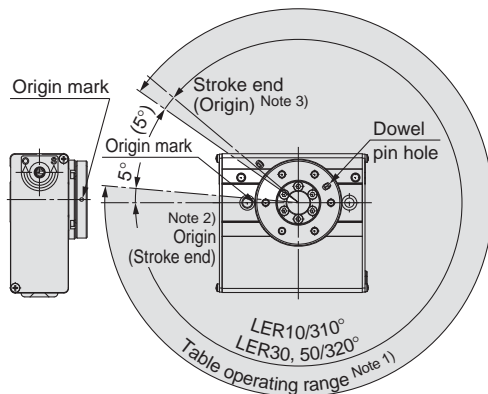
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)

Note 6) The power consumption (including the controller) is for when the actuator is operating.

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

Note 8) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.

Table Rotation Angle Range



* The figures show the origin position for each actuator.

Note 1) Range 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.

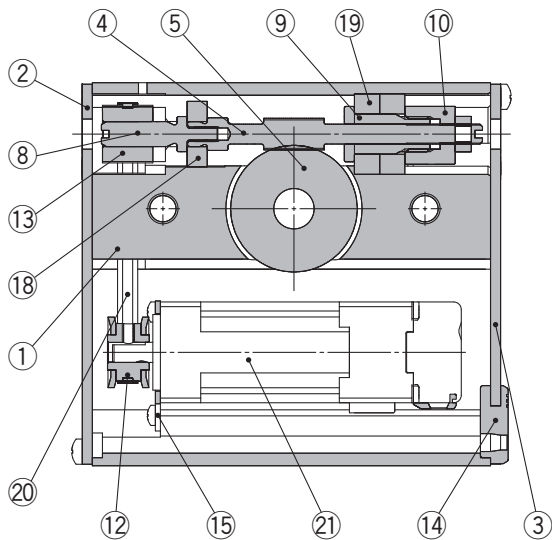
Note 2) Position after return to origin.

Note 3) [] for when the direction of return to origin has changed.

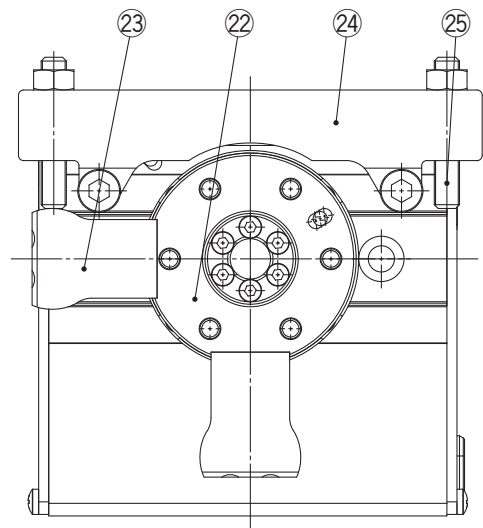
Series LER

Step Motor (Servo/24 VDC)

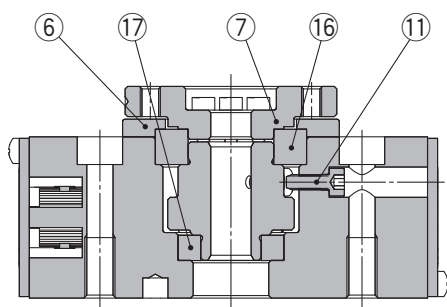
Construction



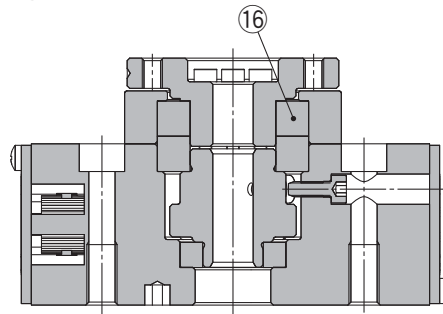
External stopper type



Basic type



High precision type



Component Parts

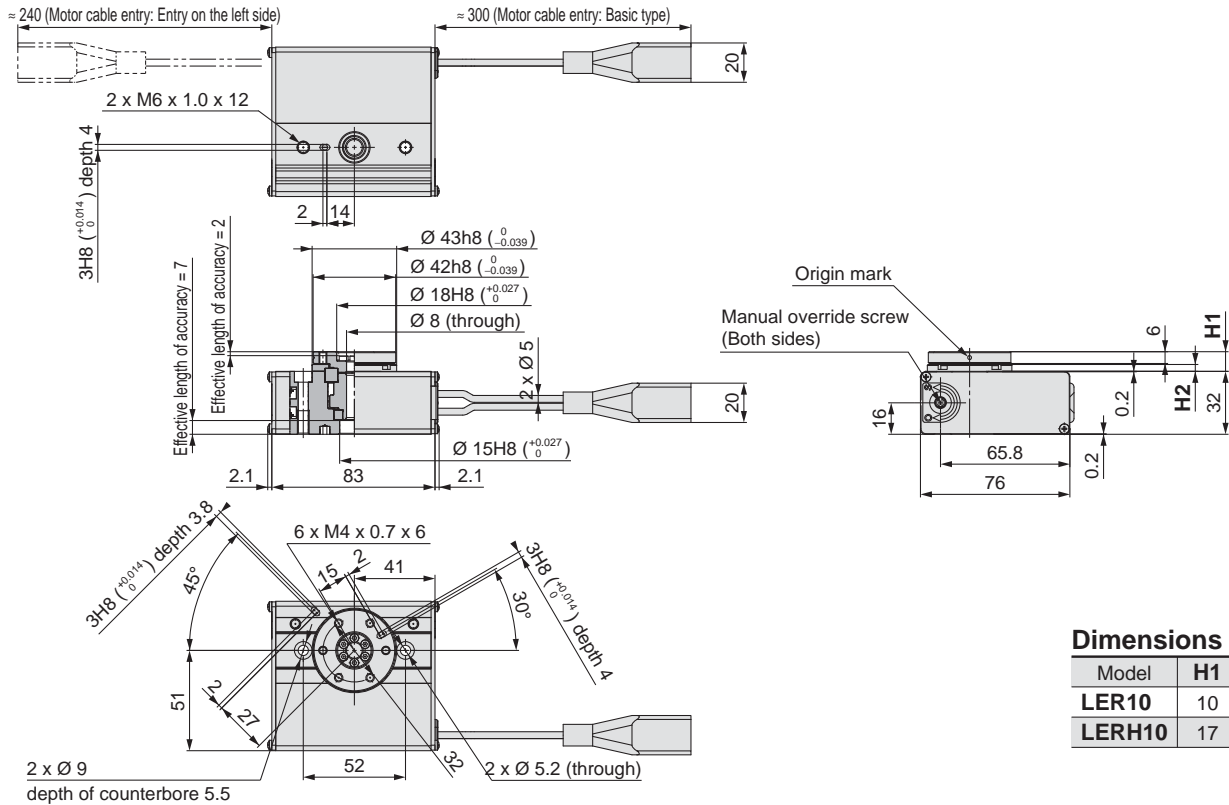
No.	Description	Material	Note
1	Body	Aluminium alloy	Anodised
2	Side plate A	Aluminium alloy	Anodised
3	Side plate B	Aluminium alloy	Anodised
4	Worm screw	Stainless steel	Heat treated + specially treated
5	Worm wheel	Stainless steel	Heat treated + specially treated
6	Bearing cover	Aluminium alloy	Anodised
7	Table	Aluminium alloy	
8	Joint	Stainless steel	
9	Bearing holder	Aluminium alloy	
10	Bearing retainer	Aluminium alloy	
11	Origin	Carbon steel	
12	Pulley A	Aluminium alloy	
13	Pulley B	Aluminium alloy	
14	Grommet	NBR	
15	Motor plate	Carbon steel	
16	Basic type High precision type	Deep groove ball bearing Special ball bearing	—
17	Deep groove ball bearing	—	
18	Deep groove ball bearing	—	
19	Deep groove ball bearing	—	
20	Belt	—	
21	Step motor (Servo/24 VDC)	—	

Component Parts

No.	Description	Material	Note
22	Table	Aluminium alloy	Anodised
23	Arm	Carbon steel	Heat treated + electroless nickel treated
24	Holder	Aluminium alloy	Anodised
25	Adjuster bolt	Carbon steel	Heat treated + chromate treated

Dimensions

LER□10□ (Rotation angle: 310°)

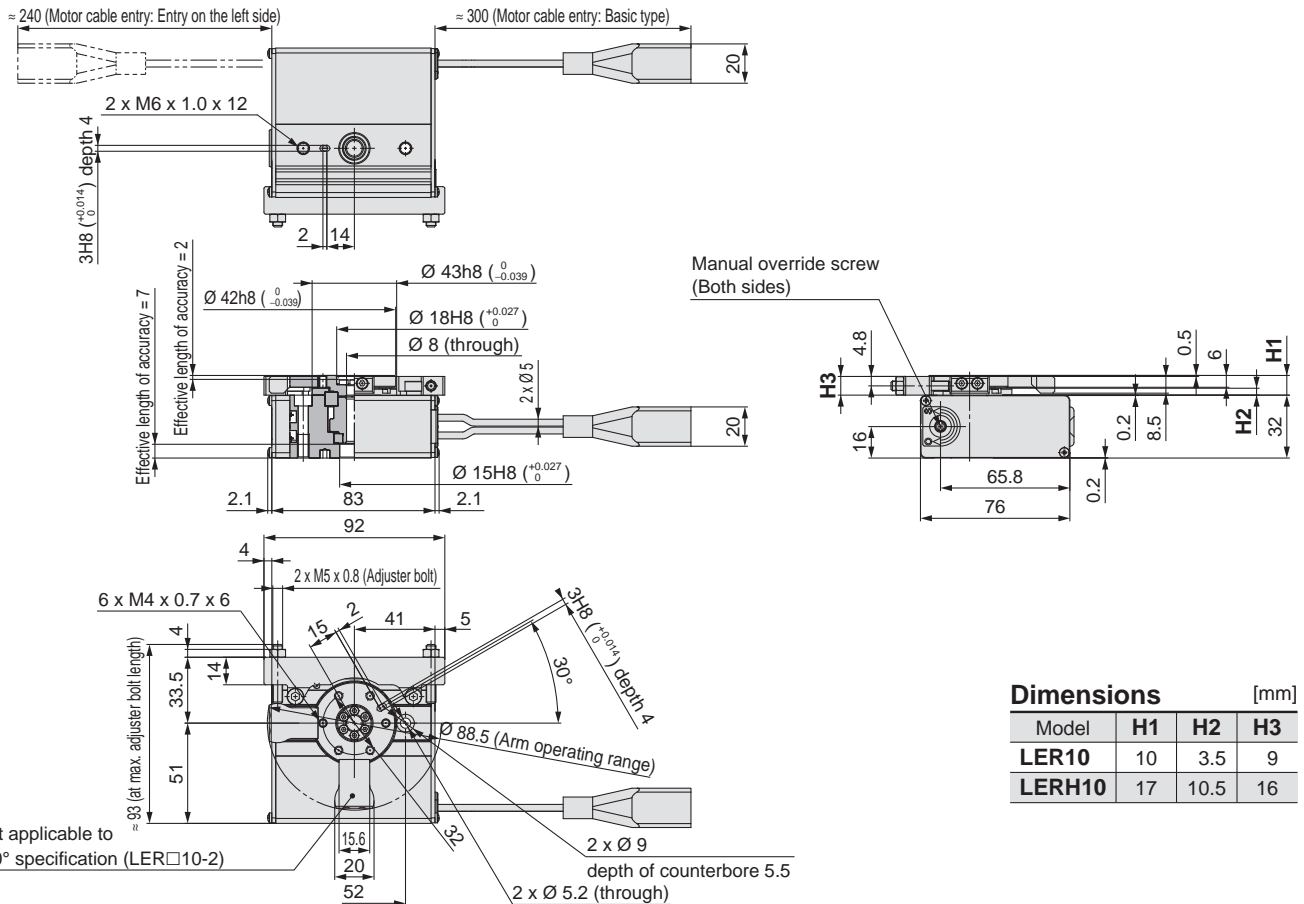


Dimensions [mm]

Model	H1	H2
LER10	10	3.5
LERH10	17	10.5

LER□10-2 (Rotation angle: 180°)

LER□10-3 (Rotation angle: 90°)



Dimensions [mm]

Model	H1	H2	H3
LER10	10	3.5	9
LERH10	17	10.5	16

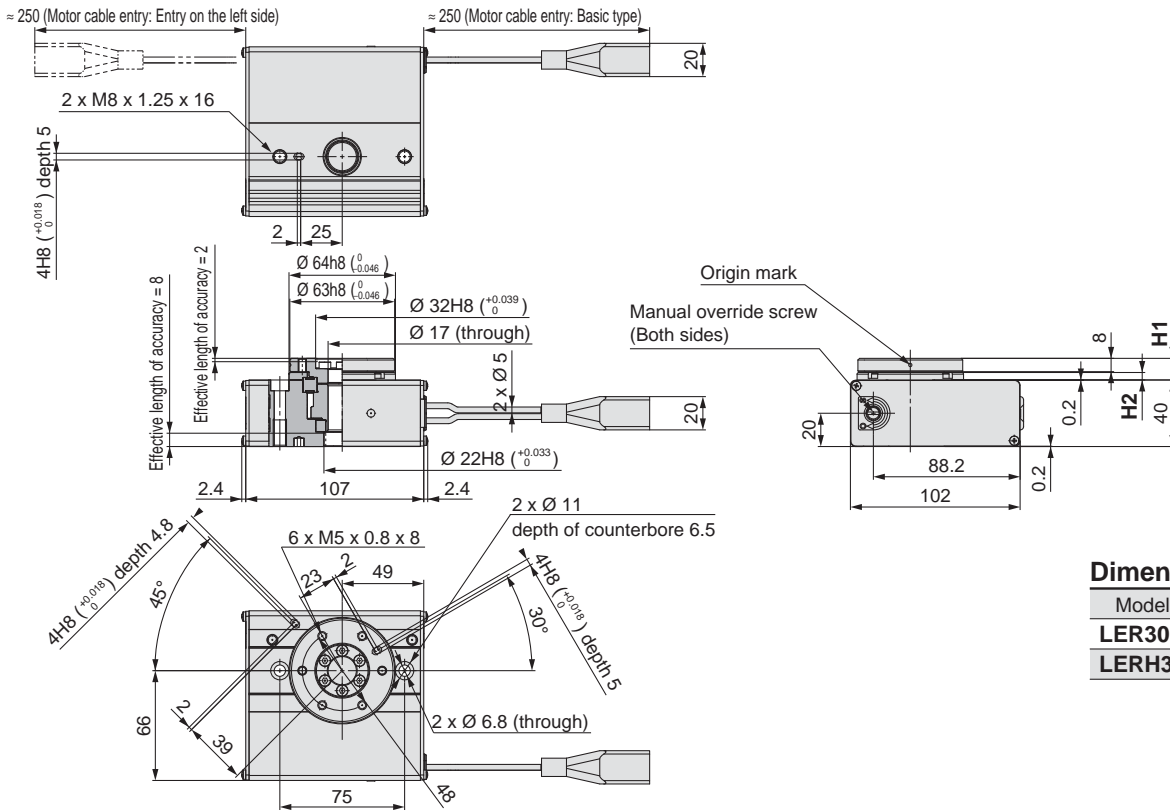
Note) Not applicable to 180° specification (LER□10-2)

Series LER

Step Motor (Servo/24 VDC)

Dimensions

LER□30□ (Rotation angle: 320°)

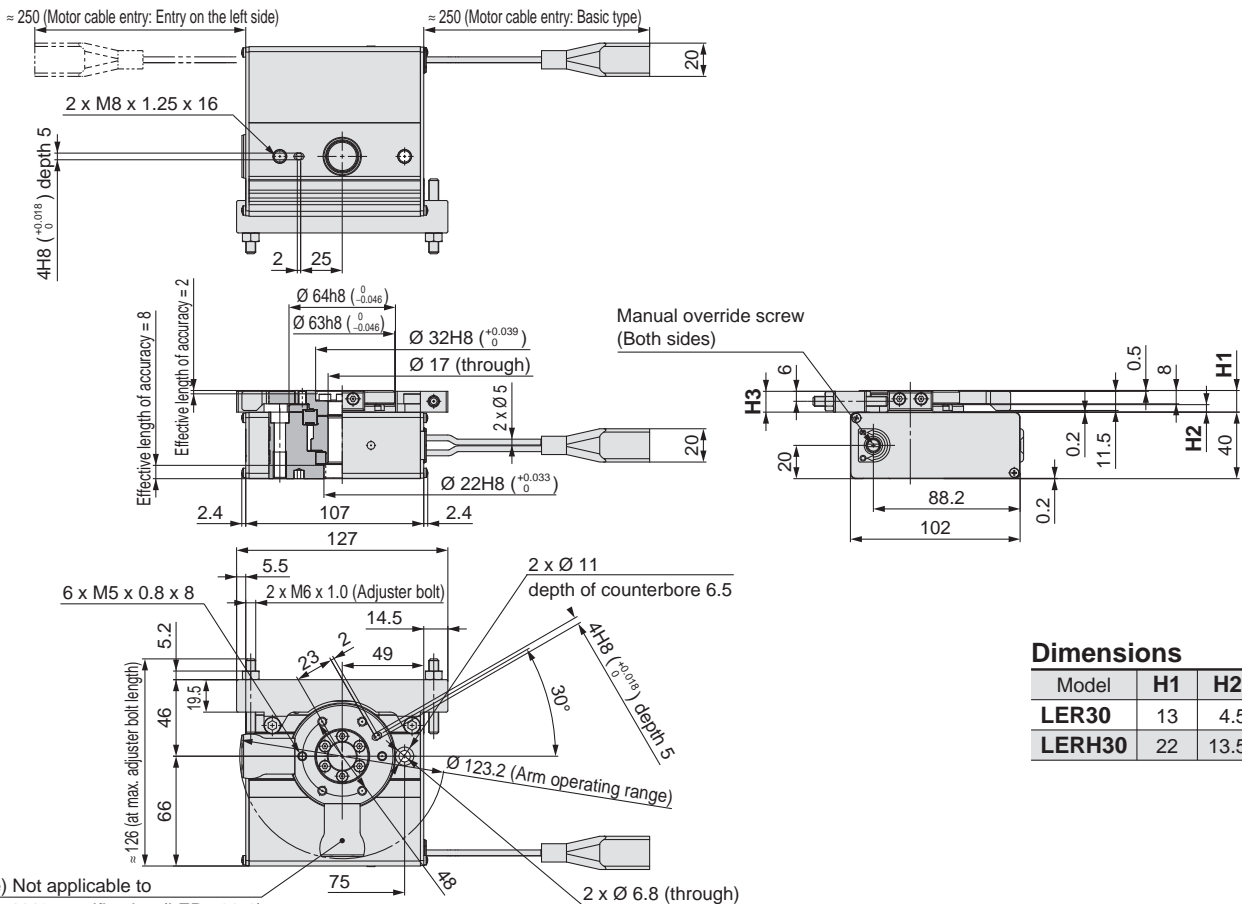


Dimensions [mm]

Model	H1	H2
LER30	13	4.5
LERH30	22	13.5

LER□30-2 (Rotation angle: 180°)

LER□30-3 (Rotation angle: 90°)



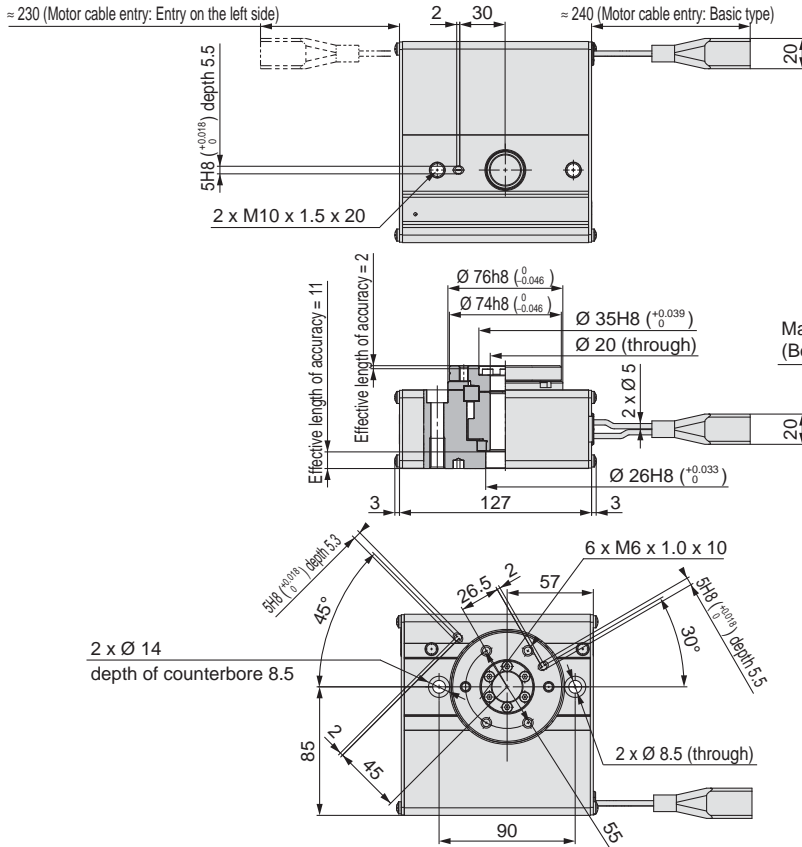
Dimensions [mm]

Model	H1	H2	H3
LER30	13	4.5	12.5
LERH30	22	13.5	21.5

Note) Not applicable to 180° specification (LER□30-2)

Dimensions

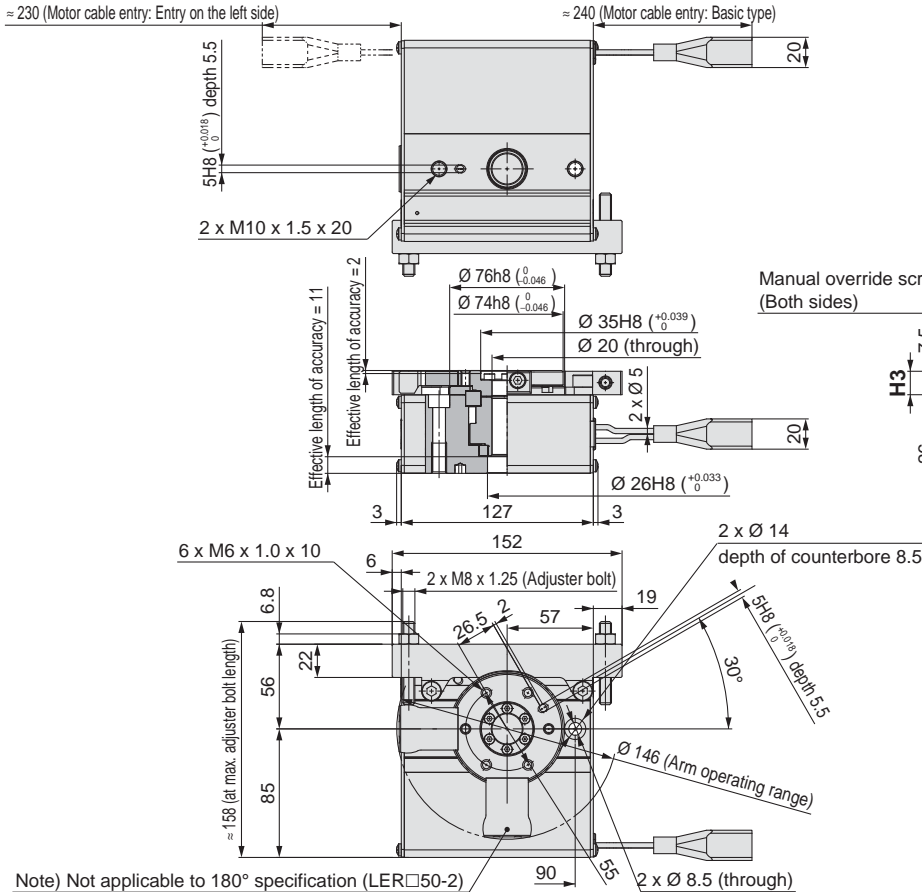
LER□50□ (Rotation angle: 320°)



Dimensions [mm]		
Model	H1	H2
LER50	16	5.5
LERH50	26	15.5

LER□50-2 (Rotation angle: 180°)

LER□50-3 (Rotation angle: 90°)



Dimensions [mm]			
Model	H1	H2	H3
LER50	16	5.5	15.5
LERH50	26	15.5	25.5

Note) Not applicable to 180° specification (LER□50-2)

Continuous Rotation Specification

Electric Rotary Table

Series **LER** LER10, 30, 50
 EtherNet/IP
 DeviceNet
 IO-Link
 EtherCAT
 Compatible ▶ Page 54

How to Order

 LER 10 K - 1 - S 1 6N 1

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Table accuracy

—	Basic type
H	High precision type

② Size

10
30
50

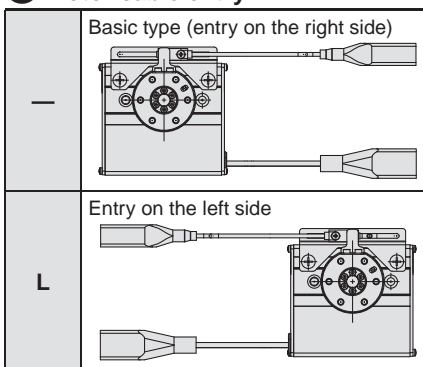
Rotation angle [°]

1	360
---	-----

③ Max. rotating torque [N·m]

Symbol	Type	LER10	LER30	LER50
K	High torque	0.32	1.2	10
J	Basic	0.22	0.8	6.6

④ Motor cable entry



⑦ Controller type*1

—	Without controller	
6N	LECP6	NPN
6P	(Step data input type)	PNP

*1 For details about controller and compatible motor, refer to the compatible controller below. The LECP1 and LECPA cannot be selected.

⑤ Actuator cable type*1 *2

—	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)*3

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

*2 Actuator cable is equipped with a lock and sensor.
 *3 Fix the motor cable protruding from the actuator to keep it unmovable. For details about fixing method, refer to Wiring/Cables in the Electric Actuators Precautions.

⑥ Actuator cable length [m]

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

* Produced upon receipt of order (Robotic cable only)
 Refer to the specifications Note 3) on page 14.

⑧ I/O cable length [m]*1, Communication plug

—	Without cable (Without communication plug connector)	
1	1.5	
3	3	
5	5	

*1 When "Without controller" is selected for controller types, I/O cable cannot be selected. Refer to page 29 if I/O cable for LECP6 is required.

⑨ Controller mounting

—	Screw mounting
D	DIN rail mounting*

* DIN rail is not included. Order it separately.

⚠ Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LER series and the controller LEC series.

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

[UL-compliant products]

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

The actuator and controller are sold as a package.

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

<Check the following before use.>

- Check the actuator label for model number. This matches the controller.
- Check Parallel I/O configuration matches (NPN or PNP).



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

Compatible Controller

Type	Step data input type
Series	LECP6
Features	Value (Step data) input Standard controller
Compatible motor	Step motor (Servo/24 VDC)
Maximum number of step data	64 points
Power supply voltage	24 VDC
Reference page	Page 22



Specifications

Step Motor (Servo/24 VDC)

Model		LER□10K	LER□10J	LER□30K	LER□30J	LER□50K	LER□50J	
Rotation angle [°]		360						
Angle setting range [°] Note 9)		±20000000						
Max. rotating torque [N·m]		0.32	0.22	1.2	0.8	10	6.6	
Max. pushing torque 40 to 50 % [N·m] Note 1) Note 3)		0.13 to 0.16	0.09 to 0.11	0.48 to 0.60	0.32 to 0.40	4.0 to 5.0	2.6 to 3.3	
Max. moment of inertia [kg·m²] Note 2) Note 3)		0.0040	0.0018	0.035	0.015	0.13	0.05	
Angular speed [°/sec] Note 2) Note 3)		20 to 280	30 to 420	20 to 280	30 to 420	20 to 280	30 to 420	
Pushing speed [°/sec]		20	30	20	30	20	30	
Max. angular acceleration/deceleration [°/sec²] Note 2)		3000						
Actuator specifications	Backlash [°]	Basic type		±0.3		±0.2		
		High precision type				±0.1		
	Positioning repeatability [°]	Basic type		±0.05		±0.05		
		High precision type				±0.03		
	Lost motion [°] Note 4)	Basic type		0.3 or less		0.3 or less		
		High precision type				0.2 or less		
Impact/Vibration resistance [m/s²] Note 5)		150/30						
Actuation type		Special worm gear + Belt drive						
Max. operating frequency [c.p.m]		60						
Operating temperature range [°C]		5 to 40						
Operating humidity range [%RH]		90 or less (No condensation)						
Weight [kg]	Basic type		0.51		1.2		2.3	
	High precision type		0.55		1.3		2.5	
Motor size		□20		□28		□42		
Motor type		Step motor (Servo/24 VDC)						
Encoder		Incremental A/B phase (800 pulse/rotation)						
Proximity sensor (for return to origin)/Input circuit		2-wire						
Proximity sensor (for return to origin)/Input point		1 input						
Power supply [V]		24 VDC ±10%						
Power consumption [W] Note 6)		11		22		34		
Standby power consumption when operating [W] Note 7)		7		12		13		
Max. instantaneous power consumption Note 8)		14		42		57		

Note 1) Pushing force accuracy is LER10: ±30 % (F.S.), LER30: ±25 % (F.S.), LER50: ±20 % (F.S.).

Note 2) The angular acceleration, angular deceleration and angular speed may fluctuate due to variations in the moment of inertia. Refer to "Moment of Inertia—Angular Acceleration/Deceleration, Effective Torque—Angular Speed" graphs on pages 3 and 4 for confirmation.

Note 3) The speed and force may change depending on the cable length, load and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10 % for each 5 m. (At 15 m: Reduced by up to 20 %)

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

Note 5) Impact resistance: No malfunction occurred when the slide table 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 controller) is for when the actuator is operating.

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

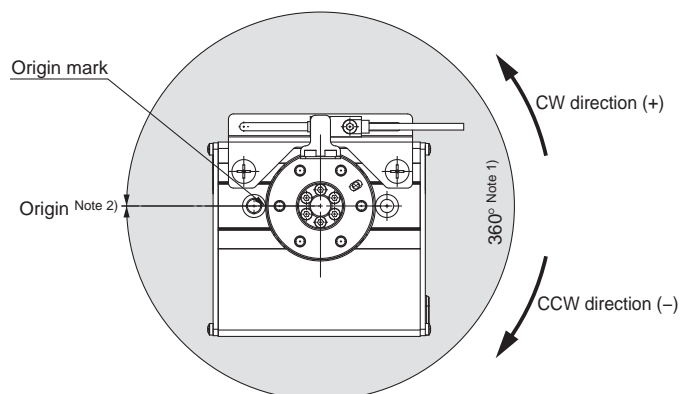
Note 8) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.

Note 9) The angle displayed on the monitor is automatically reset to 0° every 360°.

To set an angle (position), use the "Relative" movement mode.

If an angle of 360° or more is set using the "Absolute" movement mode, the correct operation cannot be performed.

Table Rotation Angle Range

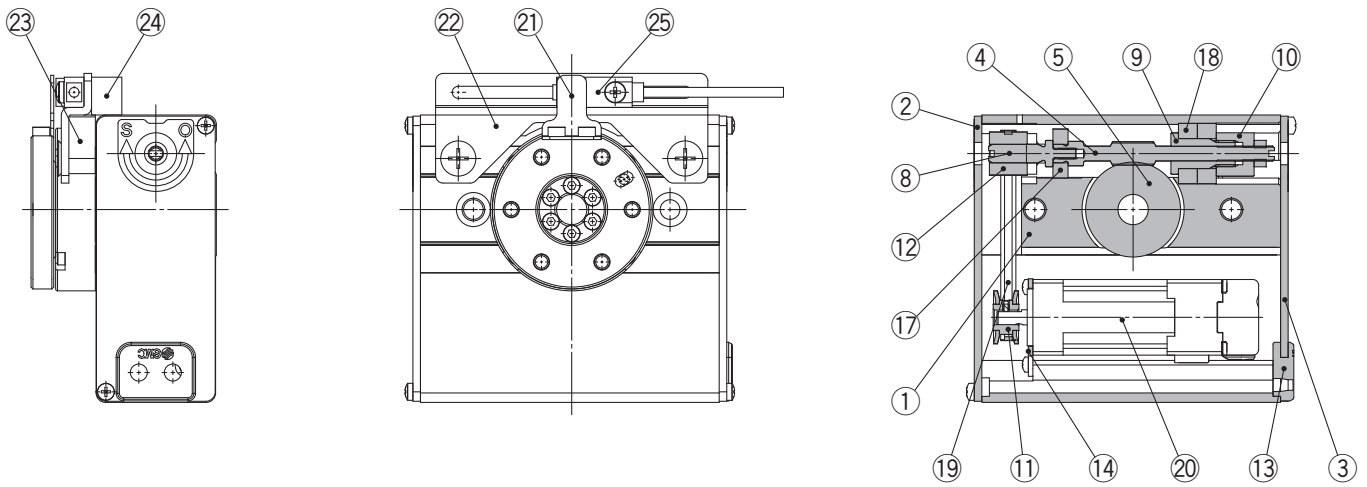


Note 1) Range within which the table can move.

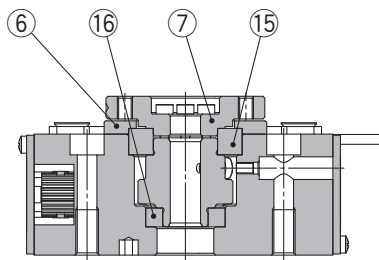
Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

Note 2) The sensor detection range is recognized as origin. When detecting the sensor, the table rotates in the reverse direction within the sensor detection range.

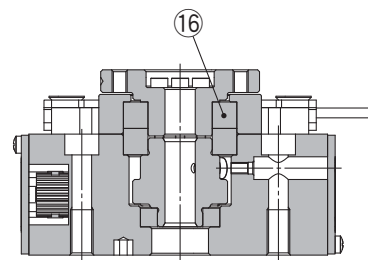
Construction: Continuous rotation specification (360°)



Basic type



High precision type



Component Parts

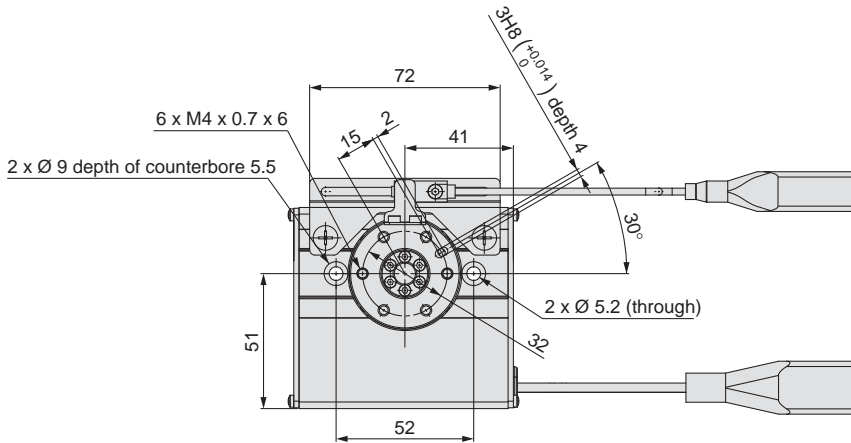
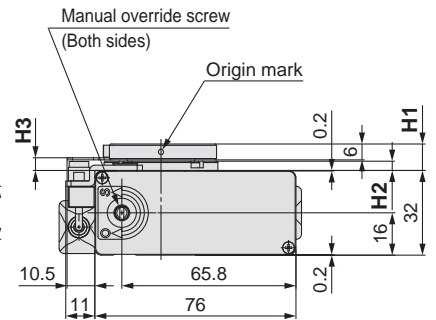
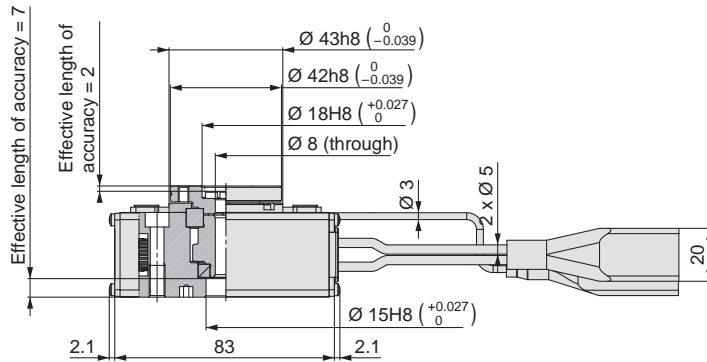
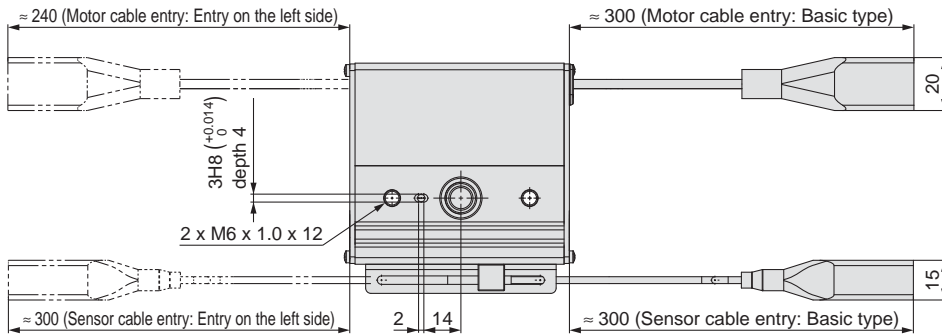
No.	Description	Material	Note
1	Body	Aluminium alloy	Anodised
2	Side plate A	Aluminium alloy	Anodised
3	Side plate B	Aluminium alloy	Anodised
4	Worm screw	Stainless steel	Heat treated + Specially treated
5	Worm wheel	Stainless steel	Heat treated + Specially treated
6	Bearing cover	Aluminium alloy	Anodised
7	Table	Aluminium alloy	
8	Joint	Stainless steel	
9	Bearing holder	Aluminium alloy	
10	Bearing retainer	Aluminium alloy	
11	Pulley A	Aluminium alloy	
12	Pulley B	Aluminium alloy	
13	Grommet	NBR	
14	Motor plate	Carbon steel	
15	Basic type	Deep groove ball bearing	
	High precision type	Special ball bearing	
16	Deep groove ball bearing	—	
17	Deep groove ball bearing	—	
18	Deep groove ball bearing	—	
19	Belt	—	
20	Step motor (servo/24 VDC)		

Component Parts (360° type)

No.	Description	Material	Note
21	Proximity dog	Stainless steel	
22	Sensor holder	Carbon steel	Chromate treated
23	Sensor holder spacer	Aluminium alloy	Anodised (High precision type can be used only)
24	Square nut	Aluminium alloy	
25	Proximity sensor assembly	—	Type

Dimensions: Continuous rotation specification (360°)

LER□10□



Dimensions [mm]

Model	H1	H2	H3
LER10	10	3.5	4.8
LERH10	17	10.5	11.8

Model Selection

Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

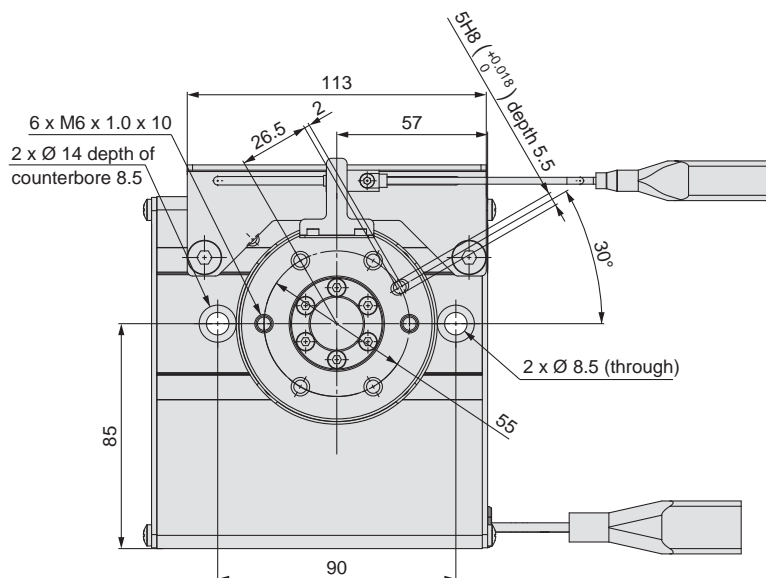
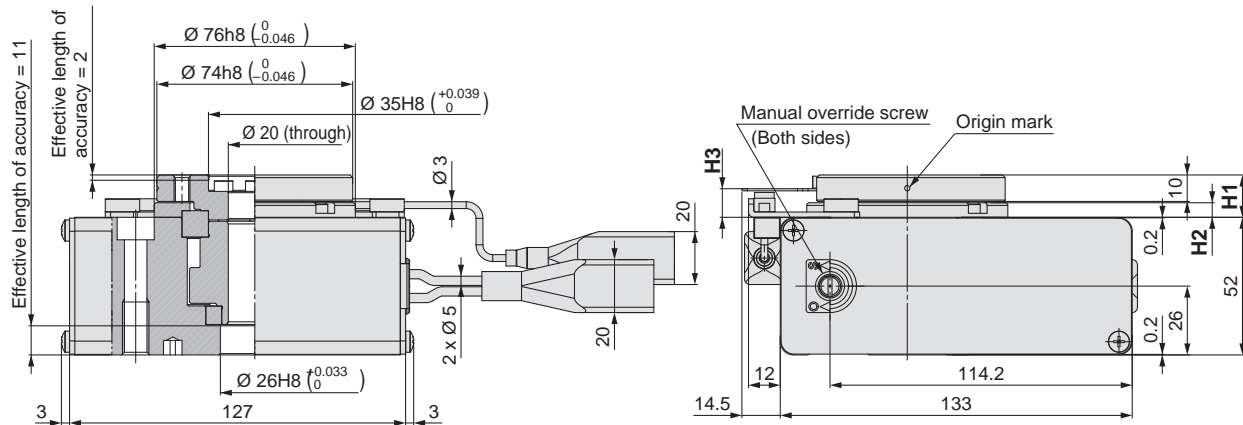
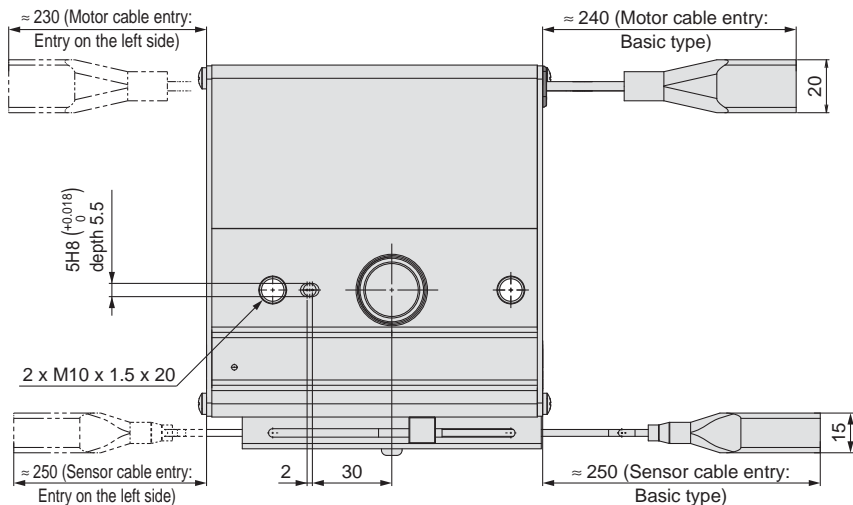
JXC□1

JXC73/83/92/93

Specific Product Precautions

Dimensions: Continuous rotation specification (360°)

LER□50



Dimensions [mm]

Model	H1	H2	H3
LER50	16	5.5	10.8
LERH50	26	15.5	20.8



Series LER Electric Rotary Table/ Specific Product Precautions 1

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

Design/Selection

Warning

1. If the operating conditions involve load fluctuations, ascending/descending movements, or changes in the frictional resistance, ensure that safety measures are in place to prevent injury to the operator or damage to the equipment.
Failure to provide such measures could accelerate the operation speed, which may be hazardous to humans, machinery, and other equipment.
2. Power failure may result in a decrease in the pushing force; ensure that safety measures are in place to prevent injury to the operator or damage to the equipment.
When the product is used for clamping, the clamping force could be decreased due to power failure, potentially creating a hazardous situation in which the workpiece is released.

Caution

1. If the operating speed is set too fast and the moment of inertia is too large, the product could be damaged.
Set appropriate product operating conditions in accordance with the model selection procedure.
2. If more precise repeatability of the rotation angle is required, use the product with an external stopper, with repeatability of $\pm 0.01^\circ$ (180° and 90° with adjustment of $\pm 2^\circ$) or by directly stopping the workpiece using an external object utilizing the pushing operation.
When using angle adjustment, the initially set rotation angle may change.
3. When using the electric rotary table with an external stopper, or by directly stopping the load externally, ensure that the [Pushing operation] is utilized.
Also, ensure that the workpiece is not impacted externally during the positioning operation or in the range of positioning operation.

Mounting

Warning

1. Do not drop or hit the electric rotary table to avoid scratching and denting the mounting surfaces.
Even slight deformation can cause the deterioration of accuracy and operation failure.
2. Tighten the load mounting screws to the specified torque.
Tightening to a torque greater than the specified range may cause malfunction, and insufficient tightening may cause displacement.

Mounting the workpiece to the electric rotary table

The load should be mounted with the torque specified in the following table by screwing the bolt into the mounting female thread. If long threads are used, they can interfere with the body and cause a malfunction, etc.

Model	Bolt	Thread length [mm]	Max. tightening torque [N·m]
LER□10	M4 x 0.7	6	1.4
LER□30	M5 x 0.8	8	3.0
LER□50	M6 x 1	10	5.0

3. When mounting the electric rotary table, use screws with adequate length and tighten them with adequate torque within the specified torque range.

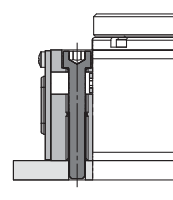
Tightening the screws with a higher torque than recommended may cause malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Mounting

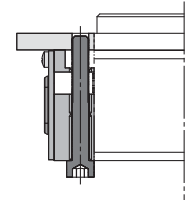
Warning

Through-hole mounting

Body mounting/bottom



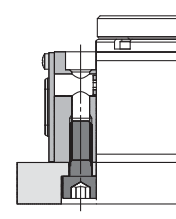
Body mounting/top



Model	Bolt	Max. tightening torque [N·m]
LER□10	M5 x 0.8	3.0
LER□30	M6 x 1	5.0
LER□50	M8 x 1.25	12.0

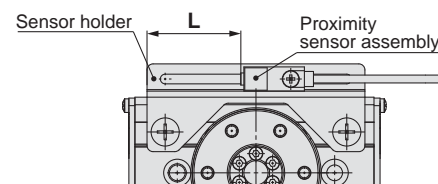
Body tapped mounting

Body mounting/bottom



Model	Bolt	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LER□10	M6 x 1	5.0	12
LER□30	M8 x 1.25	12.0	16
LER□50	M10 x 1.5	25.0	20

4. The mounting face has holes and slots for positioning. Use them for accurate positioning of the electric rotary table if required.
5. If it is necessary to operate the electric rotary table when it is not energised, use the manual override screws.
When the product is operated with the manual override screws, check the position of the manual override screws of the product, and leave necessary space. Do not apply excessive torque to the manual override screws that could lead to damage and malfunction of the product.
6. The 360° type proximity sensor for return to origin can be changed $\pm 30^\circ$. When changing the position of the proximity sensor for return to origin, tighten the screws with a tightening torque of 0.6 ± 0.1 [N·m].



Model	L [mm] (Initial setting) Cable entry: Basic type/Entry on the left side (Between the sensor holder end face and proximity sensor end face)
LER□10-1	31/31
LER□30-1	42/42
LER□50-1	51.5/51.5



Series LER Electric Rotary Table/ Specific Product Precautions 2

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

Handling

⚠ Caution

- When an external guide is used, connect it in such a way that no impact or load is applied to it.**
Use a free moving connector (such as a coupling).
- The moving force should be the initial value (100%).**
If the moving force is set below the initial value, there may be variation in the cycle time, or an alarm may be generated.
- INP output signal**
 - Positioning operation
When the product comes within the set range by step data [In position], the INP output signal will turn on.
Initial value: Set to [0.50] or higher.
 - Pushing operation
When the effective force exceeds the [Trigger LV] value (including thrust during operation), the INP output signal will turn on.
The [Trigger LV] should be set between 40% and [Pushing force].
 - To ensure that the clamping and external stop is achieved by [Pushing force], it is recommended that the [Trigger LV] be set to the same value as the [Pushing force].
 - When the [Trigger LV] and [Pushing force] are set to be less than the lower limit of the specified range, there is the possibility that the INP output signal will be switched on from the pushing operation start position.

Pushing force and trigger LV range

Model	Set value of pushing force [%]	Set value of Trigger LV [%]
LER□	40 to 50	40 to 50

- When the workpiece is to be stopped by the electric rotary actuator with an external stopper or directly by an external object, utilize the “pushing operation”. Do not stop the table with an external stopper or external object by using in the range of the “positioning operation mode”.**
If the product is used in the positioning operation mode, there may be galling or other problems when the product/workpiece comes into contact with the external stopper or external object.
- When the table is stopped by the pushing operation mode (stopping/clamping), set the product to a position of at least 1° away from the workpiece. (This position is referred to as the pushing start position.)**
If the pushing operations start position (stopping or clamping) is set to the same position as the external stop position, the following alarms may be generated and operation may become unstable.
 - “Posn failed” alarm is generated.**
It is not possible to reach the pushing operation start position within the target time.
 - “Pushing ALM” alarm is generated.**
The product is pushed back from a pushing start position after starting to push.
 - “Deviation over flow” alarm is generated.**
Displacement exceeding the specified value is generated at the pushing start position.
- There is no backlash effect when the product is stopped externally by pushing operation.**
For the return to origin, the origin position is set by the pushing operation.

Handling

⚠ Caution

- For the specification with an external stopper, an angle adjustment bolt is provided as standard.**
The rotation angle adjustment range is $\pm 2^\circ$ from the angle rotation end.
If the angle adjustment range is exceeded, the rotation angle may change due to insufficient strength of the external stopper.
One revolution of the adjustment bolt is approximately equal to 1° of rotation.
- In case that gravity is added to the workpiece along the rotation direction when product is mounted vertically, the workpiece may fall down when "SVON" signal is OFF or EMG is not energizing.**
- When mounting the product, keep a 40 mm or longer diameter for bends in the motor cable.**

Maintenance

⚠ Danger

- The high precision type bearing is assembled by pressing into position. It is not possible to disassemble it.**

Controller/Driver

Step Data Input Type Page 22

Gateway Unit Page 33



Step Motor (Servo/24 VDC)
Series LECP6



Series LEC-G

...

Programless Type Page 36

Pulse Input Type Page 43



Step Motor (Servo/24 VDC)
Series LECP1



Step Motor (Servo/24 VDC)
Series LECPA

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



Series **LECP6**



How to Order

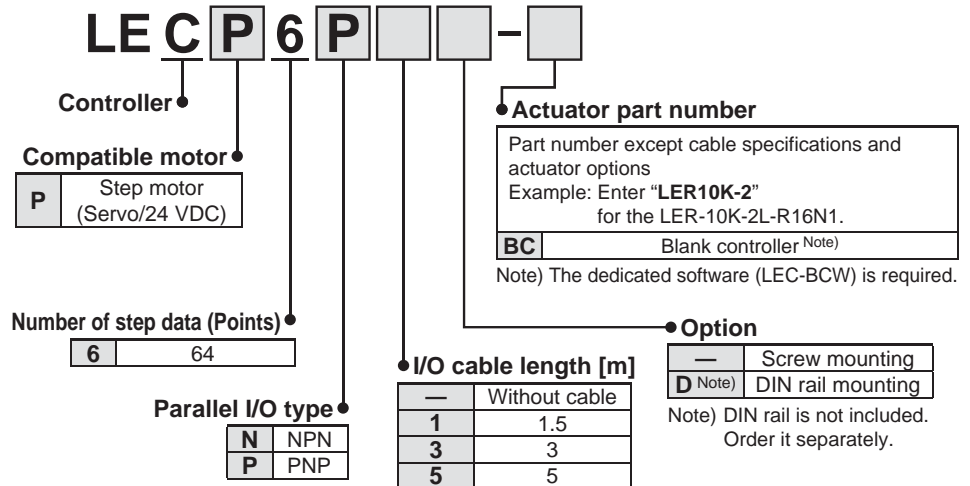
⚠ Caution

[CE-compliant products]

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

[UL-compliant products]

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



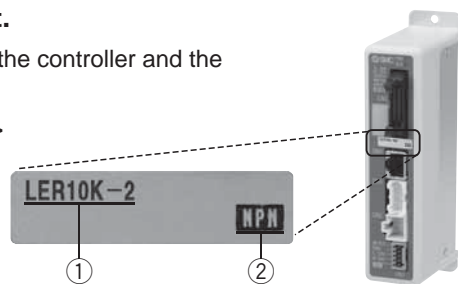
* When controller equipped type is selected when ordering the LE series, you do not need to order this controller.

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

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

<Check the following before use.>

- ① Check the actuator label for model number. This matches the controller.
- ② Check Parallel I/O configuration matches (NPN or PNP).



Precautions on blank controller (LECP6□□-BC)

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

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

SMC website
<http://www.smc.eu>

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

Specifications

Basic Specifications

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

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

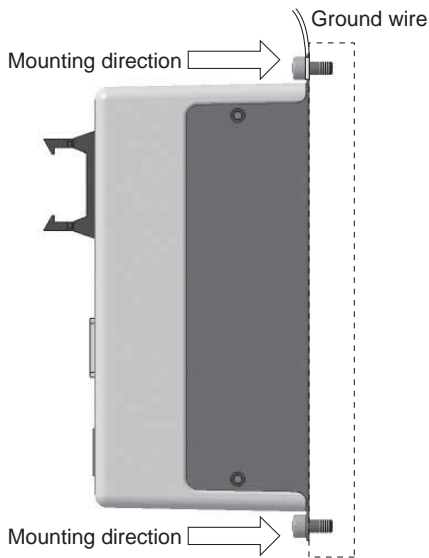
Note 2) The power consumption changes depending on the actuator model. Refer to the specifications of actuator for more details.

Note 3) Applicable to non-magnetizing lock.

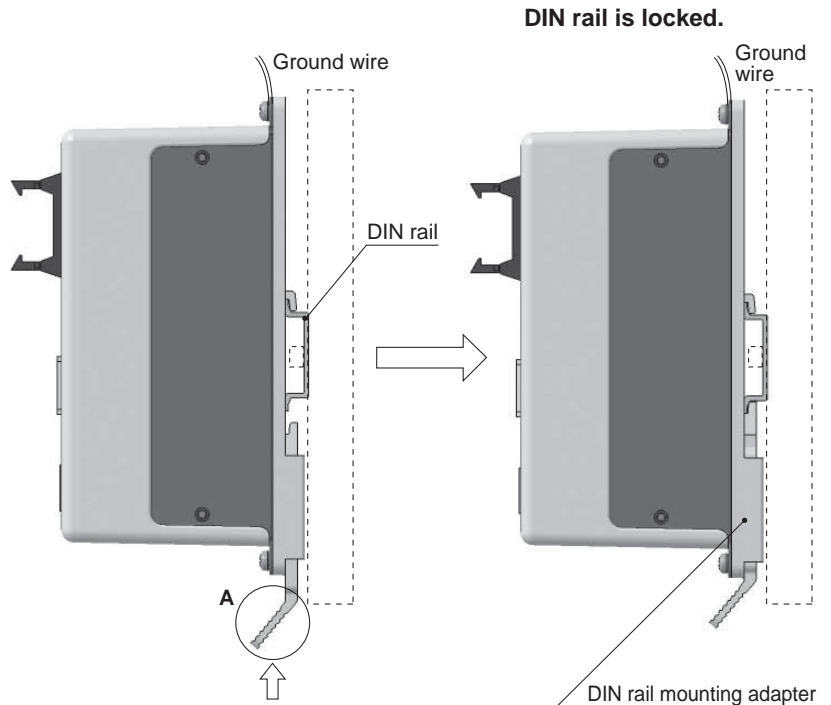
Series LECP6

How to Mount

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



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

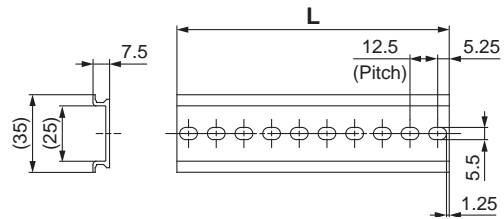


Hook the controller on the DIN rail and press the lever of section A in the arrow direction to lock it.

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

DIN rail AXT100-DR-□

* For □, enter a number from the "No." line in the table below.
Refer to the dimensions on page 24 for the mounting dimensions.



L Dimension [mm]

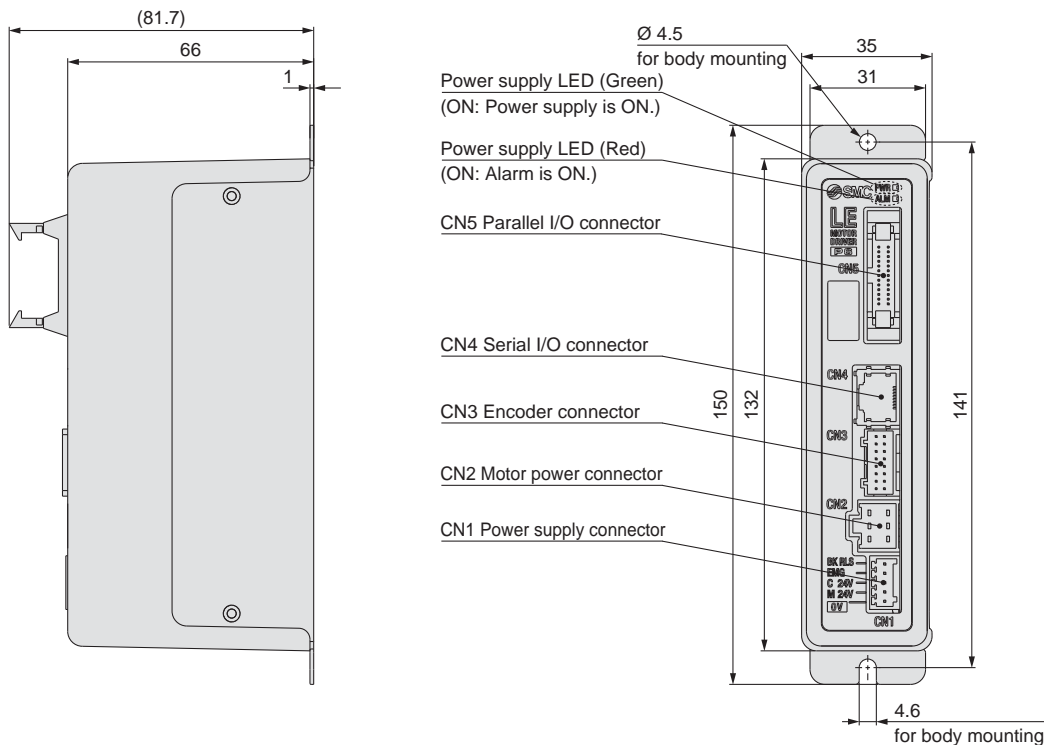
No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5
No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5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

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

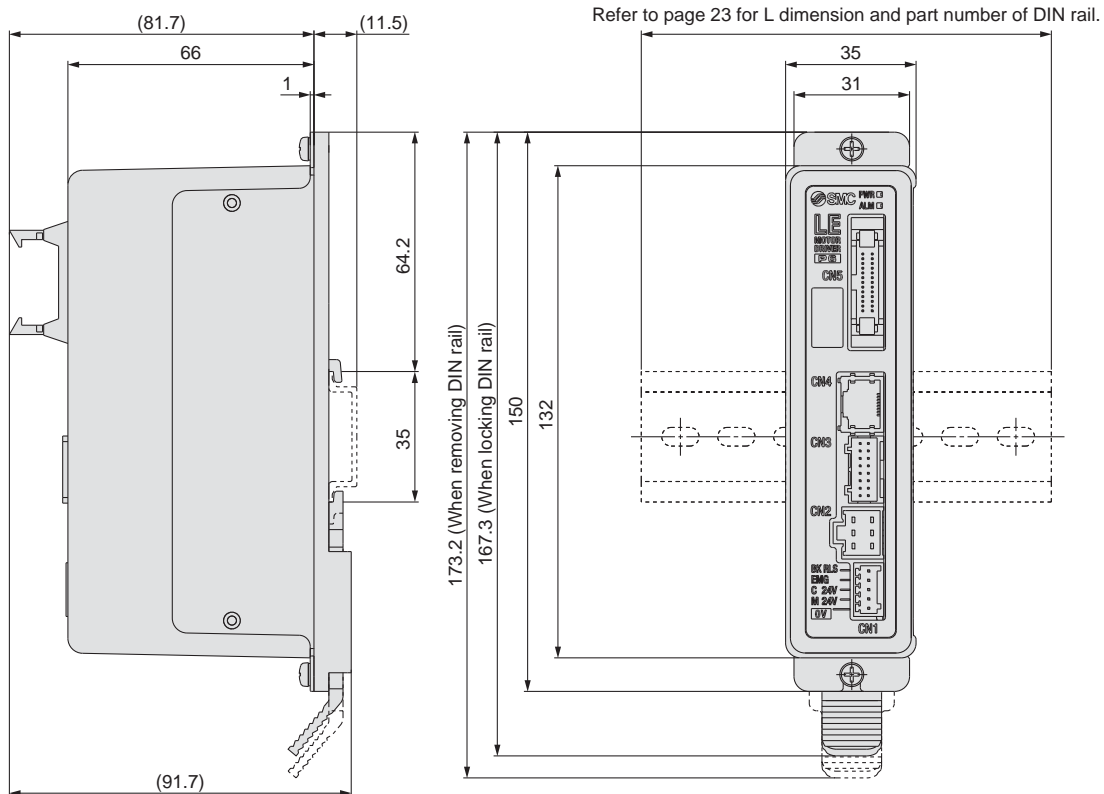
This should be used when the DIN rail mounting adapter is mounted onto the screw mounting type controller afterward.

Dimensions

a) Screw mounting (LECP6□□-□)



b) DIN rail mounting (LECP6□□D-□)



Series LECP6

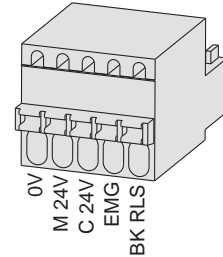
Wiring Example 1

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

Power supply plug for LECP6

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

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

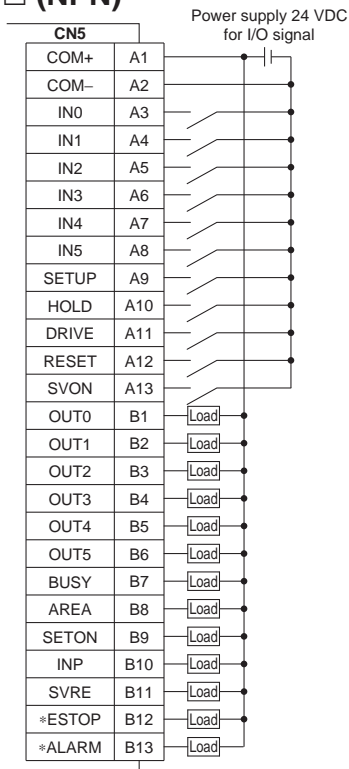


Wiring Example 2

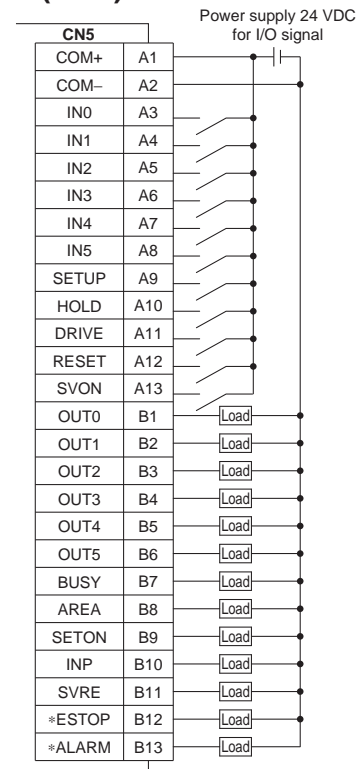
Parallel I/O Connector: CN5 * When you connect a PLC etc., to the CN5 parallel I/O connector, use the I/O cable (LEC-CN5-□).
* The wiring should be changed depending on the type of the parallel I/O (NPN or PNP).

Wiring diagram

LECP6N□□-□ (NPN)



LECP6P□□-□ (PNP)



Input Signal

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

Output Signal

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

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

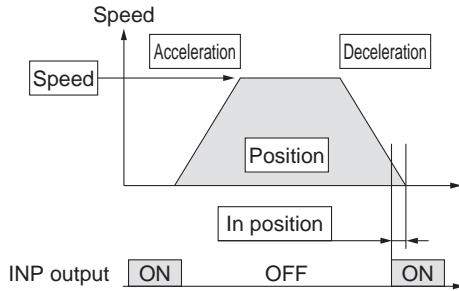
Step Data Setting

1. Step data setting for positioning

In this setting, the actuator moves toward and stops at the target position.

The following diagram shows the setting items and operation.

The setting items and set values for this operation are stated below.



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

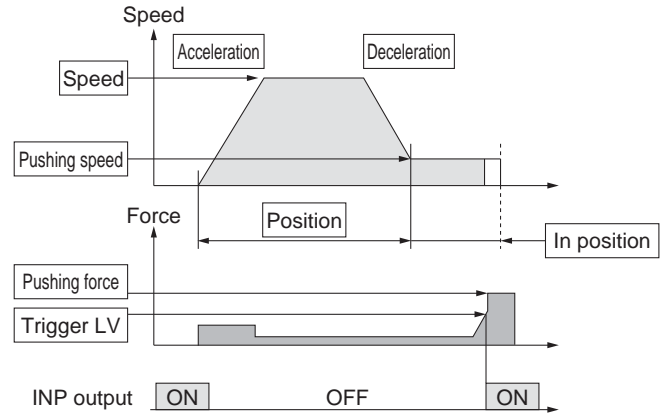
Step Data (Positioning)

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

2. Step data setting for pushing

The actuator moves toward the pushing start position, and when it reaches that position, it starts pushing with the set force or less.

The following diagram shows the setting items and operation. The setting items and set values for this operation are stated below.



- ◎ : Need to be set.
- : Need to be adjusted as required.

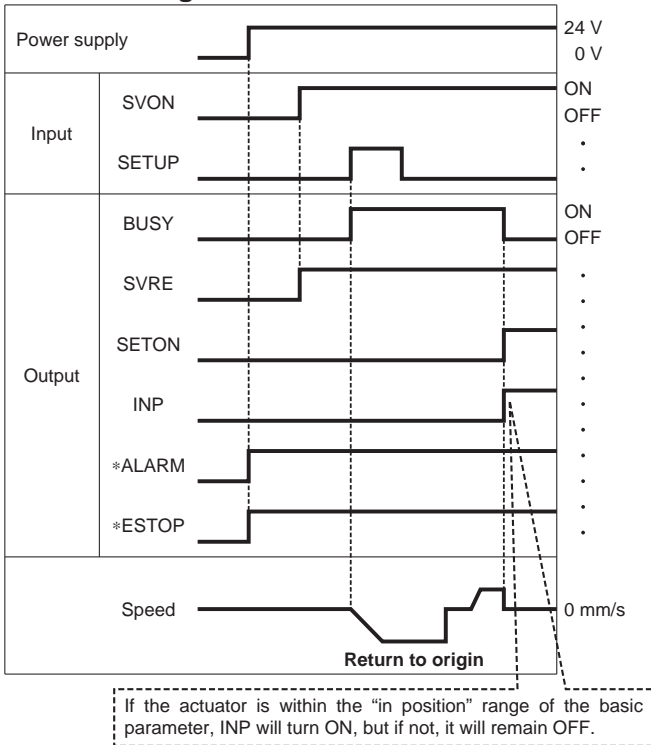
Step Data (Pushing)

Necessity	Item	Details
◎	Movement MOD	When the absolute position is required, set Absolute. When the relative position is required, set Relative.
◎	Speed	Transfer speed to the pushing start position
◎	Position	Pushing start position
○	Acceleration	Parameter which defines how rapidly the actuator reaches the speed set. The higher the set value, the faster it reaches the speed set.
○	Deceleration	Parameter which defines how rapidly the actuator comes to stop. The higher the set value, the quicker it stops.
◎	Pushing force	Pushing force ratio is defined. The setting range differs depending on the electric actuator type. Refer to the Operation Manual for the electric actuator.
◎	Trigger LV	Condition that turns on the INP output signal. The INP output signal turns on when the generated force exceeds the value. Trigger level should be the pushing force or less.
○	Pushing speed	Pushing speed during pushing. When the speed is set fast, the electric actuator and work pieces might be damaged due to the impact when they hit the end, so this set value should be smaller. Refer to the Operation Manual for the electric actuator.
○	Moving force	Max. torque during the positioning operation (No specific change is required.)
○	Area 1, Area 2	Condition that turns on the AREA output signal.
◎	In position	Transfer distance during pushing. If the transferred distance exceeds the setting, it stops even if it is not pushing. If the transfer distance is exceeded, the INP output signal will not turn on.

Series LECP6

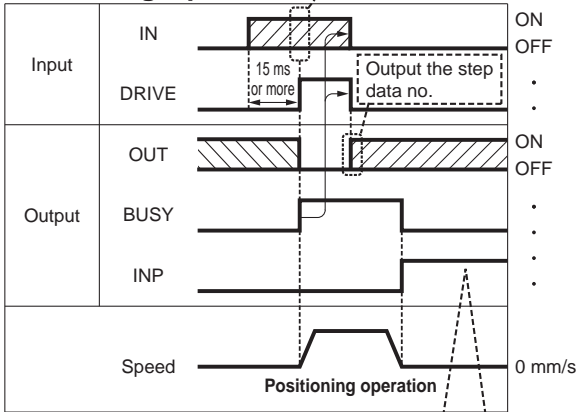
Signal Timing

Return to Origin



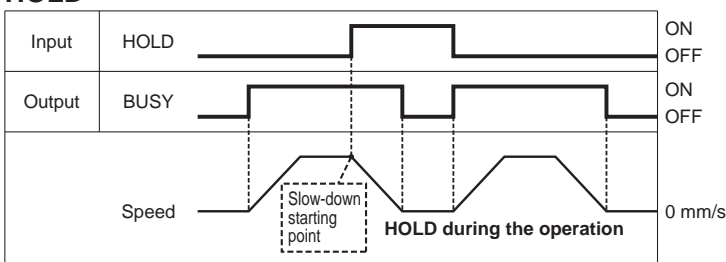
*"ALARM" and "*ESTOP" are expressed as negative-logic circuit.

Positioning Operation



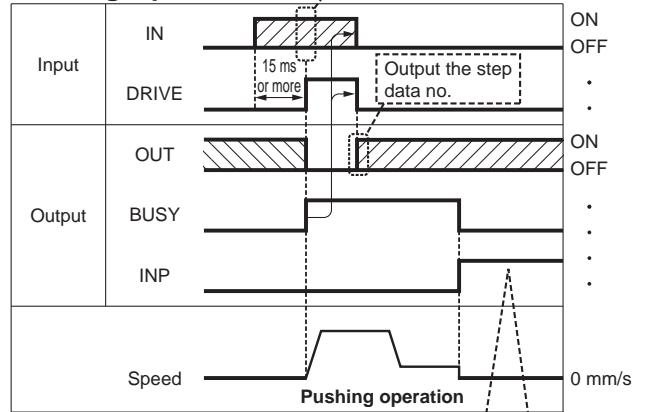
*"OUT" is output when "DRIVE" is changed from ON to OFF.
(When power supply is applied, "DRIVE" or "RESET" is turned ON or "*ESTOP" is turned OFF, all of the "OUT" outputs are OFF.)

HOLD

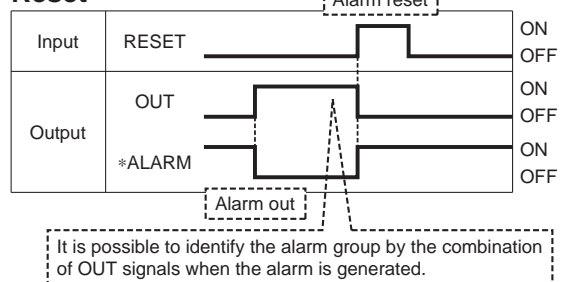


* When the actuator is in the positioning range in the pushing operation, it does not stop even if HOLD signal is input.

Pushing Operation



Reset



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

Options: Actuator Cable

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

LE-CP-1 - []

Cable length (L) [m]

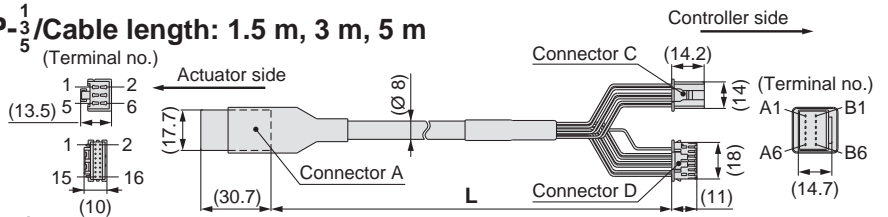
1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

* Produced upon receipt of order (Robotic cable only)

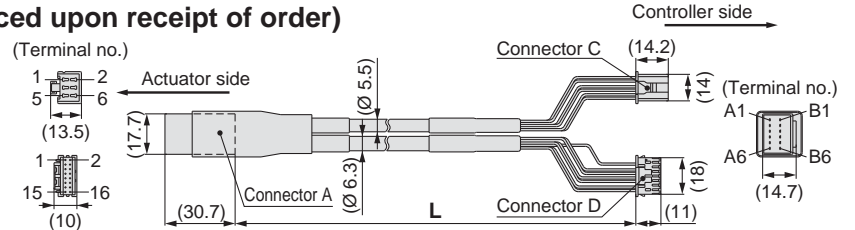
Cable type

-	Robotic cable (Flexible cable)
S	Standard cable

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



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



Signal	Connector A terminal no.	Connector C terminal no.
A	B-1	2
\bar{A}	A-1	1
B	B-2	6
\bar{B}	A-2	5
COM-A/COM	B-3	3
COM-B/-	A-3	4
Shield		
Vcc	B-4	12
GND	A-4	13
\bar{A}	B-5	7
A	A-5	6
\bar{B}	B-6	9
B	A-6	8
		3

Signal	Connector B terminal no.	Connector D terminal no.
A	B-1	12
\bar{A}	A-1	13
B	B-2	7
\bar{B}	A-2	6
COM-A/COM	B-3	9
COM-B/-	A-3	8
		3

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

LE-CP-1-B - []

Cable length (L) [m]

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

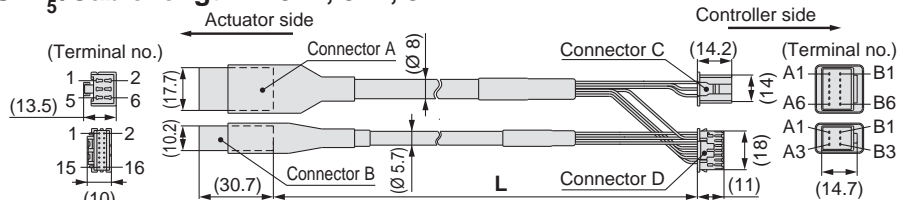
* Produced upon receipt of order (Robotic cable only)

With lock and sensor

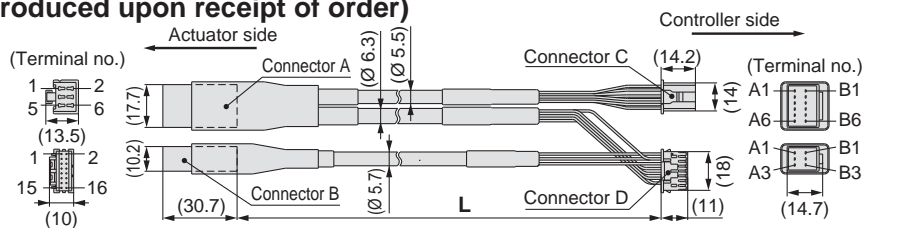
Cable type

-	Robotic cable (Flexible cable)
S	Standard cable

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



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



Signal	Connector A terminal no.	Connector C terminal no.
A	B-1	2
\bar{A}	A-1	1
B	B-2	6
\bar{B}	A-2	5
COM-A/COM	B-3	3
COM-B/-	A-3	4
Shield		
Vcc	B-4	12
GND	A-4	13
\bar{A}	B-5	7
A	A-5	6
\bar{B}	B-6	9
B	A-6	8
		3

Signal	Connector B terminal no.	Connector D terminal no.
A	B-1	12
\bar{A}	A-1	13
B	B-2	7
\bar{B}	A-2	6
COM-A/COM	B-3	9
COM-B/-	A-3	8
		3

Signal	Connector B terminal no.	Connector D terminal no.
Lock (+)	B-1	4
Lock (-)	A-1	5
Sensor (+) (Note)	B-3	1
Sensor (-) (Note)	A-3	2

Series LECP6

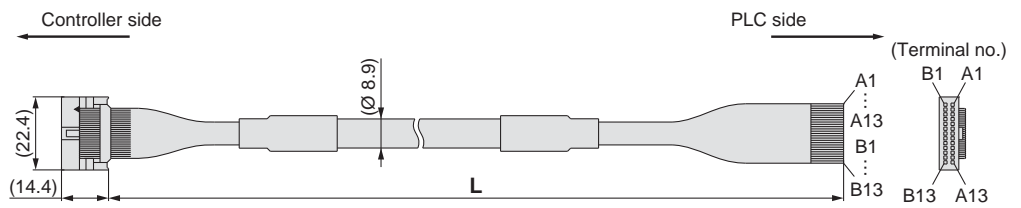
Option: I/O Cable

LEC - CN5 - 1

Cable length (L) [m]

1	1.5
3	3
5	5

* Conductor size: AWG28



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

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

Controller Setting Kit/LEC-W2

How to Order

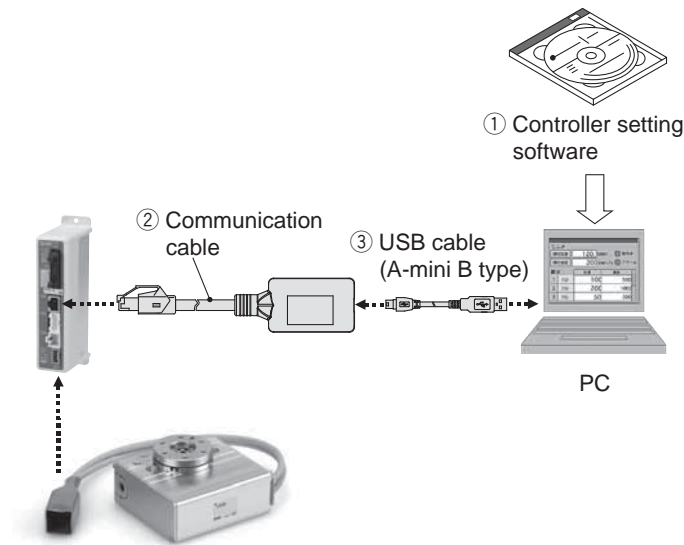
LEC-W2

Controller setting kit
(Japanese and English are available.)

Contents

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

* Can be ordered separately.



Compatible Controller/Driver

Step data input type

Series **LECP6**

Pulse input type

Series **LECPA**

Hardware Requirements

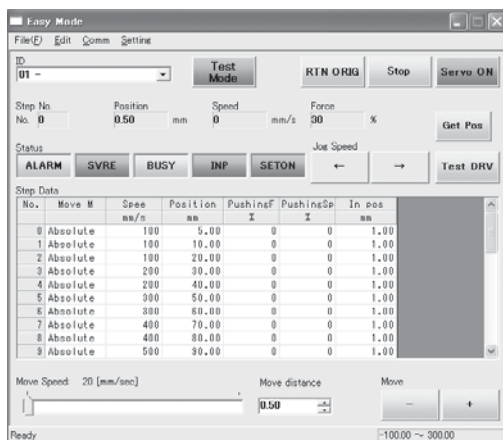
OS	IBM PC/AT compatible machine running Windows®XP (32-bit), Windows®7 (32-bit and 64-bit), Windows®8.1 (32-bit and 64-bit).
Communication interface	USB 1.1 or USB 2.0 ports
Display	XGA (1024 x 768) or more

* Windows®XP, Windows®7 and Windows®8.1 are registered trademarks of Microsoft Corporation in the United States.

* Refer to SMC website for version upgrade information, <http://www.smc.eu>

Screen Example

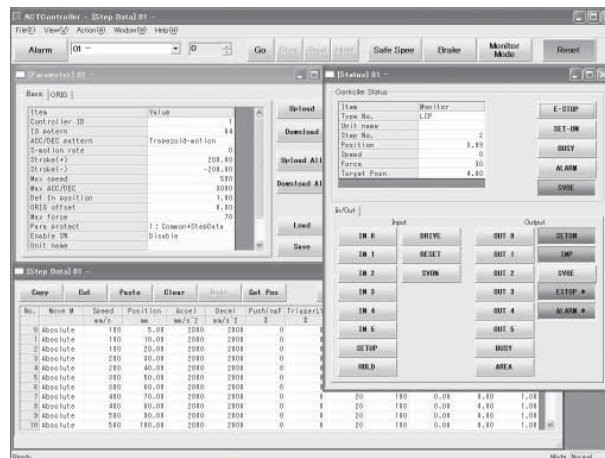
Easy mode screen example



Easy operation and simple setting

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

Normal mode screen example



Detailed setting

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

Series LEC Teaching Box/LEC-T1



How to Order

LEC-T1-3EG

Teaching box

Cable length [m]
3 3

Initial language
J Japanese
E English

Enable switch

—	None
S	Equipped with enable switch

* Interlock switch for jog and test function

Stop switch
G Equipped with stop switch

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

Standard functions

- Chinese character display
- Stop switch is provided.

Option

- Enable switch is provided.

Specifications

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

[CE-compliant products]

The EMC compliance of the teaching box was tested with the LEC6 series step motor controller (servo/24 VDC) and an applicable actuator.

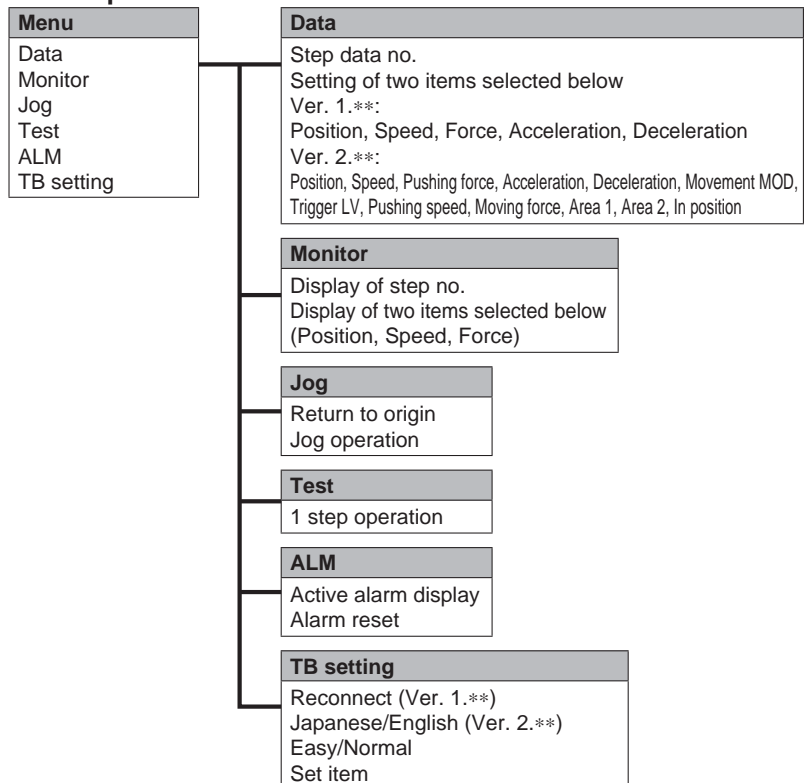
[UL-compliant products]

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

Easy Mode

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

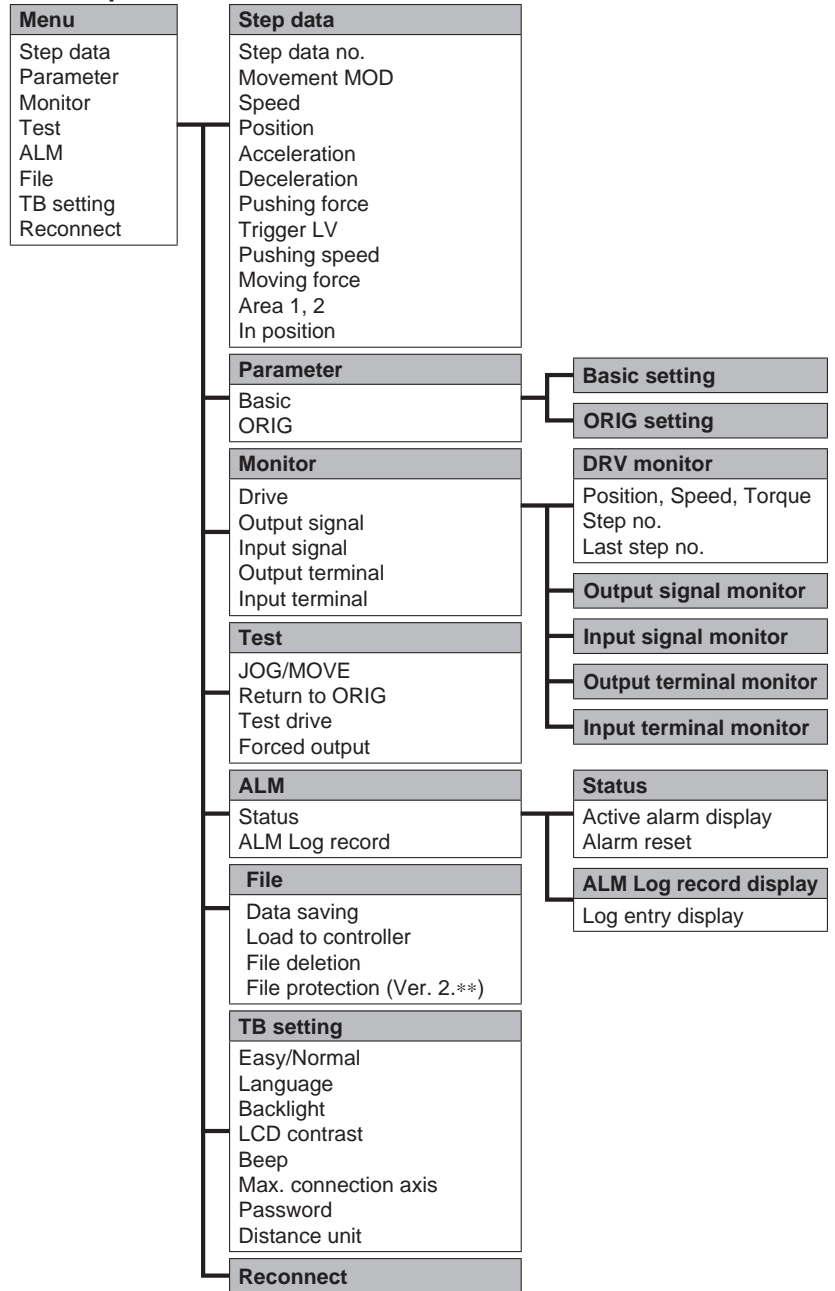
Menu Operations Flowchart



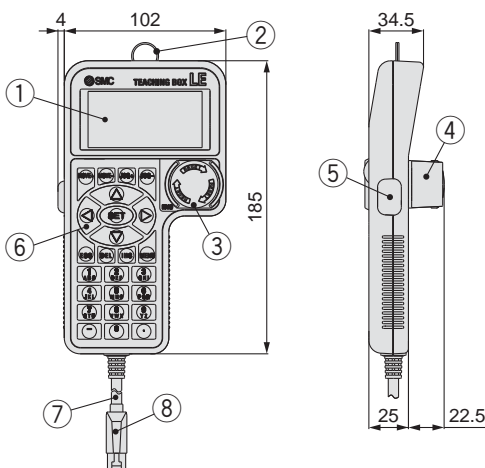
Normal Mode

Function	Details
Step data	• Step data setting
Parameter	• Parameters setting
Test	<ul style="list-style-type: none"> • Jog operation/Constant rate movement • Return to origin • Test drive (Specify a maximum of 5 step data and operate.) • Forced output (Forced signal output, Forced terminal output)
Monitor	<ul style="list-style-type: none"> • Drive monitor • Output signal monitor • Input signal monitor • Output terminal monitor • Input terminal monitor
ALM	<ul style="list-style-type: none"> • Active alarm display (Alarm reset) • Alarm log record display
File	<ul style="list-style-type: none"> • Data saving Save the step data and parameters of the controller which is being used for communication (it is possible to save four files, with one set of step data and parameters defined as one file). • Load to controller Loads the data which is saved in the teaching box to the controller which is being used for communication. • Delete the saved data. • File protection (Ver. 2.**)
TB setting	<ul style="list-style-type: none"> • Display setting (Easy/Normal mode) • Language setting (Japanese/English) • Backlight setting • LCD contrast setting • Beep sound setting • Max. connection axis • Distance unit (mm/inch)
Reconnect	• Reconnection of axis

Menu Operations Flowchart



Dimensions



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

Model Selection

Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

JXC□1

JXC73183192193

Specific Product Precautions

Gateway Unit Series LEC-G



How to Order

⚠ Caution

[CE-compliant products]

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

[UL-compliant products]

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

Gateway unit LEC-G MJ2

Applicable Fieldbus protocols

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

Mounting

—	Screw mounting
D (Note)	DIN rail mounting

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



Cable

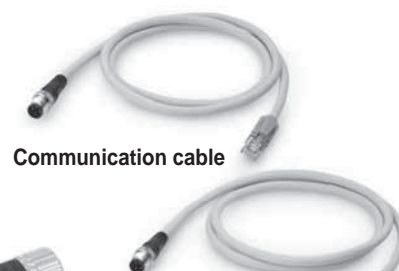
LEC-CG 1-L

Cable type

1	Communication cable
2	Cable between branches

Cable length

K	0.3 m
L	0.5 m
1	1 m



Communication cable

Cable between branches

Branch connector LEC-CGD

Branch connector



Terminating resistor LEC-CGR

Specifications

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

Note 1) Please note that the version is subject to change.

Note 2) Each file can be downloaded from the SMC website, <http://www.smc.eu>

Note 3) When using a teaching box (LEC-T1-□), set the communication speed to 115.2 kbps.

Note 4) A communication response time for 1 controller is approximately 30 ms.

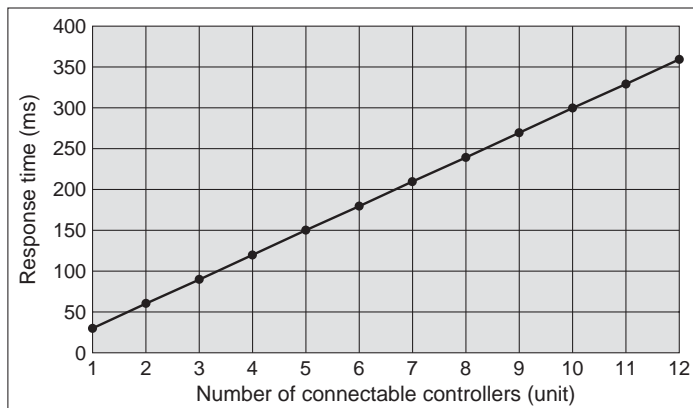
Refer to "Communication Response Time Guideline" for response times when several controllers are connected.

Note 5) For step data input, up to 12 controllers connectable.

Note 6) When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Communication Response Time Guideline

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

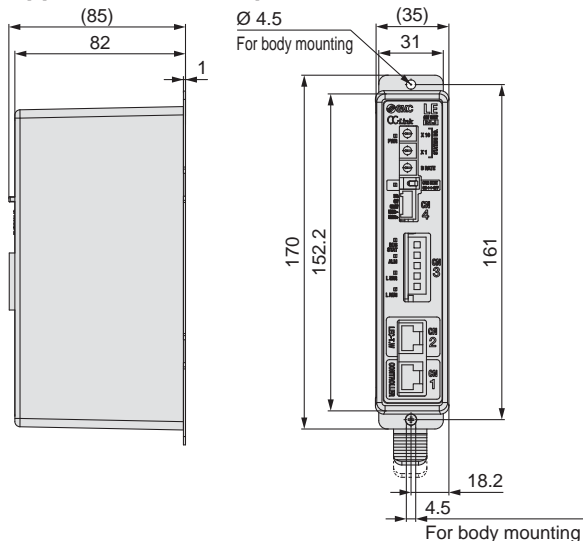


* This graph shows delay times between gateway unit and controllers. Fieldbus network delay time is not included.

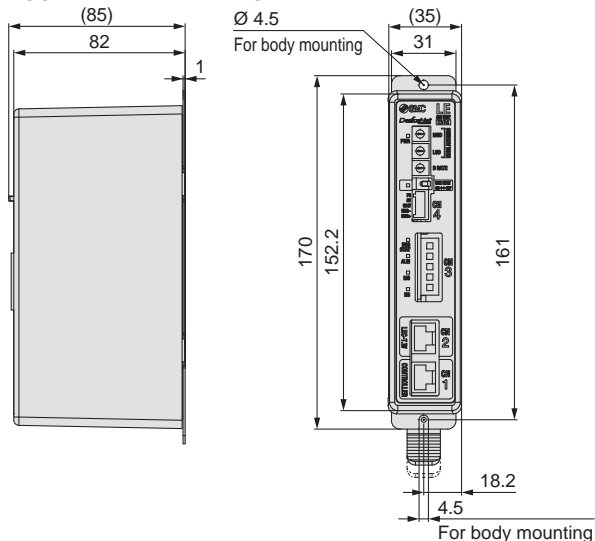
Dimensions

Screw mounting (LEC-G□□□)

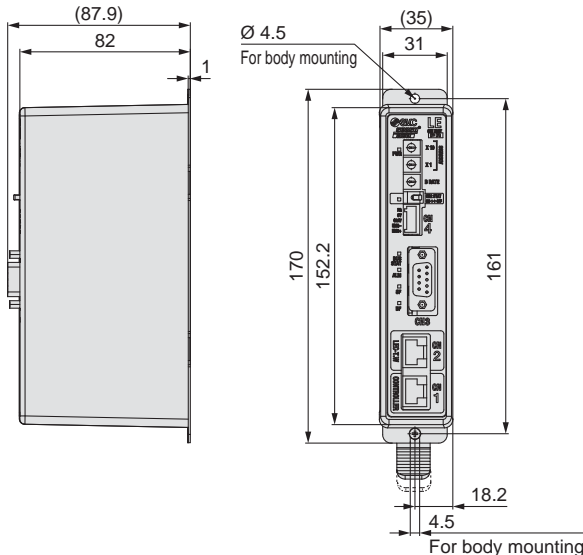
Applicable Fieldbus protocol: CC-Link Ver. 2.0



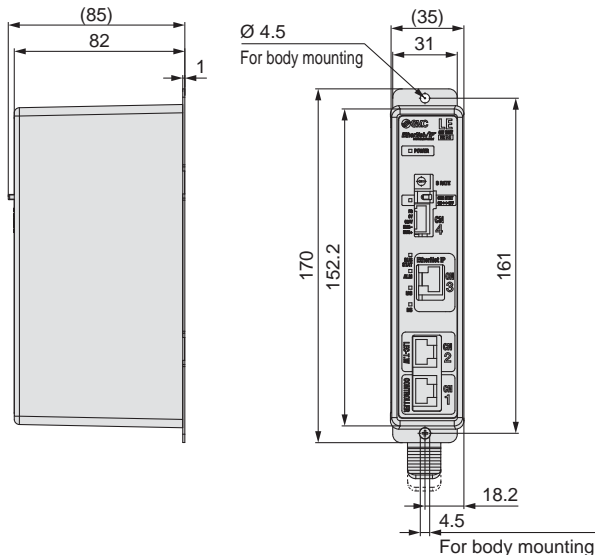
Applicable Fieldbus protocol: DeviceNet™



Applicable Fieldbus protocol: PROFIBUS DP



Applicable Fieldbus protocol: EtherNet/IP™



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

Model Selection

Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

JXC□1

JXC73/83/92/93

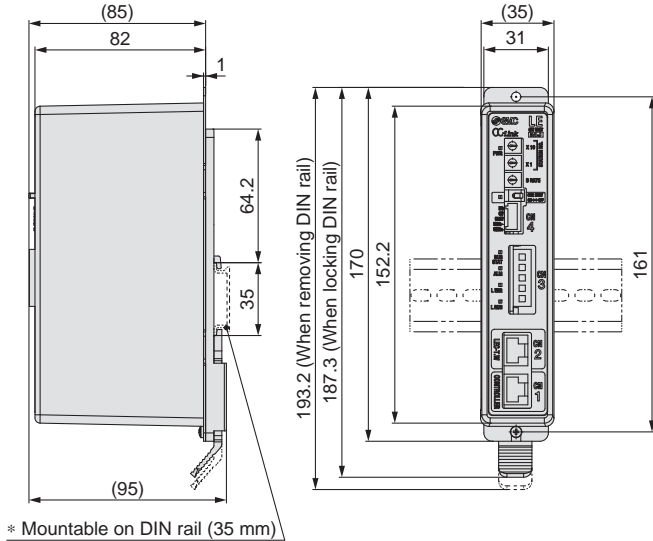
Specific Product Precautions

Series LEC-G

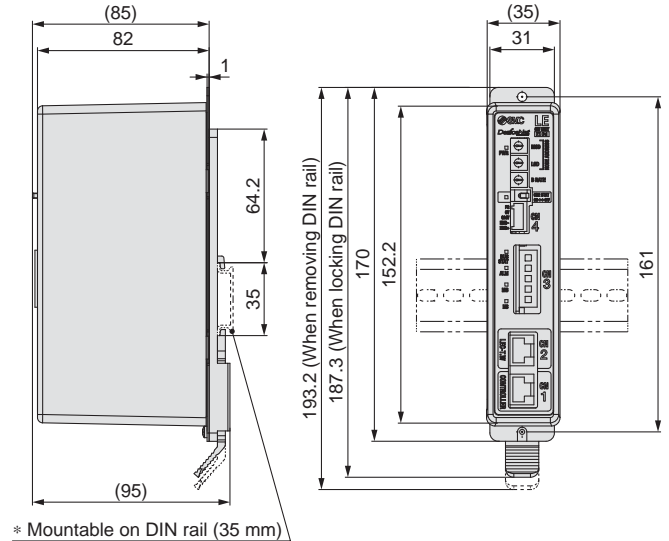
Dimensions

DIN rail mounting (LEC-G□□□D)

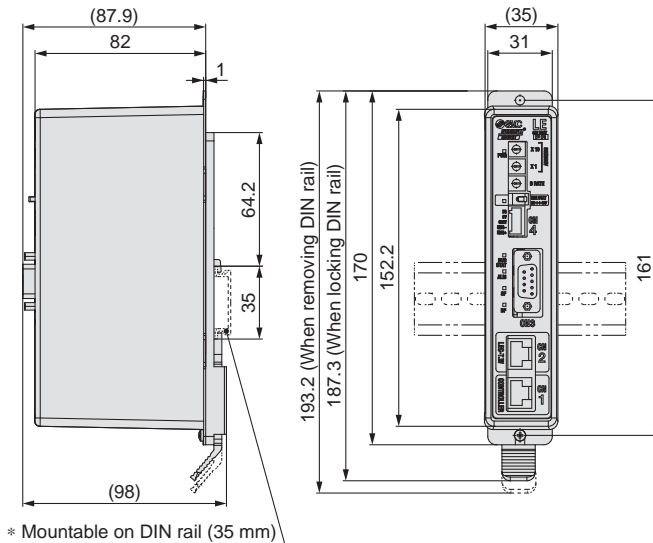
Applicable Fieldbus protocol: CC-Link Ver. 2.0



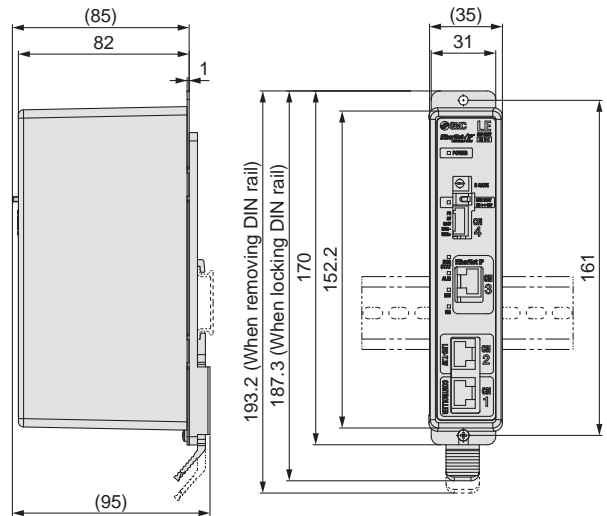
Applicable Fieldbus protocol: DeviceNet™



Applicable Fieldbus protocol: PROFIBUS DP



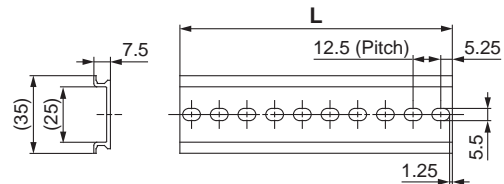
Applicable Fieldbus protocol: EtherNet/IP™



DIN rail

AXT100-DR-□

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



L Dimension [mm]

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

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

Programless Controller Series *LECP1*



Model Selection

Step Motor (Servo/24 VDC)
LER

LECP6

LECG

LECP1

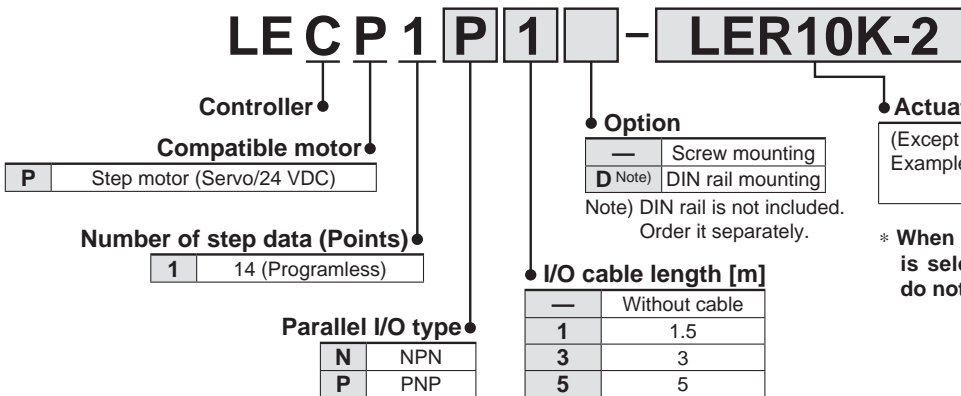
LECPA

JXC□1

JXC73/83/92/93

Specific Product Precautions

How to Order



Caution

[CE-compliant products]

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

[UL-compliant products]

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

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

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

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

Specifications

Basic Specifications

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

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

Note 2) The power consumption changes depending on the actuator model. Refer to the each actuator's operation manual etc. for details.

Note 3) "10" to "15" in decimal number are displayed as follows in the 7-segment LED.

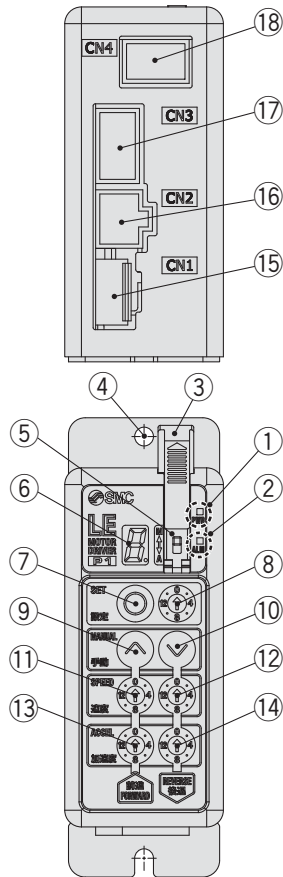


Decimal display	10	11	12	13	14	15
Hexadecimal display	A	b	c	d	E	F

Note 4) Applicable to non-magnetizing lock.

Series LECP1

Controller Details



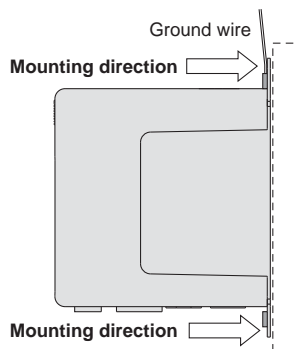
No.	Display	Description	Details
①	PWR	Power supply LED	Power supply ON/Servo ON : Green turns on Power supply ON/Servo OFF: Green flashes
②	ALM	Alarm LED	With alarm : Red turns on Parameter setting : Red flashes
③	—	Cover	Change and protection of the mode switch (Close the cover after changing switch)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

How to Mount

Controller mounting shown below.

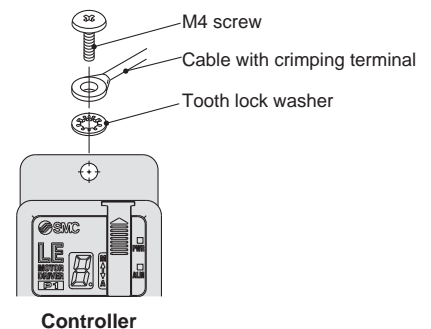
1. Mounting screw (LECP1□□-□)

(Installation with two M4 screws)



2. Grounding

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



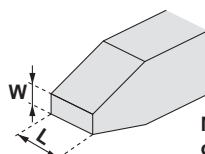
Note) When size 25 or more of the LE series are used, the space between the controllers should be 10 mm or more.

⚠ Caution

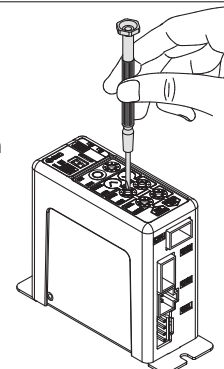
- M4 screws, cable with crimping terminal and tooth lock washer are not included. Be sure to carry out grounding earth in order to ensure the noise tolerance.
- Use a watchmaker's screwdriver of the size shown below when changing position switch ⑧ and the set value of the speed/acceleration switch ⑪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

Size

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

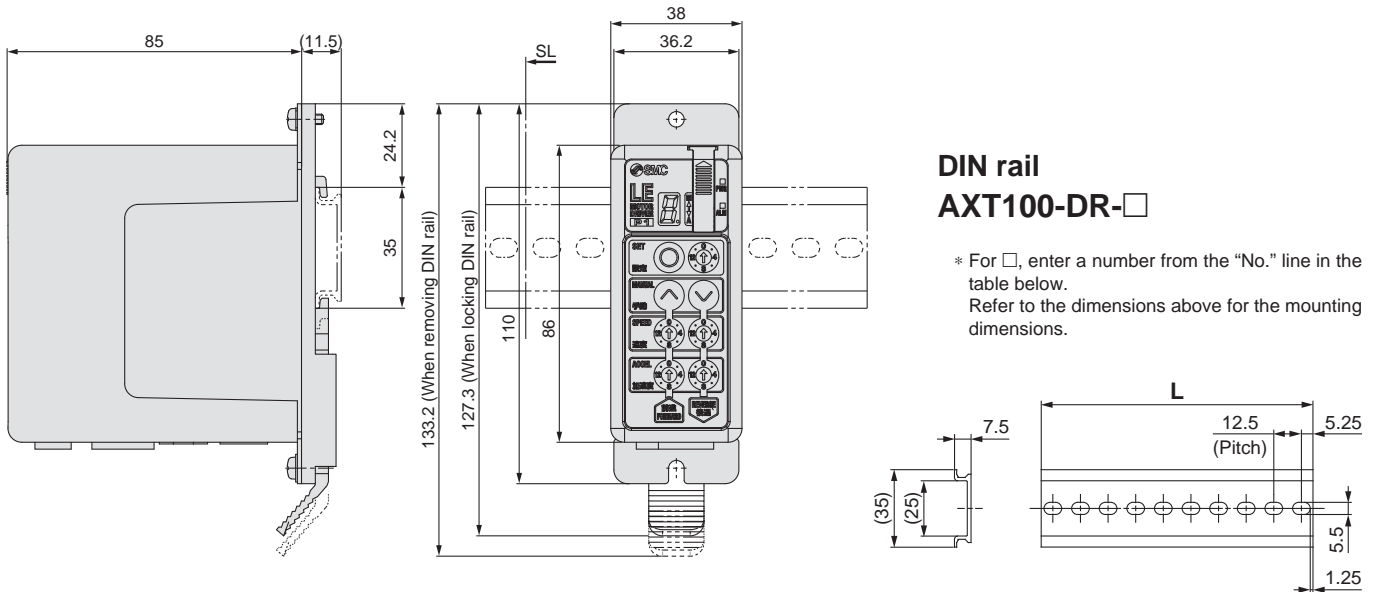


Magnified view of the end of the screwdriver



Dimensions

DIN rail mounting (LEC□1□□D-□)



L Dimension [mm]

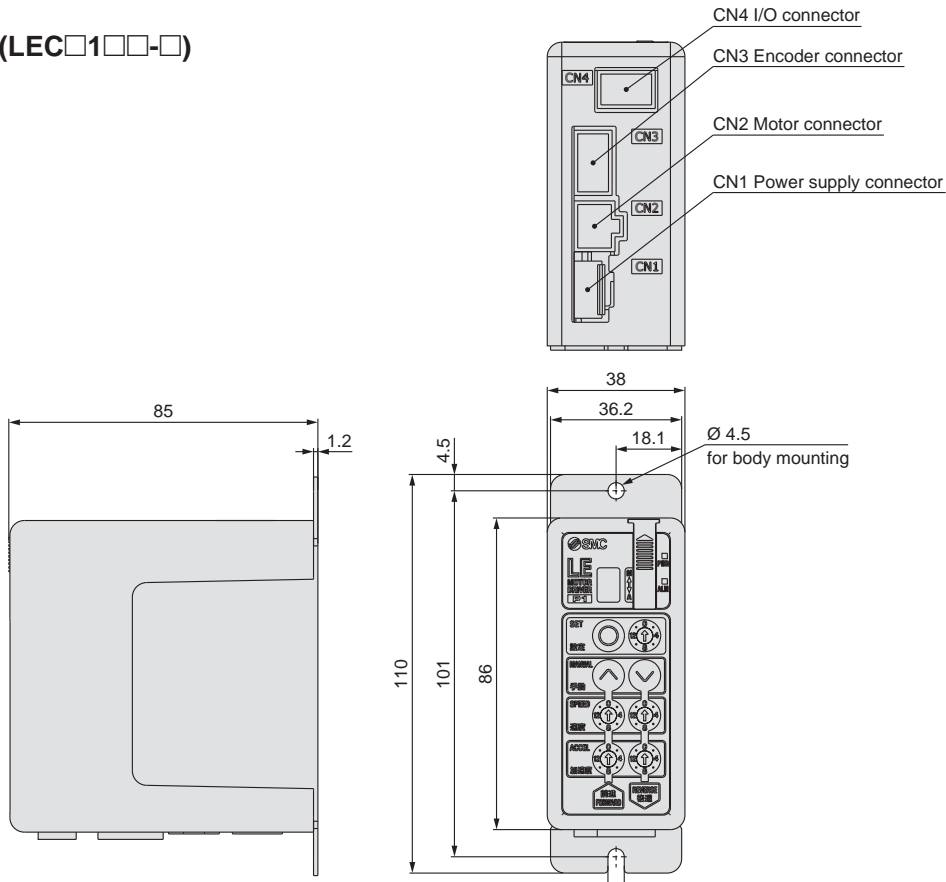
No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5	273
No.	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
L	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473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

DIN rail mounting adapter

LEC-1-D0 (with 2 mounting screws)

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

Screw mounting (LEC□1□□-□)



Series LECP1

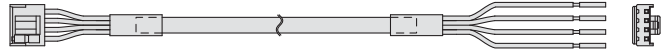
Wiring Example 1

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

CN1 Power Supply Connector Terminal for LECP1

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

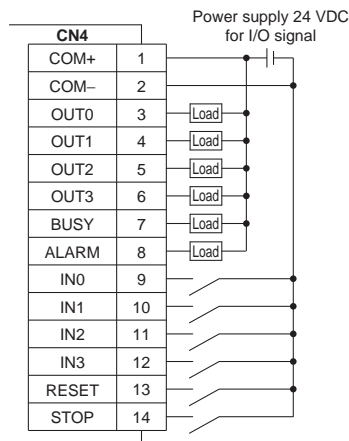
Power supply cable for LECP1 (LEC-CK1-1)



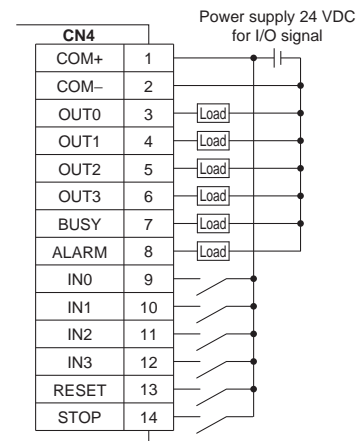
Wiring Example 2

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

■ NPN



■ PNP



Input Signal

Name	Details								
COM+	Connects the power supply 24 V for input/output signal								
COM-	Connects the power supply 0 V for input/output signal								
IN0 to IN3	<ul style="list-style-type: none"> Instruction to drive (input as a combination of IN0 to IN3) Instruction to return to origin (IN0 to IN3 all ON simultaneously) Example - (instruction to drive for position no. 5) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>IN3</th> <th>IN2</th> <th>IN1</th> <th>IN0</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>ON</td> </tr> </tbody> </table>	IN3	IN2	IN1	IN0	OFF	ON	OFF	ON
IN3	IN2	IN1	IN0						
OFF	ON	OFF	ON						
RESET	Alarm reset and operation interruption During operation: deceleration stop from position at which signal is input (servo ON maintained) While alarm is active: alarm reset								
STOP	Instruction to stop (after maximum deceleration stop, servo OFF)								

Output Signal

Name	Details								
OUT0 to OUT3	Turns on when the positioning or pushing is completed. (Output is instructed in the combination of OUT0 to 3.) Example - (operation complete for position no. 3) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>OUT3</th> <th>OUT2</th> <th>OUT1</th> <th>OUT0</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>ON</td> </tr> </tbody> </table>	OUT3	OUT2	OUT1	OUT0	OFF	OFF	ON	ON
OUT3	OUT2	OUT1	OUT0						
OFF	OFF	ON	ON						
BUSY	Outputs when the actuator is moving								
*ALARM (Note)	Not output when alarm is active or servo OFF								

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

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

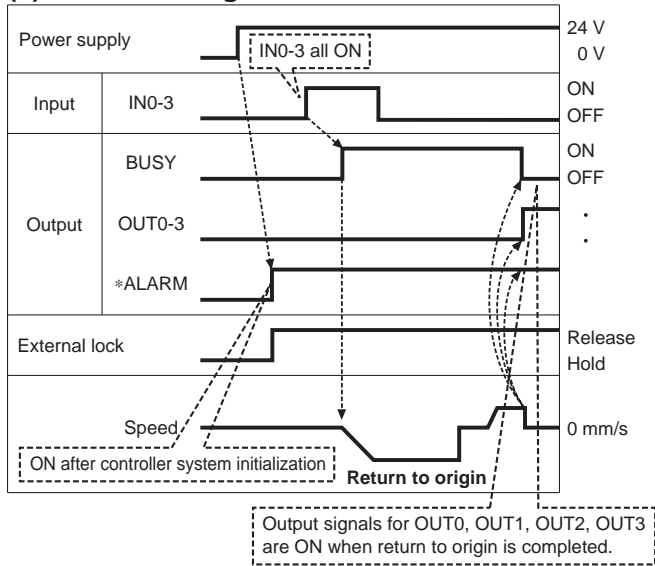
Position number	IN3	IN2	IN1	IN0
1	○	○	○	●
2	○	○	●	○
3	○	○	●	●
4	○	●	○	○
5	○	●	○	●
6	○	●	●	○
7	○	●	●	●
8	●	○	○	○
9	●	○	○	●
10 (A)	●	○	●	○
11 (B)	●	○	●	●
12 (C)	●	●	○	○
13 (D)	●	●	○	●
14 (E)	●	●	●	○
Return to origin	●	●	●	●

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

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

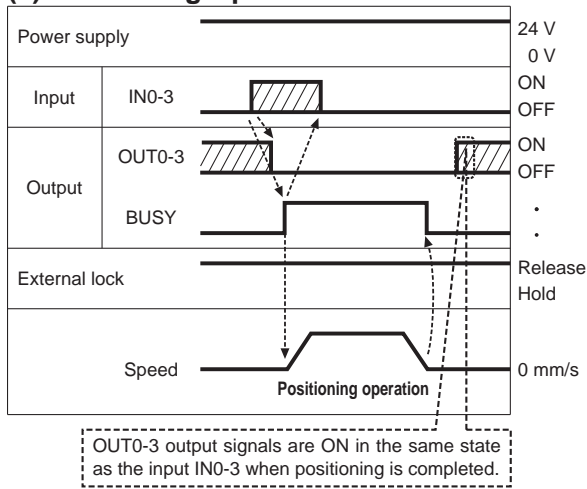
Signal Timing

(1) Return to Origin

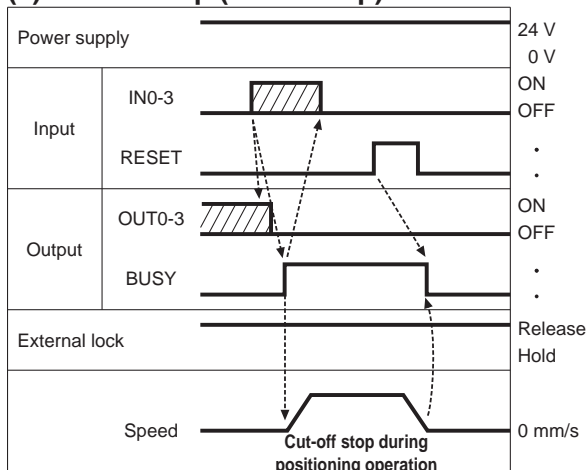


*"ALARM" is expressed as negative-logic circuit.

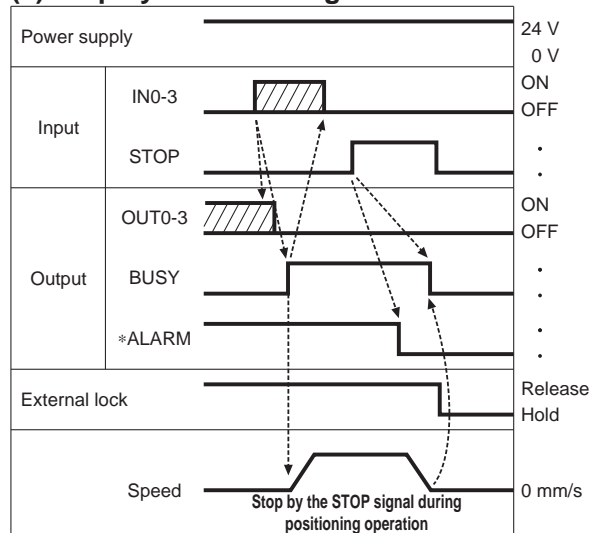
(2) Positioning Operation



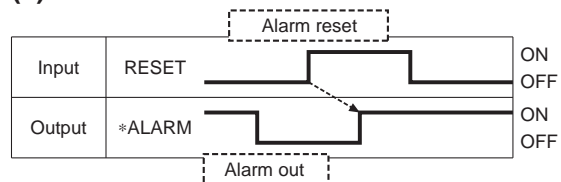
(3) Cut-off Stop (Reset Stop)



(4) Stop by the STOP Signal



(5) Alarm Reset



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

Series LECP1

Options: Actuator Cable

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

LE-CP-1-

Cable length (L) [m]

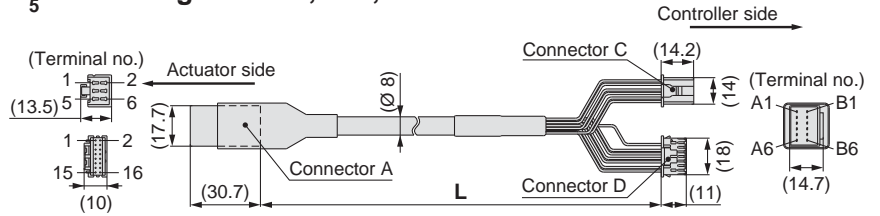
1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

* Produced upon receipt of order (Robotic cable only)

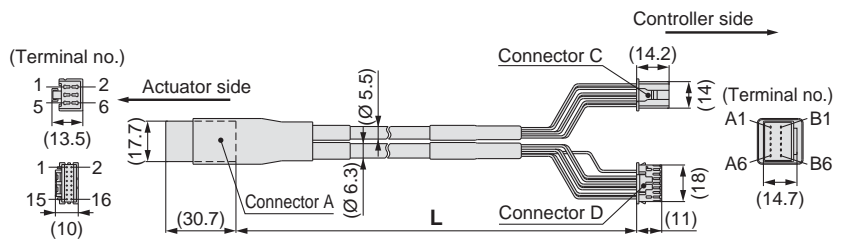
Cable type

-	Robotic cable (Flexible cable)
S	Standard cable

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



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

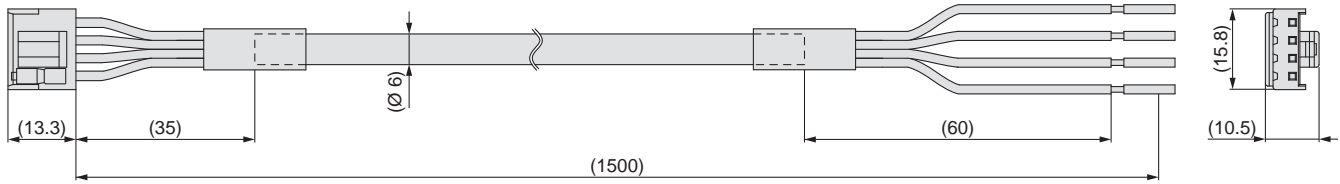


Signal	Connector A terminal no.	Cable colour	Connector C terminal no.
A	B-1	Brown	2
A	A-1	Red	1
B	B-2	Orange	6
B	A-2	Yellow	5
COM-A/COM	B-3	Green	3
COM-B/-	A-3	Blue	4
		Cable colour	Connector D terminal no.
Vcc	B-4	Brown	12
GND	A-4	Black	13
A	B-5	Red	7
A	A-5	Black	6
B	B-6	Orange	9
B	A-6	Black	8
		-	3

Options

[Power supply cable]

LEC-CK1-1



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

* Conductor size: AWG20

[I/O cable]

LEC-CK4-

Cable length (L) [m]

1	1.5
3	3
5	5



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

* Conductor size: AWG26

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

Pulse Input Type Series LECPA



How to Order

⚠ Caution

[CE-compliant products]

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

② For the LECPA series (step motor driver), EMC compliance was tested by installing a noise filter set (LEC-NFA).

Refer to page 49 for the noise filter set. Refer to the LECPA Operation Manual for installation.

[UL-compliant products]

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

LECP AP 1 - LER10K-2

Driver type

AN	Pulse input type (NPN)
AP	Pulse input type (PNP)

I/O cable length [m]

—	None
1	1.5
3	3*
5	5*

* Pulse input usable only with differential. Only 1.5 m cables usable with open collector.

Driver mounting

—	Screw mounting
D (Note)	DIN rail mounting

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

Actuator part number

Part number except cable specifications and actuator options
Example: Enter "LER10K-2"
for the LER10K-2L-R1AN1D.

BC	Blank controller (Note)
----	-------------------------

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

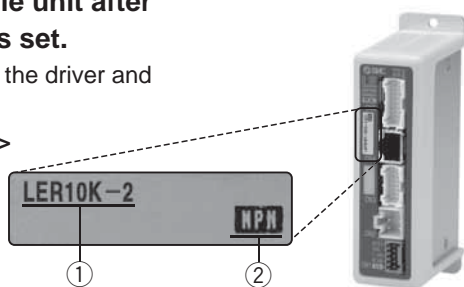
- * When controller equipped type is selected when ordering the LE series, you do not need to order this driver.
- * When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) separately.

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

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

<Check the following before use.>

- ① Check the actuator label for model number. This matches the driver.
- ② Check Parallel I/O configuration matches (NPN or PNP).



Precautions on blank controller (LECPA□□-BC)

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

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

SMC website
<http://www.smc.eu>

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

Specifications

Item	LECPA
Compatible motor	Step motor (Servo/24 VDC)
Power supply (Note 1)	Power voltage: 24 VDC $\pm 10\%$ (Note 2) [Including motor drive power, control power, stop, lock release]
Parallel input	5 inputs (Except photo-coupler isolation, pulse input terminal, COM terminal)
Parallel output	9 outputs (Photo-coupler isolation)
Pulse signal input	Maximum frequency: 60 kpps (Open collector), 200 kpps (Differential) Input method: 1 pulse mode (Pulse input in direction), 2 pulse mode (Pulse input in differing directions)
Compatible encoder	Incremental A/B phase (Encoder resolution: 800 pulse/rotation)
Serial communication	RS485 (Modbus protocol compliant)
Memory	EEPROM
LED indicator	LED (Green/Red) one of each
Lock control	Forced-lock release terminal (Note 3)
Cable length [m]	I/O cable: 1.5 or less (Open collector), 5 or less (Differential), Actuator cable: 20 or less
Cooling system	Natural air cooling
Operating temperature range [°C]	0 to 40 (No freezing)
Operating humidity range [%RH]	90 or less (No condensation)
Storage temperature range [°C]	-10 to 60 (No freezing)
Storage humidity range [%RH]	90 or less (No condensation)
Insulation resistance [MΩ]	Between the housing and SG terminal: 50 (500 VDC)
Weight [g]	120 (Screw mounting), 140 (DIN rail mounting)

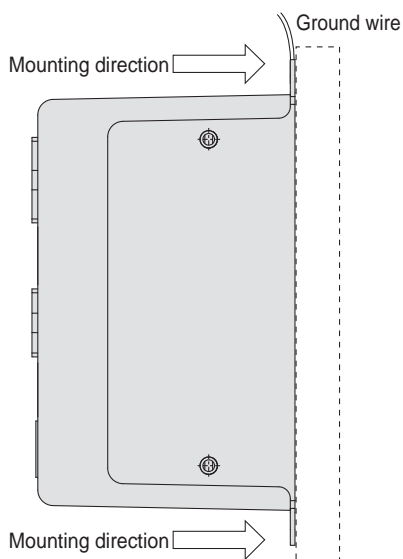
Note 1) Do not use the power supply of "inrush current prevention type" for the driver power supply. When conformity to UL is required, the electric actuator and driver should be used with a UL1310 Class 2 power supply.

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

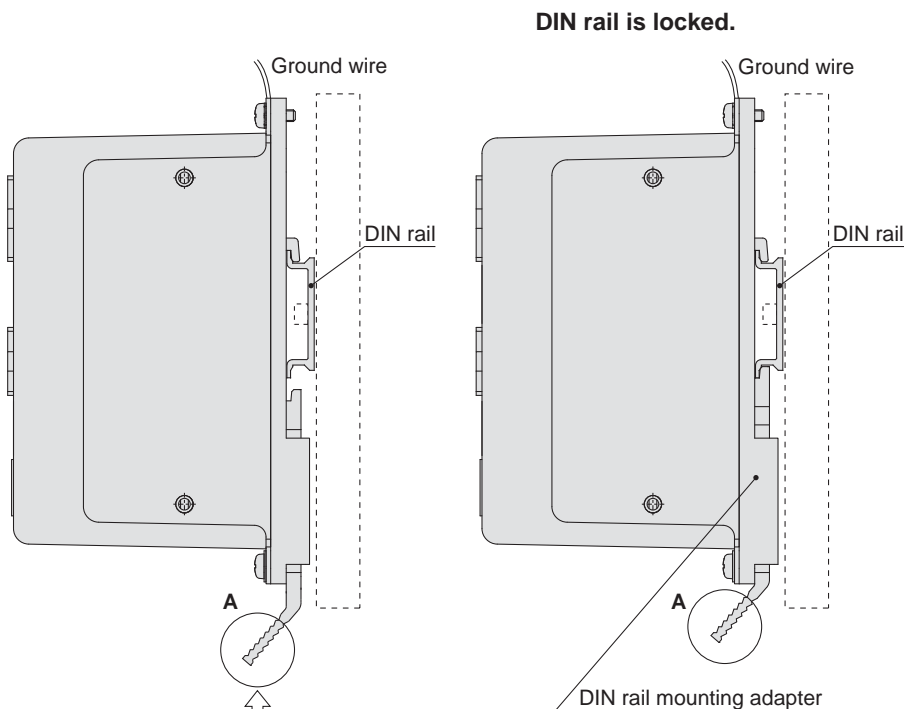
Note 3) Applicable to non-magnetizing lock.

How to Mount

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



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

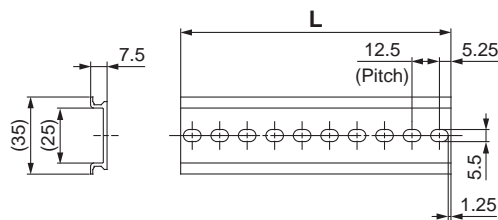


Hook the driver on the DIN rail and press the lever of section A in the arrow direction to lock it.

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

DIN rail AXT100-DR-□

* For □, enter a number from the "No." line in the table below.
Refer to the dimensions on page 45 for the mounting dimensions.



L Dimension [mm]

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

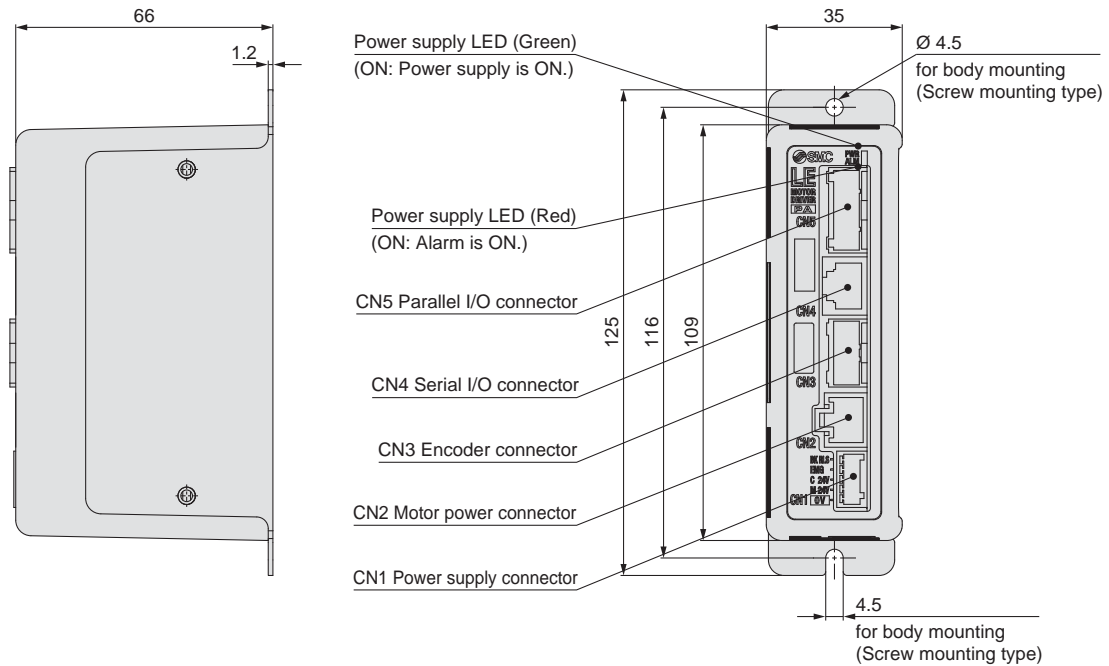
DIN rail mounting adapter LEC-2-D0 (with 2 mounting screws)

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

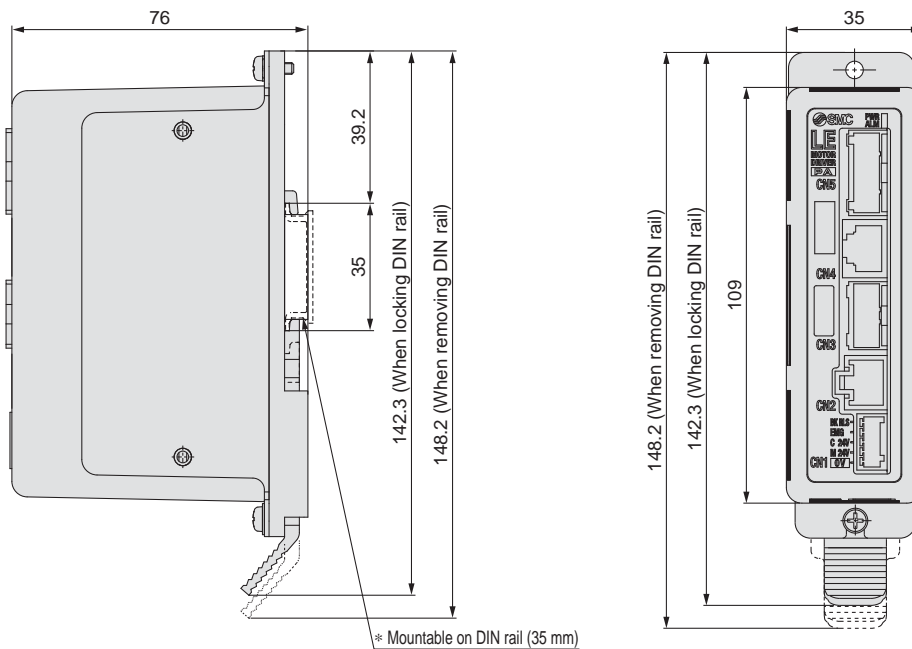
Series LECPA

Dimensions

a) Screw mounting (LECPA□□-□)



b) DIN rail mounting (LECPA□□D-□)



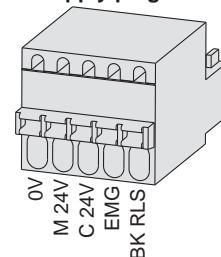
Wiring Example 1

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

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

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

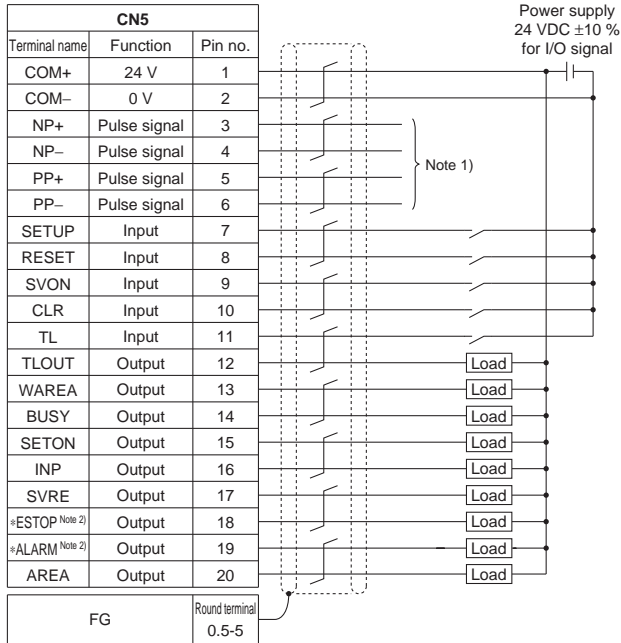
Power supply plug for LECPA



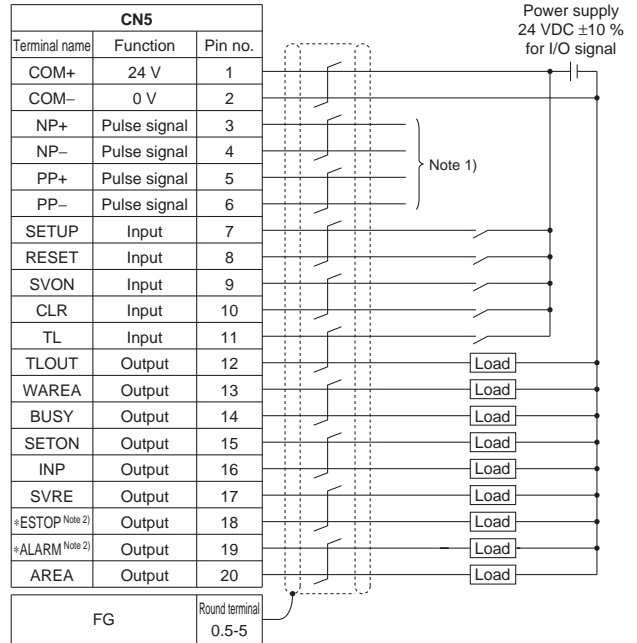
Wiring Example 2

Parallel I/O Connector: CN5 * When you connect a PLC etc., to the CN5 parallel I/O connector, use the I/O cable (LEC-CL5-□).
 * The wiring should be changed depending on the type of the parallel I/O (NPN or PNP).

LECPAN□□-□ (NPN)



LECPAP□□-□ (PNP)



Input Signal

Name	Details
COM+	Connects the power supply 24 V for input/output signal
COM-	Connects the power supply 0 V for input/output signal
SETUP	Instruction to return to origin
RESET	Alarm reset
SVON	Servo ON instruction
CLR	Deviation reset
TL	Instruction to pushing operation

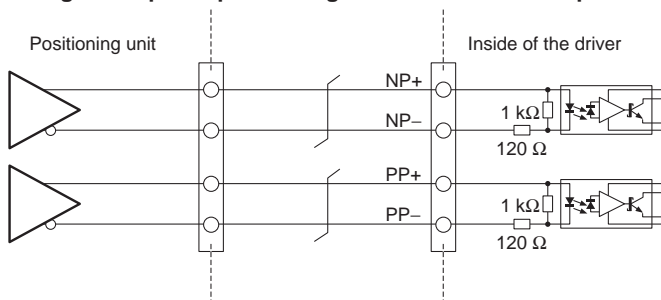
Output Signal

Name	Details
BUSY	Outputs when the actuator is operating
SETON	Outputs when returning to origin
INP	Outputs when target position is reached
SVRE	Outputs when servo is on
*ESTOP ^{Note 3)}	Not output when EMG stop is instructed
*ALARM ^{Note 3)}	Not output when alarm is generated
AREA	Outputs within the area output setting range
WAREA	Outputs within W-AREA output setting range
TLOUT	Outputs during pushing operation

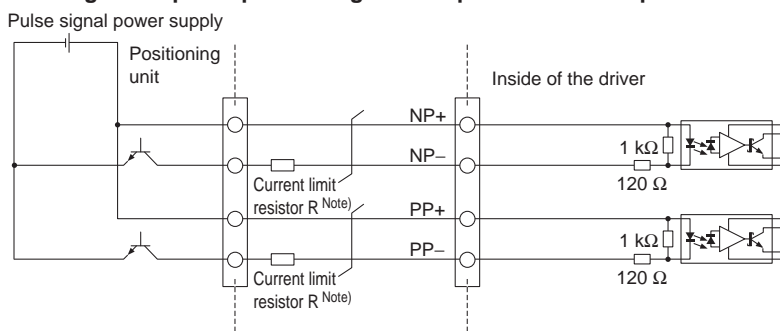
Note 3) Signal of negative-logic circuit ON (N.C.)

Pulse Signal Wiring Details

• Pulse signal output of positioning unit is differential output



• Pulse signal output of positioning unit is open collector output



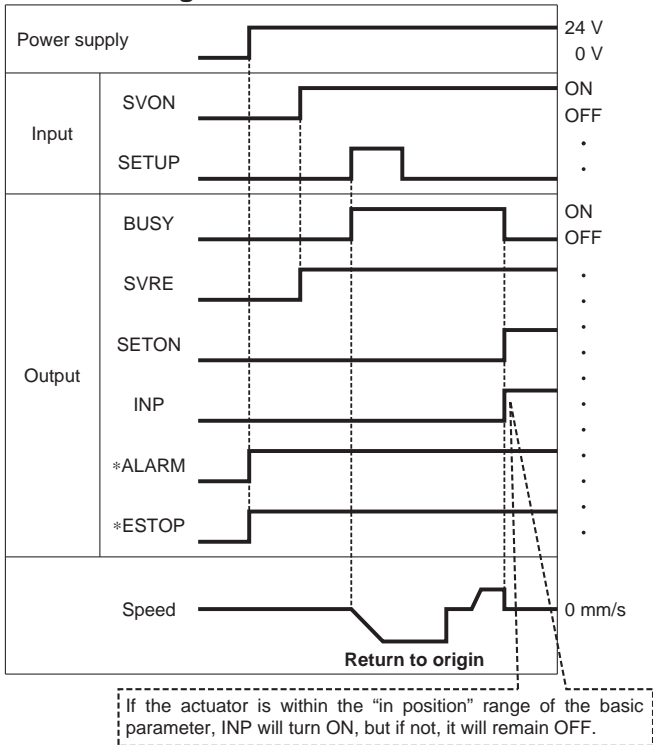
Note) Connect the current limit resistor R in series to correspond to the pulse signal voltage.

Pulse signal power supply voltage	Current limit resistor R specifications	Current limit resistor part no.
24 VDC ±10 %	3.3 kΩ ±5 % (0.5 W or more)	LEC-PA-R-332
5 VDC ±5 %	390 Ω ±5 % (0.1 W or more)	LEC-PA-R-391

Series LECPA

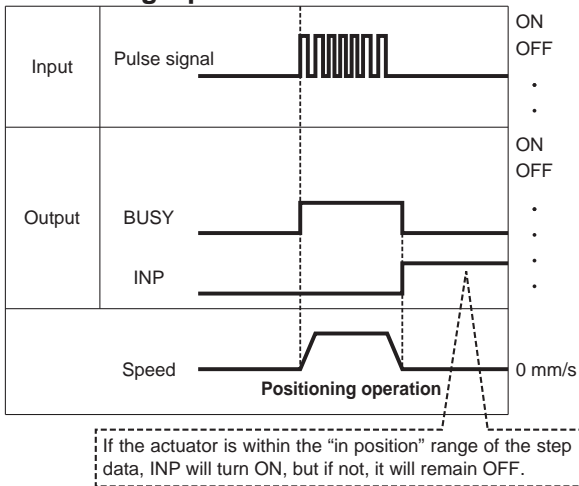
Signal Timing

Return to Origin

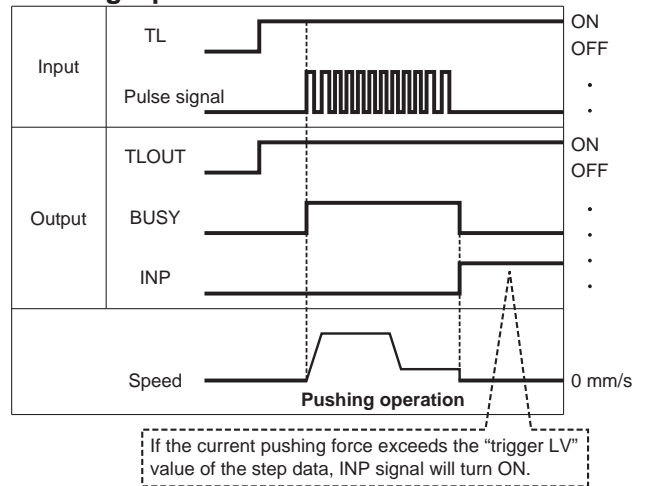


* *ALARM" and "ESTOP" are expressed as negative-logic circuit.

Positioning Operation

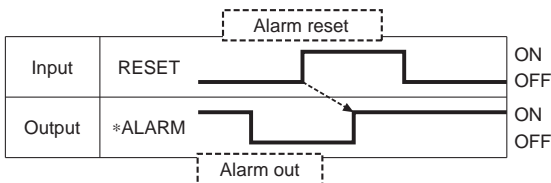


Pushing Operation



Note) If pushing operation is stopped when there is no pulse deviation, the moving part of the actuator may pulsate.

Alarm Reset



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

Options: Actuator Cable

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

LE-CP-1- 1 -

Cable length (L) [m]

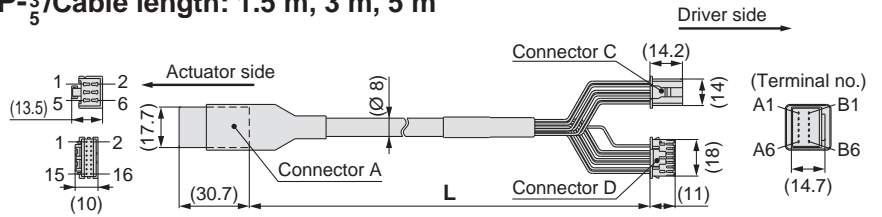
1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

* Produced upon receipt of order (Robotic cable only)

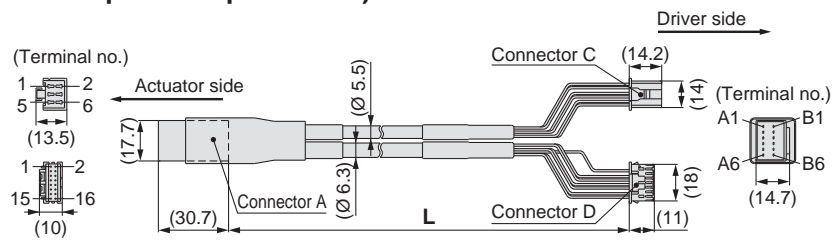
Cable type

—	Robotic cable (Flexible cable)
S	Standard cable

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



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



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

Model Selection

Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

JXC 1

JXC73/83/92/93

Specific Product Precautions

Series LECPA

Options

[I/O cable]

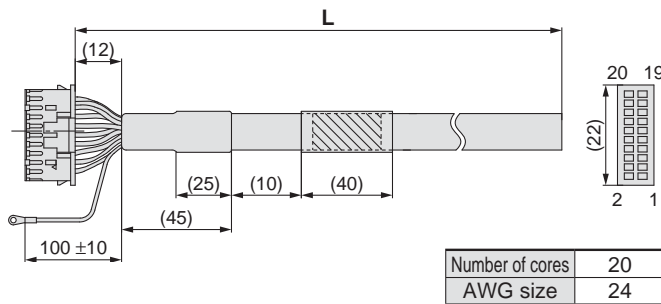
LEC-C L5 - 1

I/O cable type	
L5	For LECPA

I/O cable length (L)

1	1.5 m
3	3 m*
5	5 m*

* Pulse input usable only with differential. Only 1.5 m cables usable with open collector.



Pin no.	Insulation colour	Dot mark	Dot colour
1	Light brown	■	Black
2	Light brown	■	Red
3	Yellow	■	Black
4	Yellow	■	Red
5	Light green	■	Black
6	Light green	■	Red
7	Grey	■	Black
8	Grey	■	Red
9	White	■	Black
10	White	■	Red
11	Light brown	■ ■	Black

Pin no.	Insulation colour	Dot mark	Dot colour
12	Light brown	■ ■	Red
13	Yellow	■ ■	Black
14	Yellow	■ ■	Red
15	Light green	■ ■	Black
16	Light green	■ ■	Red
17	Grey	■ ■	Black
18	Grey	■ ■	Red
19	White	■ ■	Black
20	White	■ ■	Red

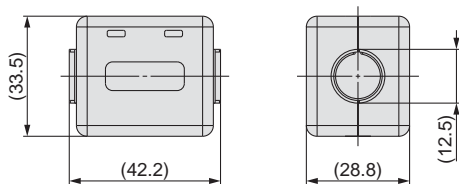
Round terminal 0.5-5	Green
-------------------------	-------

[Noise filter set]

Step motor driver (Pulse input type)

LEC-NFA

Contents of the set: 2 noise filters
(Manufactured by WURTH ELEKTRONIK: 74271222)



* Refer to the LECPA series Operation Manual for installation.

[Current limit resistor]

This optional resistor (LEC-PA-R-□) is used when the pulse signal output of the positioning unit is open collector output.

LEC-PA-R-□

Current limit resistor

Symbol	Resistance	Pulse signal power supply voltage
332	3.3 kΩ ±5 %	24 VDC ±10 %
391	390 Ω ±5 %	5 VDC ±5 %

* Select a current limit resistor that corresponds to the pulse signal power supply voltage.

* For the LEC-PA-R-□, two pieces are shipped as a set.

Series **LEC**

Windows®XP, Windows®7 compatible

Controller Setting Kit/LEC-W2

Model Selection

How to Order

LEC-W2

Controller setting kit
(Japanese and English are available.)

Contents

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

* Can be ordered separately.

Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

JXC□1

JXC73/83/92/93

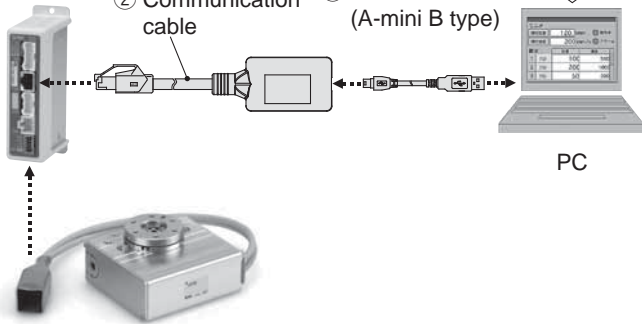
Specific Product Precautions



① Controller setting software

② Communication cable

③ USB cable (A-mini B type)



Compatible Controller/Driver

Step data input type

Series **LECP6**

Pulse input type

Series **LECPA**

Hardware Requirements

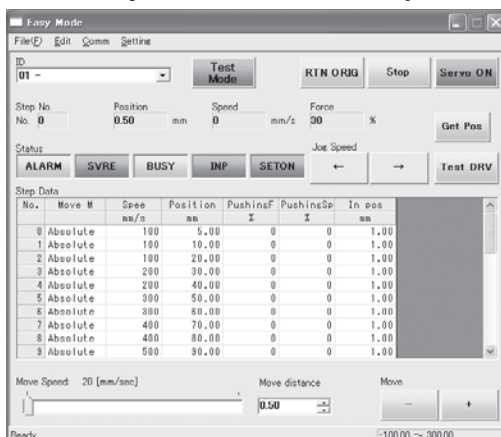
OS	IBM PC/AT compatible machine running Windows®XP (32-bit), Windows®7 (32-bit and 64-bit), Windows®8.1 (32-bit and 64-bit).
Communication interface	USB 1.1 or USB 2.0 ports
Display	XGA (1024 x 768) or more

* Windows®XP, Windows®7 and Windows®8.1 are registered trademarks of Microsoft Corporation in the United States.

* Refer to SMC website for version upgrade information, <http://www.smc.eu>

Screen Example

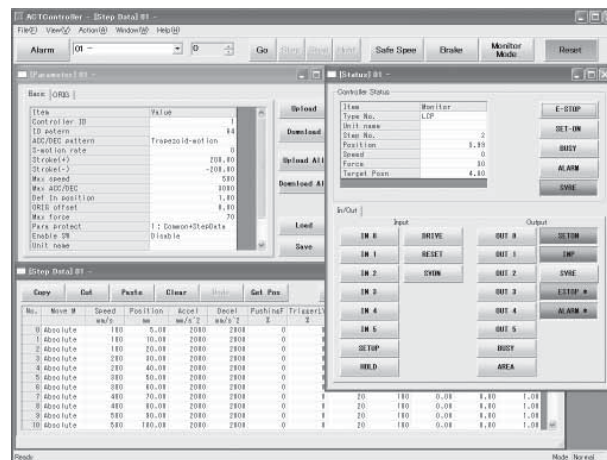
Easy mode screen example



Easy operation and simple setting

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

Normal mode screen example



Detailed setting

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



Series LEC Teaching Box/LEC-T1



RoHS



How to Order

LEC-T1-3EG

Teaching box

Cable length [m]

3 3

Initial language

J	Japanese
E	English

Enable switch

—	None
S	Equipped with enable switch

* Interlock switch for jog and test function

Stop switch

G	Equipped with stop switch
---	---------------------------

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

Standard functions

- Chinese character display
- Stop switch is provided.

Option

- Enable switch is provided.

Specifications

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

[CE-compliant products]

The EMC compliance of the teaching box was tested with the LECPC6 series step motor controller (servo/24 VDC) and an applicable actuator.

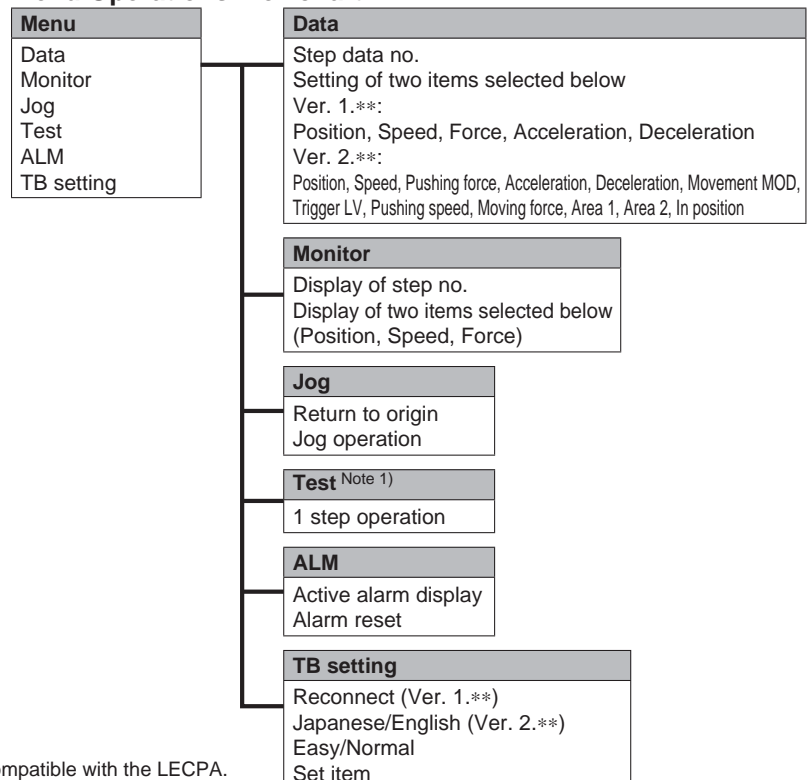
[UL-compliant products]

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

Easy Mode

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

Menu Operations Flowchart

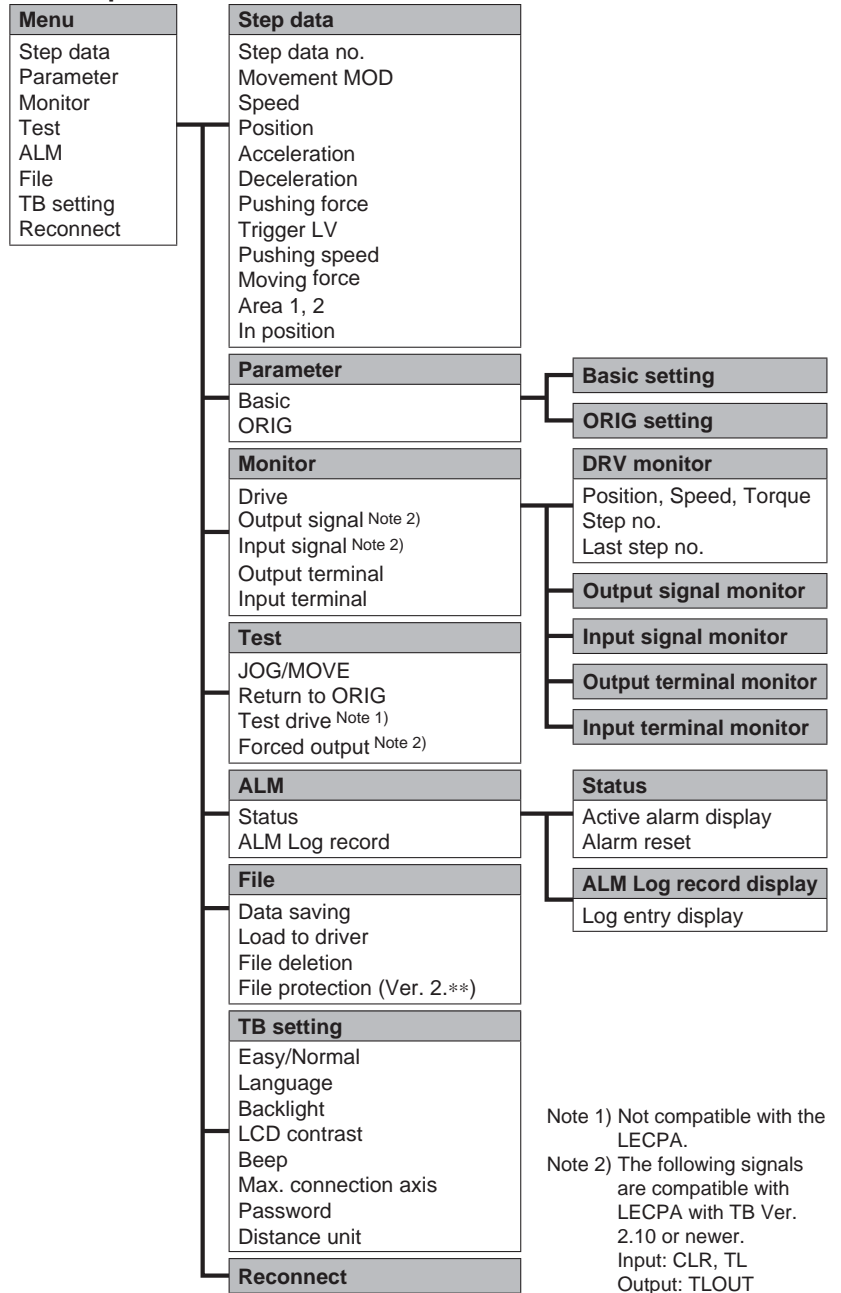


Note 1) Not compatible with the LECPC6.

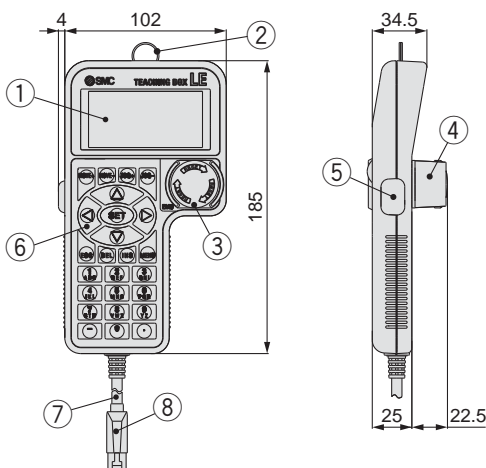
Normal Mode

Function	Details
Step data	• Step data setting
Parameter	• Parameters setting
Test	<ul style="list-style-type: none"> • Jog operation/Constant rate movement • Return to origin • Test drive ^{Note 1)} (Specify a maximum of 5 step data and operate.) <ul style="list-style-type: none"> • Forced output (Forced signal output, Forced terminal output) ^{Note 2)}
Monitor	<ul style="list-style-type: none"> • Drive monitor • Output signal monitor ^{Note 2)} • Input signal monitor ^{Note 2)} • Output terminal monitor • Input terminal monitor
ALM	<ul style="list-style-type: none"> • Active alarm display (Alarm reset) • Alarm log record display
File	<ul style="list-style-type: none"> • Data saving Save the step data and parameters of the driver which is being used for communication (it is possible to save four files, with one set of step data and parameters defined as one file). • Load to driver Loads the data which is saved in the teaching box to the driver which is being used for communication. • Delete the saved data. • File protection (Ver. 2.**)
TB setting	<ul style="list-style-type: none"> • Display setting (Easy/Normal mode) • Language setting (Japanese/English) • Backlight setting • LCD contrast setting • Beep sound setting • Max. connection axis • Distance unit (mm/inch)
Reconnect	• Reconnection of axis

Menu Operations Flowchart



Dimensions



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

Step Motor Controller



RoHS

5 types of communication protocols

New IO-Link

EtherCAT

PROFINET

DeviceNet

EtherNet/IP



Model Selection

Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

JXC□1

JXC73/83/92/93

Specific Product Precautions

Application

Communication protocol

EtherCAT

EtherNet/IP

PROFINET

DeviceNet

IO-Link



PLC

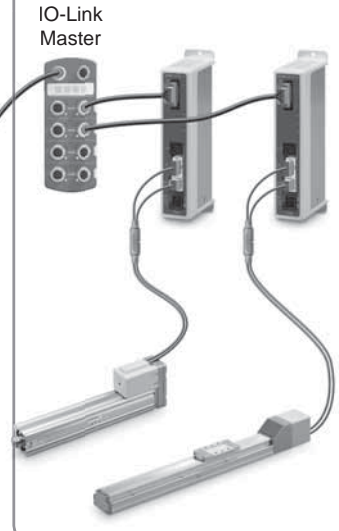
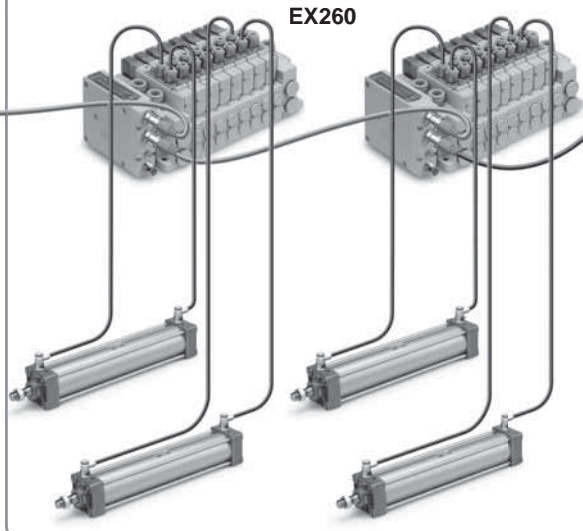
Both air and electric systems can be established under the same protocol.

Can be additionally installed in an existing network

Electric Actuators

Air Cylinders

IO-Link Communication



<Applicable electric actuators>



Slider type
Series LEF



Low-profile slider type
Series LEM



Guide rod slider
Series LEL



Rod type
Series LEY/LEYG



Slide table
Series LES/LESH



Miniature type
Series LEPY/LEPS



Gripper
Series LEH



Rotary table
Series LER

Series JXCE1/91/P1/D1/L1



Two types of operation command

Step no. defined operation: Operate using the preset step data in the controller.

Numerical data defined operation: The actuator operates using values such as position and speed from the PLC.

Numerical monitoring available

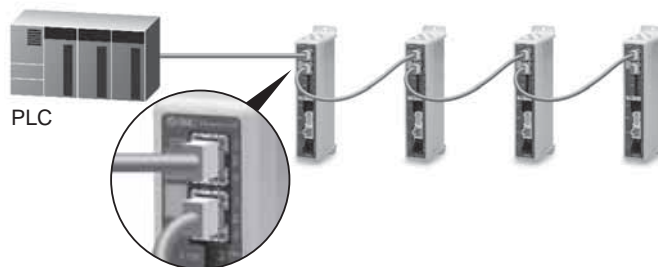
Numerical information, such as the current speed, current position, and alarm codes, can be monitored on the PLC.

Transition wiring of communication cables

Two communication ports are provided.

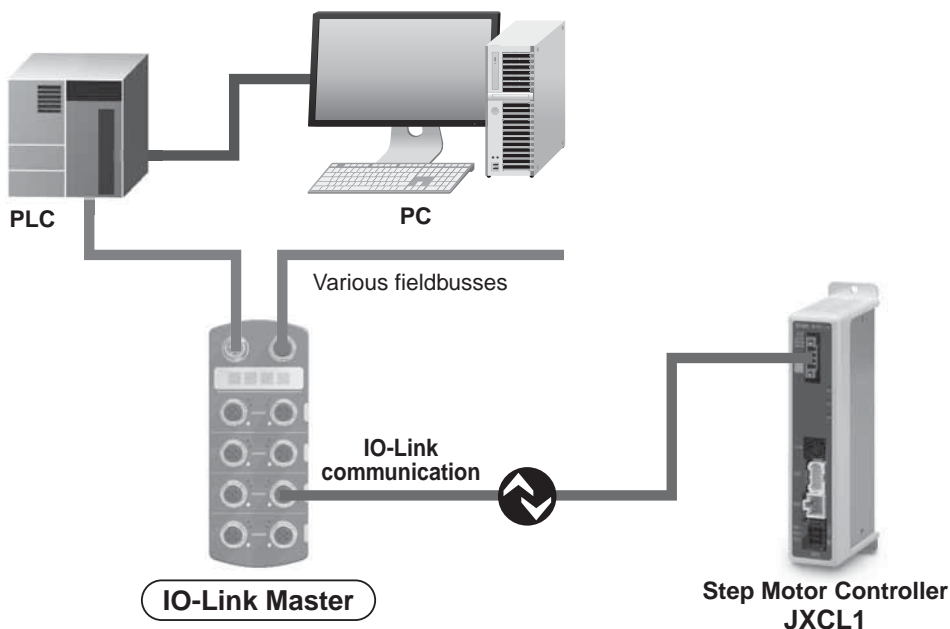
* For the DeviceNet™ type, transition wiring is possible using a branch connector.

* 1 to 1 in the case of IO-Link

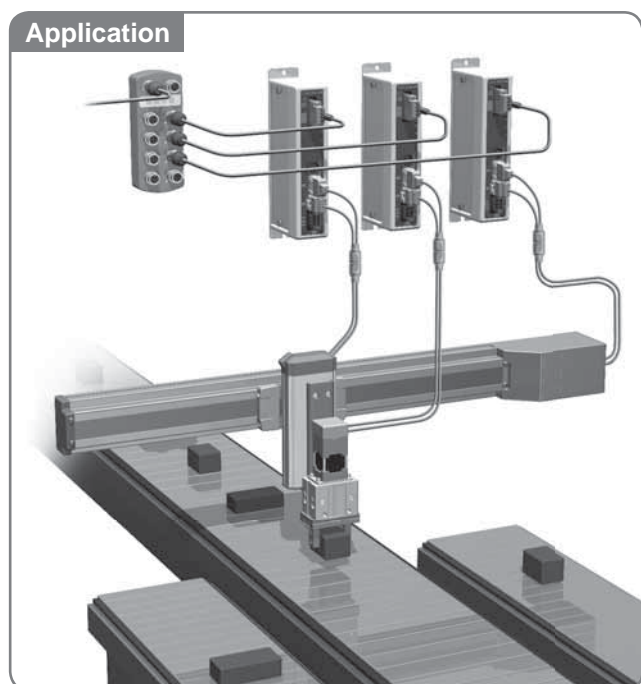


IO-Link communication can be performed.

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



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



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

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

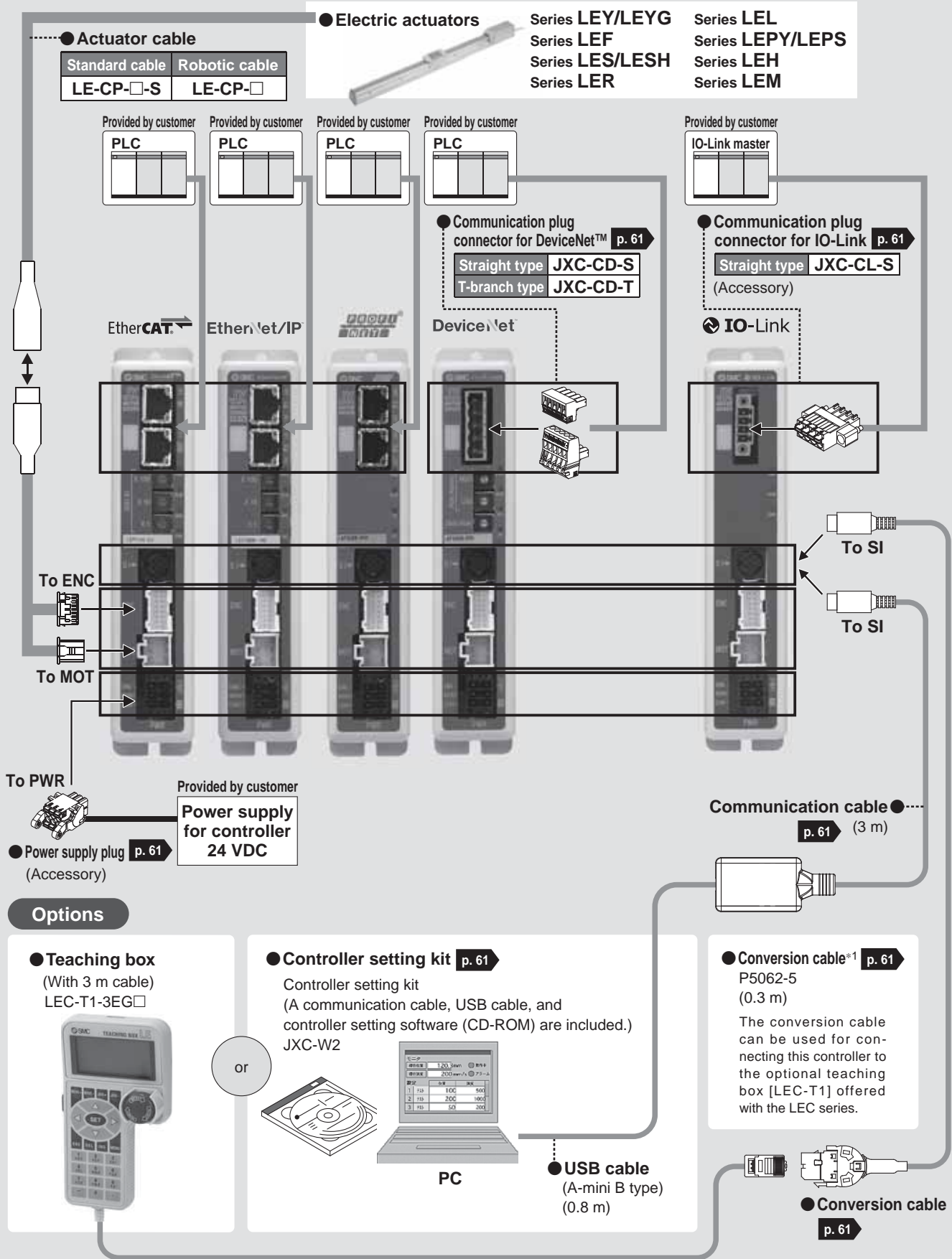
● Data storage function

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

● 4-wire unshielded cables can be used.

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

System Construction



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

Step Motor Controller

Series **JXCE1/91/P1/D1/L1**



How to Order



Actuator + Controller

LER16B-100 - R1 CD17T

Actuator type

Refer to "How to Order" in the actuator catalogue available at www.smc.eu.
For compatible actuators, refer to the table below. Example: LER16B-100B-R1C917

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

* Only the step motor type is applicable.

Controller

—	Without controller
C□1□□	With controller

CD17T

Communication protocol

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

Mounting

7	Screw mounting
8*1	DIN rail

*1 The DIN rail is not included. It must be ordered separately. (Refer to page 61.)

For single axis

Actuator cable type/length

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

*1 Produced upon receipt of order (Robotic cable only)

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

Caution

[CE-compliant products]

EMC compliance was tested by combining the electric actuator LE series and the JXCE1/91/P1/D1/L1 series.

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

Option

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

* Select "Nil" for anything other than JXCD1.

When selecting an electric actuator, refer to the model selection chart of each actuator. Also, for the "Speed-Work Load" graph of the actuator, refer to the LCEP6 section on the model selection page of the electric actuators **Web Catalogue**.

Controller

JXC D17T - LER16B-100

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

A blank controller is a controller to which the customer can write the data of the actuator it is to be combined and used with. Use the dedicated software (JXC-BCW) for data writing.

- Please download the dedicated software (JXC-BCW) via our website.
- Order the controller setting kit (LEC-W 2) separately to use this software.

SMC website
<http://www.smc.eu>

Communication protocol

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

For single axis

Mounting

7	Screw mounting
8*1	DIN rail

*1 The DIN rail is not included. It must be ordered separately. (Refer to page 61.)

Actuator part number

Without cable specifications and actuator options
Example: Enter "**LER16B-100**" for the LER16B-100B-S1□□.

BC Blank controller*1

*1 Requires dedicated software (JXC-BCW)

Option

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

* Select "Nil" for anything other than JXCD1.

When selecting an electric actuator, refer to the model selection chart of each actuator. Also, for the "Speed-Work Load" graph of the actuator, refer to the LCEP6 section on the model selection page of the electric actuators **Web Catalogue**.

Specifications

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

*1 Please note that versions are subject to change.

*2 Use a shielded communication cable with CAT5 or higher for the PROFINET, EtherNet/IP™, and EtherCAT®.

*3 The files can be downloaded from the SMC website: <http://www.smc.eu>

■Trademark

EtherNet/IP™ is a trademark of ODVA.

DeviceNet™ is a trademark of ODVA.

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

Example of Operation Command

In addition to the step data input of 64 points maximum in each communication protocol, the changing of each parameter can be performed in real time via numerical data defined operation.

* Numerical values other than "Moving force," "Area 1," and "Area 2" can be used to perform operation under numerical instructions from JXCL1.

<Application example> Movement between 2 points

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

<Step no. defined operation>

Sequence 1: Servo ON instruction

Sequence 2: Instruction to return to origin

Sequence 3: Specify step data No. 0 to input the DRIVE signal.

Sequence 4: Specify step data No. 1 after the DRIVE signal has been temporarily turned OFF to input the DRIVE signal.

<Numerical data defined operation>

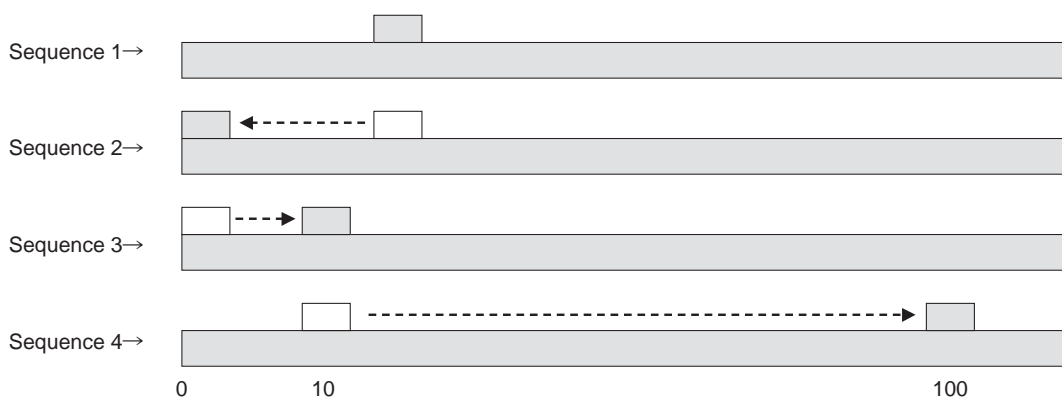
Sequence 1: Servo ON instruction

Sequence 2: Instruction to return to origin

Sequence 3: Specify step data No. 0 and turn ON the input instruction flag (position). Input 10 in the target position. Subsequently the start flag turns ON.

Sequence 4: Turn ON step data No. 0 and the input instruction flag (position) to change the target position to 100 while the start flag is ON.

The same operation can be performed with any operation command.

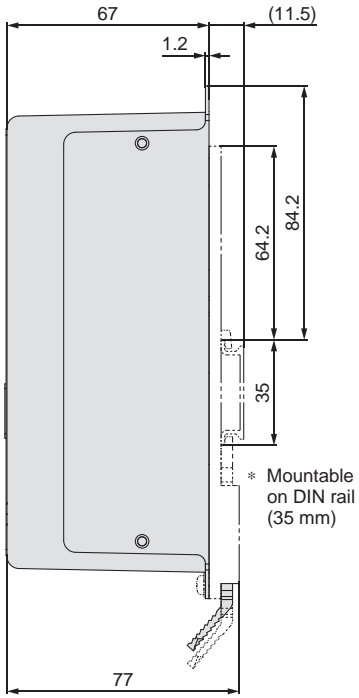


Series JXCE1/91/P1/D1/L1

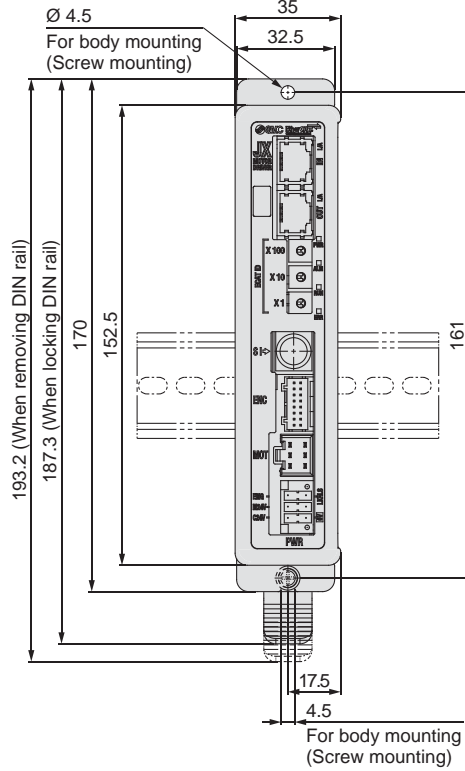
Dimensions



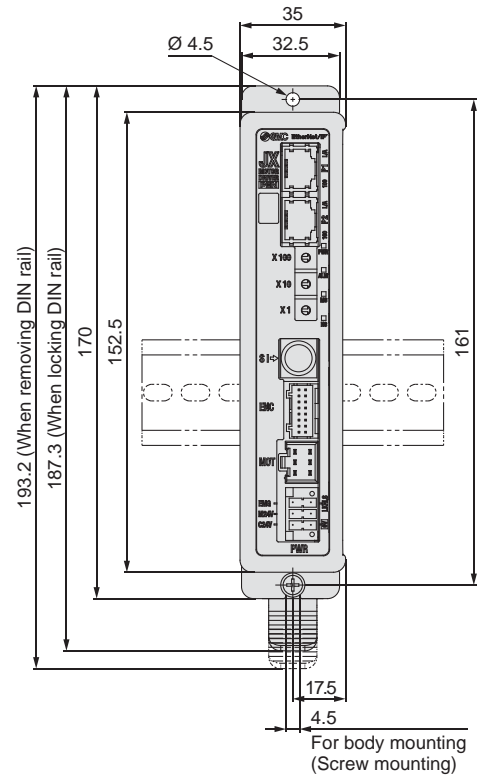
JXCE1/JXC91



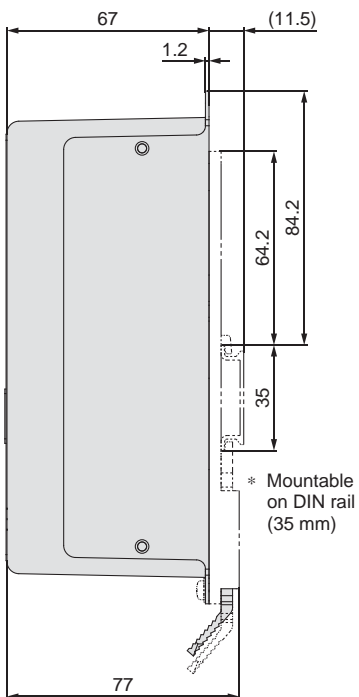
JXCE1



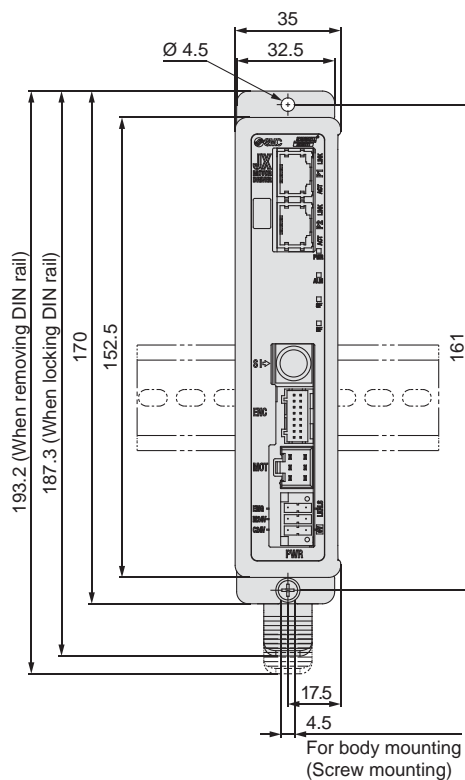
JXC91



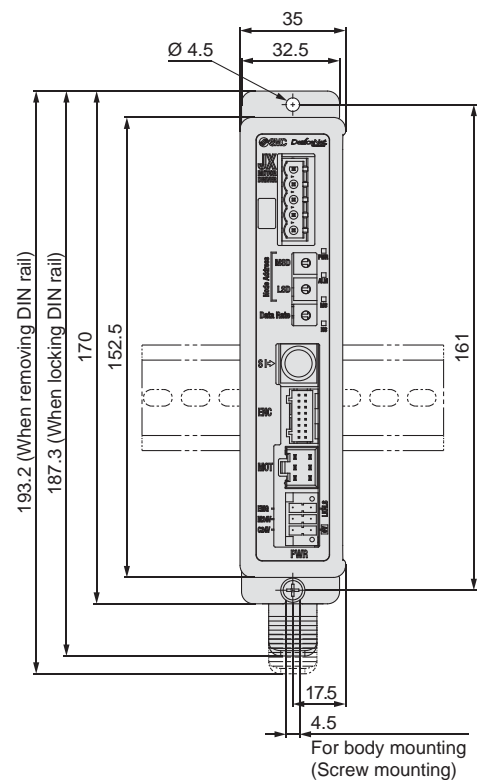
JXCP1/JXCD1



JXCP1

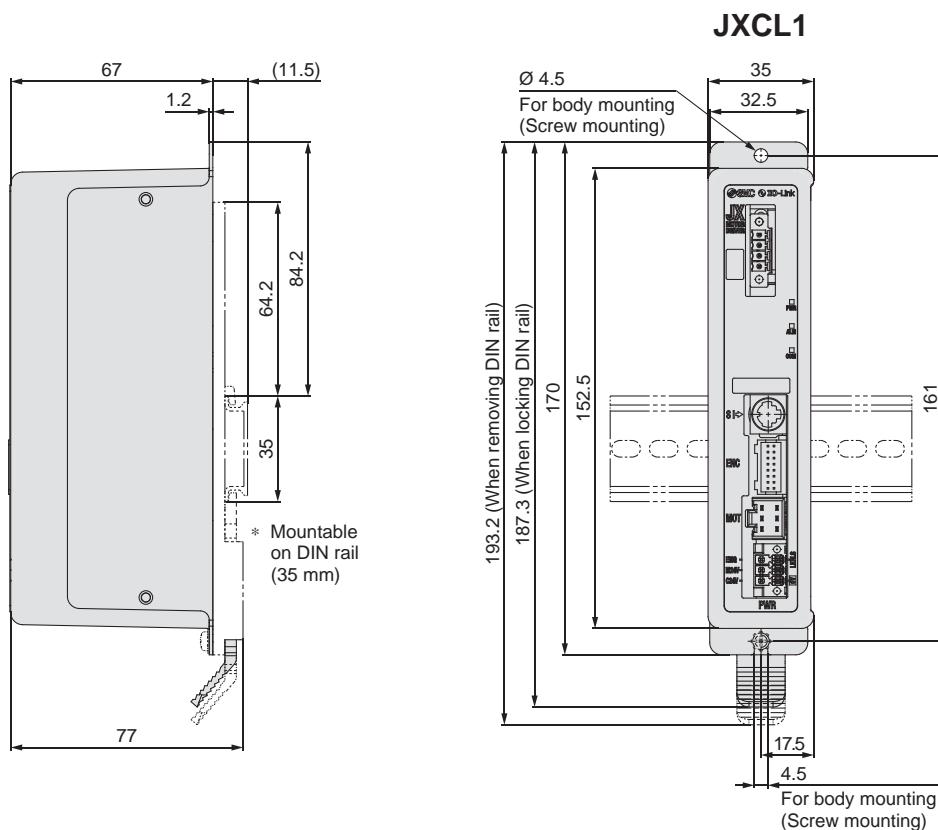


JXCD1



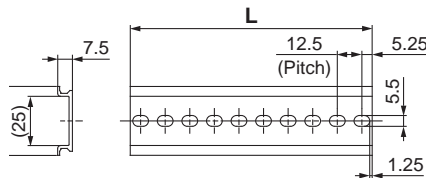


Dimensions



DIN rail AXT100-DR-□

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



L Dimensions [mm]

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

Model Selection

Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

JXC□1

JXC73/83/92/93

Specific Product Precautions

Series JXCE1/91/P1/D1/L1

Options

■ Controller setting kit JXC-W2

[Contents]

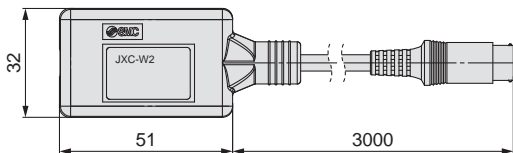
- ① Communication cable
- ② USB cable
- ③ Controller setting software
- * A conversion cable (P5062-5) is not required.

JXC-W2-□

● Contents

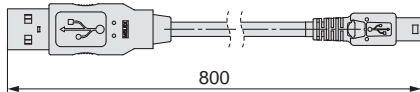
—	A kit includes: Communication cable, USB cable, Controller setting software
C	Communication cable
U	USB cable
S	Controller setting software (CD-ROM)

① Communication cable JXC-W2-C



* It can be connected to the controller directly.

② USB cable JXC-W2-U



③ Controller setting software JXC-W2-S

* CD-ROM

■ DIN rail mounting adapter LEC-3-D0

* With 2 mounting screws

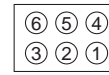
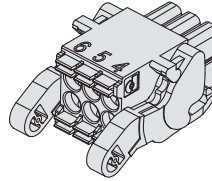
This should be used when a DIN rail mounting adapter is mounted onto a screw mounting type controller afterwards.

■ DIN rail AXT100-DR-□

* For □, enter a number from the No. line in the table on page 60. Refer to the dimension drawings on page 60 for the mounting dimensions.

■ Power supply plug JXC-CPW

* The power supply plug is an accessory.



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

Power supply plug

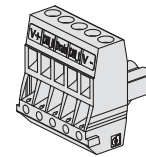
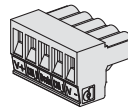
Terminal name	Function	Details
0V	Common supply (-)	M24V terminal/C24V terminal/EMG terminal/LK RLS terminal are common (-).
M24V	Motor power supply (+)	Motor power supply (+) of the controller
C24V	Control power supply (+)	Control power supply (+) of the controller
EMG	Stop (+)	Connection terminal of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

■ Communication plug connector

For DeviceNet™

Straight type
JXC-CD-S

T-branch type
JXC-CD-T

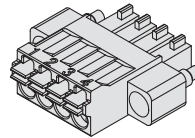


Communication plug connector for DeviceNet™

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

For IO-Link

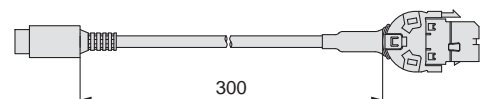
Straight type
JXC-CL-S



Communication plug connector for IO-Link

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

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



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

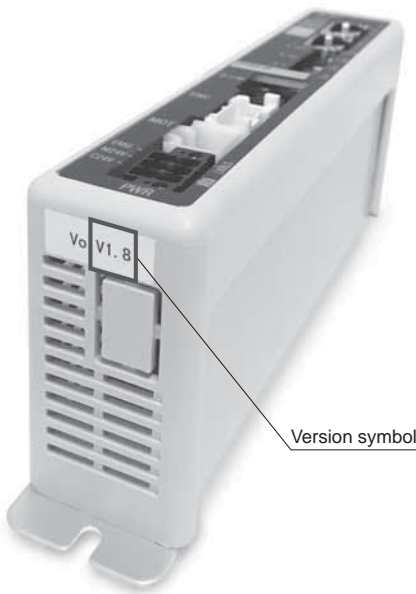


Series JXCE1/91/P1/D1 Precautions Related to Differences in Controller Versions

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

- Do not use a version V2.0 or S2.0 or higher controller with parameters lower than version V2.0 or S2.0.
Do not use a version V2.0 or S2.0 or lower controller with parameters higher than version V2.0 or S2.0.
- Please use the latest version of the JXC-BCW (parameter writing tool).
* The latest version is Ver. 2.0 (as of December 2017).

Identifying Version Symbols



Version symbol

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

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

VZ **V1.8**

Applicable models
Series JXC91□

VZ **S1.3**T1.0

Applicable models
Series JXCD1□
Series JXCP1□
Series JXCE1□

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

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

VZ **V2.0**

Applicable models
Series JXC91□

VZ **S2.0**T1.0

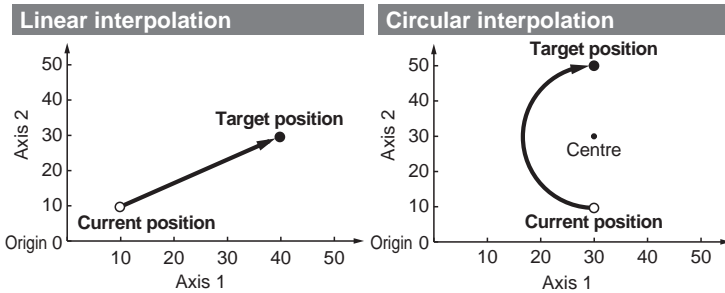
Applicable models
Series JXCD1□
Series JXCP1□
Series JXCE1□

Multi-Axis Step Motor Controller



Model Selection

- Speed tuning control *1
(3 Axes: JXC92 4 Axes: JXC73/83/93)
- Linear/circular interpolation



- Positioning/pushing operation
- Step data input
(Max. 2048 points)
- Space saving, reduced wiring
- Absolute/relative position coordinate instructions

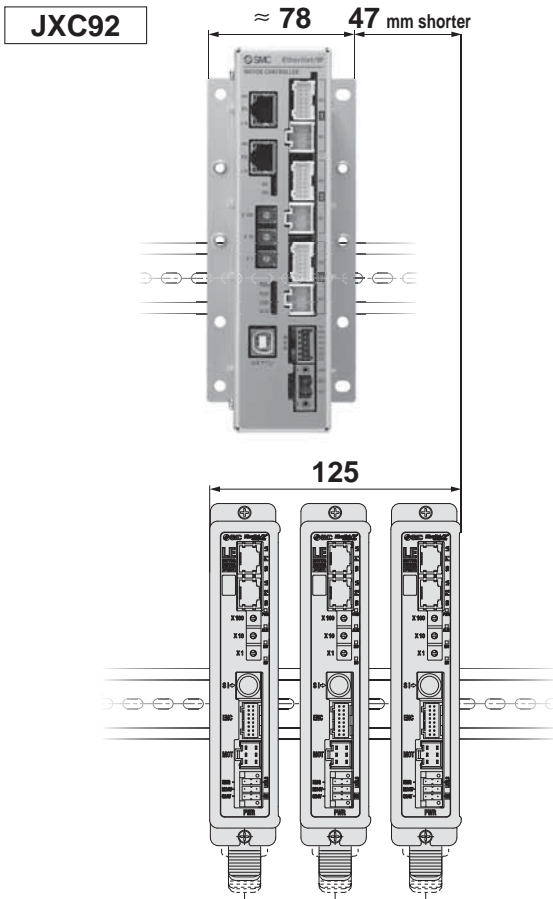
*1 This controls the speed of the slave axis when the speed of the main axis drops due to the effects of an external force and when a speed difference with the slave axis occurs. This control is not for synchronising the position of the main axis and slave axis.

Step Motor (Servo/24 VDC)

LER

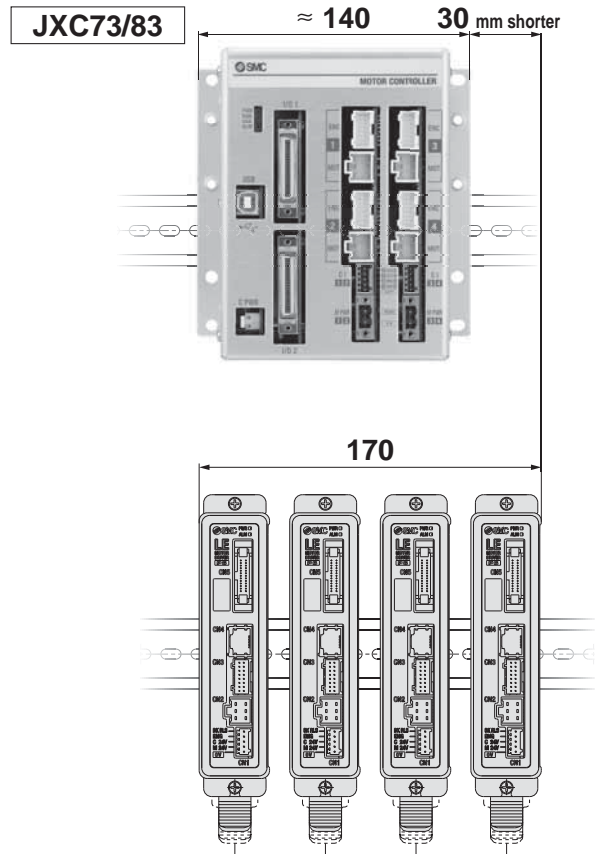
For 3 Axes Series JXC92

- EtherNet/IP™ Type
- Width: Approx. 38 % reduction



For 4 Axes Series JXC73/83/93

- Parallel I/O/
EtherNet/IP™ Type
- Width: Approx. 18 % reduction



LECP6

LEC-G

LECP1

LECPA

JXC□1

JXC73/83/92/93

Specific Product Precautions

* For LE□, size 25 or larger

Series JXC73/83/92/93





Step Data Input: Max. 2048 points

For 3 Axes 3-axis operation can be set collectively in one step.

Step	Axis	Movement mode	Speed	Position	Acceleration	Deceleration	Pushing force	Trigger LV	Pushing speed	Moving force	Area 1	Area 2	In position	Comments
			mm/s	mm	mm/s ²	mm/s ²					mm	mm	mm	
0	Axis 1	ABS	500	100.00	3000	3000	0	85.0	50	100.0	10.0	30.0	0.5	
	Axis 2	ABS	500	100.00	3000	3000	0	85.0	50	100.0	10.0	30.0	0.5	
	Axis 3	ABS	500	100.00	3000	3000	0	85.0	50	100.0	10.0	30.0	0.5	
1	Axis 1	INC	500	200.00	3000	3000	0	85.0	50	100.0	0	0	0.5	
	Axis 2	INC	500	200.00	3000	3000	0	85.0	50	100.0	0	0	0.5	
	Axis 3	INC	500	200.00	3000	3000	0	85.0	50	100.0	0	0	0.5	
2046	Axis 1	SYN-I	500	100.00	3000	3000	0	0	0	100.0	0	0	0.5	
	Axis 2	SYN-I	0	0.00	0	0	0	0	0	100.0	0	0	0.5	
	Axis 3	SYN-I	0	0.00	0	0	0	0	0	100.0	0	0	0.5	
2047	Axis 1	CIR-R	500	0.00	3000	3000	0	0	0	100.0	0	0	0.5	
	Axis 2	CIR-R	0	50.00	0	0	0	0	0	100.0	0	0	0.5	
	Axis 3 *1		0	0.00	0	0	0	0	0	100.0	0	0	0.5	
	Axis 4 *1		0	25.00	0	0	0	0	0	100.0	0	0	0.5	

*1 When circular interpolation (CIR-R, CIR-L, CIR-3) is selected in the movement mode, input the X and Y coordinates in the rotation centre position or input the X and Y coordinates in the passing position.

Movement mode	Pushing operation	Details
Blank	×	Invalid data (Invalid process)
ABS	○	Moves to the absolute coordinate position based on the origin of the actuator
INC	○	Moves to the relative coordinate position based on the current position
LIN-A	×	Moves to the absolute coordinate position based on the origin of the actuator by linear interpolation
LIN-I	×	Moves to the relative coordinate position based on the current position by linear interpolation
CIR-R*2	×	With Axis 1 assigned to the X-axis and Axis 2 to the Y-axis, it moves in the clockwise direction by circular interpolation. The target position and rotation centre position are specified according to the relative coordinates from the current position. The position data is assigned as follows. Axis 1: Target position X Axis 2: Target position Y Axis 3 *1: Rotation centre position X Axis 4 *1: Rotation centre position Y
CIR-L*2	×	With Axis 1 assigned to the X-axis and Axis 2 to the Y-axis, it moves in the counter-clockwise direction by circular interpolation. The target position and rotation centre position are specified according to the relative coordinates from the current position. The position data is assigned as follows. Axis 1: Target position X Axis 2: Target position Y Axis 3 *1: Rotation centre position X Axis 4 *1: Rotation centre position Y
SYN-I	×	Moves to the relative coordinate position based on the current position by speed tuning control *3
CIR-3*2	×	With Axis 1 assigned to the X-axis and Axis 2 to the Y-axis, it moves based on the three specified points by circular interpolation. The target position and passing position are specified according to the relative coordinates from the current position. The position data is assigned as follows. Axis 1: Target position X Axis 2: Target position Y Axis 3 *1: Passing position X Axis 4 *1: Passing position Y

*2 Performs a circular operation on a plane using Axis 1 and Axis 2

*3 This controls the speed of the slave axis when the speed of the main axis drops due to the effects of an external force and when a speed difference with the slave axis occurs. This control is not for synchronising the position of the main axis and slave axis.



For 4 Axes 4-axis operation can be set collectively in one step.

Step	Axis	Movement mode	Speed	Position	Acceleration	Deceleration	Positioning/ Pushing	Area 1	Area 2	In position	Comments
			mm/s	mm	mm/s ²	mm/s ²		mm	mm	mm	
0	Axis 1	ABS	100	200.00	1000	1000	0	6.0	12.0	0.5	
	Axis 2	ABS	50	100.00	1000	1000	0	6.0	12.0	0.5	
	Axis 3	ABS	50	100.00	1000	1000	0	6.0	12.0	0.5	
	Axis 4	ABS	50	100.00	1000	1000	0	6.0	12.0	0.5	
1	Axis 1	INC	500	250.00	1000	1000	1	0	0	20.0	
	Axis 2	INC	500	250.00	1000	1000	1	0	0	20.0	
	Axis 3	INC	500	250.00	1000	1000	1	0	0	20.0	
	Axis 4	INC	500	250.00	1000	1000	1	0	0	20.0	
...	
2046	Axis 4	ABS	200	700	500	500	0	0	0	0.5	
2047	Axis 1	ABS	500	0.00	3000	3000	0	0	0	0.5	
	Axis 2	ABS	500	0.00	3000	3000	0	0	0	0.5	
	Axis 3	ABS	500	0.00	3000	3000	0	0	0	0.5	
	Axis 4	ABS	500	0.00	3000	3000	0	0	0	0.5	

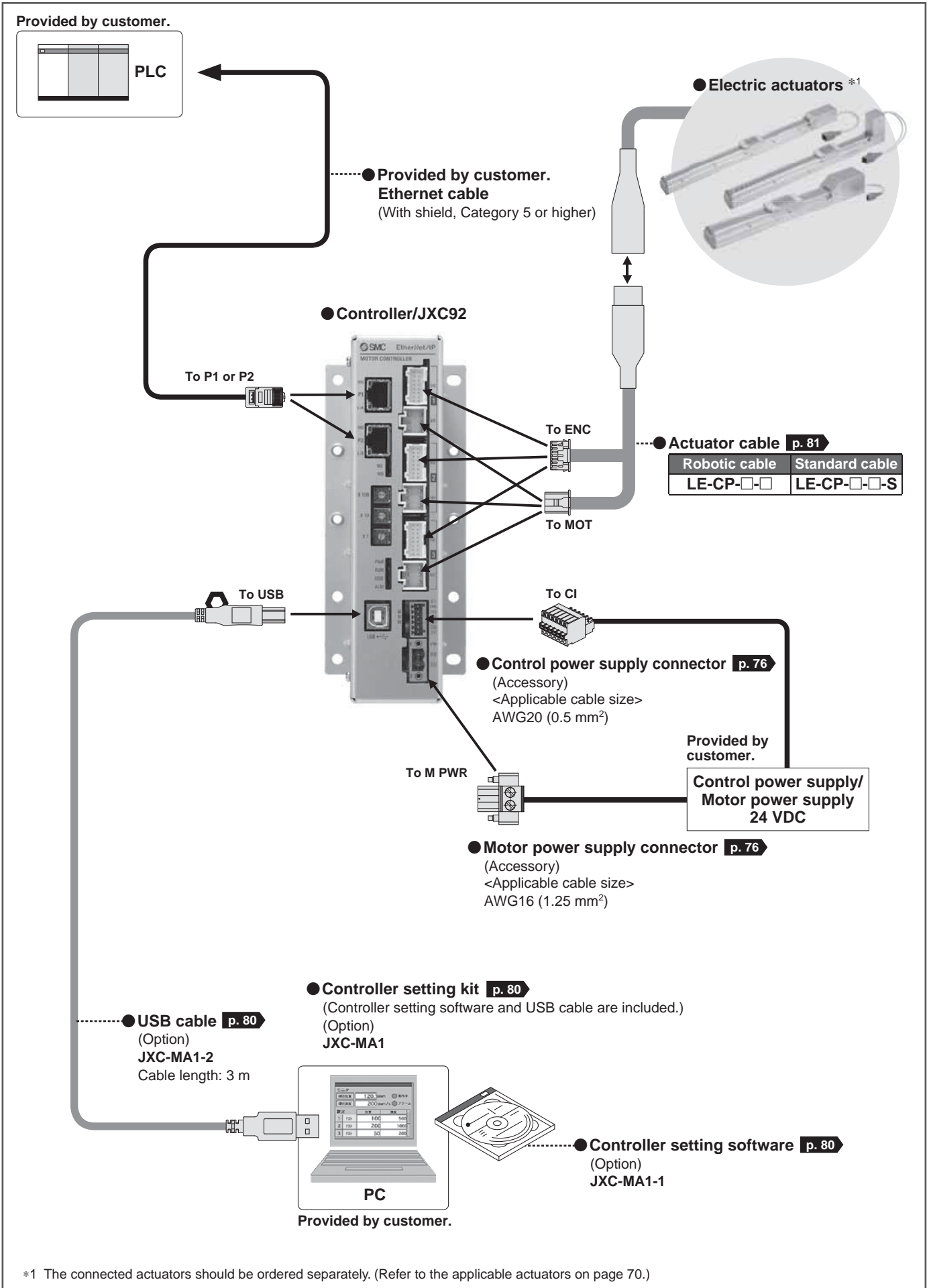
Movement mode	Pushing operation	Details
Blank	×	Invalid data (Invalid process)
ABS	○	Moves to the absolute coordinate position based on the origin of the actuator
INC	○	Moves to the relative coordinate position based on the current position
LIN-A	×	Moves to the absolute coordinate position based on the origin of the actuator by linear interpolation
LIN-I	×	Moves to the relative coordinate position based on the current position by linear interpolation
CIR-R*1	×	With Axis 1 assigned to the X-axis and Axis 2 to the Y-axis, it moves in the clockwise direction by circular interpolation. The target position and rotation centre position are specified according to the relative coordinates from the current position. The position data is assigned as follows. Axis 1: Target position X Axis 2: Target position Y Axis 3: Rotation centre position X Axis 4: Rotation centre position Y
CIR-L*1	×	With Axis 1 assigned to the X-axis and Axis 2 to the Y-axis, it moves in the counter-clockwise direction by circular interpolation. The target position and rotation centre position are specified according to the relative coordinates from the current position. The position data is assigned as follows. Axis 1: Target position X Axis 2: Target position Y Axis 3: Rotation centre position X Axis 4: Rotation centre position Y
SYN-I	×	Moves to the relative coordinate position based on the current position by speed tuning control *2

*1 Performs a circular operation on a plane using Axis 1 and Axis 2

*2 This controls the speed of the slave axis when the speed of the main axis drops due to the effects of an external force and when a speed difference with the slave axis occurs. This control is not for synchronising the position of the main axis and slave axis.

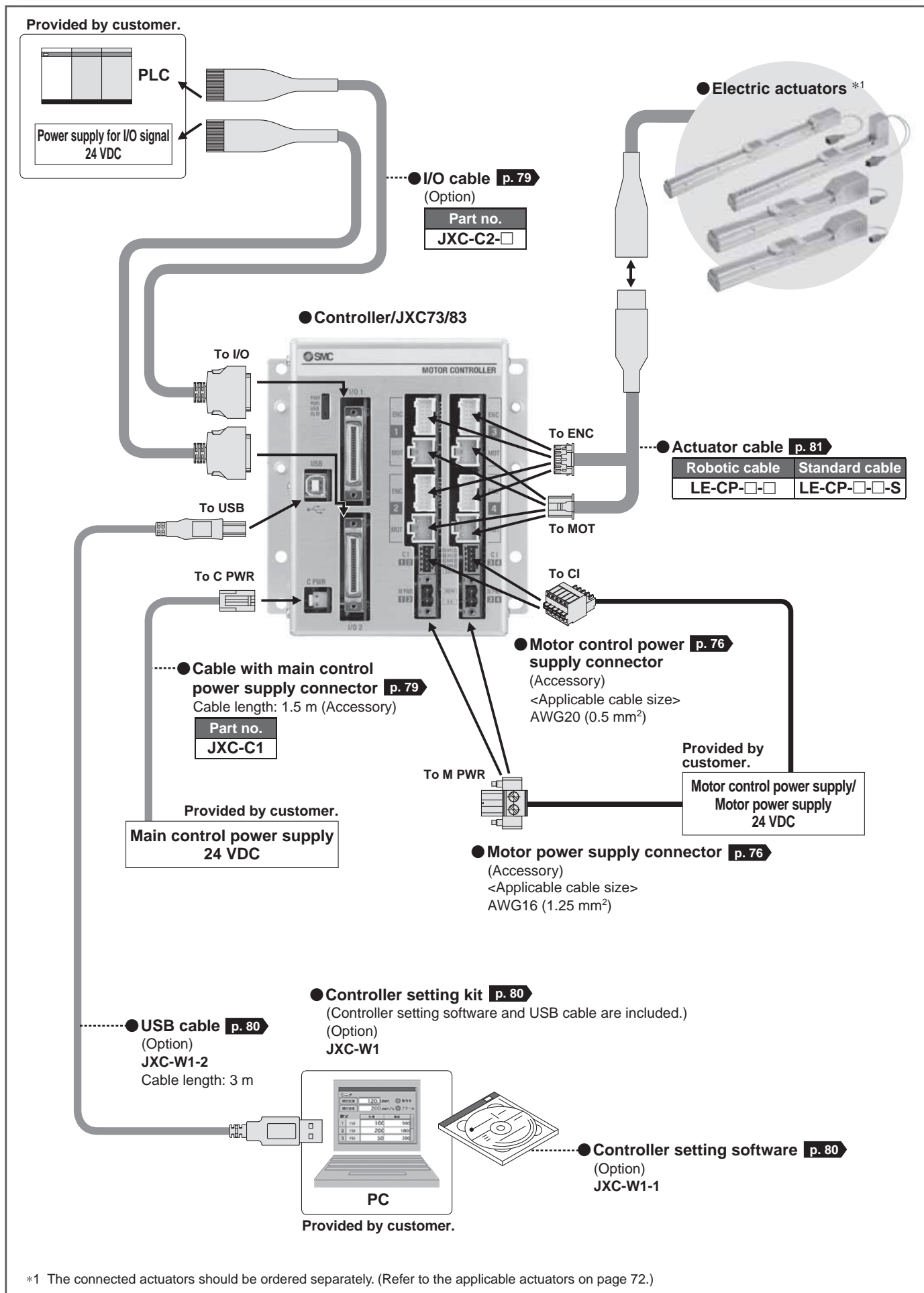
Series JXC92

For 3 Axes System Construction/EtherNet/IP™ Type (JXC92)



*1 The connected actuators should be ordered separately. (Refer to the applicable actuators on page 70.)

For 4 Axes System Construction/Parallel I/O (JXC73/83)



*1 The connected actuators should be ordered separately. (Refer to the applicable actuators on page 72.)

Model Selection

Step Motor (Servo/24 VDC)

LER

LECP6

LECG

LECP1

LECPA

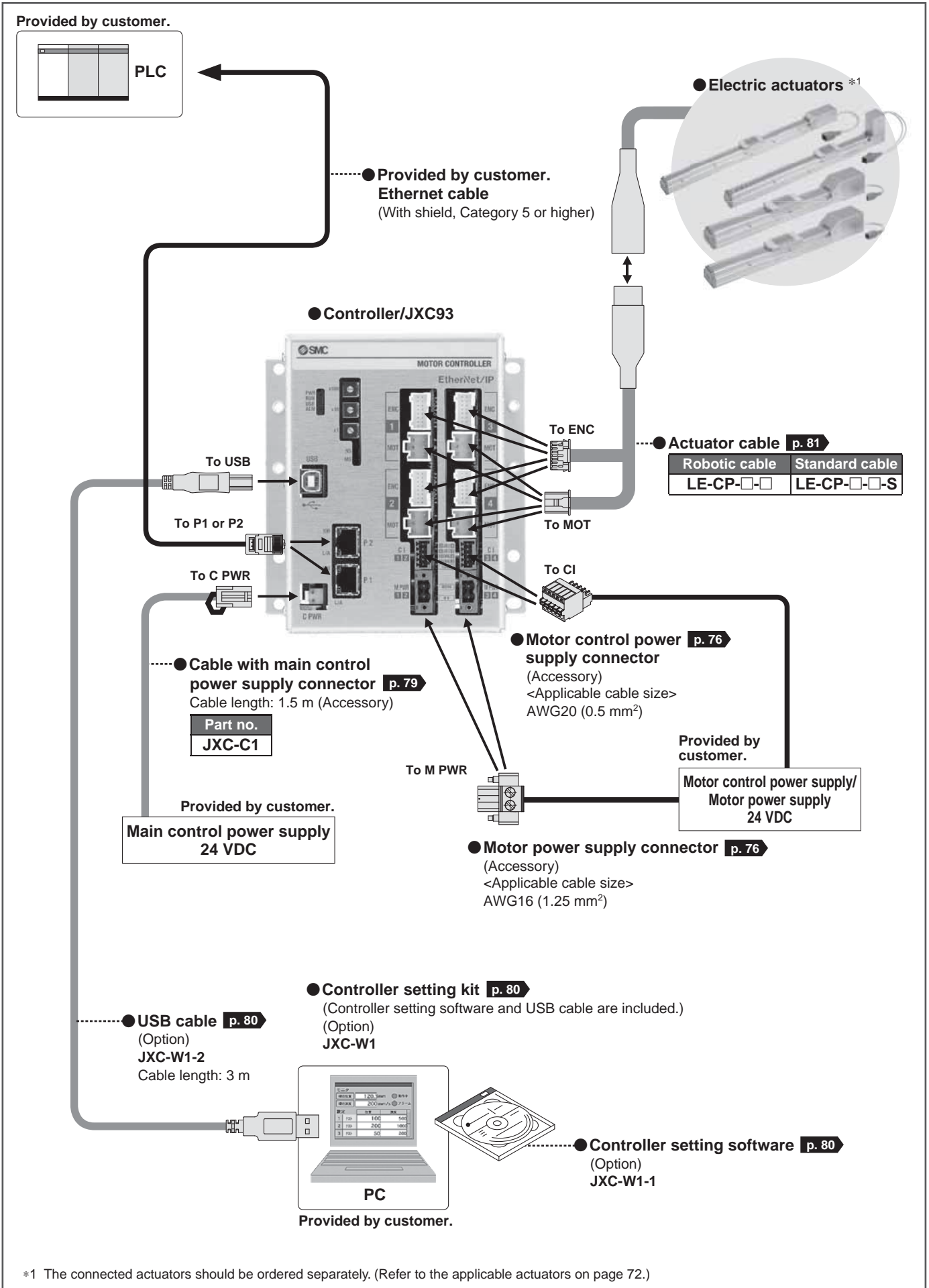
JXC□1

JXC73/83/92/93

Specific Product Precautions

Series JXC93

For 4 Axes System Construction/EtherNet/IP™ Type (JXC93)



*1 The connected actuators should be ordered separately. (Refer to the applicable actuators on page 72.)

3-Axis Step Motor Controller (EtherNet/IP™ Type)

Series **JXC92**



Model Selection

How to Order

■ EtherNet/IP™ Type (JXC92)

Controller



JXC 9 2 7

EtherNet/IP™ type

3-axis type

Mounting

Symbol	Mounting
7	Screw mounting
8	DIN rail

Applicable Actuators

Applicable actuators	
Electric Actuator/Rod Series LEY	Refer to the Web Catalogue.
Electric Actuator/Guide Rod Series LEYG	
Electric Actuator/Slider Series LEF	
Electric Slide Table Series LES/LESH	
Electric Rotary Table Series LER	
Electric Actuator/Miniature Series LEPY/LEPS	
Electric Gripper (2-Finger Type, 3-Finger Type) Series LEH	

* Order the actuator separately, including the actuator cable.
(Example: LEFS16B-100B-S1)

* For the "Speed-Work Load" graph of the actuator, refer to the LECPA section on the model selection page of the electric actuators **Web Catalogue**.

Specifications

For the setting of functions and operation methods, refer to the operation manual on the SMC website. (Documents/Download --> Instruction Manuals)

EtherNet/IP™ Type (JXC92)

Item	Specifications	
Number of axes	Max. 3 axes	
Compatible motor	Step motor (Servo/24 VDC)	
Compatible encoder	Incremental A/B phase (Encoder resolution: 800 pulse/rotation)	
Power supply *1	Control power supply Power voltage: 24 VDC ±10 % Max. current consumption: 500 mA Motor power supply Power voltage: 24 VDC ±10 % Max. current consumption: Based on the connected actuator *2	
Communication	Protocol	EtherNet/IP™ *3
	Communication speed	10 Mbps/100 Mbps (automatic negotiation)
	Communication method	Full duplex/Half duplex (automatic negotiation)
	Configuration file	EDS file
	Occupied area	Input 16 bytes/Output 16 bytes
	IP address setting range	Manual setting by switches: From 192.168.1.1 to 254, Via DHCP server: Arbitrary address
	Vendor ID	7 h (SMC Corporation)
Product type	2 Bh (Generic Device)	
Product code	DEh	
Serial communication	USB2.0 (Full Speed 12 Mbps)	
Memory	Flash-ROM	
LED indicator	PWR, RUN, USB, ALM, NS, MS, L/A, 100	
Lock control	Forced-lock release terminal *4	
Cable length	Actuator cable: 20 m or less	
Cooling system	Natural air cooling	
Operating temperature range	0 °C to 40 °C (No freezing)	
Operating humidity range	90 % RH or less (No condensation)	
Storage temperature range	-10 °C to 60 °C (No freezing)	
Storage humidity range	90 % RH or less (No condensation)	
Insulation resistance	Between all external terminals and the case: 50 MΩ (500 VDC)	
Weight	600 g (Screw mounting), 650 g (DIN rail mounting)	

*1 Do not use a power supply with inrush current protection for the motor drive power supply.

*2 Power consumption depends on the actuator connected. Refer to the actuator specifications for further details.

*3 EtherNet/IP™ is a trademark of ODVA.

*4 Applicable to non-magnetising locks

Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

JXC□1

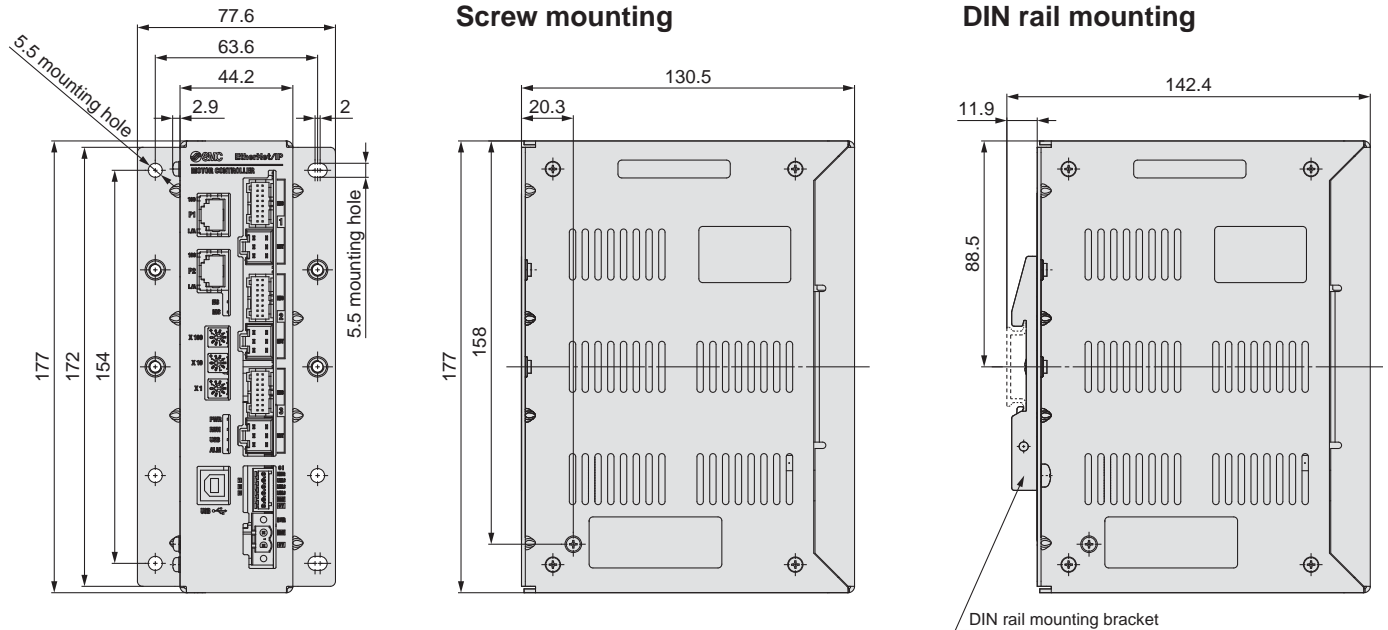
JXC73/83/92/93

Specific Product Precautions

Series JXC92

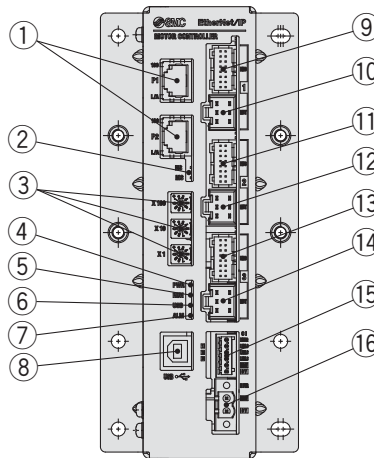
Dimensions

EtherNet/IP™ Type JXC92



Controller Details

EtherNet/IP™ Type JXC92



No.	Name	Description	Details
①	P1, P2	EtherNet/IP™ communication connector	Connect Ethernet cable.
②	NS, MS	Communication status LED	Displays the status of the EtherNet/IP™ communication
③	X100 X10 X1	IP address setting switches	Switch to set the 4th byte of the IP address by X1, X10 and X100.
④	PWR	Power supply LED (Green)	Power supply ON: Green turns on Power supply OFF: Green turns off
⑤	RUN	Operation LED (Green)	Running in EtherNet/IP™: Green turns on Running via USB communication: Green flashes Stopped: Green turns off
⑥	USB	USB connection LED (Green)	USB connected: Green turns on USB not connected: Green turns off
⑦	ALM	Alarm LED (Red)	With alarm: Red turns on Without alarm: Red turns off
⑧	USB	Serial communication connector	Connect to a PC via the USB cable.
⑨	ENC 1	Encoder connector (16 pins)	Axis 1: Connect the actuator cable.
⑩	MOT 1	Motor power connector (6 pins)	
⑪	ENC 2	Encoder connector (16 pins)	Axis 2: Connect the actuator cable.
⑫	MOT 2	Motor power connector (6 pins)	
⑬	ENC 3	Encoder connector (16 pins)	Axis 3: Connect the actuator cable.
⑭	MOT 3	Motor power connector (6 pins)	
⑮	CI	Control power supply connector *1	Control power supply (+), All axes stop (+), Axis 1 lock release (+), Axis 2 lock release (+), Axis 3 lock release (+), Common (-)
⑯	M PWR	Motor power supply connector *1	Motor power supply (+), Motor power supply (-)

*1 Connectors are included. (Refer to page 76.)

4-Axis Step Motor Controller (Parallel I/O/EtherNet/IP™ Type)

Series **JXC73/83/93**



Model Selection

How to Order

■ Parallel I/O (JXC73/83)

Controller



JXC 8 3 2

I/O type

Symbol	I/O type
7	NPN
8	PNP

I/O cable, mounting

Symbol	I/O cable	Mounting
1	1.5 m	Screw mounting
2	1.5 m	DIN rail
3	3 m	Screw mounting
4	3 m	DIN rail
5	5 m	Screw mounting
6	5 m	DIN rail
7	None	Screw mounting
8	None	DIN rail

4-axis type

* Two I/O cables are included.

■ EtherNet/IP™ Type (JXC93)

Controller



JXC 9 3 8

EtherNet/IP™ type

Mounting

Symbol	Mounting
7	Screw mounting
8	DIN rail

4-axis type

Applicable Actuators

Applicable actuators	
Electric Actuator/Rod Series LEY	Refer to the Web Catalogue.
Electric Actuator/Guide Rod Series LEYG	
Electric Actuator/Slider Series LEF	
Electric Slide Table Series LES/LESH	
Electric Rotary Table Series LER *1	
Electric Actuator/Miniature Series LEPY/LEPS	
Electric Gripper (2-Finger Type, 3-Finger Type) Series LEH	

*1 Except the continuous rotation (360°) specification.

* Order the actuator separately, including the actuator cable.
(Example: LEFS16B-100B-S1)

* For the "Speed-Work Load" graph of the actuator, refer to the LECPA section on the model selection page of the electric actuators Web Catalogue.

Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

JXC□1

JXC73/83/92/93

Specific Product Precautions

Series JXC73/83/93

Specifications

For the setting of functions and operation methods, refer to the operation manual on the SMC website. (Documents/Download --> Instruction Manuals)

Parallel I/O (JXC73/83)

Item	Specifications
Number of axes	Max. 4 axes
Compatible motor	Step motor (Servo/24 VDC)
Compatible encoder	Incremental A/B phase (Encoder resolution: 800 pulse/rotation)
Power supply *1	Main control power supply Power voltage: 24 VDC ±10 % Max. current consumption: 300 mA Motor power supply, Motor control power supply (Common) Power voltage: 24 VDC ±10 % Max. current consumption: Based on the connected actuator *2
Parallel input	16 inputs (Photo-coupler isolation)
Parallel output	32 outputs (Photo-coupler isolation)
Serial communication	USB2.0 (Full Speed 12 Mbps)
Memory	Flash-ROM/EEPROM
LED indicator	PWR, RUN, USB, ALM
Lock control	Forced-lock release terminal *3
Cable length	I/O cable: 5 m or less, Actuator cable: 20 m or less
Cooling system	Natural air cooling
Operating temperature range	0 °C to 40 °C (No freezing)
Operating humidity range	90 % RH or less (No condensation)
Storage temperature range	-10 °C to 60 °C (No freezing)
Storage humidity range	90 % RH or less (No condensation)
Insulation resistance	Between all external terminals and the case: 50 MΩ (500 VDC)
Weight	1050 g (Screw mounting), 1100 g (DIN rail mounting)

*1 Do not use a power supply with inrush current protection for the motor drive power and motor control power supply.

*2 Power consumption depends on the actuator connected. Refer to the actuator specifications for further details.

*3 Applicable to non-magnetising locks

For the setting of functions and operation methods, refer to the operation manual on the SMC website. (Documents/Download --> Instruction Manuals)

EtherNet/IP™ Type (JXC93)

Item	Specifications	
Number of axes	Max. 4 axes	
Compatible motor	Step motor (Servo/24 VDC)	
Compatible encoder	Incremental A/B phase (Encoder resolution: 800 pulse/rotation)	
Power supply *1	Main control power supply Power voltage: 24 VDC ±10 % Max. current consumption: 350 mA Motor power supply, Motor control power supply (Common) Power voltage: 24 VDC ±10 % Max. current consumption: Based on the connected actuator *2	
Communication	Protocol	EtherNet/IP™ *4
	Communication speed	10 Mbps/100 Mbps (automatic negotiation)
	Communication method	Full duplex/Half duplex (automatic negotiation)
	Configuration file	EDS file
	Occupied area	Input 16 bytes/Output 16 bytes
	IP address setting range	Manual setting by switches: From 192.168.1.1 to 254, Via DHCP server: Arbitrary address
	Vendor ID	7 h (SMC Corporation)
	Product type	2 Bh (Generic Device)
	Product code	DCh
Serial communication	USB2.0 (Full Speed 12 Mbps)	
Memory	Flash-ROM/EEPROM	
LED indicator	PWR, RUN, USB, ALM, NS, MS, L/A, 100	
Lock control	Forced-lock release terminal *3	
Cable length	Actuator cable: 20 m or less	
Cooling system	Natural air cooling	
Operating temperature range	0 °C to 40 °C (No freezing)	
Operating humidity range	90 % RH or less (No condensation)	
Storage temperature range	-10 °C to 60 °C (No freezing)	
Storage humidity range	90 % RH or less (No condensation)	
Insulation resistance	Between all external terminals and the case: 50 MΩ (500 VDC)	
Weight	1050 g (Screw mounting), 1100 g (DIN rail mounting)	

*1 Do not use a power supply with inrush current protection for the motor drive power and motor control power supply.

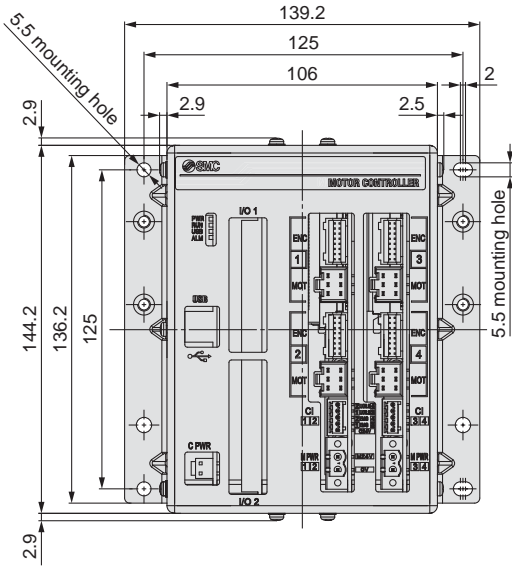
*2 Power consumption depends on the actuator connected. Refer to the actuator specifications for further details.

*3 Applicable to non-magnetising locks

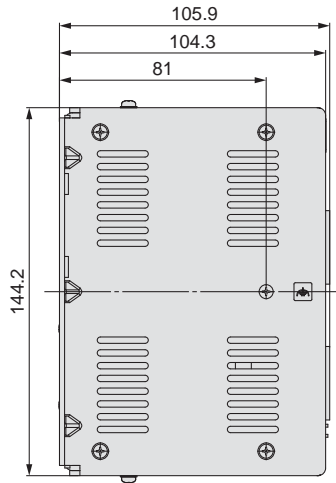
*4 EtherNet/IP™ is a trademark of ODVA.

Dimensions

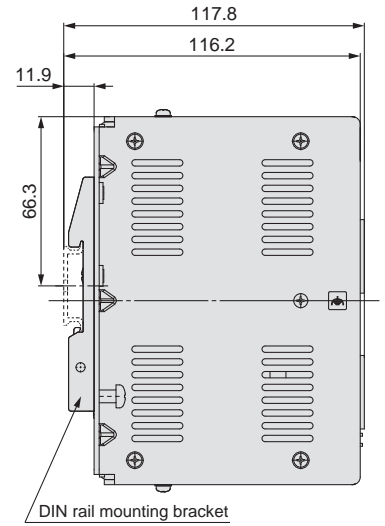
Parallel I/O JXC73/83



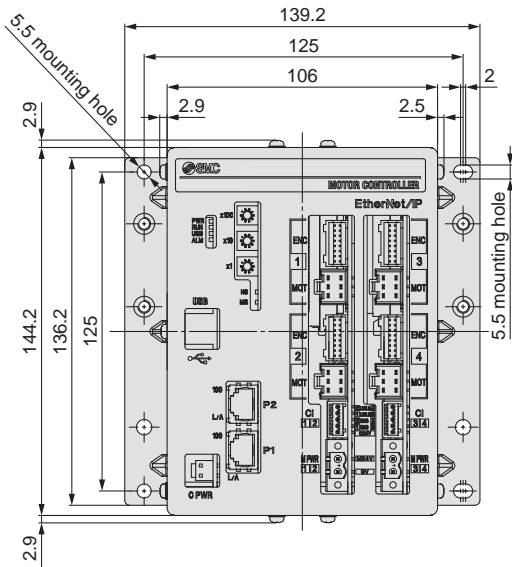
Screw mounting



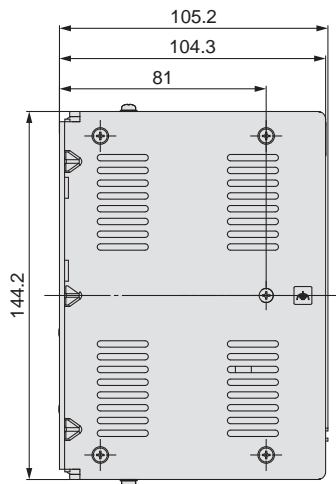
DIN rail mounting



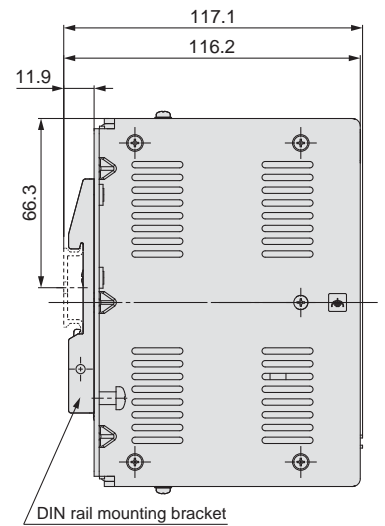
EtherNet/IP™ Type JXC93



Screw mounting



DIN rail mounting



Model Selection

Step Motor (Servo/24 VDC)

LER

LECP6

LEC-G

LECP1

LECPA

JXC□1

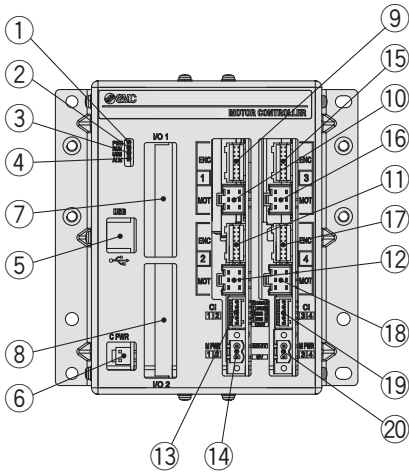
JXC73/83/92/93

Specific Product Precautions

Series JXC73/83/93

Controller Details

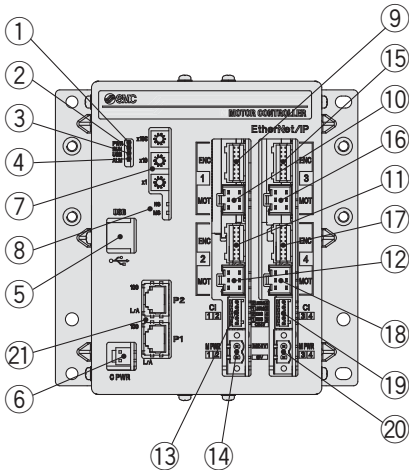
Parallel I/O JXC73/83



No.	Name	Description	Details
①	PWR	Power supply LED (Green)	Power supply ON: Green turns on Power supply OFF: Green turns off
②	RUN	Operation LED (Green)	Running in parallel I/O: Green turns on Running via USB communication: Green flashes Stopped: Green turns off
③	USB	USB connection LED (Green)	USB connected: Green turns on USB not connected: Green turns off
④	ALM	Alarm LED (Red)	With alarm: Red turns on Without alarm: Red turns off
⑤	USB	Serial communication	Connect to a PC via the USB cable.
⑥	C PWR	Main control power supply connector (2 pins) *1	Main control power supply (+) (-)
⑦	I/O 1	Parallel I/O connector (40 pins)	Connect to a PLC via the I/O cable.
⑧	I/O 2	Parallel I/O connector (40 pins)	Connect to a PLC via the I/O cable.
⑨	ENC 1	Encoder connector (16 pins)	Axis 1: Connect the actuator cable.
⑩	MOT 1	Motor power connector (6 pins)	
⑪	ENC 2	Encoder connector (16 pins)	Axis 2: Connect the actuator cable.
⑫	MOT 2	Motor power connector (6 pins)	
⑬	CI 1 2	Motor control power supply connector *1	Motor control power supply (+), Axis 1 stop (+), Axis 1 lock release (+), Axis 2 stop (+), Axis 2 lock release (+)
⑭	M PWR 1 2	Motor power supply connector *1	For Axis 1, 2. Motor power supply (+), Common (-)
⑮	ENC 3	Encoder connector (16 pins)	Axis 3: Connect the actuator cable.
⑯	MOT 3	Motor power connector (6 pins)	
⑰	ENC 4	Encoder connector (16 pins)	Axis 4: Connect the actuator cable.
⑱	MOT 4	Motor power connector (6 pins)	
⑲	CI 3 4	Motor control power supply connector *1	Motor control power supply (+), Axis 3 stop (+), Axis 3 lock release (+), Axis 4 stop (+), Axis 4 lock release (+)
⑳	M PWR 3 4	Motor power supply connector *1	For Axis 3, 4. Motor power supply (+), Common (-)

*1 Connectors are included. (Refer to page 76.)

EtherNet/IP™ Type JXC93



No.	Name	Description	Details
①	PWR	Power supply LED (Green)	Power supply ON: Green turns on Power supply OFF: Green turns off
②	RUN	Operation LED (Green)	Running in EtherNet/IP™: Green turns on Running via USB communication: Green flashes Stopped: Green turns off
③	USB	USB connection LED (Green)	USB connected: Green turns on USB not connected: Green turns off
④	ALM	Alarm LED (Red)	With alarm: Red turns on Without alarm: Red turns off
⑤	USB	Serial communication	Connect to a PC via the USB cable.
⑥	C PWR	Main control power supply connector (2 pins) *1	Main control power supply (+) (-)
⑦	x100 x10 x1	IP address setting switches	Switch to set the 4th byte of the IP address by X1, X10 and X100.
⑧	MS, NS	Communication status LED	Displays the status of the EtherNet/IP™ communication
⑨	ENC 1	Encoder connector (16 pins)	Axis 1: Connect the actuator cable.
⑩	MOT 1	Motor power connector (6 pins)	
⑪	ENC 2	Encoder connector (16 pins)	Axis 2: Connect the actuator cable.
⑫	MOT 2	Motor power connector (6 pins)	
⑬	CI 1 2	Motor control power supply connector *1	Motor control power supply (+), Axis 1 stop (+), Axis 1 lock release (+), Axis 2 stop (+), Axis 2 lock release (+)
⑭	M PWR 1 2	Motor power supply connector *1	For Axis 1, 2. Motor power supply (+), Common (-)
⑮	ENC 3	Encoder connector (16 pins)	Axis 3: Connect the actuator cable.
⑯	MOT 3	Motor power connector (6 pins)	
⑰	ENC 4	Encoder connector (16 pins)	Axis 4: Connect the actuator cable.
⑱	MOT 4	Motor power connector (6 pins)	
⑲	CI 3 4	Motor control power supply connector *1	Motor control power supply (+), Axis 3 stop (+), Axis 3 lock release (+), Axis 4 stop (+), Axis 4 lock release (+)
⑳	M PWR 3 4	Motor power supply connector *1	For Axis 3, 4. Motor power supply (+), Common (-)
㉑	P1, P2	EtherNet/IP™ communication connector	Connect Ethernet cable.

*1 Connectors are included. (Refer to page 76.)

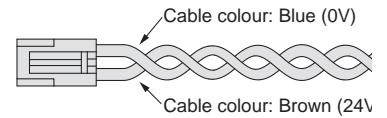
Wiring Example 1

Cable with Main Control Power Supply Connector (For 4 Axes)*1: C PWR 1 pc. For 4 Axes
JXC73/83/93

Terminal name	Function	Details
+24V	Main control power supply (+)	Power supply (+) supplied to the main control
24-0V	Main control power supply (-)	Power supply (-) supplied to the main control

*1 Part no.: JXC-C1 (Cable length: 1.5 m)

Cable with main control power supply connector



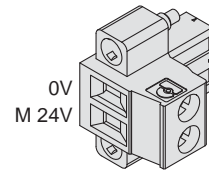
Motor Power Supply Connector (For 3/4 Axes)*2: M PWR 2 pcs.*3 For 3 Axes
JXC92 For 4 Axes
JXC73/83/93

Terminal name	Function	Details	Note
0V	Motor power supply (-)	Power supply (-) supplied to the motor power	For 3 axes JXC92
		The M 24V terminal, C 24V terminal, EMG terminal, and LKRLS terminal are common (-).	For 4 axes JXC73/83/93
M 24V	Motor power supply (+)	Power supply (+) supplied to the motor power	

*2 Manufactured by PHOENIX CONTACT (Part no.: MSTB2, 5/2-STF-5, 08)

*3 1 pc. for 3 axes (JXC92)

Motor power supply connector

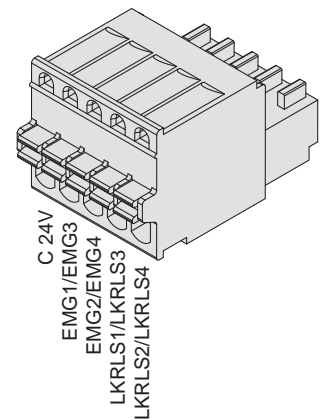


Motor Control Power Supply Connector (For 4 Axes)*4: CI 2 pcs. For 4 Axes
JXC73/83/93

Terminal name	Function	Details
C 24V	Motor control power supply (+)	Power supply (+) supplied to the motor control
EMG1/EMG3	Stop (+)	Axis 1/Axis 3: Input (+) for releasing the stop
EMG2/EMG4	Stop (+)	Axis 2/Axis 4: Input (+) for releasing the stop
LKRLS1/LKRLS3	Lock release (+)	Axis 1/Axis 3: Input (+) for releasing the lock
LKRLS2/LKRLS4	Lock release (+)	Axis 2/Axis 4: Input (+) for releasing the lock

*4 Manufactured by PHOENIX CONTACT (Part no.: FK-MC0, 5/5-ST-2, 5)

Motor control power supply connector

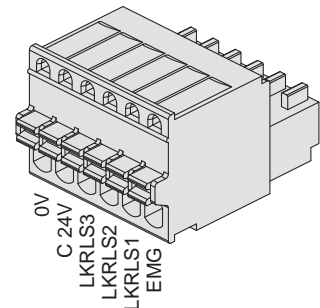


Control Power Supply Connector (For 3 Axes)*5: CI 1 pc. For 3 Axes
JXC92

Terminal name	Function	Details
0V	Control power supply (-)	The C 24V terminal, LKRLS terminal, and EMG terminal are common (-).
C 24V	Control power supply (+)	Power supply (+) supplied to the control
LKRLS3	Lock release (+)	Axis 3: Input (+) for releasing the lock
LKRLS2	Lock release (+)	Axis 2: Input (+) for releasing the lock
LKRLS1	Lock release (+)	Axis 1: Input (+) for releasing the lock
EMG	Stop (+)	All axes: Input (+) for releasing the stop

*5 Manufactured by PHOENIX CONTACT (Part no.: FK-MC0, 5/6-ST-2, 5)

Control power supply connector



Series JXC73/83/92/93

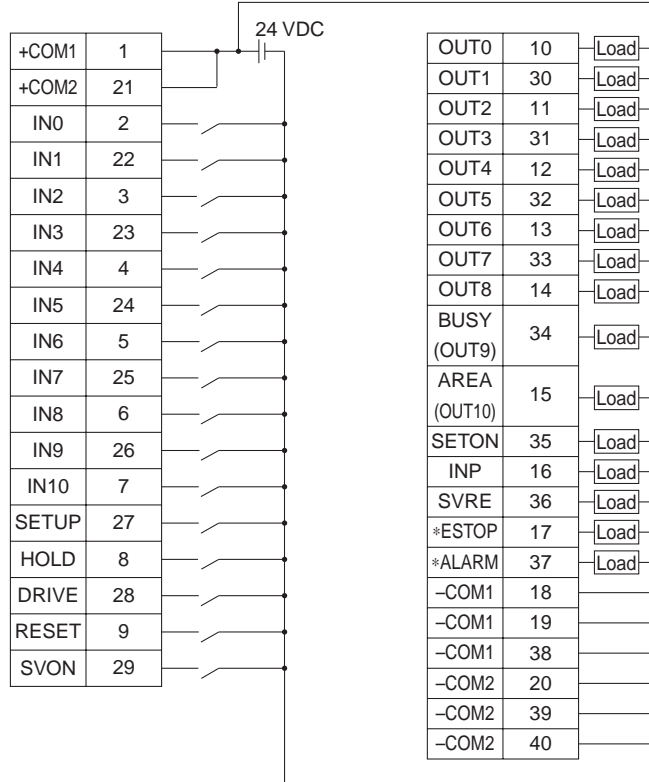
Wiring Example 2

Parallel I/O Connector

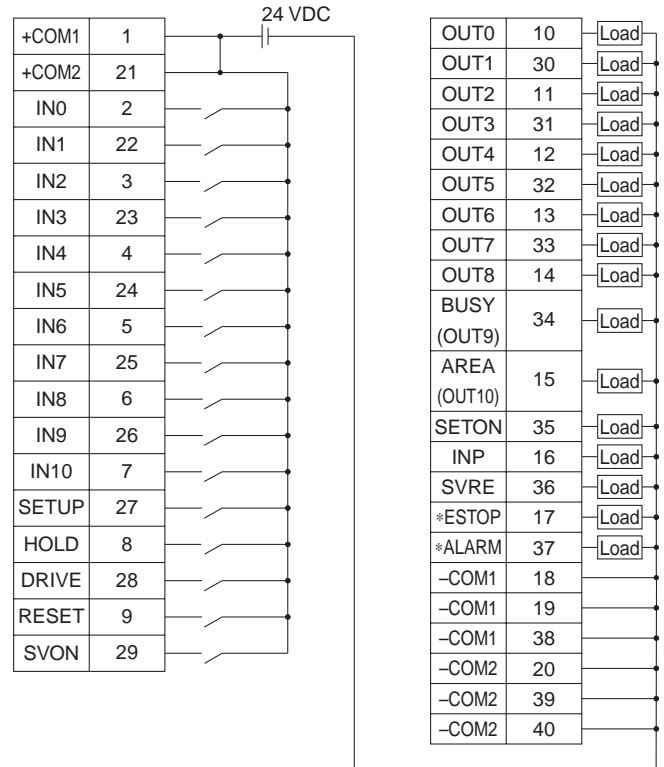
- * When you connect a PLC to the I/O 1 or I/O 2 parallel I/O connector, use the I/O cable (JXC-C2-□).
- * The wiring changes depending on the type of the parallel I/O (NPN or PNP).

I/O 1 Wiring example

NPN JXC73



PNP JXC83



I/O 1 Input Signal

Name	Details
+COM1 +COM2	Connects the power supply 24 V for input/output signal
IN0 to IN8	Step data specified Bit No. (Standard: When 512 points are used)
IN9 IN10	Step data specified extension Bit No. (Extension: When 2048 points are used)
SETUP	Instruction to return to origin
HOLD	Operation is temporarily stopped
DRIVE	Instruction to drive
RESET	Alarm reset and operation interruption
SVON	Servo ON instruction

I/O 1 Output Signal

Name	Details
OUT0 to OUT8	Outputs the step data no. during operation
BUSY (OUT9)	Outputs when the operation of the actuator is in progress
AREA (OUT10)	Outputs when all actuators are within the area output range
SETON	Outputs when the return to origin of all actuators is completed
INP	Outputs when the positioning or pushing of all actuators is completed
SVRE	Outputs when servo is ON
*ESTOP *1	Not output when EMG stop is instructed
*ALARM *1	Not output when alarm is generated
-COM1 -COM2	Connects the power supply 0 V for input/output signal

*1 Negative-logic circuit signal

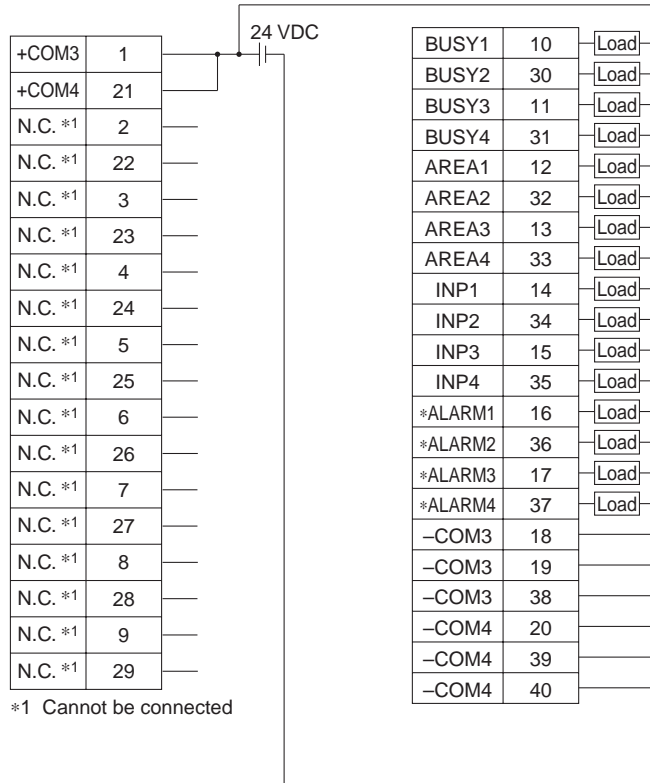
Wiring Example 2

Parallel I/O Connector

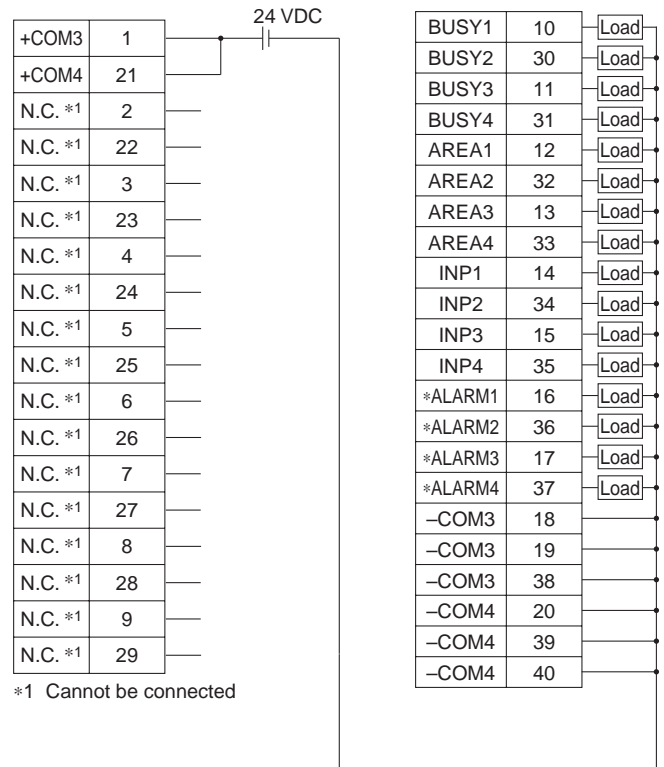
- * When you connect a PLC to the I/O 1 or I/O 2 parallel I/O connector, use the I/O cable (JXC-C2-□).
- * The wiring changes depending on the type of the parallel I/O (NPN or PNP).

I/O 2 Wiring example

NPN JXC73



PNP JXC83



I/O 2 Input Signal

Name	Details
+COM3 +COM4	Connects the power supply 24 V for input/output signal
N.C.	Cannot be connected

I/O 2 Output Signal

Name	Details
BUSY1	Busy signal for axis 1
BUSY2	Busy signal for axis 2
BUSY3	Busy signal for axis 3
BUSY4	Busy signal for axis 4
AREA1	Area signal for axis 1
AREA2	Area signal for axis 2
AREA3	Area signal for axis 3
AREA4	Area signal for axis 4
INP1	Positioning or pushing completion signal for axis 1
INP2	Positioning or pushing completion signal for axis 2
INP3	Positioning or pushing completion signal for axis 3
INP4	Positioning or pushing completion signal for axis 4
*ALARM1 *2	Alarm signal for axis 1
*ALARM2 *2	Alarm signal for axis 2
*ALARM3 *2	Alarm signal for axis 3
*ALARM4 *2	Alarm signal for axis 4
-COM3 -COM4	Connects the power supply 0 V for input/output signal

*2 Negative-logic circuit signal

Series JXC73/83/92/93

Options

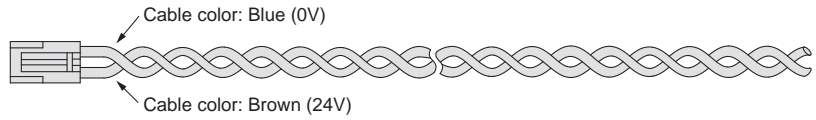
Cable with main control power supply connector

For 4 Axes
JXC73/83/93

JXC - C1

Cable length: 1.5 m (Accessory)

Number of cores	2
AWG size	AWG20



I/O cable (1 pc.)

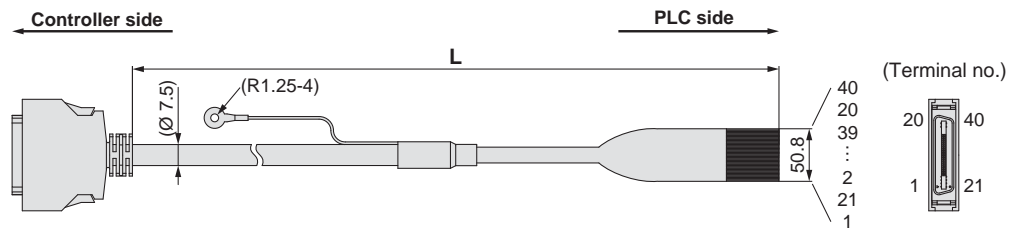
JXC - C2 -

For 4 Axes
JXC73/83

Cable length (L) [m]

1	1.5
3	3
5	5

Number of cores	40
AWG size	AWG28



Pin no.	Wire colour	Pin no.	Wire colour	Pin no.	Wire colour	Pin no.	Wire colour
1	Orange (Black 1)	6	Orange (Black 2)	11	Orange (Black 3)	16	Orange (Black 4)
21	Orange (Red 1)	26	Orange (Red 2)	31	Orange (Red 3)	36	Orange (Red 4)
2	Grey (Black 1)	7	Grey (Black 2)	12	Grey (Black 3)	17	Grey (Black 4)
22	Grey (Red 1)	27	Grey (Red 2)	32	Grey (Red 3)	37	Grey (Red 4)
3	White (Black 1)	8	White (Black 2)	13	White (Black 3)	18	White (Black 4)
23	White (Red 1)	28	White (Red 2)	33	White (Red 3)	38	White (Red 4)
4	Yellow (Black 1)	9	Yellow (Black 2)	14	Yellow (Black 3)	19	Yellow (Black 4)
24	Yellow (Red 1)	29	Yellow (Red 2)	34	Yellow (Red 3)	39	Yellow (Red 4)
5	Pink (Black 1)	10	Pink (Black 2)	15	Pink (Black 3)	20	Pink (Black 4)
25	Pink (Red 1)	30	Pink (Red 2)	35	Pink (Red 3)	40	Pink (Red 4)

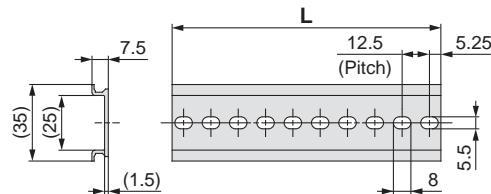
DIN rail

AXT100 - DR -

For 3 Axes
JXC92

For 4 Axes
JXC73/83/93

* For , enter a number from the No. line in the table below. Refer to the dimension drawings on pages 71 and 74 for the mounting dimensions.



L Dimension

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

DIN rail mounting bracket (with 6 mounting screws)

For 3 Axes
JXC92

For 4 Axes
JXC73/83/93

JXC - Z1

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

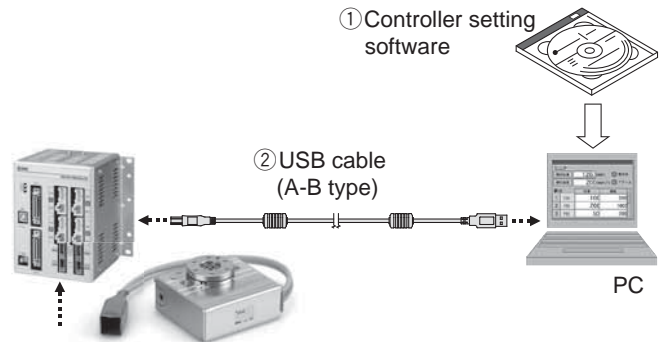
Options

Controller setting kit

For 4 Axes
JXC73/83/93

JXC-W1

• Controller setting kit
(Japanese and English are available.)



Contents

- ① Controller setting software (CD-ROM)
- ② USB cable (Cable length: 3 m)

Description	Model
① Controller setting software	JXC-W1-1
② USB cable	JXC-W1-2

* Can be ordered separately

Hardware Requirements

PC/AT compatible machine with Windows 7 or Windows 8.1 and USB1.1 or USB2.0 port

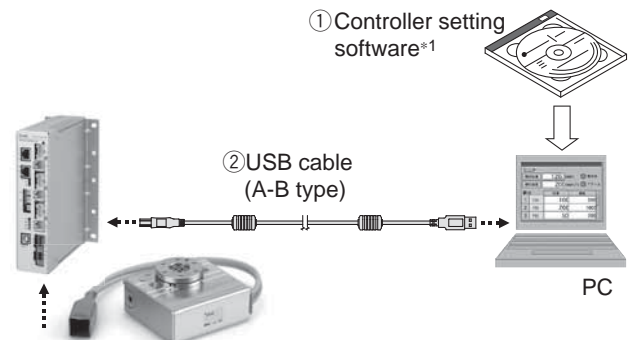
* Windows® is a registered trademark of Microsoft Corporation in the United States.

Controller setting kit

For 3 Axes
JXC92

JXC-MA1*1

• Controller setting kit
(Japanese and English are available.)



Contents

- ① Controller setting software (CD-ROM)*1
- ② USB cable (Cable length: 3 m)

Description	Model
① Controller setting software	JXC-MA1-1
② USB cable	JXC-MA1-2

* Can be ordered separately

Hardware Requirements

PC/AT compatible machine with Windows 7 or Windows 8.1 and USB1.1 or USB2.0 port

*1 The controller setting software also includes software dedicated for 4 axes.

* Windows® is a registered trademark of Microsoft Corporation in the United States.

Series JXC73/83/92/93

Options: Actuator Cable

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

For 3 Axes	For 4 Axes
JXC92	JXC73/83/93

LE-CP-1-

Cable length (L) [m]

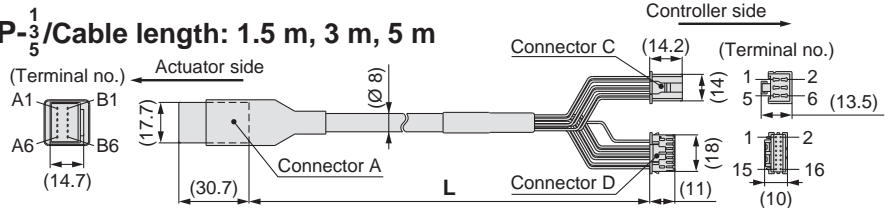
1	1.5
3	3
5	5
8	8*1
A	10*1
B	15*1
C	20*1

*1 Produced upon receipt of order (Robotic cable only)

Cable type

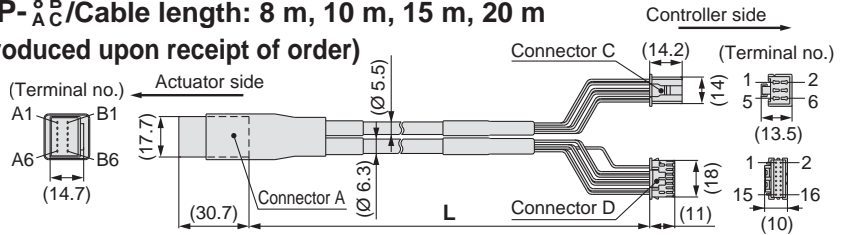
—	Robotic cable (Flexible cable)
S	Standard cable

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



LE-CP-^{8B}/_{AC}/Cable length: 8 m, 10 m, 15 m, 20 m

(*1 Produced upon receipt of order)



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

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

For 3 Axes	For 4 Axes
JXC92	JXC73/83/93

LE-CP-1-B-

Cable length (L) [m]

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

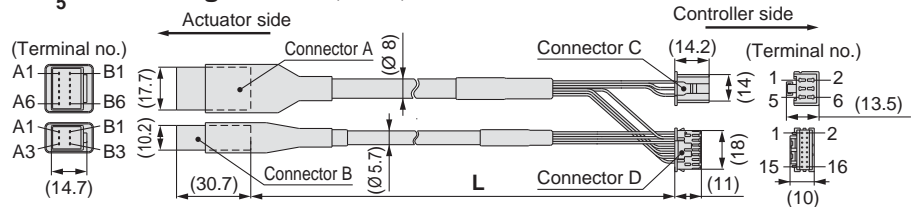
*1 Produced upon receipt of order (Robotic cable only)

With lock and sensor

Cable type

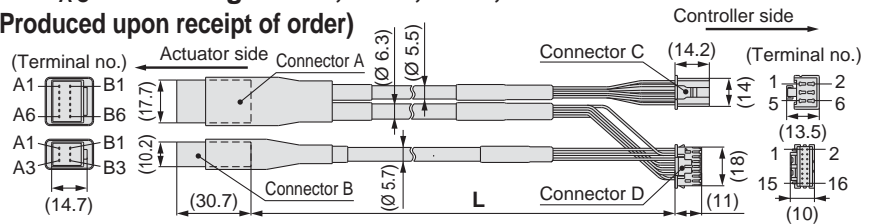
—	Robotic cable (Flexible cable)
S	Standard cable

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



LE-CP-^{8B}/_{AC}/Cable length: 8 m, 10 m, 15 m, 20 m

(*1 Produced upon receipt of order)






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

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

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.

SMC Corporation (Europe)

Austria	+43 (0)2262622800	www.smc.at	office@smc.at	Lithuania	+370 5 2308118	www.smc.lt	info@smc.lt
Belgium	+32 (0)33551464	www.smc.be	info@smc.be	Netherlands	+31 (0)205318888	www.smc.nl	info@smc.nl
Bulgaria	+359 (0)2807670	www.smc.bg	office@smc.bg	Norway	+47 67129020	www.smc-norge.no	post@smc-norge.no
Croatia	+385 (0)13707288	www.smc.hr	office@smc.hr	Poland	+48 222119600	www.smc.pl	office@smc.pl
Czech Republic	+420 541424611	www.smc.cz	office@smc.cz	Portugal	+351 226166570	www.smc.si	postpt@smc.smces.es
Denmark	+45 70252900	www.smc.dk.com	smc@smcdk.com	Romania	+40 213205111	www.smcromania.ro	smcromania@smcromania.ro
Estonia	+372 6510370	www.smc.ee	smc@smcpneumatics.ee	Russia	+7 8127185445	www.smc-pneumatik.ru	info@smc-pneumatik.ru
Finland	+358 207513513	www.smc.fi	smc@smc.fi	Slovakia	+421 (0)413213212	www.smc.sk	office@smc.sk
France	+33 (0)164761000	www.smc-france.fr	info@smc-france.fr	Slovenia	+386 (0)73885412	www.smc.si	office@smc.si
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Ireland	+353 (0)14039000	www.smc-pneumatics.ie	sales@smc-pneumatics.ie	Turkey	+90 212 489 0 440	www.smc-pneumatik.com.tr	info@smc-pneumatik.com.tr
Italy	+39 0292711	www.smc-italia.it	mailbox@smc-italia.it	UK	+44 (0)845 121 5122	www.smc.uk	sales@smc.uk
Latvia	+371 67817700	www.smc.lv	info@smc.lv				

SMC CORPORATION Akihabara UDX 15F, 4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN Phone: 03-5207-8249 FAX: 03-5298-5362

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