

# Controllers/Drivers

## JXC□/LEC□ Series

### <Single Axis Controllers>

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Step Data Input Type ..... p. 1017, 1031

High Performance Step Data Input Type ..... p. 1024

Gateway Unit ..... p. 1038

Step Motor (Servo/24 VDC)  
JXC51/61 Series



Servo Motor (24 VDC)  
LECA6 Series



Step Motor (Servo/24 VDC)  
JXC5H/6H Series



LEC-G Series



Pulse Input Type ..... p. 1057

Step Motor (Servo/24 VDC)  
LECPA Series



EtherCAT/EtherNet/IP™/PROFINET/DeviceNet®/IO-Link/CC-Link Direct Input Type ..... p. 1063

JXC□ Series

EtherCAT®



EtherNet/IP



PROFINET



DeviceNet



IO-Link



CC-Link



With STO Sub-Function EtherCAT/EtherNet/IP™/PROFINET/IO-Link Direct Input Type ..... p. 1063

JXC□F Series

EtherCAT®

EtherNet/IP

PROFINET

IO-Link



- Product certification obtained by a third party (EN61508-1/2 SIL3, EN62061 SIL CL3, EN ISO13849-1 Cat.3 PLe)
- Equipped with the EN61800-5-2 STO (Safe Torque Off) function



High Performance EtherCAT/EtherNet/IP™/PROFINET Direct Input Type ..... p. 1071

JXC□H Series



### <Multi-Axis Controllers>

Step Motor (Servo/24 VDC)

EtherNet/IP™ Direct Input Type ..... p. 1079

Parallel I/O/EtherNet/IP™ Direct Input Type ..... p. 1081

For 3 axes JXC92 Series



For 4 axes JXC73 Series  
JXC83 Series



JXC93 Series  
EtherNet/IP





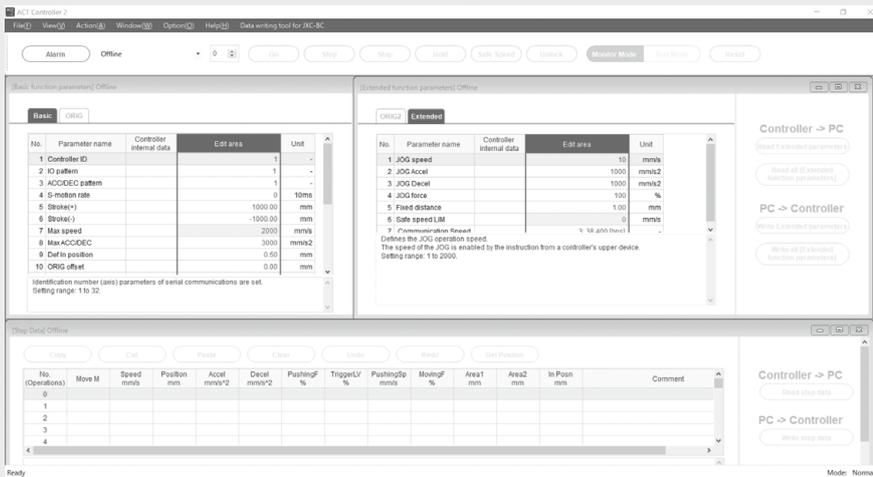
**ACT 2**

**Controller Setting Software ACT Controller 2**

**Easy-to-use setting software ACT Controller 2 (For PC)**

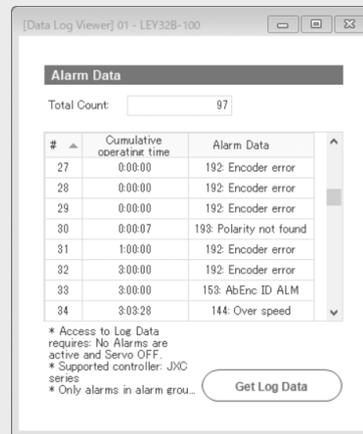
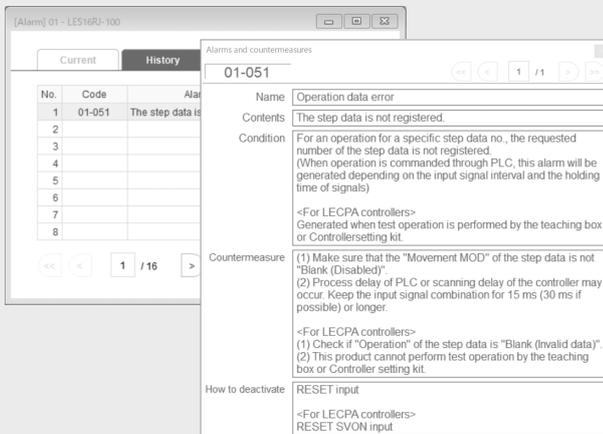
**Various functions available in normal mode** (Compared with the existing ACT Controller)

● **Parameter and step data setting**



\* Customers operating computers with specifications other than Windows 10/64 bit and Windows 11 should use the existing ACT Controller.

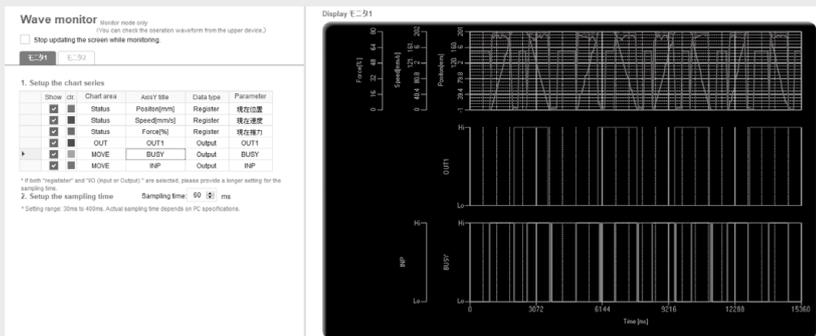
● **Alarm confirmation**



When an alarm is generated, the alarm details and countermeasures can be confirmed.

When an alarm is generated, the cumulative startup time of the controller can be confirmed.

● **Waveform monitoring**



The position, speed, force, and input/output signals' waveform data during operation can be measured.

\* When using the ACT Controller 2 test operation function, waveform monitoring is not available.

**JXC□1, JXC□F, JXC□H, LECA6, LECPA Series**

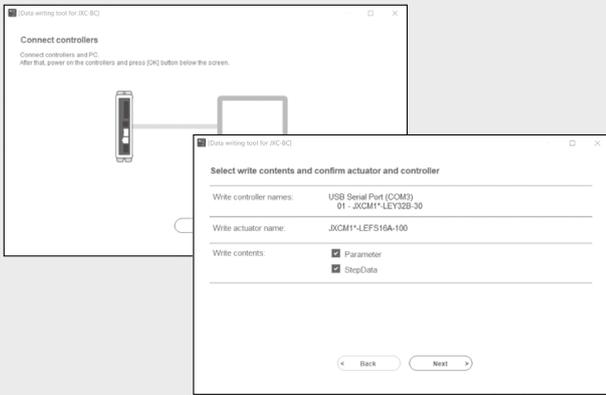
p. 1017, 1024, 1031, 1057, 1063, 1071



**ACT 2**

**Controller Setting Software ACT Controller 2**

• **The JXC-BC writing tool**



The writing tool can be used to write the connected actuator's parameters and step data to a JXC series blank controller.

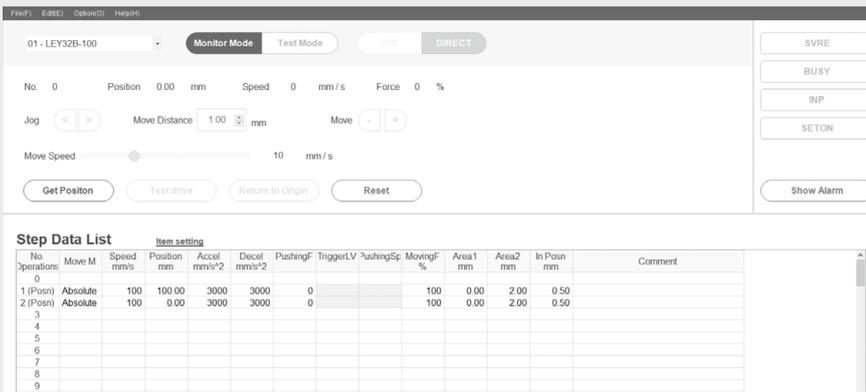
• **Customizable plug-in functions**



Which plug-in functions are displayed as well as the display order are customizable. Customers can add the functions they require.

In normal mode, various other test operation methods (program operation, jogging, moving of the constant rate, etc.), signal status monitoring, one-touch switching between Japanese and English, and other functions are available.

**For immediate use, operate in easy mode.**



Step data setting, various test operations, and status confirmation can be done on a single screen.

**Applicable controllers**

Step motor controller  
**JXC□1/  
JXC□H Series**



Controller with  
STO sub-function  
**JXC□F Series**



Step data  
input type  
**LECA6 Series**

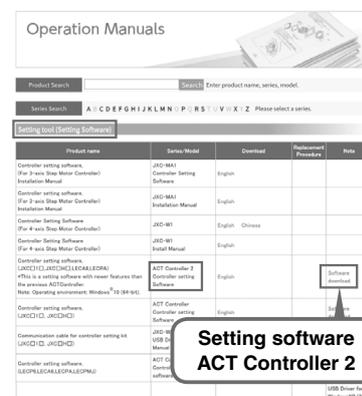


Pulse input  
type  
**LECPA Series**

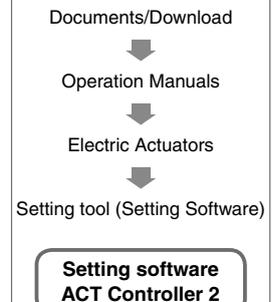


Hardware Requirements Windows®10 (64 bit), Windows®11

**How to download the setting software**



**From the SMC website**



**Caution**

Customers using a controller other than those listed above should use the existing controller setting software ACT Controller.

**JXC□1, JXC□F, JXC□H, LECA6, LECPA Series**

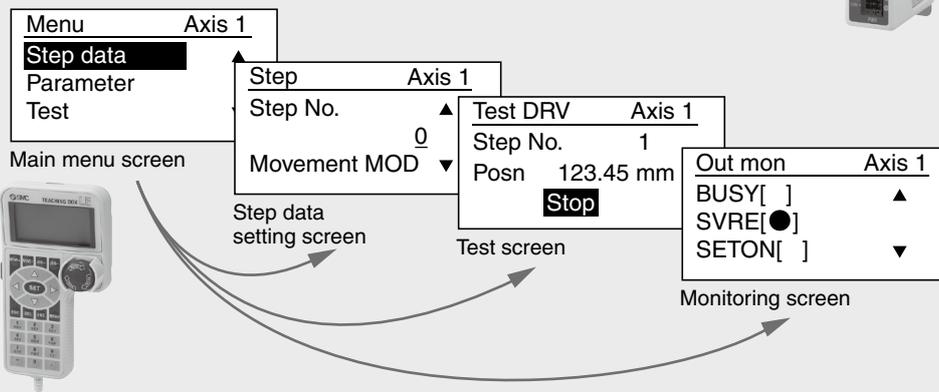


**Teaching Box**

p. 1017, 1024, 1031, 1057, 1063, 1071

○ **Normal Mode**

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



**Teaching box screen**

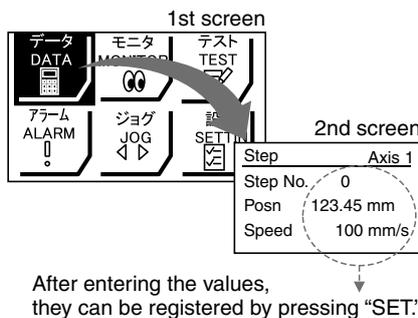
- Each function (step data setting, test drive, monitoring, etc.) can be selected from the main menu.

○ **Easy Mode**

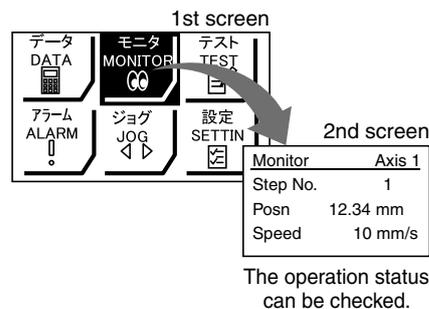
- The simple screen without scrolling promotes ease of setting and operation.
- Choose an icon from the first screen to select a function.
- Set the step data and check the monitor on the second screen.



**Example of setting the step data**



**Example of checking the operation status**



**Teaching box screen**

- Data can be set by inputting only the position and speed. (Other conditions are preset.)

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



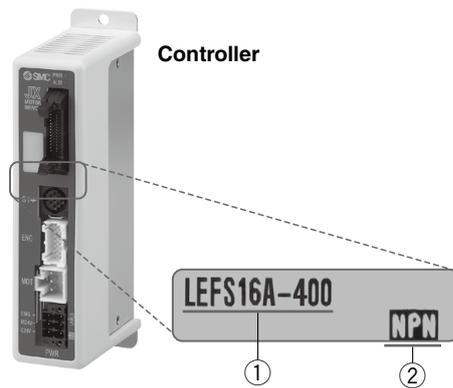
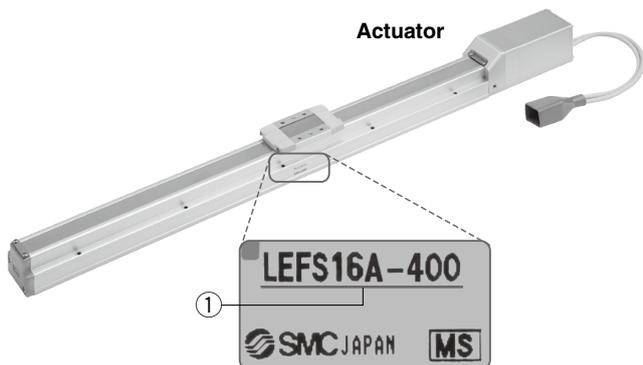
Step	Axis 1
Step No.	1
Posn	80.00 mm
Speed	100 mm/s

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

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

<Check the following before use.>

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





## Fieldbus Network

# Fieldbus-compatible Gateway (GW) Unit

## LEC-G Series p. 1038

- Conversion unit for Fieldbus network and LEC serial communication

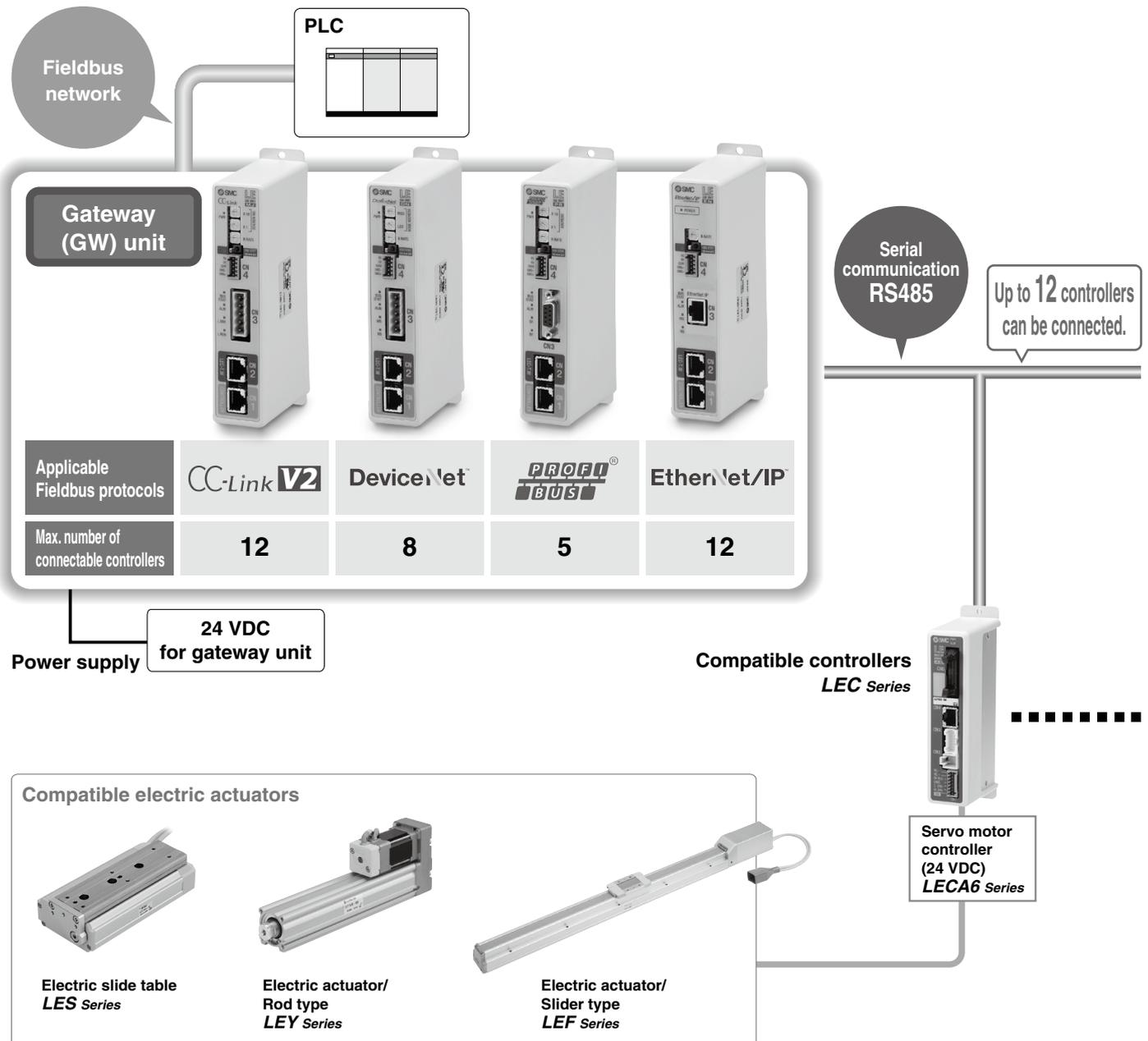
Applicable Fieldbus protocols: **CC-Link V2** **DeviceNet** **PROFIBUS** **EtherNet/IP**

- 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 and speed can be checked on the PLC.

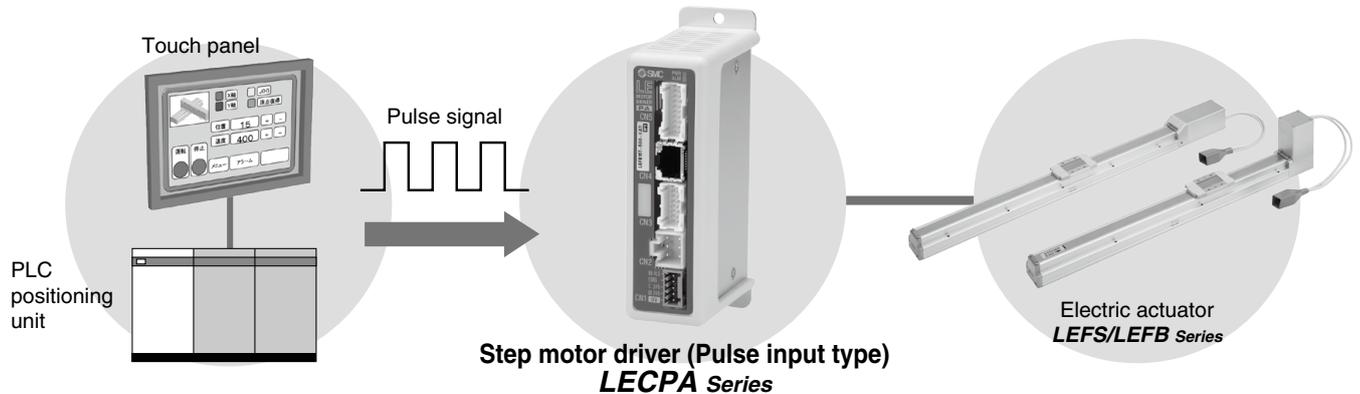




## Pulse Input Type **LECPA Series** p. 1057



- This driver 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 is possible by switching signals.

**ACT**  
2

## Controller Setting Software ACT Controller 2 p. 995

### Easy-to-use setting software ACT Controller 2 (For PC)

**Various functions available in normal mode** (Compared with the existing ACT Controller)

- Parameter and step data setting
- Alarm confirmation
- Waveform monitoring
- The JXC-BC writing tool
- Customizable plug-in functions

\* Customers operating computers with specifications other than Windows 10/64 bit and Windows 11 should use the existing ACT Controller.

## Function

Item	Step data input type JXC51/61/LECA6	Pulse input type LECPA
Step data and parameter setting	<ul style="list-style-type: none"> <li>Input from controller setting software (PC)</li> <li>Input from teaching box</li> </ul>	<ul style="list-style-type: none"> <li>Input from controller setting software (PC)</li> <li>Input from teaching box</li> </ul>
Step data "position" setting	<ul style="list-style-type: none"> <li>Numerical value input from controller setting software (PC) or teaching box</li> <li>Input numerical value</li> <li>Direct teaching</li> <li>JOG teaching</li> </ul>	<ul style="list-style-type: none"> <li>No "Position" setting required</li> <li>Position and speed set by pulse signal</li> </ul>
Number of step data	64 points	—
Operation command (I/O signal)	Step No. [IN <sup>+</sup> ] input ⇒ [DRIVE] input	Pulse signal
Completion signal	[INP] output	[INP] output

## Setting Items

TB: Teaching box PC: Controller setting software

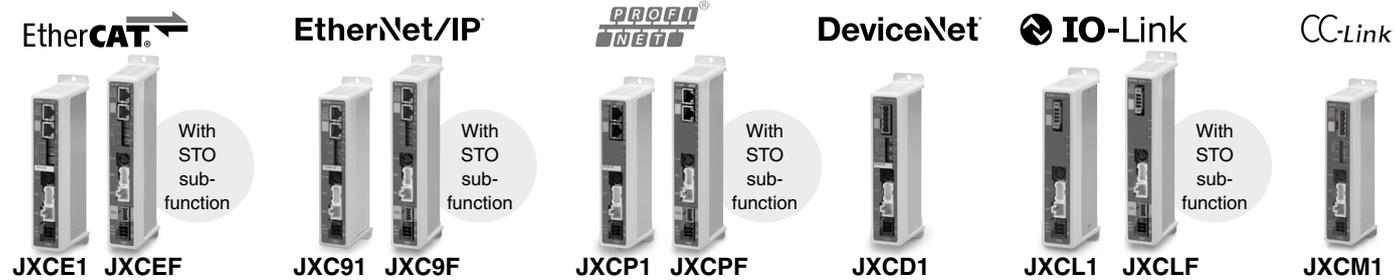
Item	Contents	Easy Mode		Normal Mode	Step data input type JXC51/61/LECA6	Pulse input type LECPA	
		TB	PC	TB/PC			
Step data setting (Excerpt)	Movement MOD	Selection of "absolute position" and "relative position"	△	●	●	Set at ABS/INC	No setting required
	Speed	Transfer speed	●	●	●	Set in units of 1 mm/s	
	Position	[Position]: Target position [Pushing]: Pushing start position	●	●	●	Set in units of 0.01 mm	
	Acceleration/Deceleration	Acceleration/ deceleration during movement	●	●	●	Set in units of 1 mm/s <sup>2</sup>	
	Pushing force	Rate of force during pushing operation	●	●	●	Set in units of 1%	Set in units of 1%
	Trigger LV	Target force during pushing operation	△	●	●	Set in units of 1%	Set in units of 1%
	Pushing speed	Speed during pushing operation	△	●	●	Set in units of 1 mm/s	Set in units of 1 mm/s
	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 position limit	×	×	●	Set in units of 0.01 mm	Set in units of 0.01 mm
	Stroke (-)	- side position limit	×	×	●	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
	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 <sup>2</sup>	Set in units of 1 mm/s <sup>2</sup>
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.
	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.
	Return to ORIG		●	●	●	Compatible	Compatible
	Test drive	Operation of the specified step data	●	●	● (Continuous operation)	Compatible	Not compatible
	Forced output	ON/OFF of the output terminal can be tested.	×	×	●	Compatible	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
	ALM Log record	Alarms generated in the past can be confirmed.	×	×	●	Compatible	Compatible
File	Save/Load	Step data and parameters can be saved, forwarded, and deleted.	×	×	●	Compatible	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.)

## Fieldbus Network

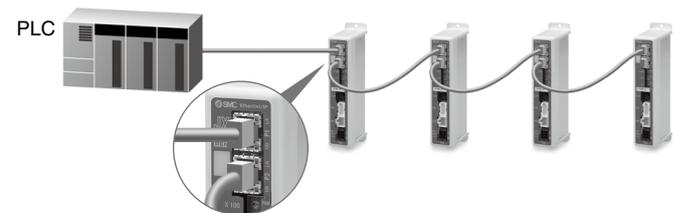
# EtherCAT/EtherNet/IP™/PROFINET/ DeviceNet®/IO-Link/CC-Link Direct Input Type Step Motor Controller/JXC□ Series p. 1063

**ACT 2** Controller Setting Software  
ACT Controller 2



- **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 and CC-Link type, transition wiring is possible using a branch connector.  
 \* 1 to 1 in the case of IO-Link



### Application

Communication protocols

**EtherCAT**

**EtherNet/IP**

**PROFINET**

**DeviceNet**

**IO-Link**

**CC-Link**

PLC

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

**Electric Actuators**

**Air Cylinders**

EX260

**IO-Link Communication**

IO-Link master

Can be additionally installed in an existing network

**ACT 2** Controller Setting Software ACT Controller 2 p. 995

## Easy-to-use setting software ACT Controller 2 (For PC)

**Various functions available in normal mode** (Compared with the existing ACT Controller)

- Parameter and step data setting
- The JXC-BC writing tool
- Alarm confirmation
- Customizable plug-in functions
- Waveform monitoring

\* Customers operating computers with specifications other than Windows 10/64 bit and Windows 11 should use the existing ACT Controller.

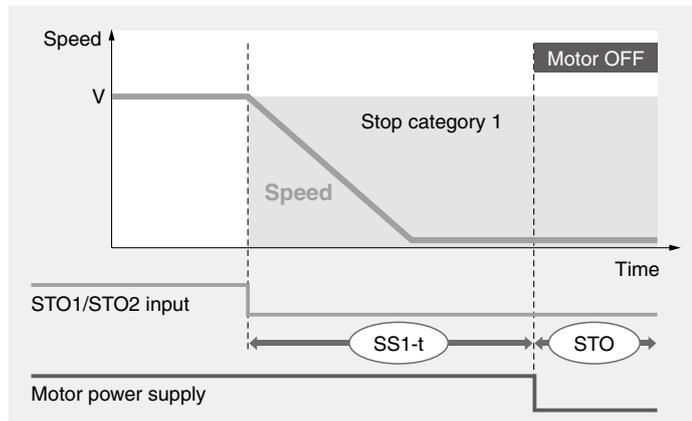
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## Controller with STO Sub-Function *JXC□F Series*

**ACT 2** Controller Setting Software  
ACT Controller 2

### Safety function/STO, SS1-t (EN 61800-5-2)

When the STO signal is input from the safety device, after the SS1-t operation is completed, the unit shifts to the STO operation and the power supply of the motor is turned OFF.

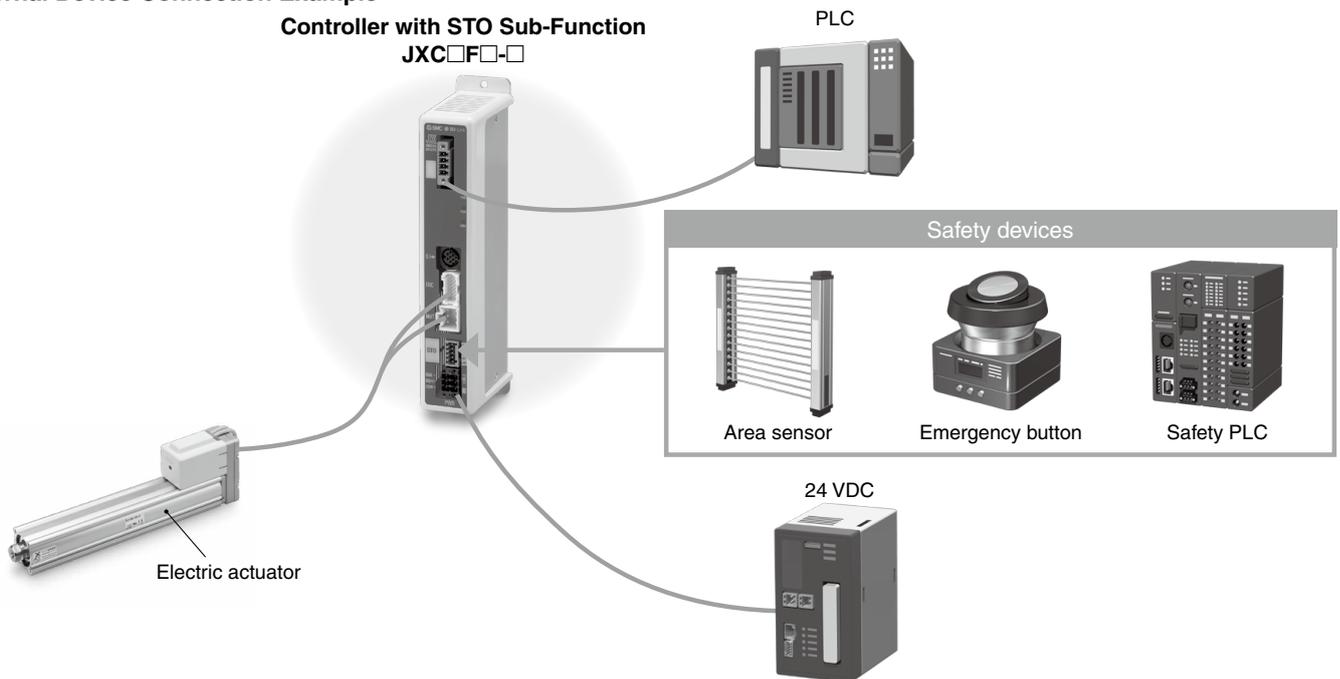


SS1-t operation: Safe Stop 1—After deceleration, a shift to the STO operation occurs.

STO operation: Safe Torque Off—The power supply of the motor is turned OFF.

### External Device Connection Example

Controller with STO Sub-Function  
*JXC□F□□*



## Certified by a third-party organization

Facilitates the safety designing of equipment and facilities (compliant with ISO/IEC standards)



EN 61508-1/2 SIL 3\*1  
EN 62061 SIL CL 3\*1  
EN ISO 13849-1 Cat. 3 PL e  
EN 61800-5-2 STO, SS1-t

#### SIL (Safety Integrity Level)

A safety integrity level as defined by international standard IEC 61508/62061  
There are 4 levels of safety, with the lowest being SIL 1 and the highest being SIL 4.

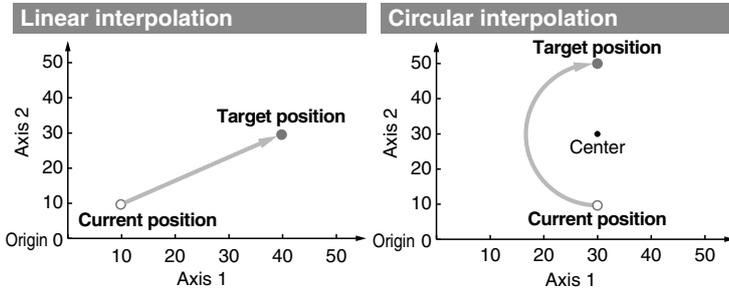
#### PL (Performance Level)

A scale used to define the capability of safety-related parts to perform a safety function as defined by international standard ISO 13849  
There are 5 levels of safety function, with the lowest being PL a and the highest being PL e.

\*1 The above safety integrity level is the max. value. The achievable level varies depending on the configuration and inspection method of the component. Be sure to refer to "Safety Manual: JXC#-OMY0009" for more information.

# Multi-Axis Step Motor Controller

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

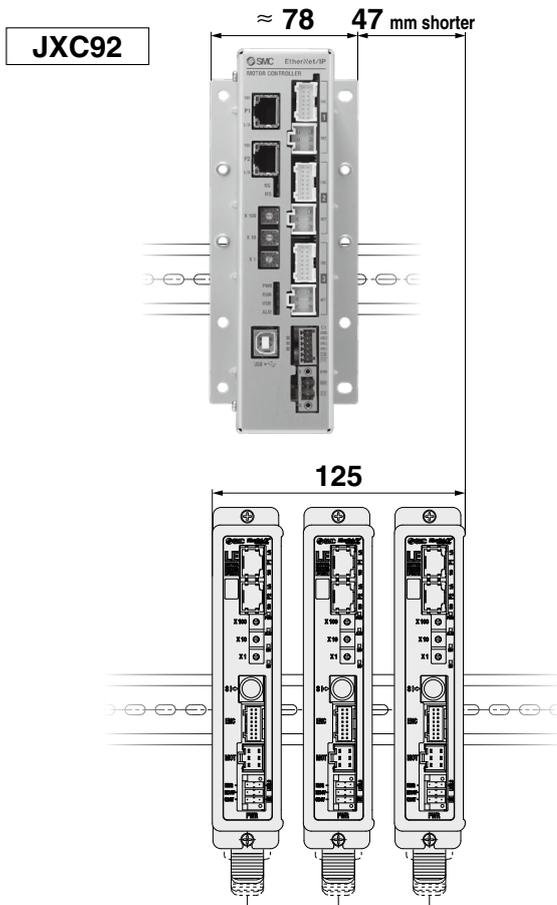


- Positioning/pushing operation
- Step data input  
(Max. 2048 points)
- Space saving, reduced wiring
- Absolute/relative position coordinate instructions

\*1 This controls the speed of the following axis when the speed of the primary axis drops due to the effects of an external force and when a speed difference with the following axis occurs. This control is not for synchronizing the position of the primary axis and following axis.

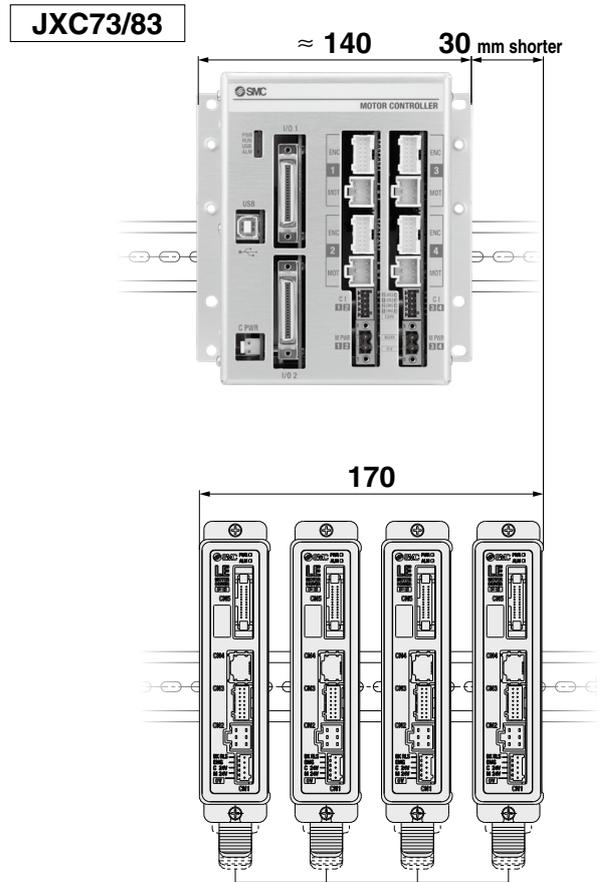
## For 3 Axes **JXC92 Series** p. 1079

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



## For 4 Axes **JXC73/83/93 Series** p. 1081

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



\* For LE□, size 25 or larger



## 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 <sup>2</sup>	mm/s <sup>2</sup>					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 center 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 center 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 center position X Axis 4*1: Rotation center 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 center 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 center position X Axis 4*1: Rotation center 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 following axis when the speed of the primary axis drops due to the effects of an external force and when a speed difference with the following axis occurs. This control is not for synchronizing the position of the primary axis and following axis.



# Step Data Input: Max. 2048 points

**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 <sup>2</sup>	mm/s <sup>2</sup>		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 center 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 center position X Axis 4: Rotation center 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 center 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 center position X Axis 4: Rotation center 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 following axis when the speed of the primary axis drops due to the effects of an external force and when a speed difference with the following axis occurs. This control is not for synchronizing the position of the primary axis and following axis.

## Controller Setting Software (Connection with a PC)

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

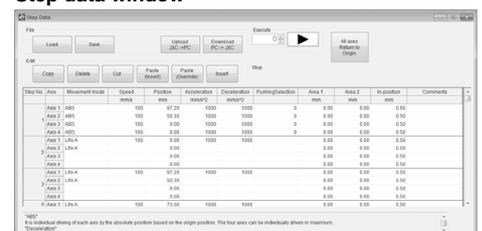
### Easy file management

Load	The step data is loaded from the file.
Save	The step data is saved in a file.
Upload	The step data is loaded from the controller.
Download	The step data is written in the controller.

### Abundant edit functions

Copy	The selected step data is copied to the clipboard.
Delete	The selected step data is deleted.
Cut	The selected step data is cut.
Paste (Insert)	The step data copied to the clipboard is inserted into the cursor's position.
Paste (Overwrite)	The step data copied to the clipboard overwrites the data at the cursor position.
Insert	A blank line is inserted in the selected step data line.

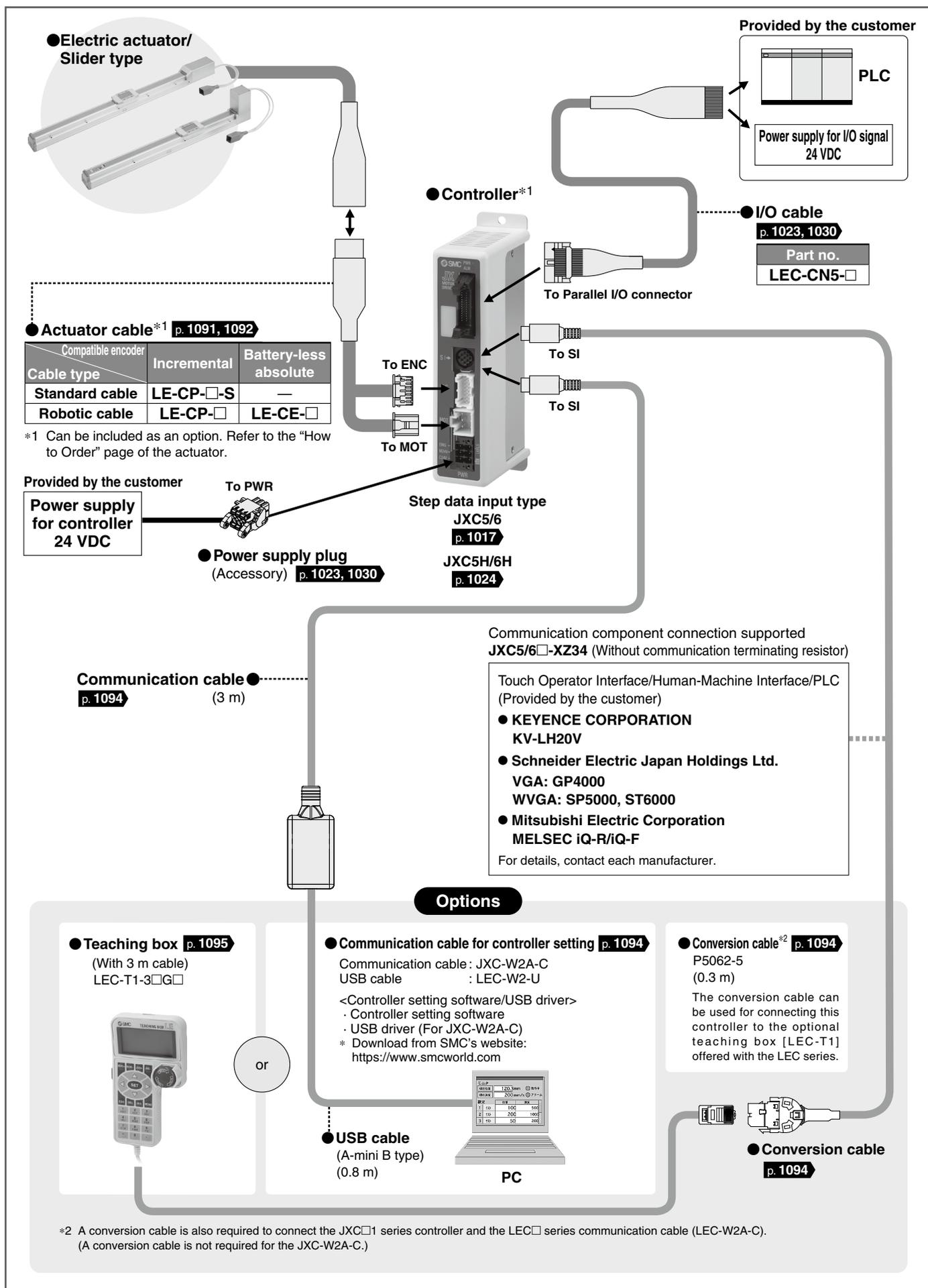
### Step data window



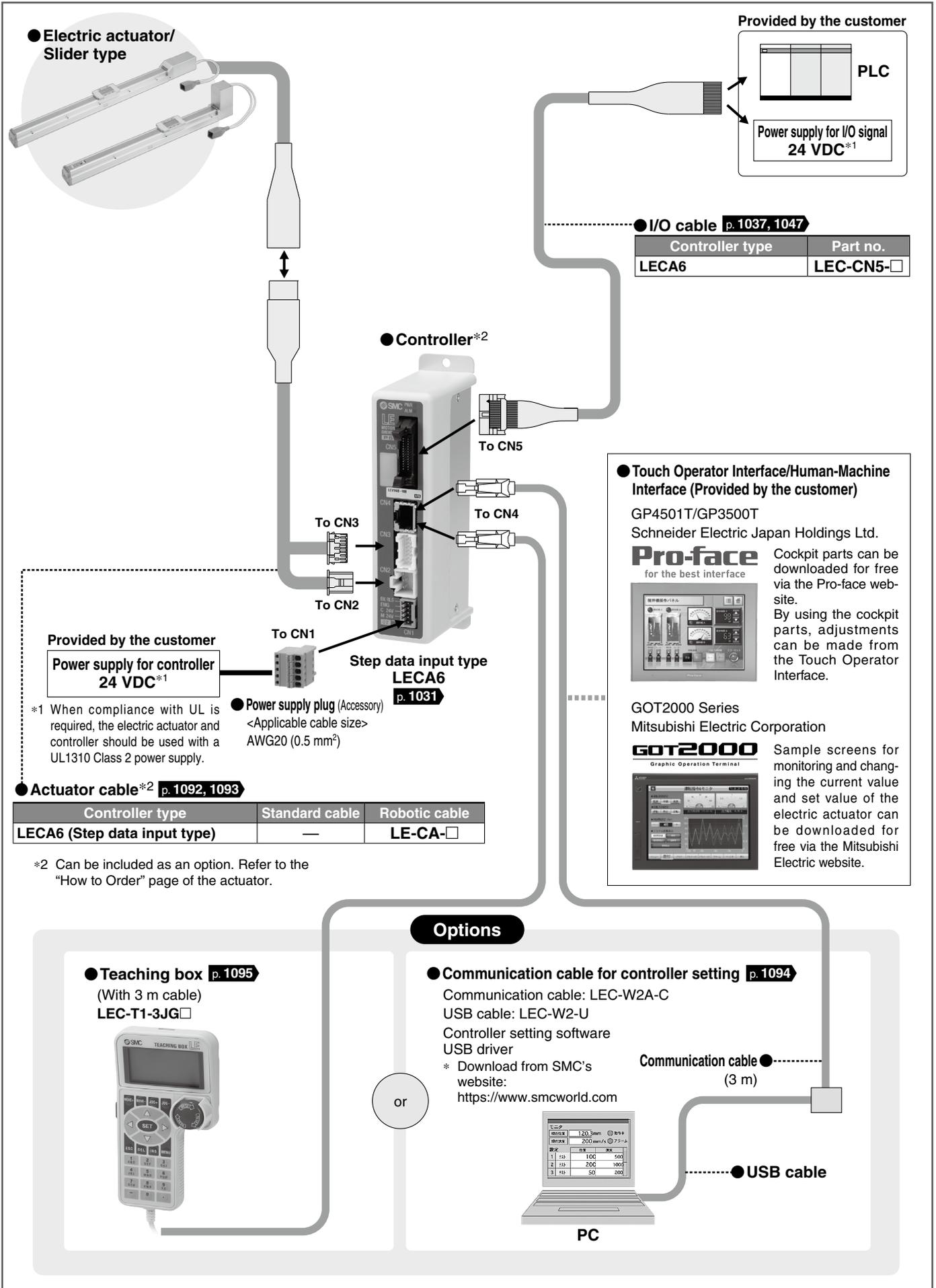
### Operation confirmation of entered step data

<input type="text"/>	Enter the step number to be executed.
<input type="button" value="▶"/>	Executes the specified step number.
<input type="button" value="Stop"/>	Displays whether the step number is being executed or stopped.
<input type="button" value="All axes return to origin"/>	Performs a return to origin of all the valid axes.

## System Construction/General Purpose I/O



**System Construction/General Purpose I/O**



Provided by the customer

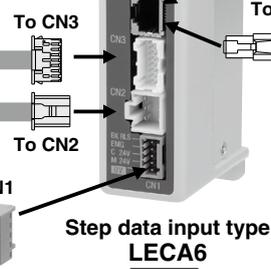
PLC

Power supply for I/O signal  
24 VDC\*1

● I/O cable p.1037, 1047

Controller type	Part no.
LECA6	LEC-CN5-□

● Controller\*2



Provided by the customer

Power supply for controller  
24 VDC\*1

\*1 When compliance with UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

● Power supply plug (Accessory)  
<Applicable cable size>  
AWG20 (0.5 mm<sup>2</sup>)

● Actuator cable\*2 p. 1092, 1093

Controller type	Standard cable	Robotic cable
LECA6 (Step data input type)	—	LE-CA-□

\*2 Can be included as an option. Refer to the "How to Order" page of the actuator.

● Touch Operator Interface/Human-Machine Interface (Provided by the customer)

GP4501T/GP3500T  
Schneider Electric Japan Holdings Ltd.

**Pro-face**  
for the best interface

Cockpit parts can be downloaded for free via the Pro-face website. By using the cockpit parts, adjustments can be made from the Touch Operator Interface.

GOT2000 Series  
Mitsubishi Electric Corporation

**GOT2000**  
Graphic Operation Terminal

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

**Options**

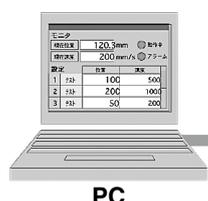
● Teaching box p. 1095  
(With 3 m cable)  
LEC-T1-3JG□



● Communication cable for controller setting p. 1094

Communication cable: LEC-W2A-C  
USB cable: LEC-W2-U  
Controller setting software  
USB driver  
\* Download from SMC's website:  
<https://www.smcworld.com>

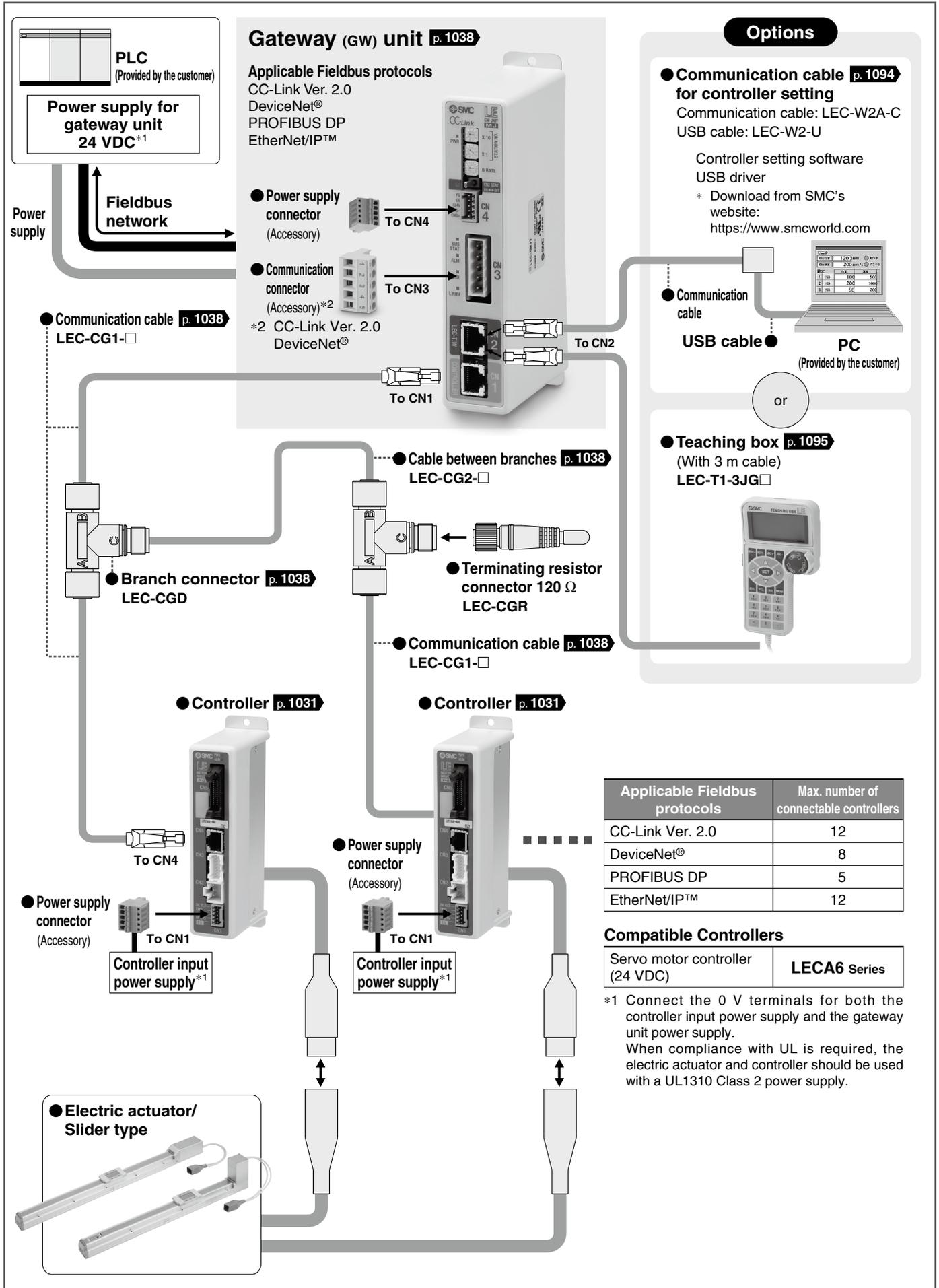
or



Communication cable (3 m)

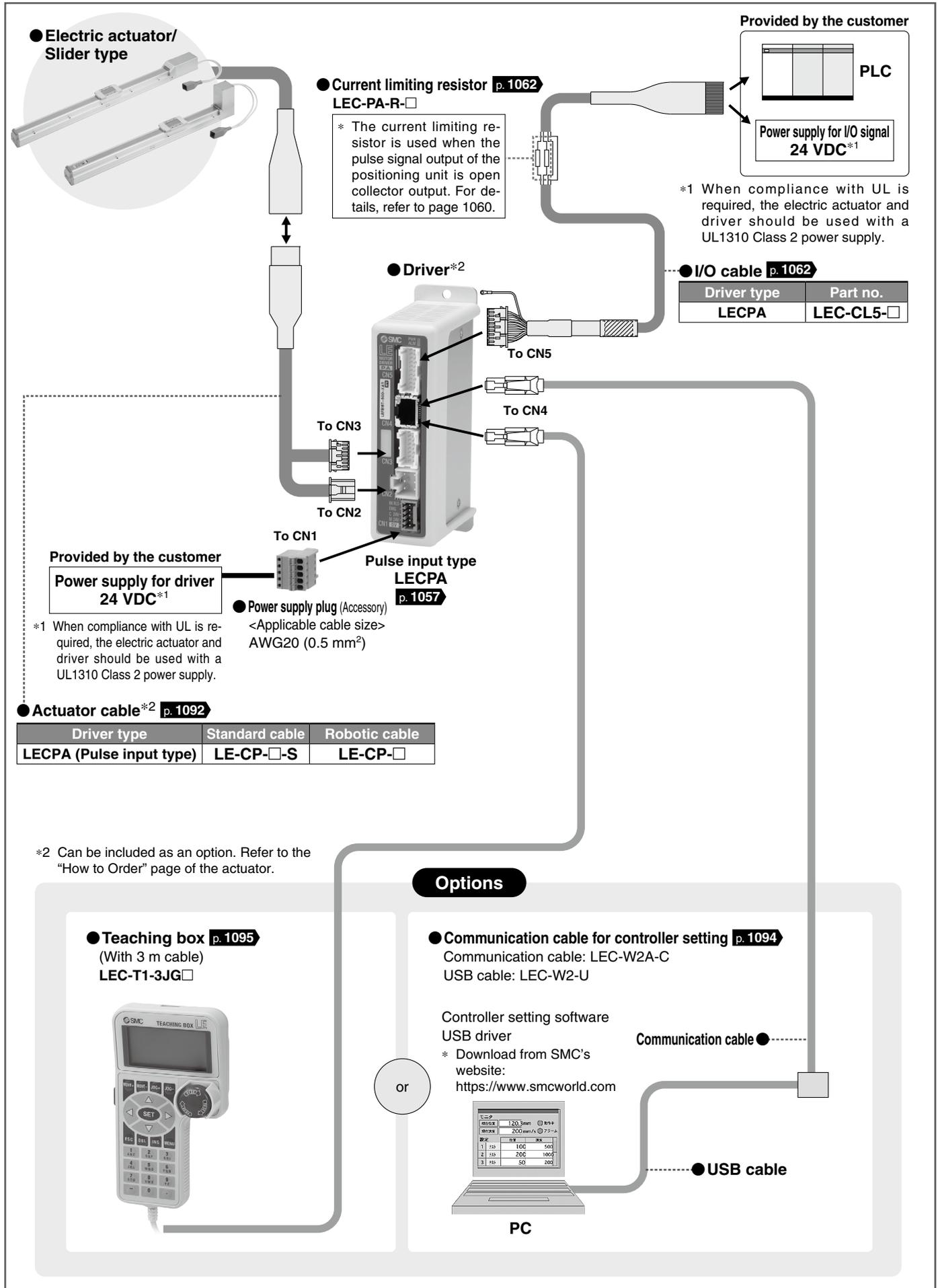
● USB cable

**System Construction/Fieldbus Network**

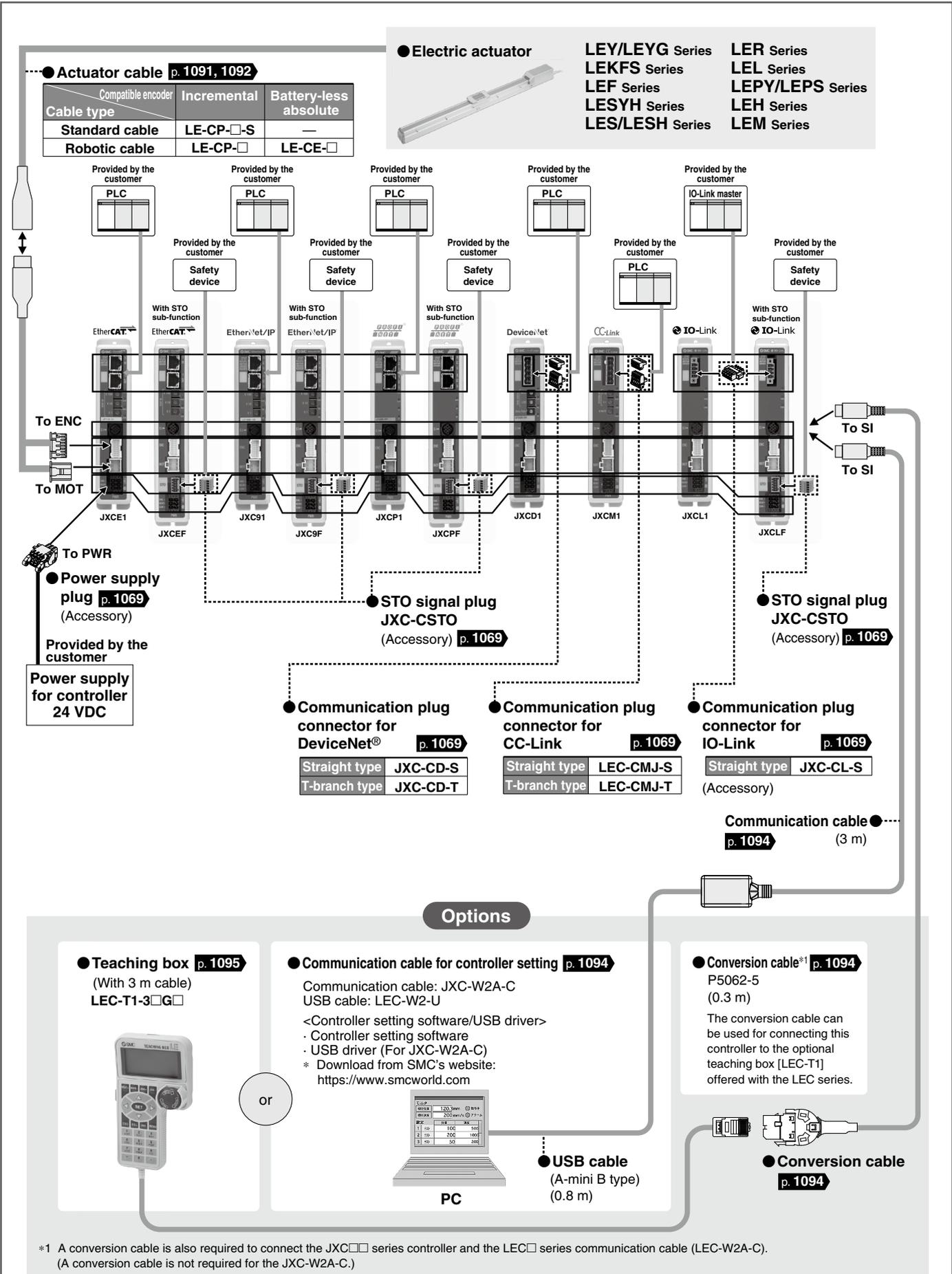




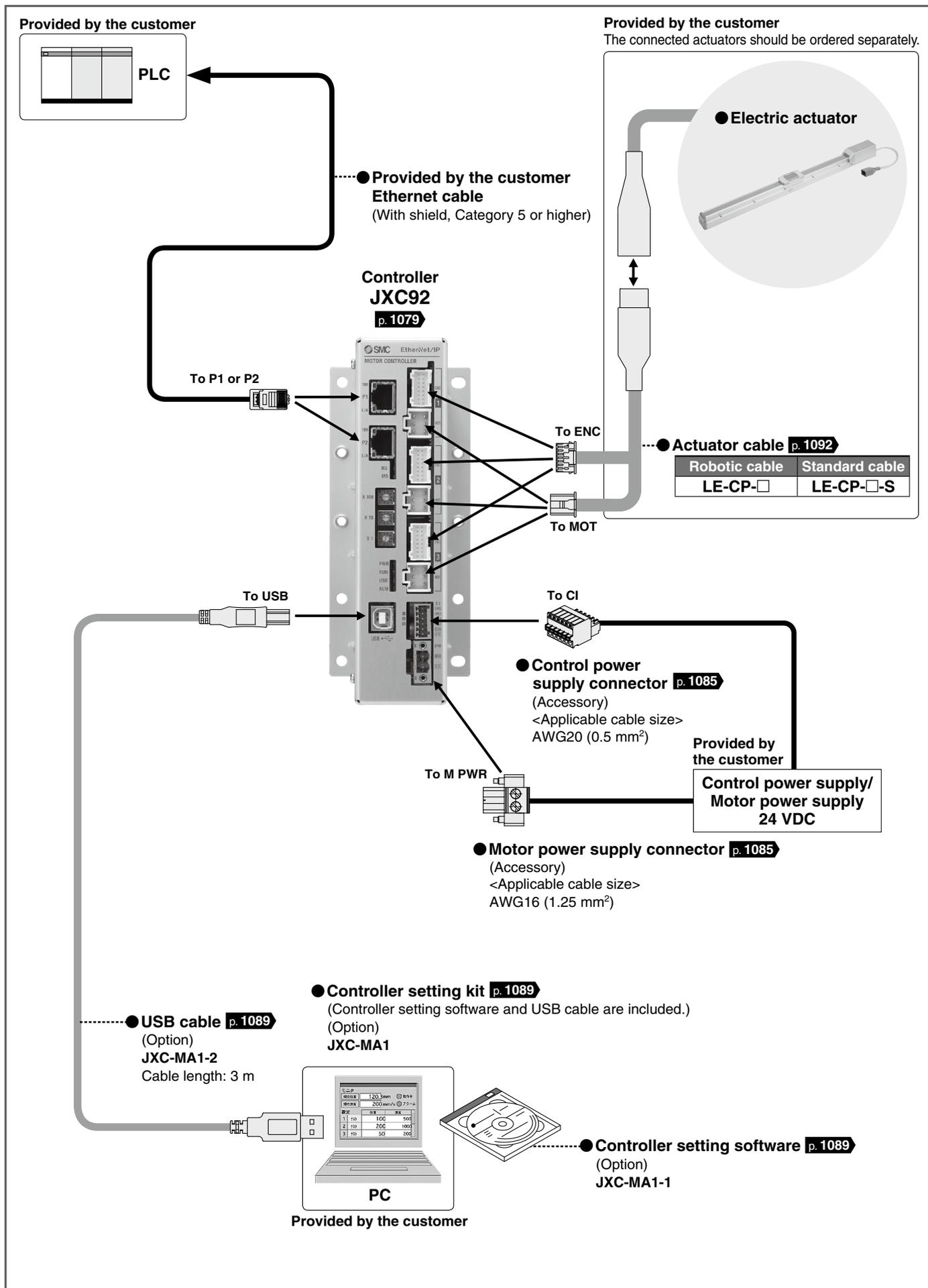
**System Construction/Pulse Signal**



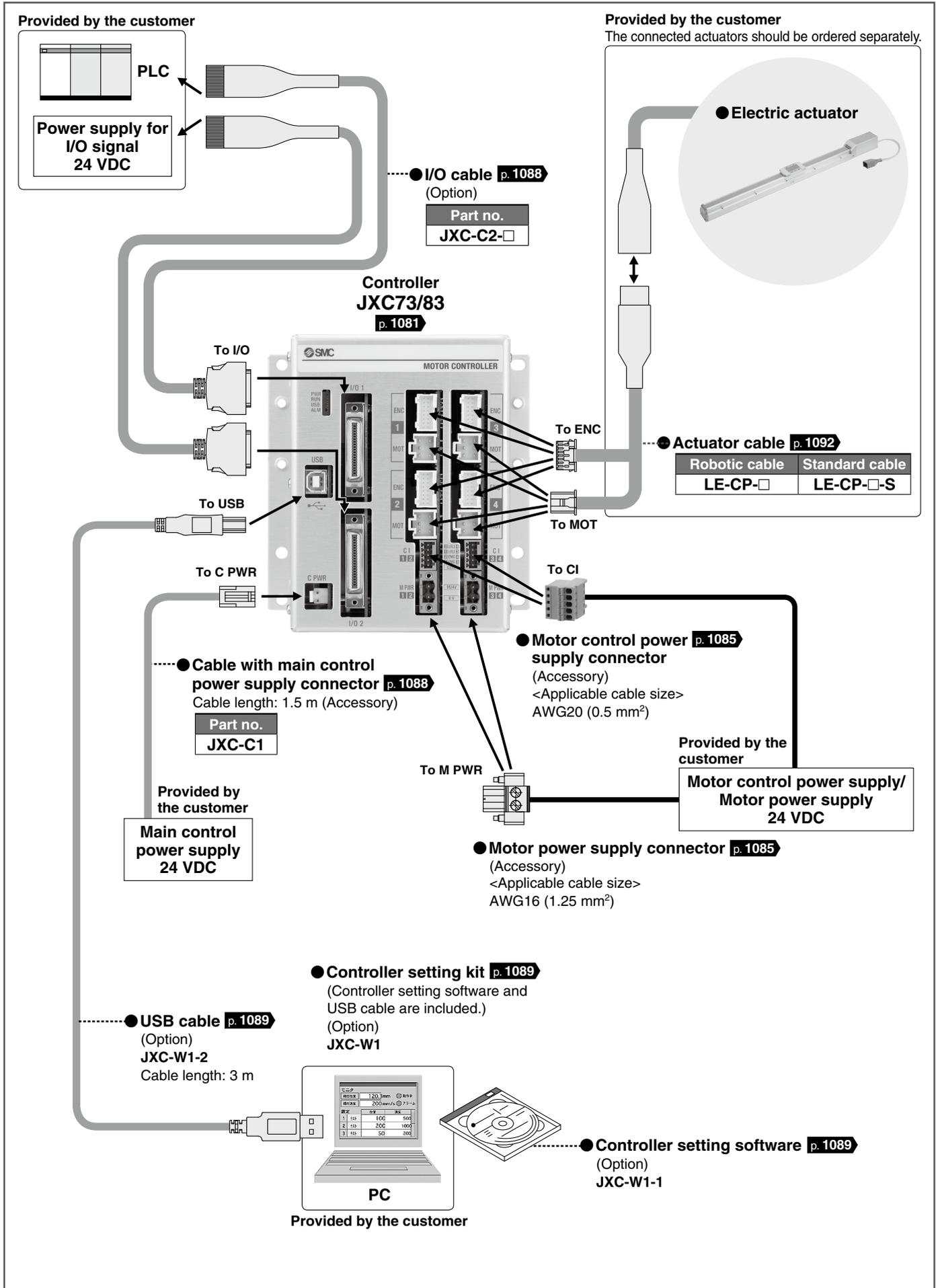
**System Construction/Fieldbus Network**  
(EtherCAT/EtherNet/IP™/PROFINET/DeviceNet®/IO-Link/CC-Link Direct Input Type)



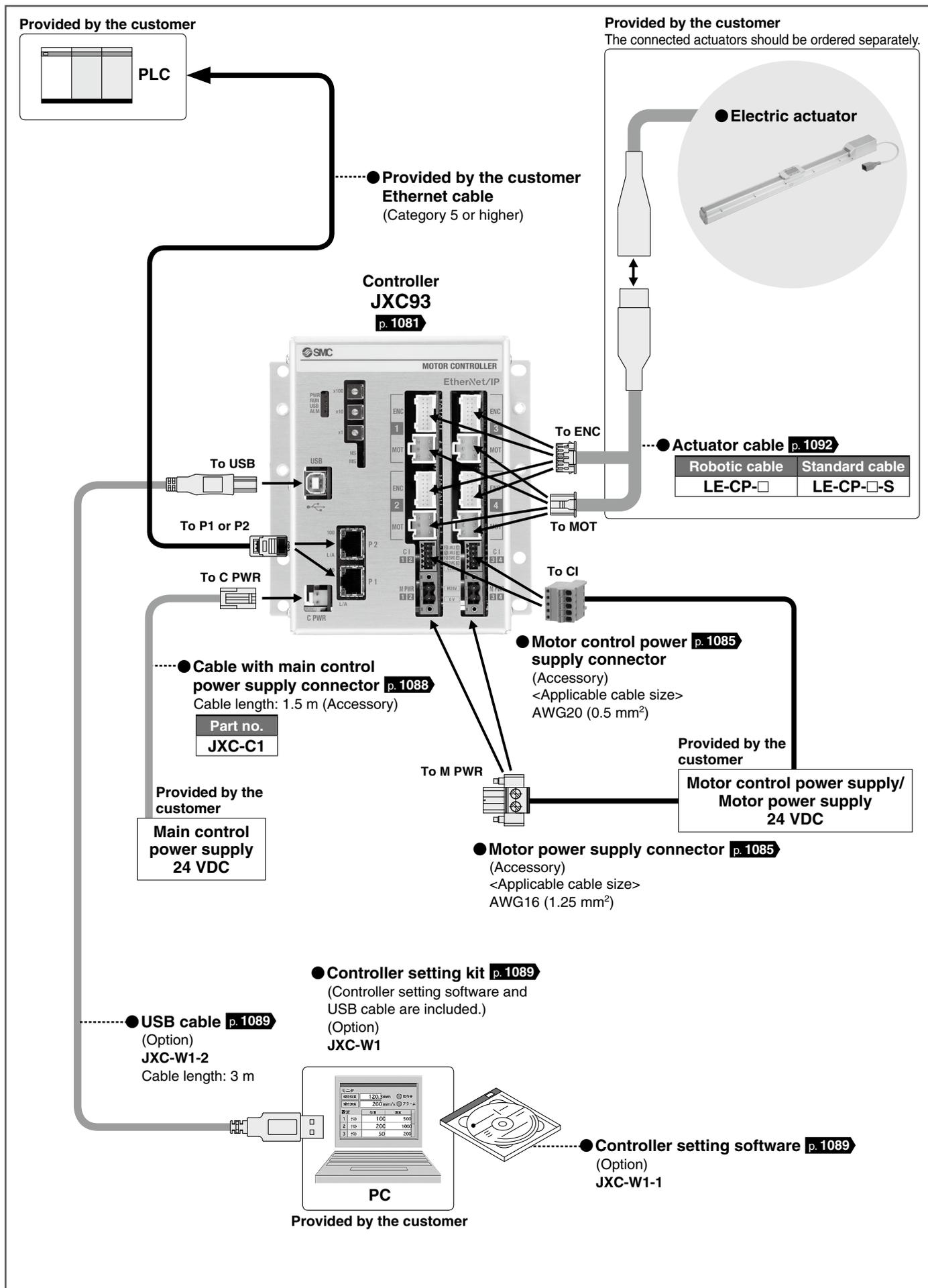
**System Construction/EtherNet/IP™ Type (JXC92)**



**System Construction/Parallel I/O (JXC73/83)**



**System Construction/EtherNet/IP™ Type (JXC93)**



# CONTENTS

Battery-less Absolute (Step Motor 24 VDC)

Incremental (Step Motor 24 VDC)

Incremental (Servo Motor 24 VDC)

## Controllers/Drivers



JXC5□/6□ LECA6



LEC-G



LECPA

With STO sub-function



JXCE1/91/P1/D1/L1/M1  
JXCEH/9H/PH



JXC□F



JXC92



JXC73/83

JXC93



LEC-T1

Step Data Input Type/ <b>JXC51/61 Series</b> .....	p. 1017
Step Data Input Type/ <b>JXC5H/6H Series</b> .....	p. 1024
Step Data Input Type/ <b>LECA6 Series</b> .....	p. 1031
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Step Motor Driver/ <b>LECPA Series</b> .....	p. 1057
EtherCAT/EtherNet/IP™/PROFINET/DeviceNet®/IO-Link/CC-Link Direct Input Type/ <b>JXCE□/9□/P□/D1/L□/M1 Series</b> .....	p. 1063
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3-Axis Step Motor Controller/ <b>JXC92 Series</b> .....	p. 1079
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Actuator Cable .....	p. 1091
Communication Cable for Controller Setting/ <b>JXC-W2A-□/LEC-W2A-□</b> .....	p. 1094
Teaching Box/ <b>LEC-T1</b> .....	p. 1095
Lock Release Unit/ <b>LE-ML-P-X117</b> Electric Actuator <b>With Lock</b> For the <b>LE□ Series</b> .....	p. 1097

Compatible actuators

LEKFS	LEF	LEL
LEM	LEY/G	LESYH
LES/H	LEP	LER
LEH		

# Controller (Step Data Input Type)

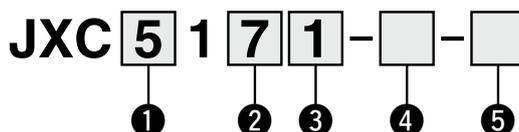
## JXC51/61 Series



\* For details, refer to page 1343 and onward.



### How to Order



#### ① Parallel I/O type

5	NPN
6	PNP

#### ② Mounting

7	Screw mounting
8*1	DIN rail

\*1 The DIN rail is not included. It must be ordered separately.

#### ③ I/O cable length [m]

Nil	None
1	1.5
3	3
5	5

#### ④ Actuator part number

Without cable specifications and actuator options  
Example: Enter "LEFS25B-100" for the  
LEFS25B-100B-R1□□.

**BC** Blank controller\*1

\*1 Requires dedicated software (JXC-BCW or ACT Controller 2)

#### ⑤ Communication terminating resistor

Nil	With
-XZ34	Without (Communication component connection supported)

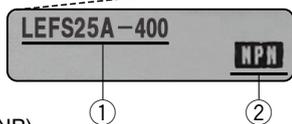
\* The "-XZ34" does not have a set product number, so the controller will need to be ordered separately.

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

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

<Check the following before use.>

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



\* Refer to the operation manual for using the products. Please download it via our website: <https://www.smcworld.com>

### 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. For data writing, use the controller setting software ACT Controller 2 or the dedicated software JXC-BCW.

- Both ACT Controller 2 and JXC-BCW can be downloaded from the SMC website.
- To use this software, order the communication cable for controller setting (JXC-W2A-C) and the USB cable (LEC-W2-U) separately.

#### Hardware Requirements

OS	Windows®10 (64 bit)	Windows®7 Windows®8
	Windows®11	Windows®10
Software	ACT Controller 2 (With JXC-BCW function)	JXC-BCW

\* Windows®7, Windows®8, Windows®10, and Windows®11 are registered trademarks of Microsoft Corporation in the United States.

**SMC website**  
<https://www.smcworld.com>

\*1 If the vertical work load for the LEY40□□E or LEYG40□□E series product is equal to or greater than the weight below, use the controller at an ambient temperature at 40°C or less.

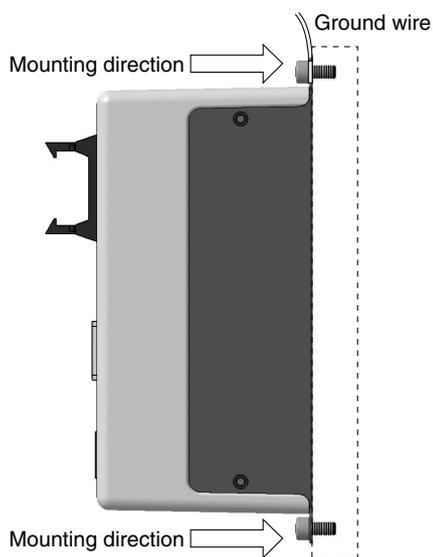
Series	Weight [kg]	Series	Weight [kg]
LEY40□□EA	9	LEYG40□□EA	7
LEY40□□EB	19	LEYG40□□EB	17
LEY40□□EC	38	LEYG40□□EC	36

## Specifications

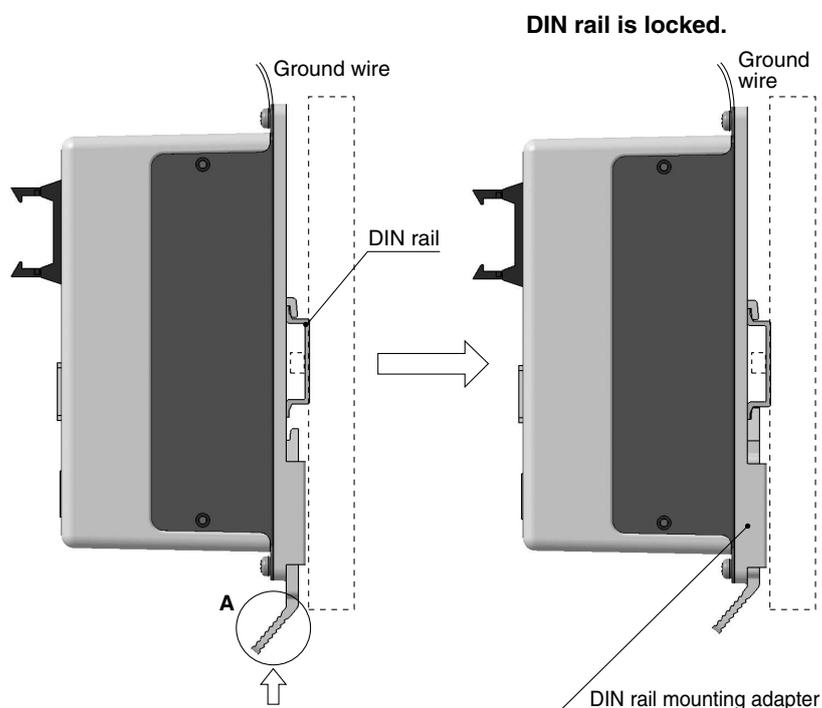
Model	JXC51 JXC61
<b>Compatible motor</b>	Step motor (Servo/24 VDC)
<b>Power supply</b>	Power voltage: 24 VDC ±10%
<b>Current consumption (Controller)</b>	100 mA or less
<b>Compatible encoder</b>	Incremental/Battery-less absolute
<b>Parallel input</b>	11 inputs (Photo-coupler isolation)
<b>Parallel output</b>	13 outputs (Photo-coupler isolation)
<b>Serial communication</b>	RS485 (Only for the LEC-T1 and JXC-W2)
<b>Memory</b>	EEPROM
<b>LED indicator</b>	PWR, ALM
<b>Cable length [m]</b>	Actuator cable: 20 or less
<b>Cooling system</b>	Natural air cooling
<b>Operating temperature range [°C]</b>	0 to 55°C (No freezing)*1
<b>Operating humidity range [%RH]</b>	90 or less (No condensation)
<b>Enclosure</b>	IP30 (Excludes the connector)
<b>Insulation resistance [MΩ]</b>	Between all external terminals and the case: 50 (500 VDC)
<b>Weight [g]</b>	150 (Screw mounting), 170 (DIN rail mounting)

## How to Mount

### a) Screw mounting (JXC□17□-□) (Installation with two M4 screws)



### b) DIN rail mounting (JXC□18□-□) (Installation with the DIN rail)

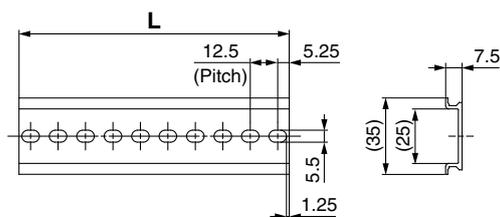


Hook the controller on the DIN rail and press the lever of section **A** in the arrow direction to lock it.

\* 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 dimension drawings on page 1019 for the mounting dimensions.



### L Dimensions [mm]

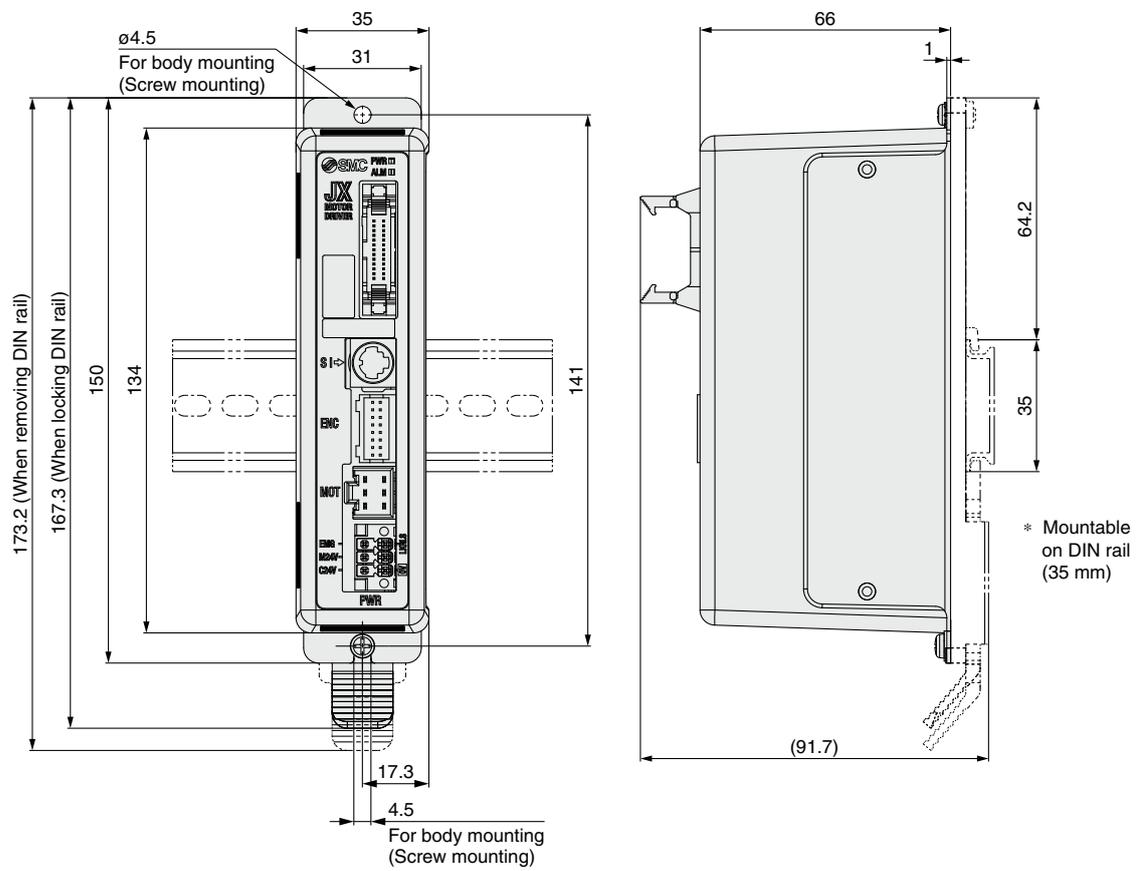
No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>L</b>	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5
No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
<b>L</b>	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448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

# JXC51/61 Series

## Dimensions



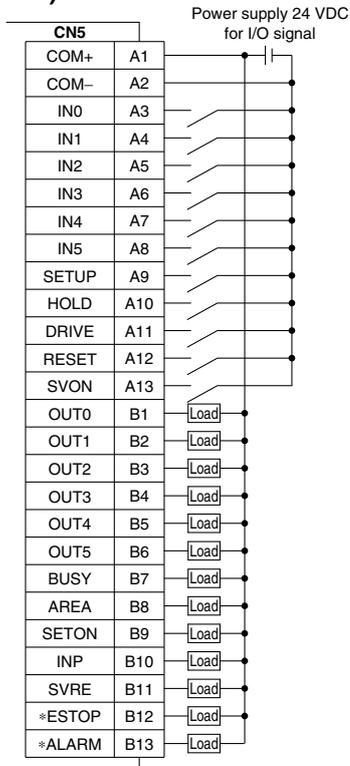
## Wiring Example

### Parallel I/O Connector

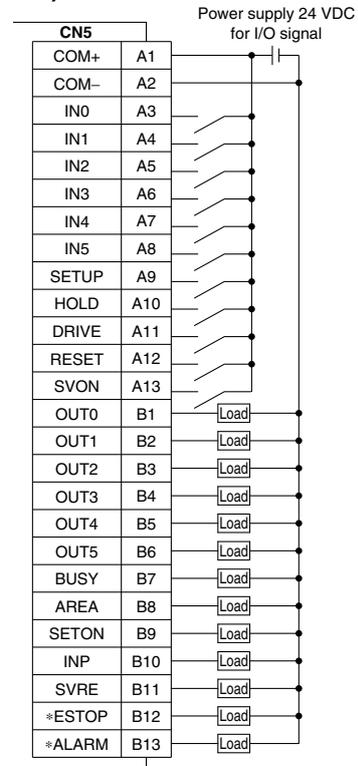
- \* When you connect a PLC to the parallel I/O connector, use the I/O cable (LEC-CN5-□).
- \* The wiring changes depending on the type of parallel I/O (NPN or PNP).

### Wiring diagram

#### JXC51□□-□ (NPN)



#### JXC61□□-□ (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 by combining IN0 to 5.)
SETUP	Instruction to return to origin
HOLD	Temporarily stops operation
DRIVE	Instruction to drive
RESET	Resets alarm and interrupts operation
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*1	OFF when EMG stop is instructed
*ALARM*1	OFF when alarm is generated

\*1 Signal of negative-logic circuit (N.C.)

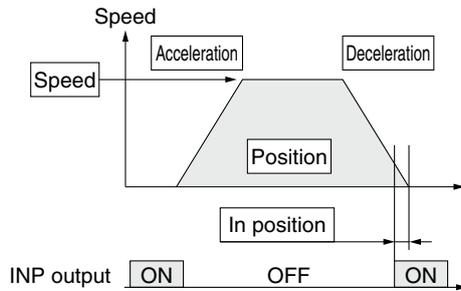
# JXC51/61 Series

## 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.

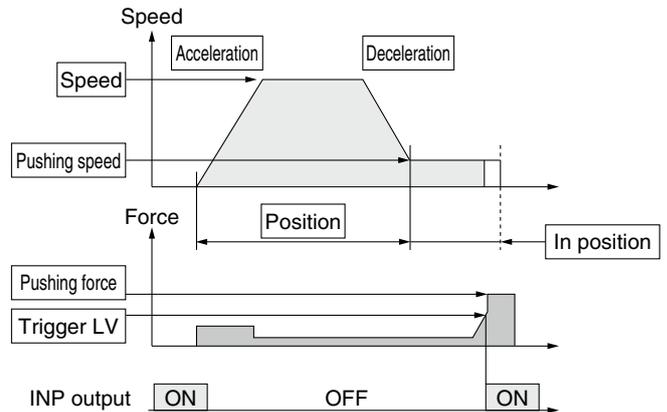
#### Step Data (Positioning)

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.



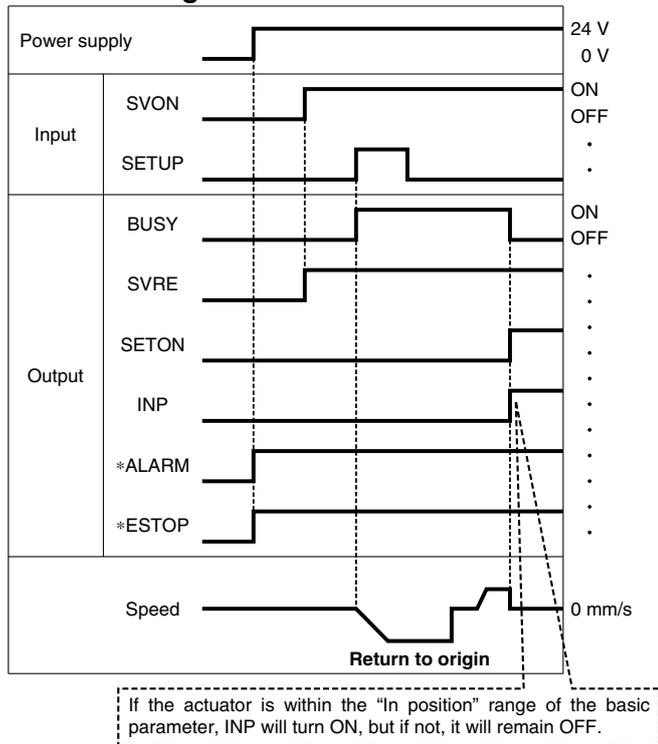
⊙ : Need to be set.  
○ : Need to be adjusted as required.

#### 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 workpieces 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.

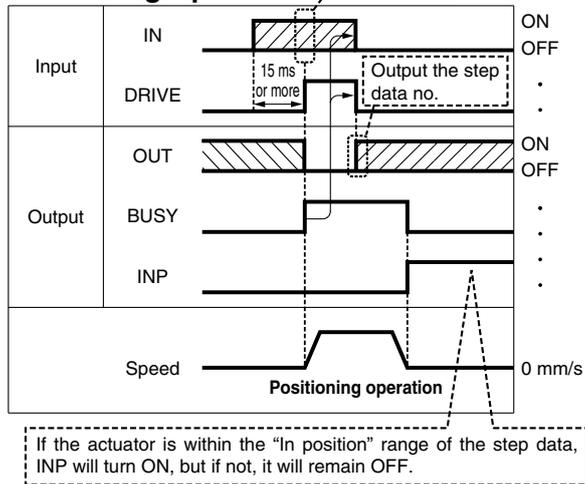
## Signal Timing

### Return to Origin



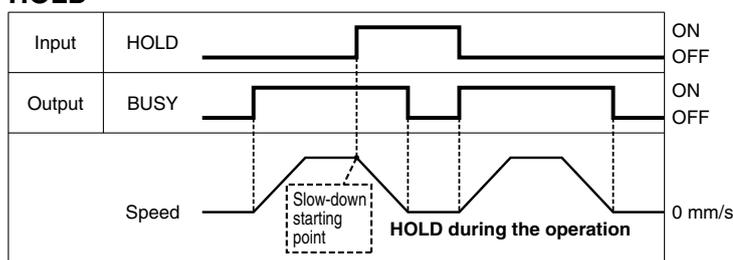
\* \*ALARM and \*ESTOP are expressed as negative-logic circuits.

### Positioning Operation



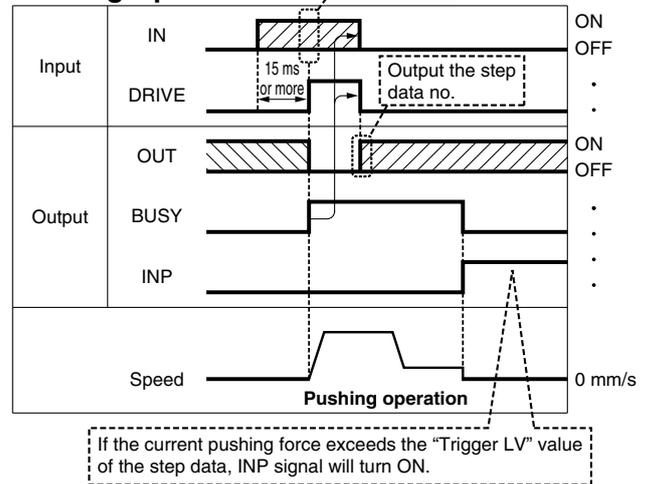
\* "OUT" is output when "DRIVE" is changed from ON to OFF.  
Refer to the operation manual for details on the controller for the LEM series.  
(When power supply is applied, "DRIVE" or "RESET" is turned ON or \*ESTOP is turned OFF, all of the "OUT" outputs are OFF.)

### HOLD

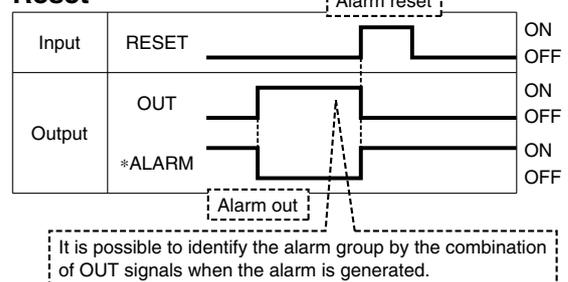


\* When the actuator is within the "In position" range in the pushing operation, it does not stop even if HOLD signal is input.

### Pushing Operation



### Reset



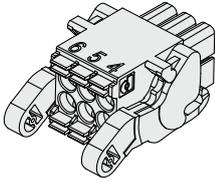
\* \*ALARM is expressed as a negative-logic circuit.

# JXC51/61 Series

## Options

### Power supply plug JXC-CPW

\* The power supply plug is an accessory.



<Applicable cable size>  
AWG20 (0.5 mm<sup>2</sup>), cover diameter  
2.0 mm or less

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

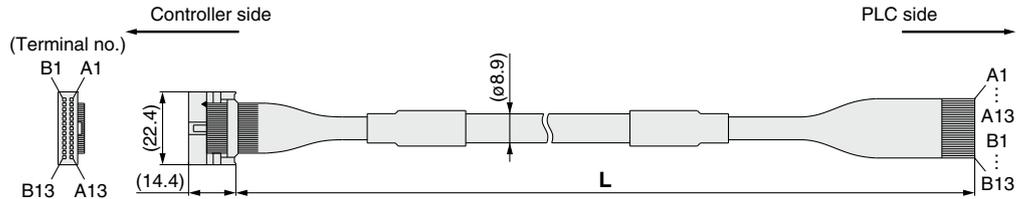
### Power supply plug

Terminal name	Function	Details
0V	Common supply (-)	The M24V terminal, C24V terminal, EMG terminal, and 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

### I/O Cable

#### LEC-CN5-1

Cable length (L) [m]	
1	1.5
3	3
5	5



\* Conductor size: AWG28

### Weight

Product no.	Weight [g]
LEC-CN5-1	170
LEC-CN5-3	320
LEC-CN5-5	520

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

Connector pin no.	Insulation color	Dot mark	Dot color
B1	Yellow	■ ■	Red
B2	Light green	■ ■	Black
B3	Light green	■ ■	Red
B4	Gray	■ ■	Black
B5	Gray	■ ■	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

# High Performance Controller (Step Data Input Type)

Compatible actuators



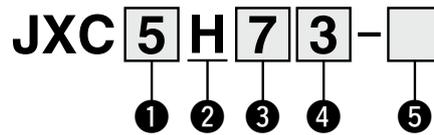
## JXC5H/6H Series



\* For details, refer to page 1343 and onward.



### How to Order



#### 1 Controller type

5	Parallel I/O (NPN) type
6	Parallel I/O (PNP) type

#### 2 Specification

H	1 axis/High performance type
---	------------------------------

#### 3 Mounting

7	Screw mounting
8	DIN rail

#### 4 I/O cable length

Nil	None
1	1.5 m
3	3 m
5	5 m

#### 5 Actuator part number

Without cable specifications and actuator options  
Example: Enter "LEFS25FA-100" for the  
LEFS25FA-100B-R1□.

BC	Blank controller*1
----	--------------------

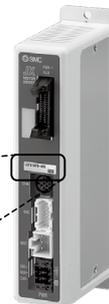
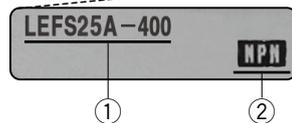
\*1 Requires dedicated software (JXC-BCW or ACT Controller 2)

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

Connect to an actuator (LEFS□F) designated for a high performance controller. Confirm that the combination of the controller and actuator is correct.

#### <Check the following before use.>

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



\* Refer to the operation manual for using the products. Please download it via our website:  
<https://www.smcworld.com>

### Specifications

Model	JXC5H JXC6H
<b>Compatible motor</b>	Step motor (Servo/24 VDC)
<b>Power supply</b>	Power supply voltage: 24 VDC ±10%
<b>Current consumption (Controller)</b>	100 mA or less
<b>Compatible encoder</b>	Battery-less absolute/Incremental
<b>Parallel input</b>	11 inputs (Photo-coupler isolation)
<b>Parallel output</b>	13 outputs (Photo-coupler isolation)
<b>Serial communication</b>	RS485 (Only for the LEC-T1 and JXC-W2)
<b>Memory</b>	EEPROM
<b>LED indicator</b>	PWR, ALM
<b>Cable length [m]</b>	Actuator cable: 20 or less
<b>Cooling system</b>	Natural air cooling
<b>Operating temperature range [°C]</b>	0 to 40
<b>Operating humidity range [%RH]</b>	90 or less (No condensation)
<b>Enclosure</b>	IP30 (Excludes the connector)
<b>Insulation resistance [MΩ]</b>	Between all external terminals and the case: 50 (500 VDC)
<b>Weight [g]</b>	180 (Screw mounting), 200 (DIN rail mounting)

### 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. For data writing, use the controller setting software ACT Controller 2 or the dedicated software JXC-BCW.

- Both ACT Controller 2 and JXC-BCW can be downloaded from the SMC website.
- To use this software, order the communication cable for controller setting (JXC-W2A-C) and the USB cable (LEC-W2-U) separately.

#### Hardware Requirements

OS	Windows®10 (64 bit)	Windows®7 Windows®8
	Windows®11	Windows®10
Software	ACT Controller 2 (With JXC-BCW function)	JXC-BCW

\* Windows®7, Windows®8, Windows®10, and Windows®11 are registered trademarks of Microsoft Corporation in the United States.

**SMC website**  
<https://www.smcworld.com>

### ⚠ Caution

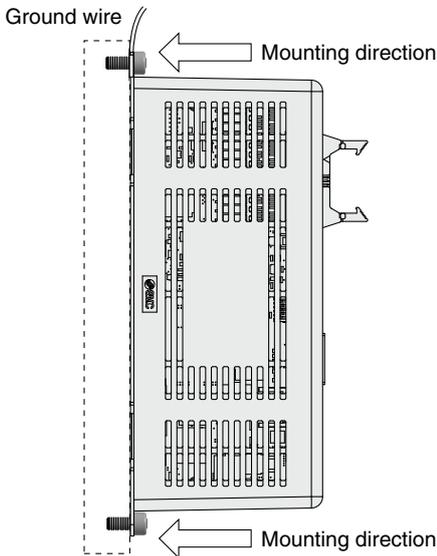
#### [CE/UKCA-compliant products]

EMC compliance was tested by combining the electric actuator LE series and the JXC5H/6H 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.

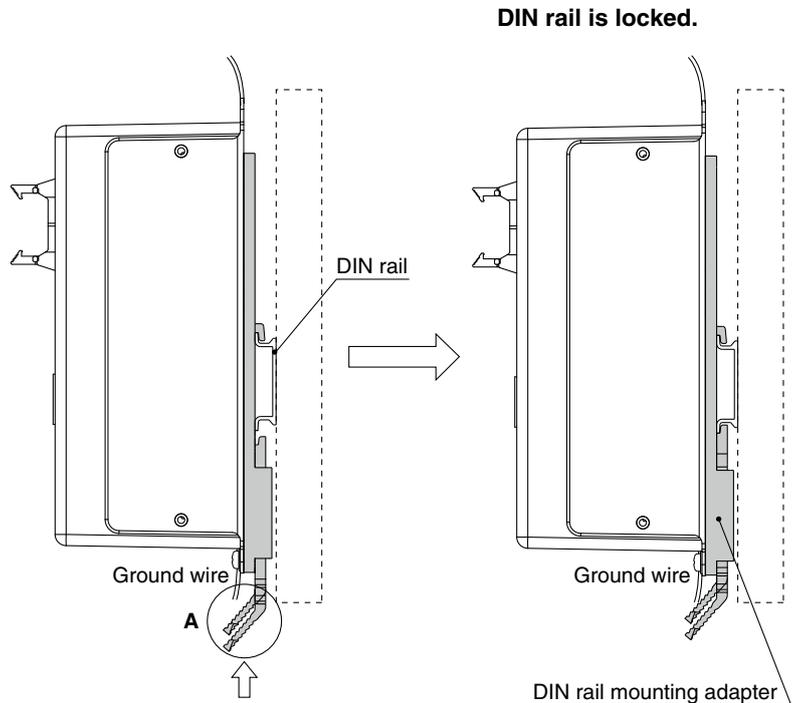
# JXC5H/6H Series

## How to Mount

### a) Screw mounting (JXC□H7□) (Installation with two M4 screws)



### b) DIN rail mounting (JXC□H8□) (Installation with the DIN rail)

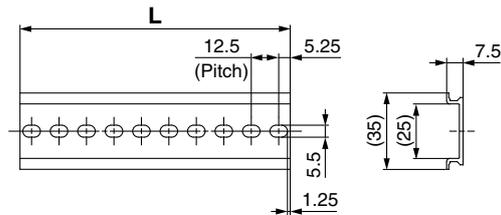


Hook the controller on the DIN rail and press the lever of section A in the arrow direction to lock it.

\* 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 dimension drawings on page 1026 for the mounting dimensions.



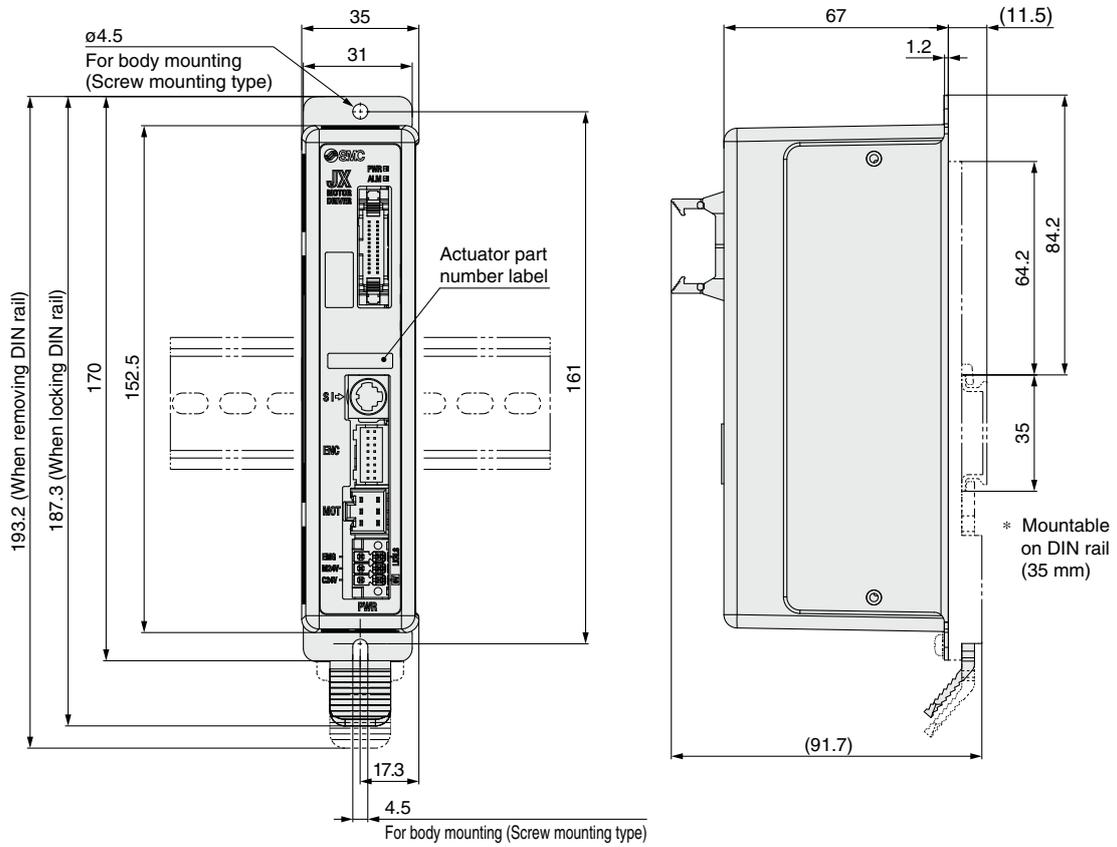
### L Dimensions [mm]

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

### DIN rail mounting adapter LEC-3-D0 (with 2 mounting screws)

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

**Dimensions**



# JXC5H/6H Series

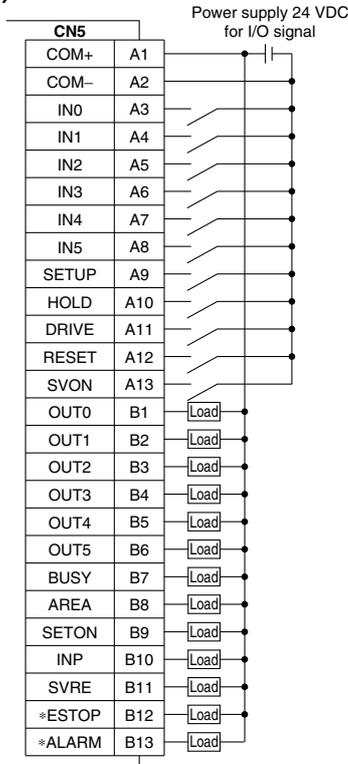
## Wiring Example

### Parallel I/O Connector

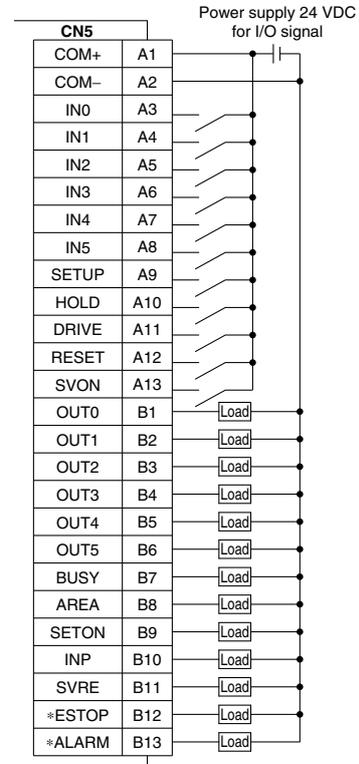
- \* When you connect a PLC to the parallel I/O connector, use the I/O cable (LEC-CN5-□).
- \* The wiring changes depending on the type of parallel I/O (NPN or PNP).

### Wiring diagram

#### JXC5H□□ (NPN)



#### JXC6H□□ (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 by combining IN0 to 5.)
SETUP	Instruction to return to origin
HOLD	Temporarily stops operation
DRIVE	Instruction to drive
RESET	Resets alarm and interrupts operation
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* <sup>1</sup>	OFF when EMG stop is instructed
*ALARM* <sup>1</sup>	OFF when alarm is generated

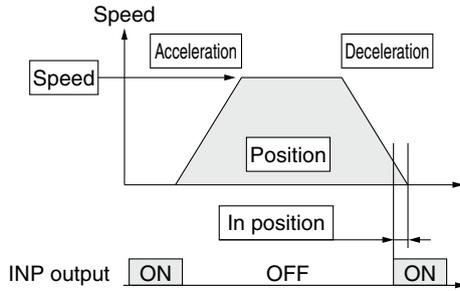
\*<sup>1</sup> Signal of negative-logic circuit (N.C.)

## 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.

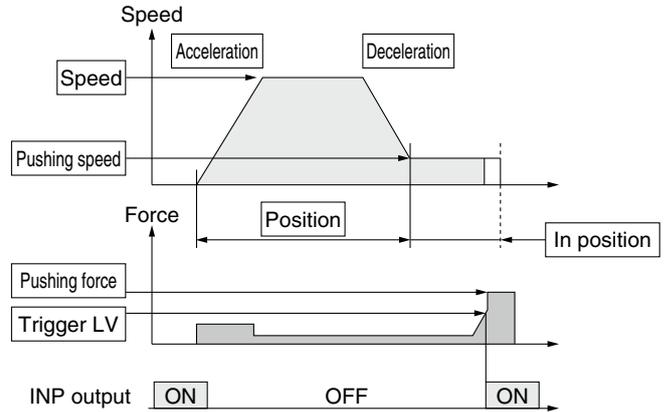
#### Step Data (Positioning)

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.

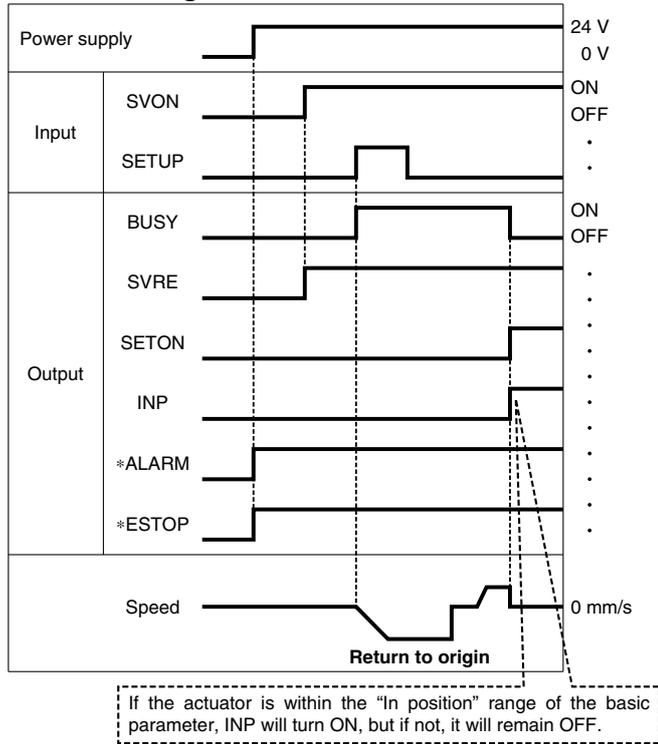
#### Step Data (Pushing)

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 workpieces 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.

# JXC5H/6H Series

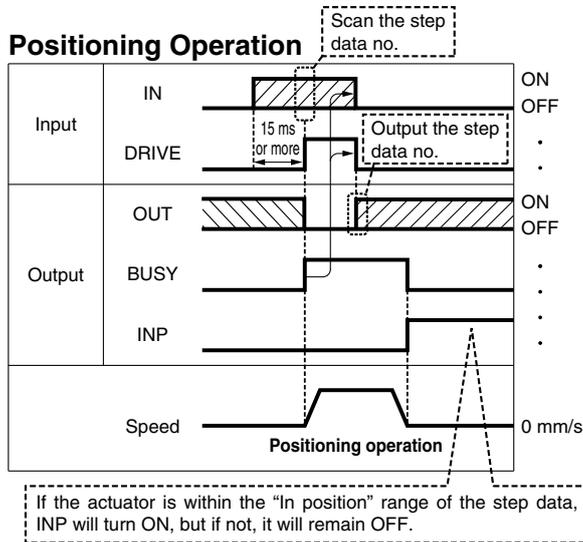
## Signal Timing

### Return to Origin



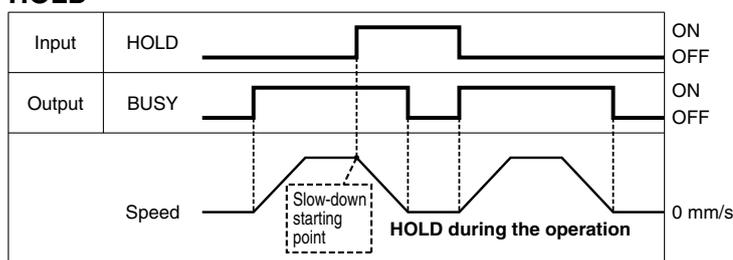
\* \*ALARM and \*ESTOP are expressed as negative-logic circuits.

### Positioning Operation



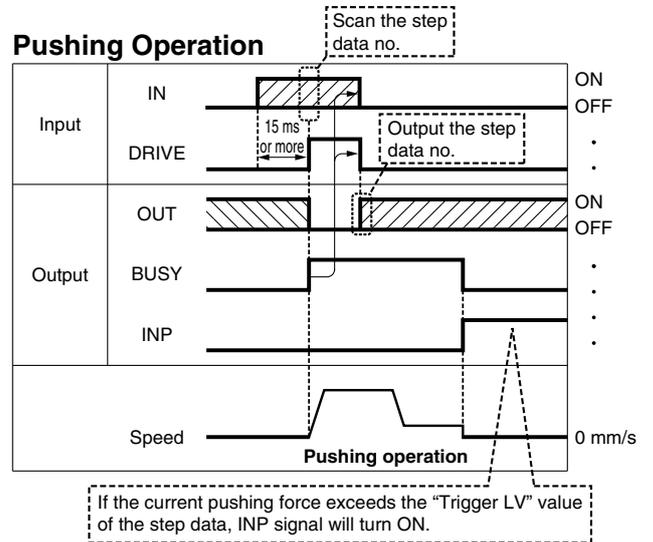
\* "OUT" is output when "DRIVE" is changed from ON to OFF.  
Refer to the operation manual for details on the controller for the LEM series.  
(When power supply is applied, "DRIVE" or "RESET" is turned ON or \*ESTOP is turned OFF, all of the "OUT" outputs are OFF.)

### HOLD

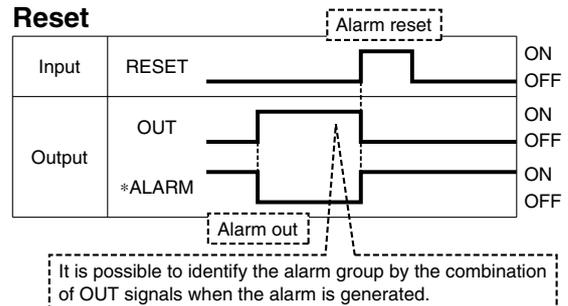


\* When the actuator is within the "In position" range in the pushing operation, it does not stop even if HOLD signal is input.

### Pushing Operation



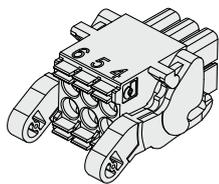
### Reset



\* \*ALARM is expressed as a negative-logic circuit.

## Options

### Power supply plug JXC-CPW



\* The power supply plug is an accessory.  
 <Applicable cable size> AWG20 (0.5 mm<sup>2</sup>),  
 cover diameter 2.0 mm or less



### Power supply plug

Terminal name	Function	Details
0V	Common supply (-)	The M24V terminal, C24V terminal, EMG terminal, and 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

### I/O cable

#### LEC-CN5-1

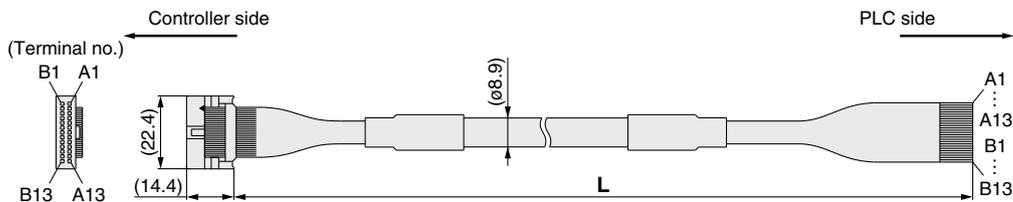
Cable length (L) [m]

1	1.5
3	3
5	5

\* Conductor size: AWG28

### Weight

Product no.	Weight [g]
LEC-CN5-1	170
LEC-CN5-3	320
LEC-CN5-5	520



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

Connector pin no.	Insulation color	Dot mark	Dot color
B1	Yellow	■ ■	Red
B2	Light green	■ ■	Black
B3	Light green	■ ■	Red
B4	Gray	■ ■	Black
B5	Gray	■ ■	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 (Step Data Input Type) Servo Motor (24 VDC)

Compatible actuators

LEF LEY/G LES/H

## LECA6 Series



\* For details, refer to page 1343 and onward.

### How to Order

**⚠ Caution**

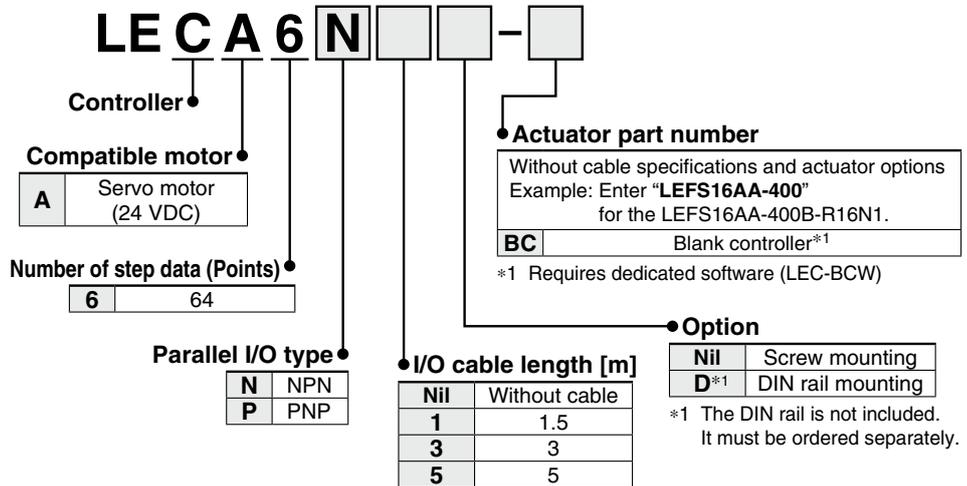
**[CE/UKCA-compliant products]**

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, 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.

② For the LECA6 series (servo motor controller), EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 1037 for the noise filter set. Refer to the LECA Operation Manual for installation.

**[UL-compliant products]**

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



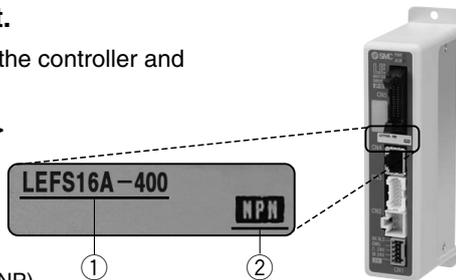
\* When controller equipped type is selected when ordering the LE series, you do not need to order this controller.

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

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

#### <Check the following before use.>

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



\* Refer to the operation manual for using the products. Please download it via our website: <https://www.smcworld.com>

### Precautions for blank controllers (LECA6□□□-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 (LEC-BCW) for data writing.

- Please download the dedicated software (LEC-BCW) via our website.
- To use this software, order the communication cable for controller setting (LEC-W2A-C) and the USB cable (LEC-W2-U) separately.

**SMC website:**

<https://www.smcworld.com>

## Specifications

### Basic Specifications

Item	LECA6
<b>Compatible motor</b>	Servo motor (24 VDC)
<b>Power supply</b> *1	Power voltage: 24 VDC ±10%*2 [Including motor drive power, control power, stop, lock release]
<b>Parallel input</b>	11 inputs (Photo-coupler isolation)
<b>Parallel output</b>	13 outputs (Photo-coupler isolation)
<b>Compatible encoder</b>	Incremental
<b>Serial communication</b>	RS485 (Only for the LEC-T1 and LEC-W2)
<b>Memory</b>	EEPROM
<b>LED indicator</b>	LED (Green/Red) one of each
<b>Lock control</b>	Forced-lock release terminal*3
<b>Cable length [m]</b>	I/O cable: 5 or less, Actuator cable: 20 or less
<b>Cooling system</b>	Natural air cooling
<b>Operating temperature range [°C]</b>	0 to 40 (No freezing)
<b>Operating humidity range [%RH]</b>	90 or less (No condensation)
<b>Storage temperature range [°C]</b>	-10 to 60 (No freezing)
<b>Storage humidity range [%RH]</b>	90 or less (No condensation)
<b>Enclosure</b>	IP30 (Excludes the connector)
<b>Insulation resistance [MΩ]</b>	Between the housing and SG terminal: 50 (500 VDC)
<b>Weight [g]</b>	150 (Screw mounting), 170 (DIN rail mounting)

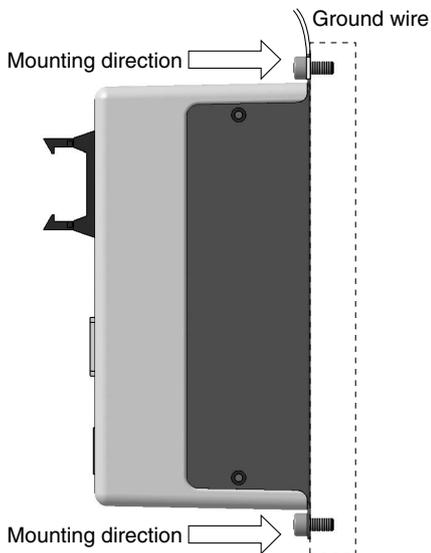
\*1 Do not use the power supply of "inrush current prevention type" for the controller power supply. When compliance with UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

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

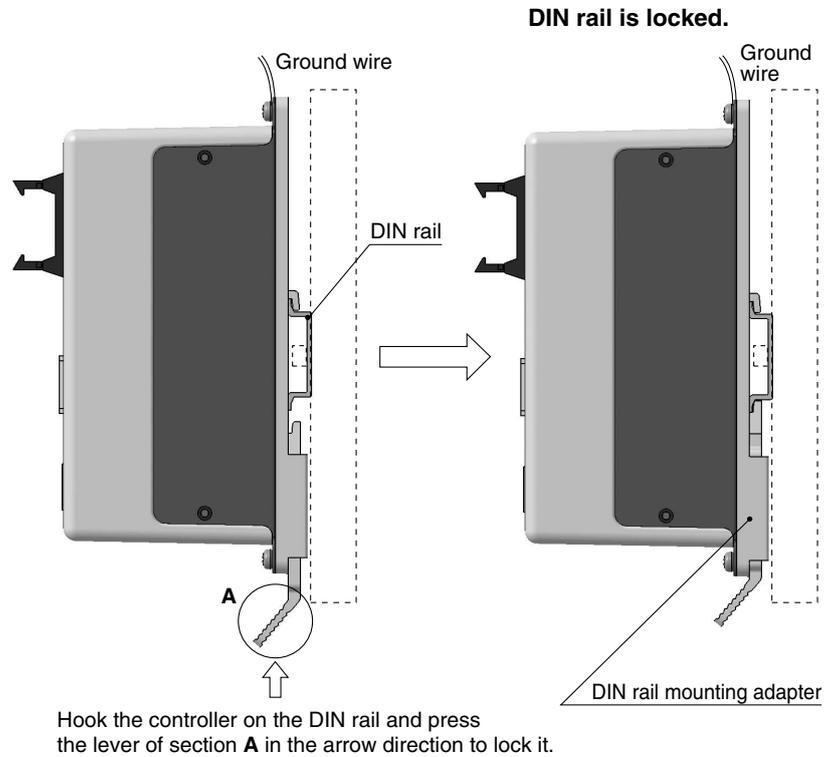
\*3 Applicable to non-magnetizing locks

## How to Mount

### a) Screw mounting (LECA6□□-□) (Installation with two M4 screws)



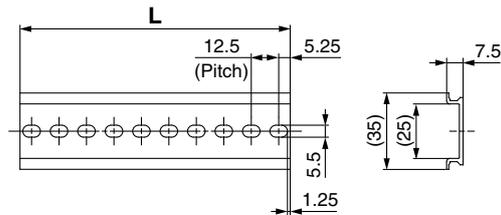
### b) DIN rail mounting (LECA6□□D-□) (Installation with the DIN rail)



\* 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 dimension drawings on page 1033 for the mounting dimensions.



### L Dimensions [mm]

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>L</b>	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
<b>L</b>	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

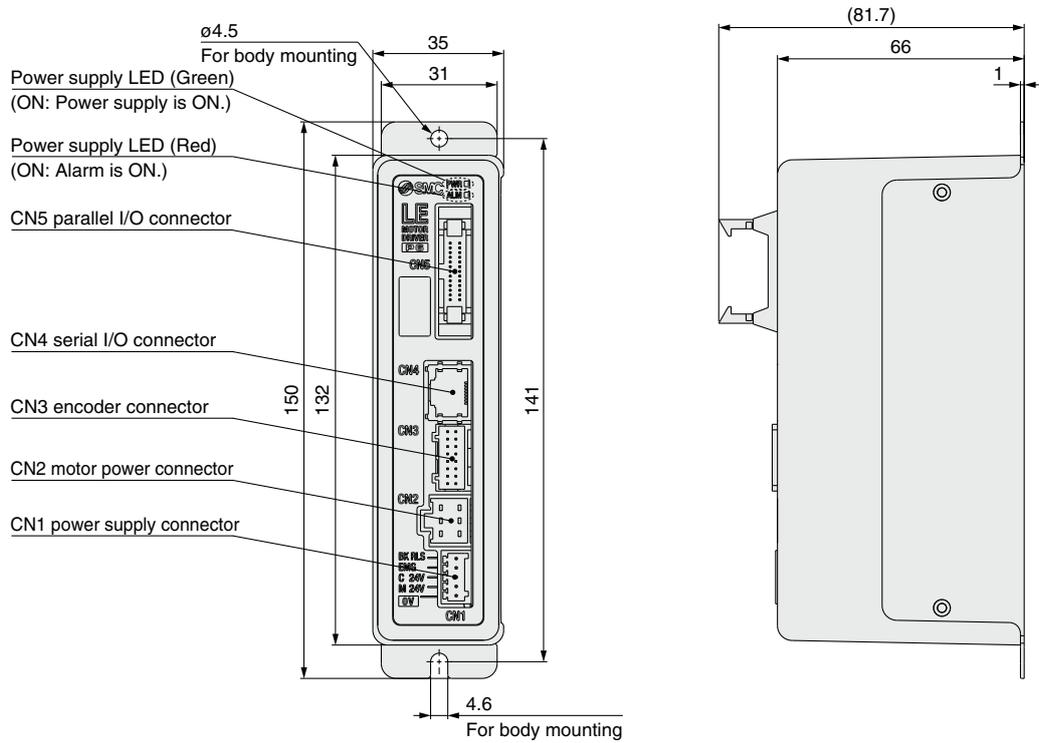
### DIN rail mounting adapter LEC-D0 (with 2 mounting screws)

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

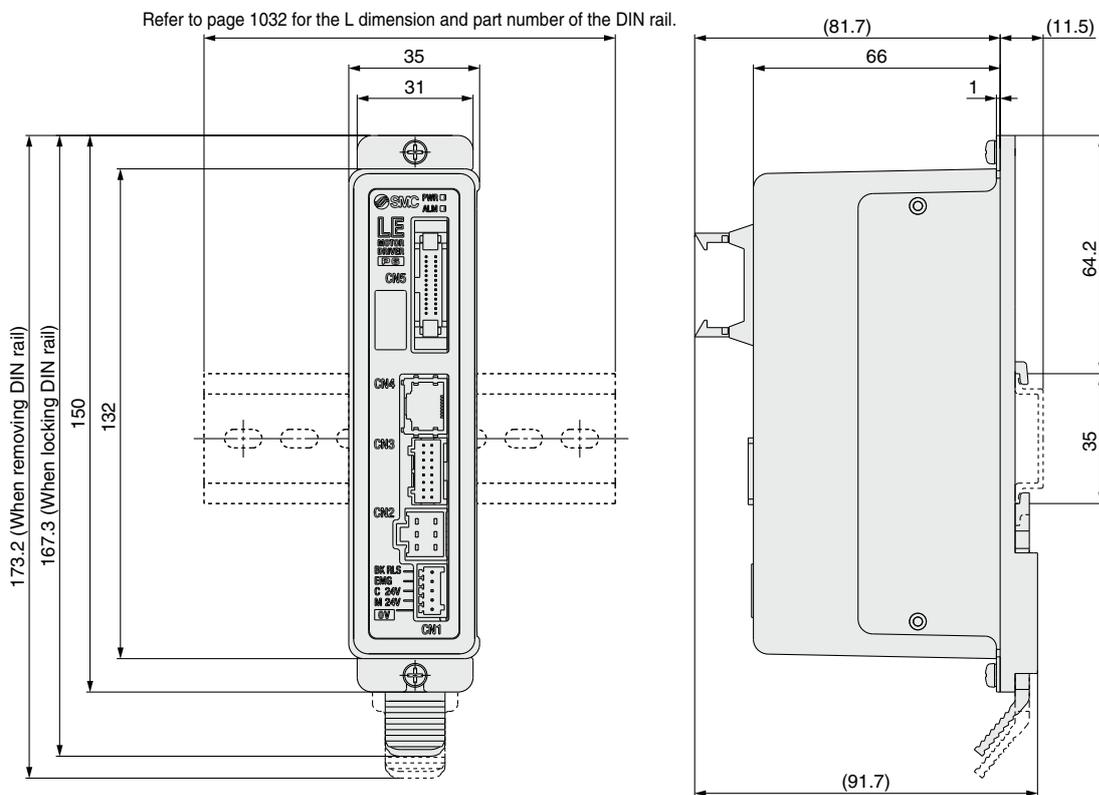
# LECA6 Series

## Dimensions

### a) Screw mounting (LECA6□□-□)



### b) DIN rail mounting (LECA6□□D-□)



# Controller (Step Data Input Type)/Servo Motor (24 VDC) **LECA6 Series**

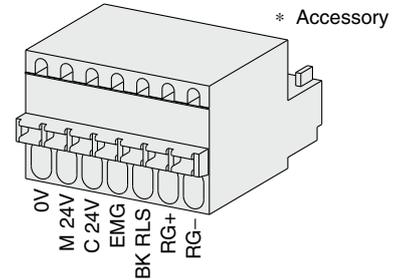
## Wiring Example 1

**Power Supply Connector: CN1** \* The power supply plug is an accessory.  
 <Applicable cable size> AWG20 (0.5 mm<sup>2</sup>), cover diameter 2.0 mm or less

**CN1 Power Supply Connector Terminal for LECA6** (PHOENIX CONTACT FK-MC0.5/7-ST-2.5)

Terminal name	Function	Details
0V	Common supply (-)	The M 24V terminal, C 24V terminal, EMG terminal, and 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
RG+	Regenerative output 1	Regenerative output terminals for external connection
RG-	Regenerative output 2	(Not necessary to connect them in the combination with the LE series standard specifications.)

**Power supply plug for LECA6: LEC-D-1-2**

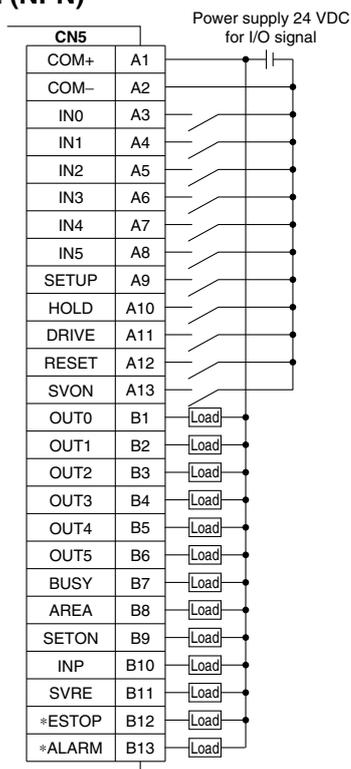


## Wiring Example 2

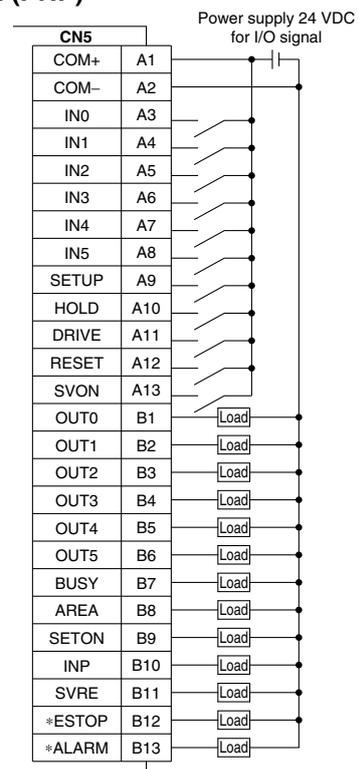
**Parallel I/O Connector: CN5** \* When you connect a PLC to the CN5 parallel I/O connector, use the I/O cable (LEC-CN5-□).  
 \* The wiring changes depending on the type of parallel I/O (NPN or PNP).

**Wiring diagram**

**LECA6N□□□□ (NPN)**



**LECA6P□□□□ (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 by combining IN0 to 5.)
SETUP	Instruction to return to origin
HOLD	Temporarily stops operation
DRIVE	Instruction to drive
RESET	Resets alarm and interrupts operation
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* <sup>1</sup>	OFF when EMG stop is instructed
*ALARM* <sup>1</sup>	OFF when alarm is generated

\*<sup>1</sup> Negative-logic (N.C.) circuit signal

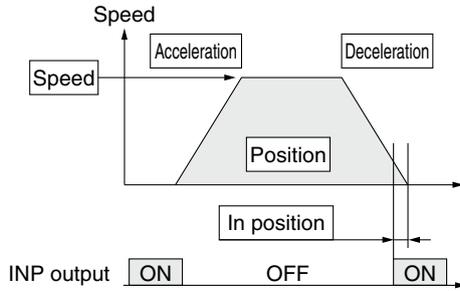
# LECA6 Series

## 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.

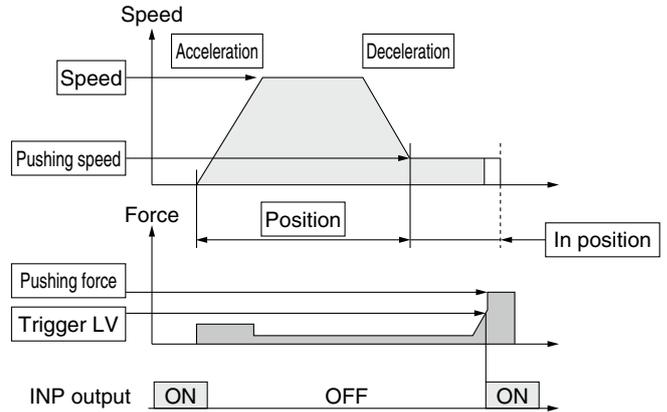
#### Step Data (Positioning)

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.



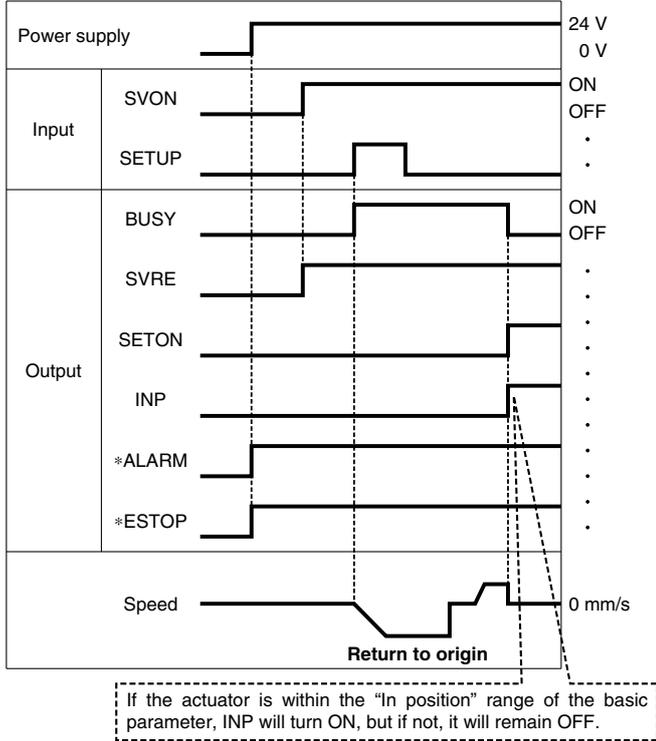
- ◎ : Need to be set.
- : Need to be adjusted as required.

#### 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 workpieces 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.

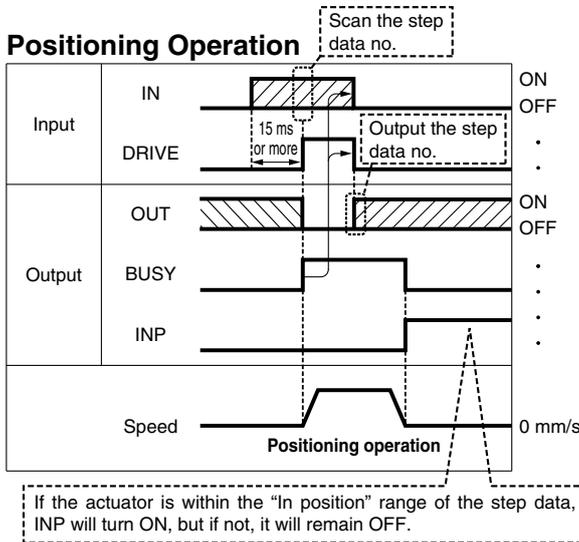
## Signal Timing

### Return to Origin



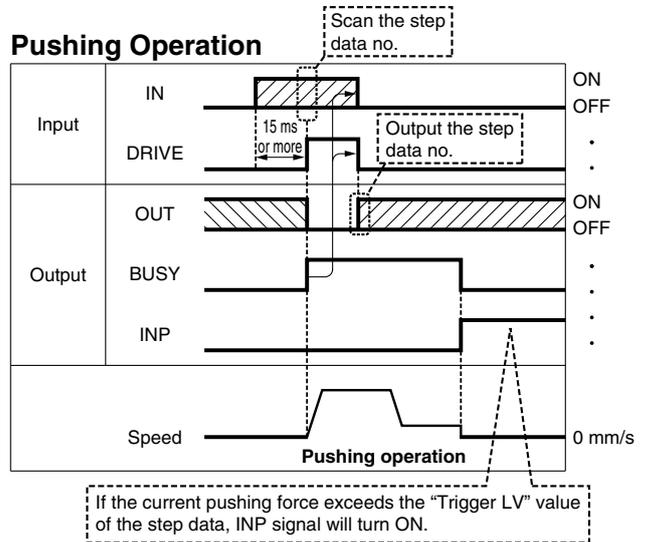
\* \*ALARM\* and \*ESTOP\* are expressed as negative-logic circuits.

### Positioning Operation

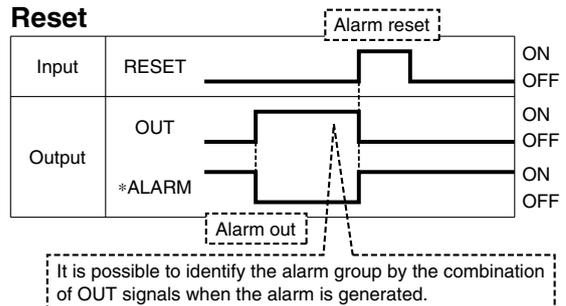


\* "OUT" is output when "DRIVE" is changed from ON to OFF.  
Refer to the operation manual for details on the controller for the LEM series.  
(When power supply is applied, "DRIVE" or "RESET" is turned ON or \*ESTOP\* is turned OFF, all of the "OUT" outputs are OFF.)

### Pushing Operation

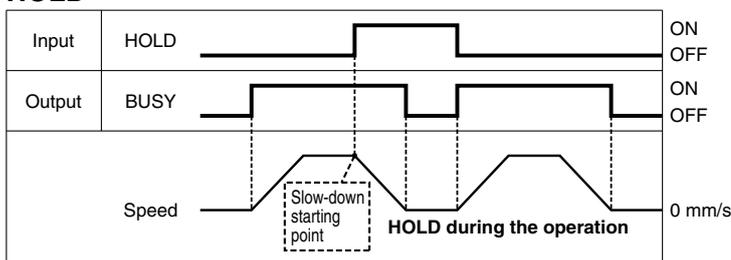


### Reset



\* \*ALARM\* is expressed as a negative-logic circuit.

### HOLD



# LECA6 Series

## Option: I/O Cable

### LEC-CN5-1

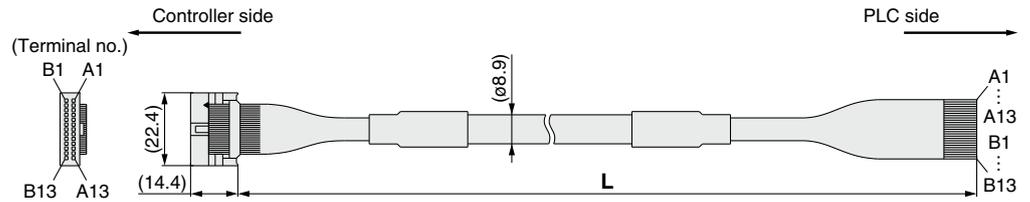
Cable length (L) [m]

1	1.5
3	3
5	5

\* Conductor size: AWG28

#### Weight

Product no.	Weight [g]
LEC-CN5-1	170
LEC-CN5-3	320
LEC-CN5-5	520



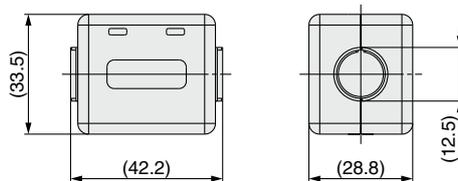
Connector pin no.	Insulation color	Dot mark	Dot color
A1	Light brown	■	Black
A2	Light brown	■	Red
A3	Yellow	■	Black
A4	Yellow	■	Red
A5	Light green	■	Black
A6	Light green	■	Red
A7	Gray	■	Black
A8	Gray	■	Red
A9	White	■	Black
A10	White	■	Red
A11	Light brown	■ ■	Black
A12	Light brown	■ ■	Red
A13	Yellow	■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

Connector pin no.	Insulation color	Dot mark	Dot color
B1	Yellow	■ ■	Red
B2	Light green	■ ■	Black
B3	Light green	■ ■	Red
B4	Gray	■ ■	Black
B5	Gray	■ ■	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	

## Option: Noise Filter Set for Servo Motor (24 VDC)

### LEC-NFA

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



\* Refer to the LECA6 series Operation Manual for installation.

# Gateway Unit

## LEC-G Series



### How to Order

#### Gateway unit

LEC - G **MJ2**   

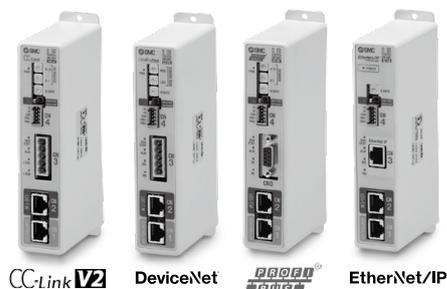
#### Applicable Fieldbus protocols

<b>MJ2</b>	CC-Link Ver2.0
<b>DN1</b>	DeviceNet®
<b>PR1</b>	PROFIBUS DP
<b>EN1</b>	EtherNet/IP™

#### Mounting

<b>Nil</b>	Screw mounting
<b>D*1</b>	DIN rail

\*1 The DIN rail is not included.  
It must be ordered separately.



#### Cable

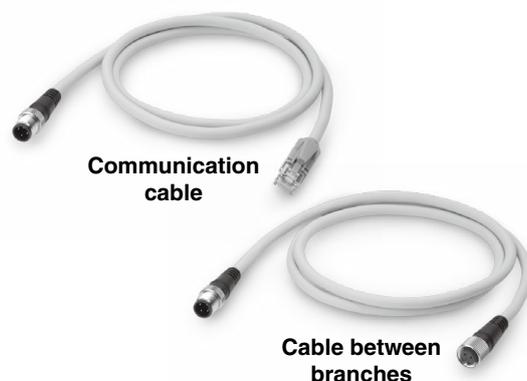
LEC - CG **1** - **L**

#### Cable type

<b>1</b>	Communication cable
<b>2</b>	Cable between branches

#### Cable length

<b>K</b>	0.3 m
<b>L</b>	0.5 m
<b>1</b>	1 m



Communication cable

Cable between branches

#### Branch connector

LEC - CGD

Branch connector



#### Terminating resistor

LEC - CGR

#### ⚠ Caution

##### [CE/UKCA-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, 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.

##### [UL-compliant products]

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

# LEC-G Series

## Specifications

Model		LEC-GMJ2□	LEC-GDN1□	LEC-GPR1□	LEC-GEN1□	
Communication specifications	Applicable system	Fieldbus Version*1	CC-Link Ver. 2.0	DeviceNet® Release 2.0	PROFIBUS DP V1	EtherNet/IP™ Release 1.0
	Communication speed [bps]	156 k/625 k/2.5 M /5 M/10 M	125 k/250 k/500 k	9.6 k/19.2 k/45.45 k/ 93.75 k/187.5 k/500 k/ 1.5 M/3 M/6 M/12 M	10 M/100 M	
	Configuration file*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]*6 Internal current consumption [mA]	— —	11 to 25 VDC 100	— —	— —
	Communication connector specifications	Connector (Accessory)	Connector (Accessory)	D-sub	RJ45	
	Terminating resistor	Not included	Not included	Not included	Not included	Not included
Power supply voltage [V]*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	LECA6 Series				
	Communication speed [bps]*3	115.2 k/230.4 k				
	Max. number of connectable controllers*4	12	8*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)					
Enclosure	IP30 (Excludes the connector)					
Weight [g]	200 (Screw mounting), 220 (DIN rail mounting)					

\*1 Please note that versions are subject to change.

\*2 Each file can be downloaded from the SMC website.

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

\*4 A communication response time for 1 controller is approximately 30 ms.

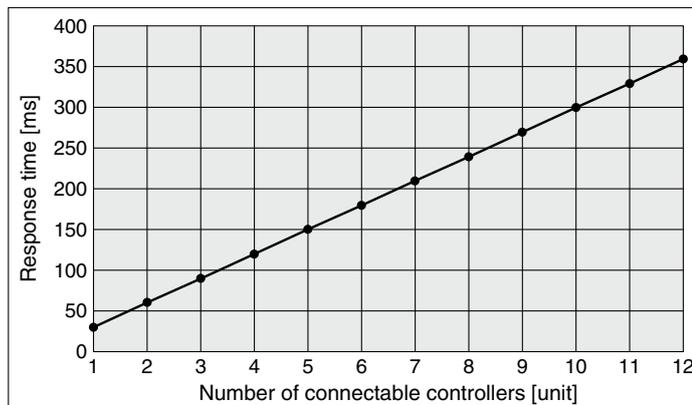
Refer to the "Communication Response Time Guideline" for response times when several controllers are connected.

\*5 For step data input, up to 12 controllers connectable.

\*6 When compliance with 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.

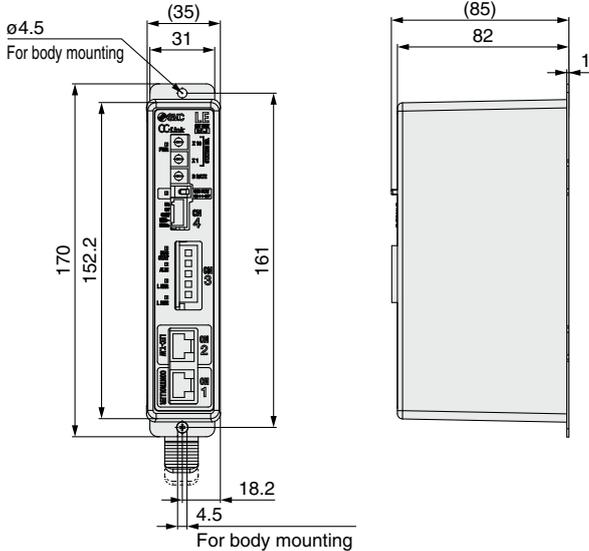


\* This graph shows delay times between gateway unit and controllers. Fieldbus network delay time is not included.

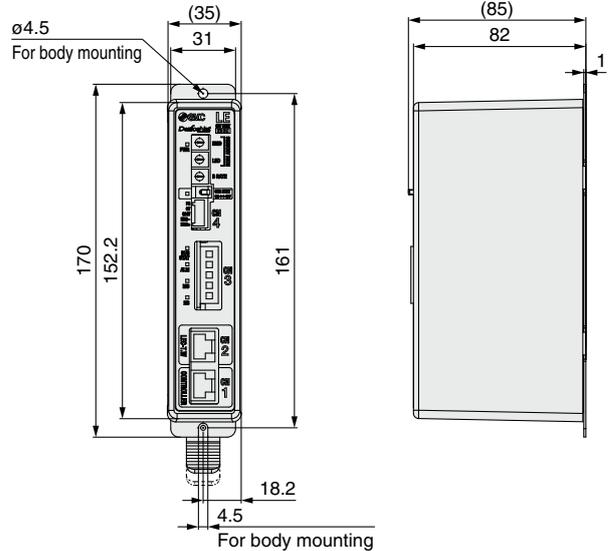
**Dimensions**

**Screw mounting (LEC-G□□□)**

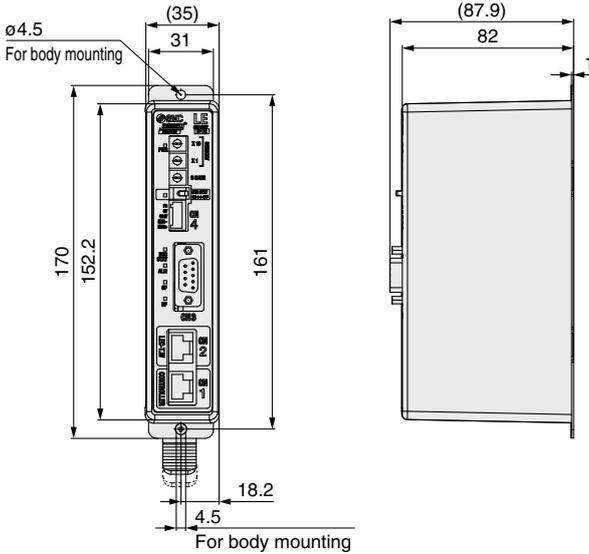
Applicable Fieldbus protocol: CC-Link Ver. 2.0



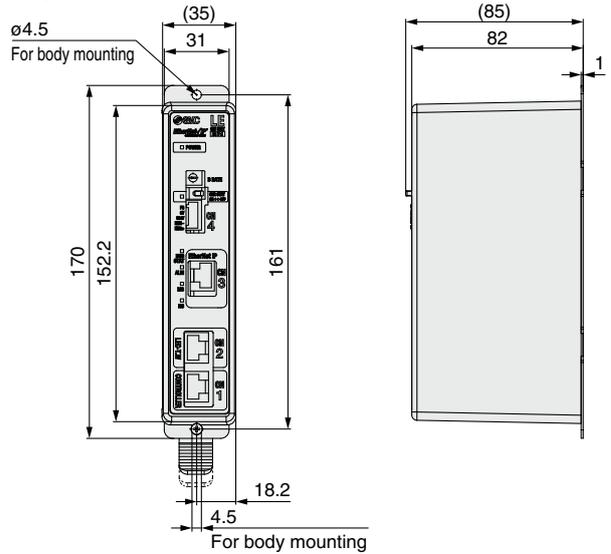
Applicable Fieldbus protocol: DeviceNet®



Applicable Fieldbus protocol: PROFIBUS DP

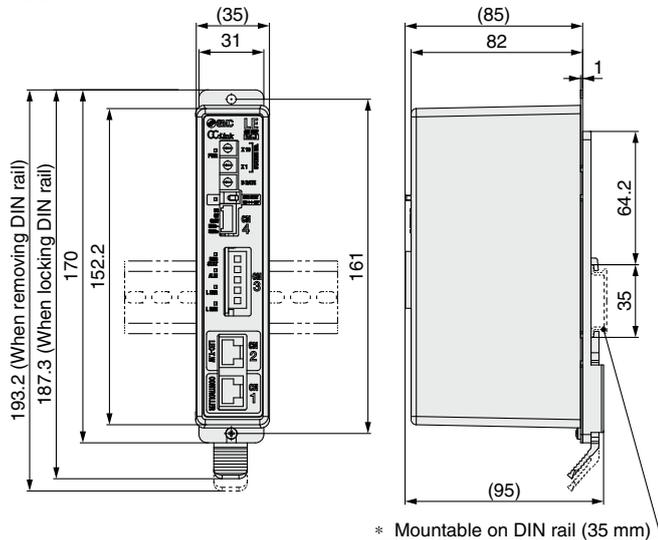


Applicable Fieldbus protocol: EtherNet/IP™

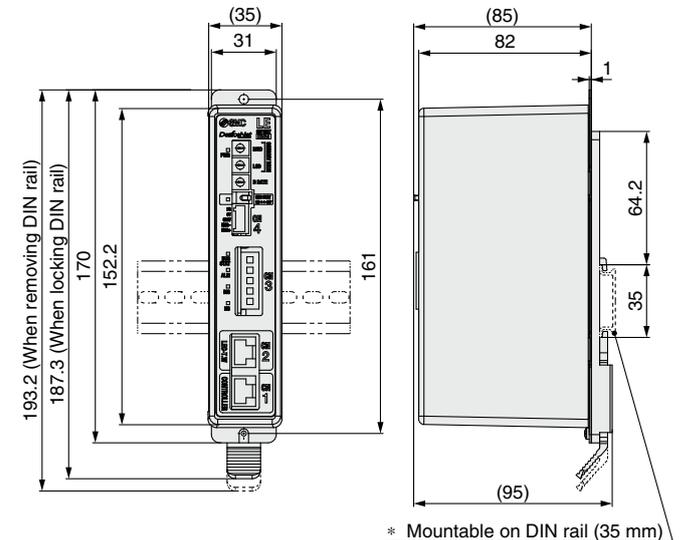


**DIN rail mounting (LEC-G□□□D)**

Applicable Fieldbus protocol: CC-Link Ver. 2.0



Applicable Fieldbus protocol: DeviceNet®

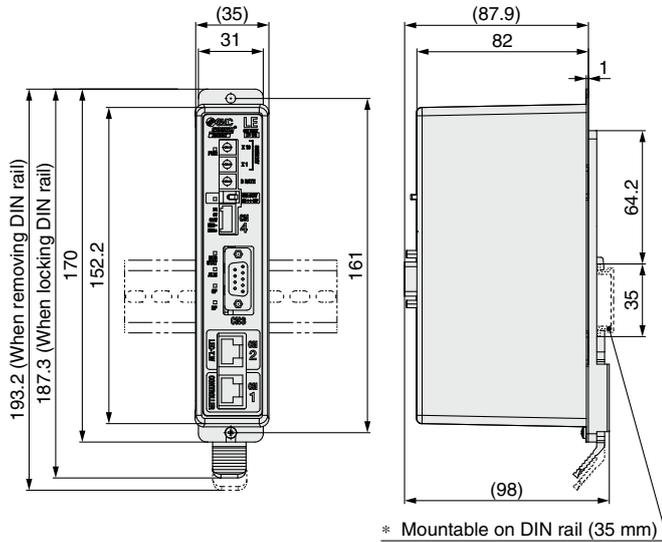


■ **Trademark** DeviceNet® is a registered trademark of ODVA, Inc. EtherNet/IP® is a registered trademark of ODVA, Inc.

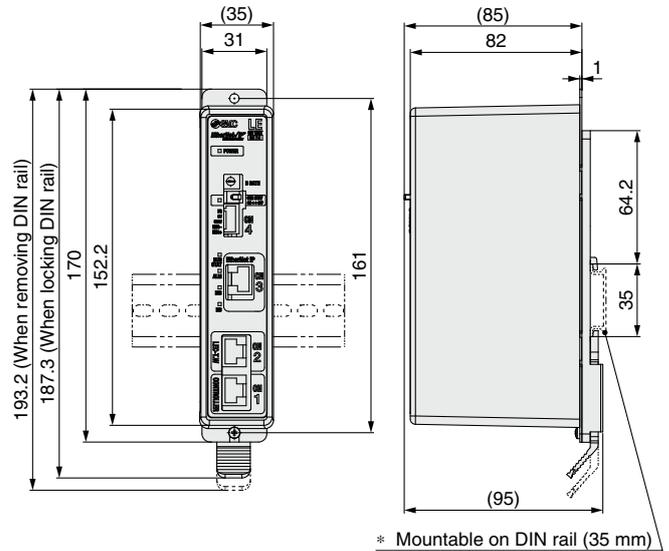
# LEC-G Series

## Dimensions

Applicable Fieldbus protocol: PROFIBUS DP



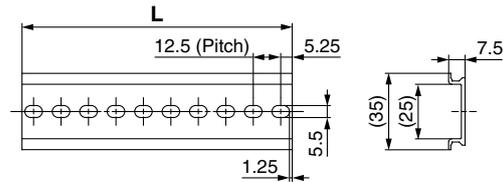
Applicable Fieldbus protocol: EtherNet/IP™



### DIN rail

#### AXT100-DR-□

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



### 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

## Wiring Example

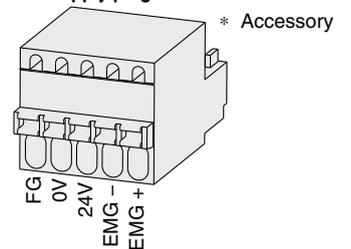
### Power Supply Connector: CN1

\* The power supply plug is an accessory.  
<Applicable cable size> AWG20 (0.5 mm<sup>2</sup>), cover diameter 2.0 mm or less

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

Terminal name	Function	Details
EMG +	EMG signal output +	Output terminal of the emergency stop switch of the teaching box
EMG -	EMG signal output -	
24V	Power supply + terminal	Power supply terminal of the Gateway unit (Power to the teaching box is supplied from this terminal)
0V	Power supply - terminal	
FG	FG terminal	Grounding terminal

### Power supply plug for LEC-G: LEC-D-1-1

































Compatible actuators



# Step Motor Driver

## LECPA Series



\* For details, refer to page 1343 and onward.

### How to Order

#### ⚠ Caution

##### [CE/UKCA-compliant products]

- 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, 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.
- For the LECPA series (step motor driver), EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 1062 for the noise filter set. Refer to the LECPA Operation Manual for installation.

##### [UL-compliant products]

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

## LECP AN 1 - LEFS16B-100

#### Driver type

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

#### I/O cable length [m]

Nil	None
1	1.5
3	3*1
5	5*1

\*1 Pulse input usable only with differential. Only 1.5 m cables usable with open collector.

#### Driver mounting

Nil	Screw mounting
D*1	DIN rail

\*1 The DIN rail is not included. It must be ordered separately.

#### Actuator part number

Without cable specifications and actuator options  
Example: Enter "LEFS16B-100"  
for the LEFS16B-100B-R1AN1D.

BC	Blank controller*1
----	--------------------

\*1 Requires dedicated software (LEC-BCW)

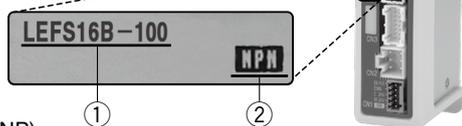
- \* When controller equipped type is selected when ordering the LE series, you do not need to order this driver.
- \* When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) separately.

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

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

#### <Check the following before use.>

- Check the actuator label for the model number. This number should match that of the driver.
- Check that the Parallel I/O configuration matches (NPN or PNP).



### Precautions for blank controllers (LECPA□□□-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 (LEC-BCW) for data writing.

- Please download the dedicated software (LEC-BCW) via our website.
- To use this software, order the communication cable for controller setting (LEC-W2A-C) and the USB cable (LEC-W2-U) separately.

#### SMC website:

<https://www.smcworld.com>

\* Refer to the operation manual for using the products. Please download it via our website: <https://www.smcworld.com>

## Specifications

Item	LECPA
Compatible motor	Step motor (Servo/24 VDC)
Power supply*1	Power voltage: 24 VDC ±10%*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 (800 pulse/rotation)
Serial communication	RS485 (Only for the LEC-T1 and LEC-W2)
Memory	EEPROM
LED indicator	LED (Green/Red) one of each
Lock control	Forced-lock release terminal*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)
Enclosure	IP30 (Excludes the connector)
Insulation resistance [MΩ]	Between the housing and SG terminal: 50 (500 VDC)
Weight [g]	120 (Screw mounting), 140 (DIN rail mounting)

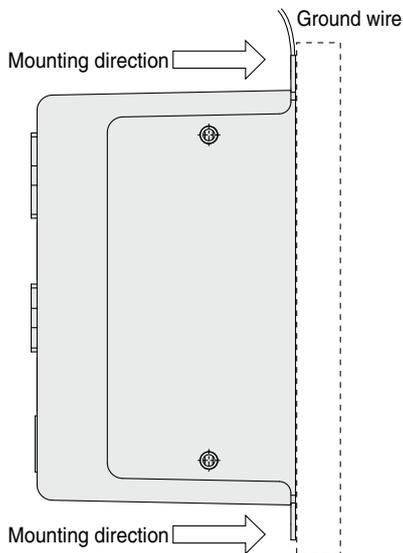
\*1 Do not use the power supply of "inrush current prevention type" for the driver power supply. When compliance with UL is required, the electric actuator and driver should be used with a UL1310 Class 2 power supply.

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

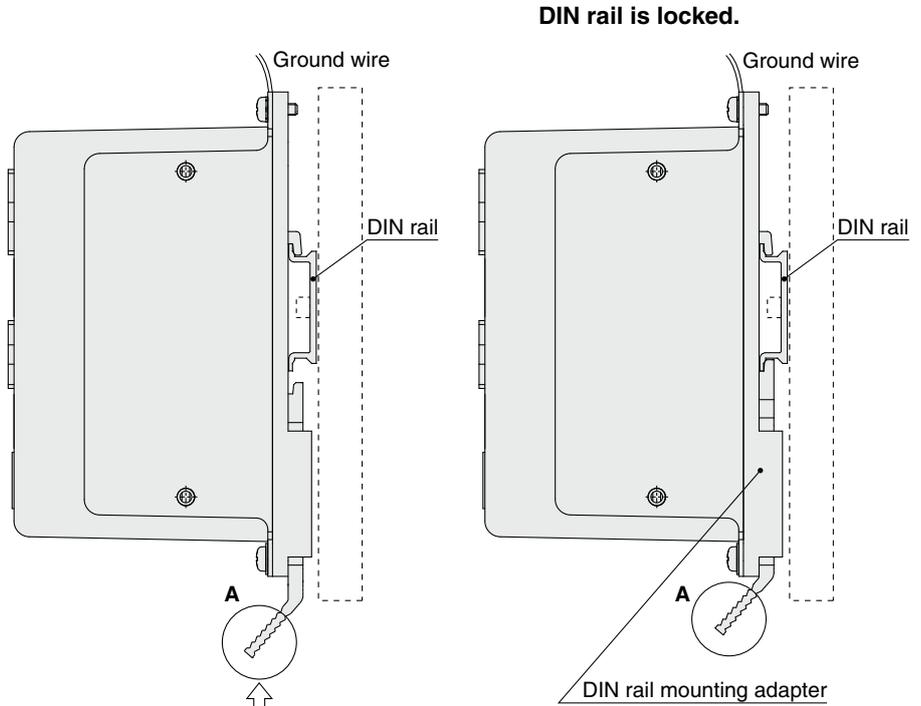
\*3 Applicable to non-magnetizing locks

## How to Mount

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



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

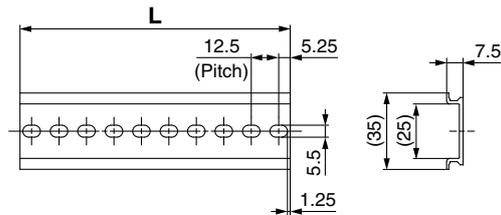


Hook the driver on the DIN rail and press the lever of section A in the arrow direction to lock it.

\* 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 dimension drawings on page 1059 for the mounting dimensions.



#### L Dimensions [mm]

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>L</b>	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
<b>L</b>	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

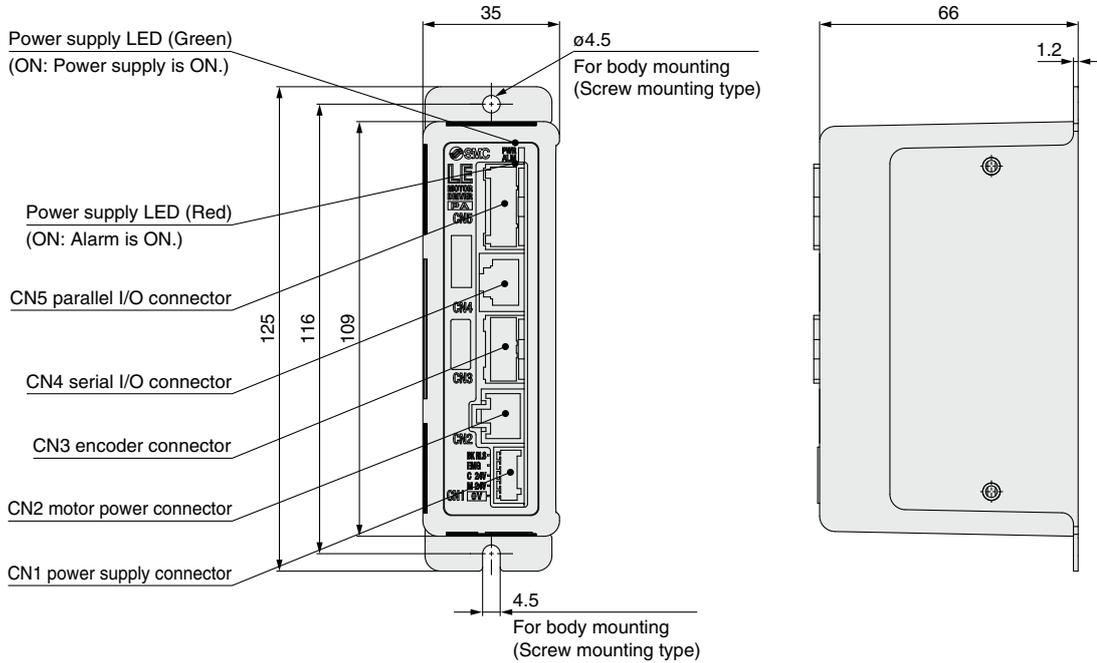
### DIN rail mounting adapter LEC-2-D0 (with 2 mounting screws)

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

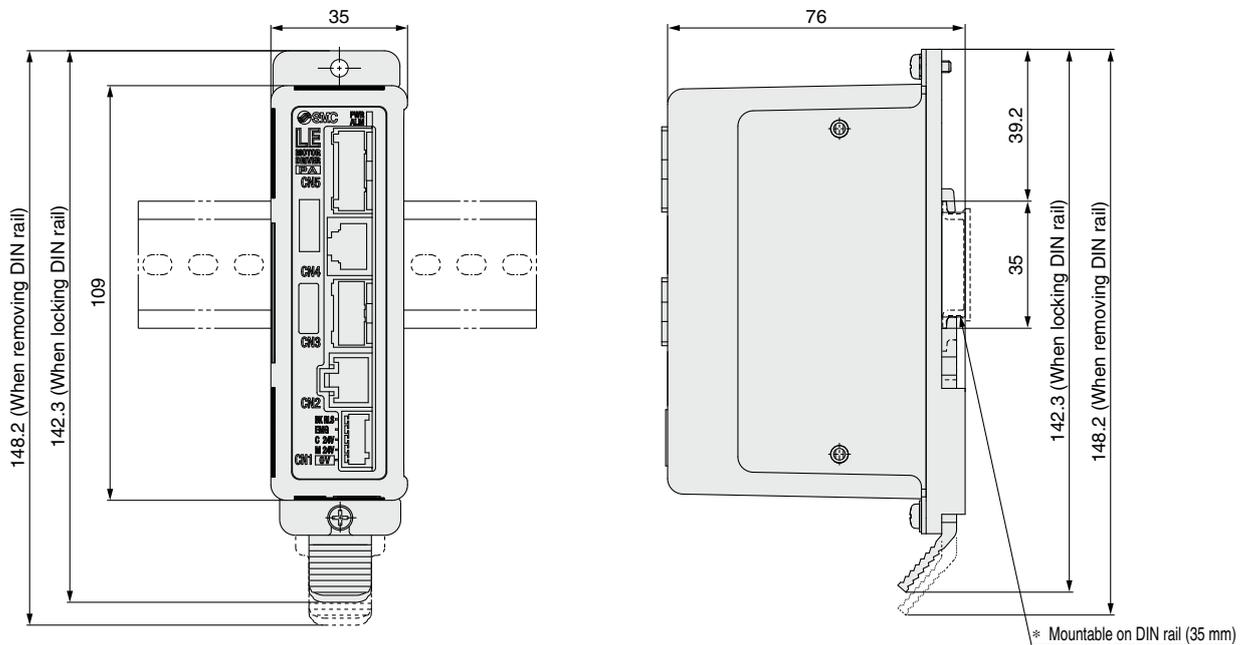
# LECPA Series

## Dimensions

### a) Screw mounting (LECPA□□-□)



### b) DIN rail mounting (LECPA□□D-□)



## Wiring Example 1

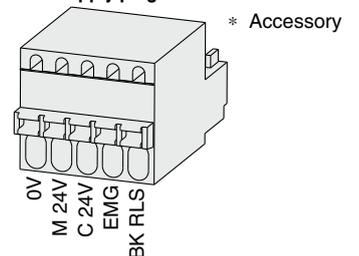
### Power Supply Connector: CN1

\* The power supply plug is an accessory.  
<Applicable cable size> AWG20 (0.5 mm<sup>2</sup>), cover diameter 2.0 mm or less

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

Terminal name	Function	Details
0V	Common supply (-)	The M 24V terminal, C 24V terminal, EMG terminal, and 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

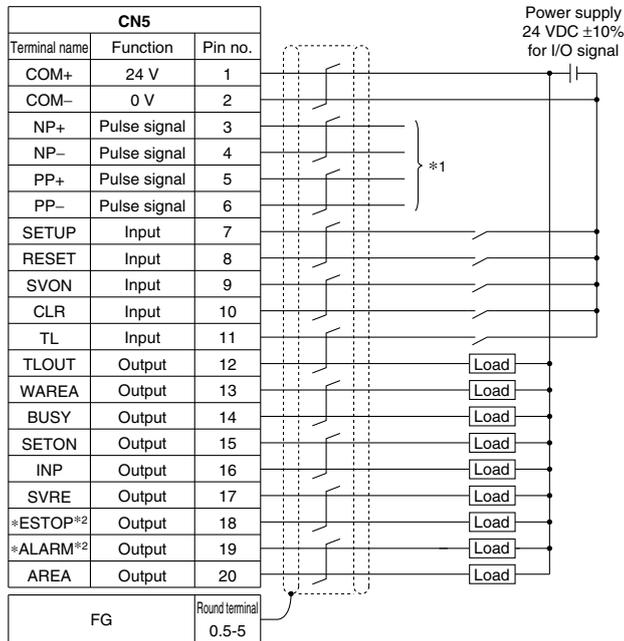
### Power supply plug for LECPA: LEC-D-1-1



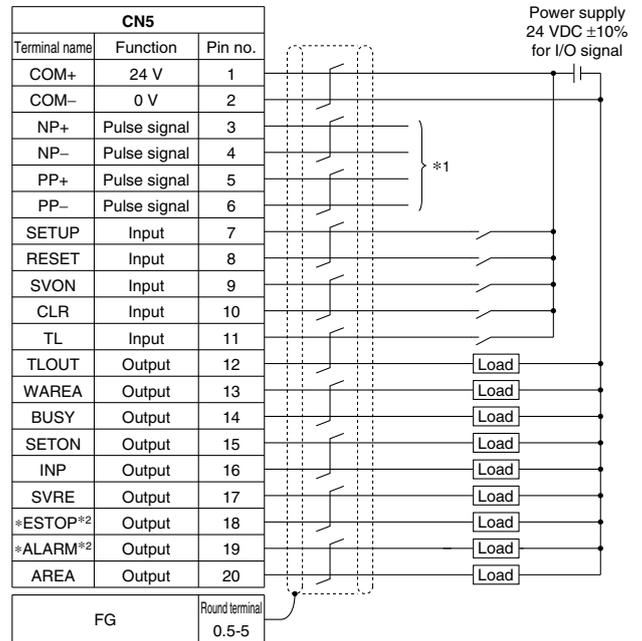
## Wiring Example 2

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

### LECPAN□□-□ (NPN)



### LECPAP□□-□ (PNP)



\*1 For pulse signal wiring method, refer to the "Pulse Signal Wiring Details."  
 \*2 Output when the power supply of the driver is ON. (N.C.)

### 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

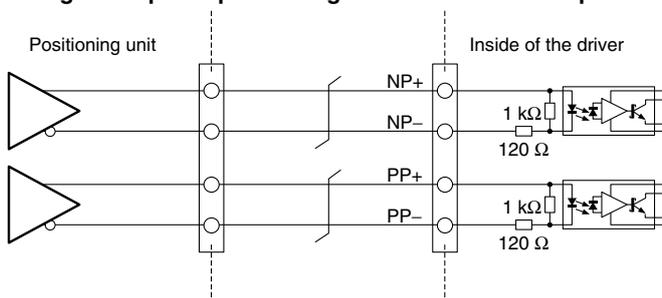
### Output Signal

Name	Details
BUSY	Outputs when the actuator is moving
SETON	Outputs when returning to origin
INP	Outputs when target position is reached
SVRE	Outputs when servo is ON
*ESTOP* <sup>3</sup>	OFF when EMG stop is instructed
*ALARM* <sup>3</sup>	OFF 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

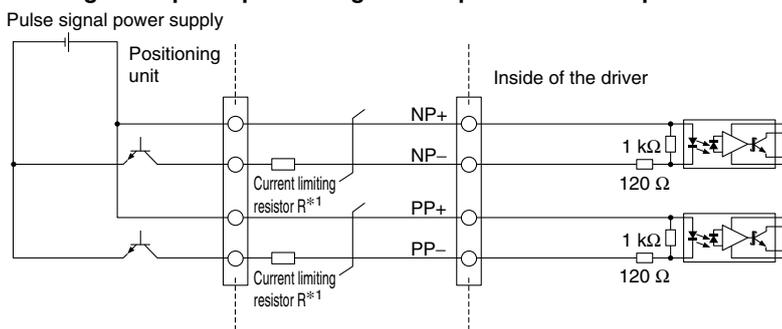
\*3 Negative-logic (N.C.) circuit signal

## Pulse Signal Wiring Details

### • Pulse signal output of positioning unit is differential output



### • Pulse signal output of positioning unit is open collector output

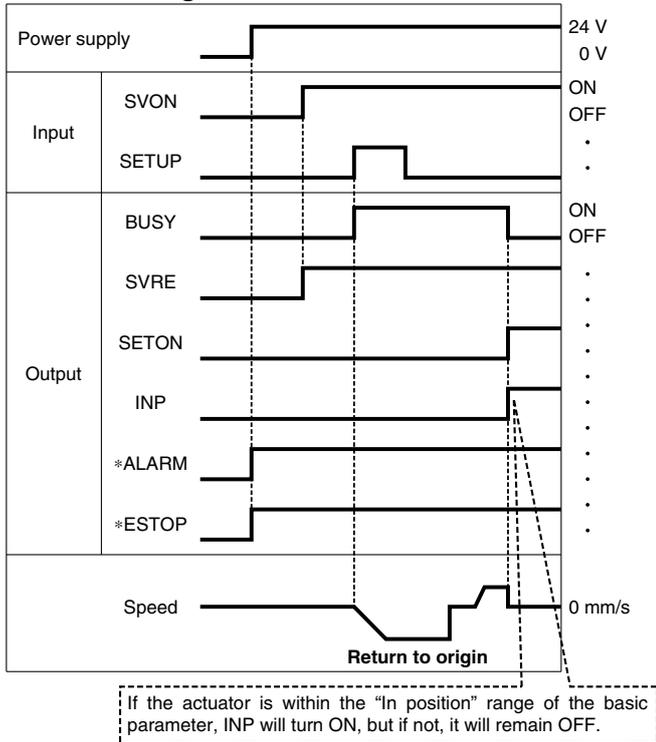


\*1 Connect the current limiting resistor R in series to correspond to the pulse signal voltage.

Pulse signal power supply voltage	Current limiting resistor R specifications	Current limiting 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

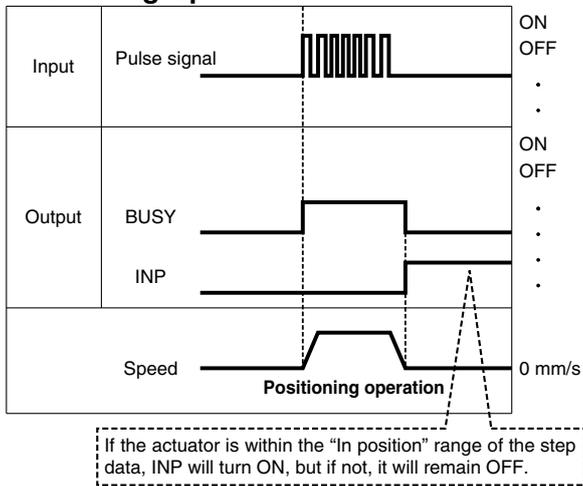
## Signal Timing

### Return to Origin

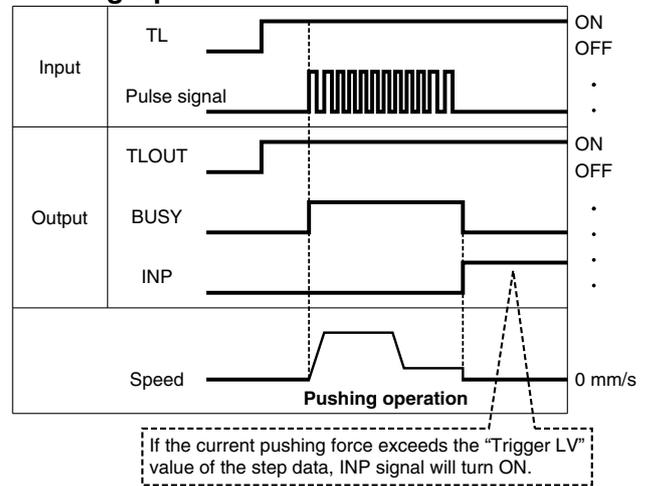


\* \*ALARM" and \*ESTOP" are expressed as negative-logic circuits.

### Positioning Operation

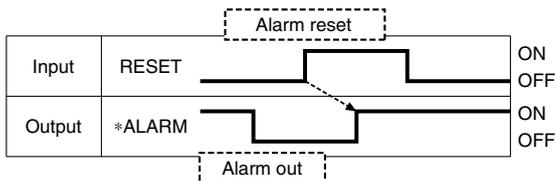


### Pushing Operation



\* 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 a negative-logic circuit.

## Options

### [I/O cable]

# LEC-C L5 - 1

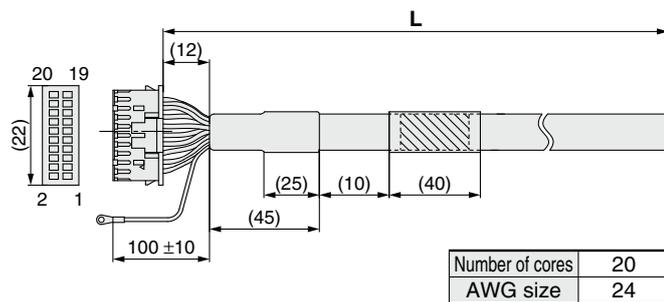
#### I/O cable type

<b>L5</b>	For LECPA
-----------	-----------

#### I/O cable length (L)

<b>1</b>	1.5 m
<b>3</b>	3 m*1
<b>5</b>	5 m*1

\*1 Pulse input usable only with differential. Only 1.5 m cables usable with open collector



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

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

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

#### Weight

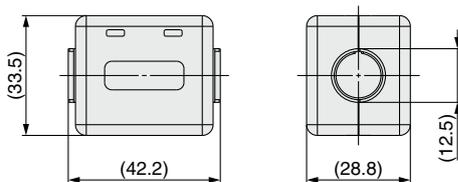
Product no.	Weight [g]
<b>LEC-CL5-1</b>	190
<b>LEC-CL5-3</b>	370
<b>LEC-CL5-5</b>	610

### [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 limiting 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 limiting resistor

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

- \* Select a current limiting resistor that corresponds to the pulse signal power supply voltage.
- \* For the LEC-PA-R-□, two pieces are shipped as a set.
- \* For pulse signal wiring details, refer to page 1060.

Compatible actuators

- LEKFS LEF LEL
- LEM LEY/G LESYH
- LES/H LEP LER
- LEH

# Step Motor Controller

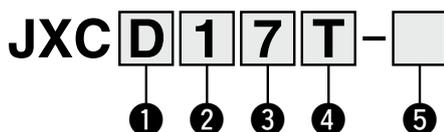
JXCE□/9□/P□/D1/L□/M1 Series



\* For details, refer to page 1343 and onward.



## How to Order



### 1 Communication protocol

		Standard	With STO sub-function
<b>E</b>	EtherCAT	●	●
<b>9</b>	EtherNet/IP™	●	●
<b>P</b>	PROFINET	●	●
<b>D</b>	DeviceNet®	●	—
<b>L</b>	IO-Link	●	●
<b>M</b>	CC-Link	●	—

### 2 Number of axes, Special specification

<b>1</b>	1 axis, Standard
<b>F</b>	1 axis, With STO sub-function

### 3 Mounting

<b>7</b>	Screw mounting
<b>8</b> *1	DIN rail

\*1 The DIN rail is not included. It must be ordered separately. (Refer to page 1068.)

### 4 Option

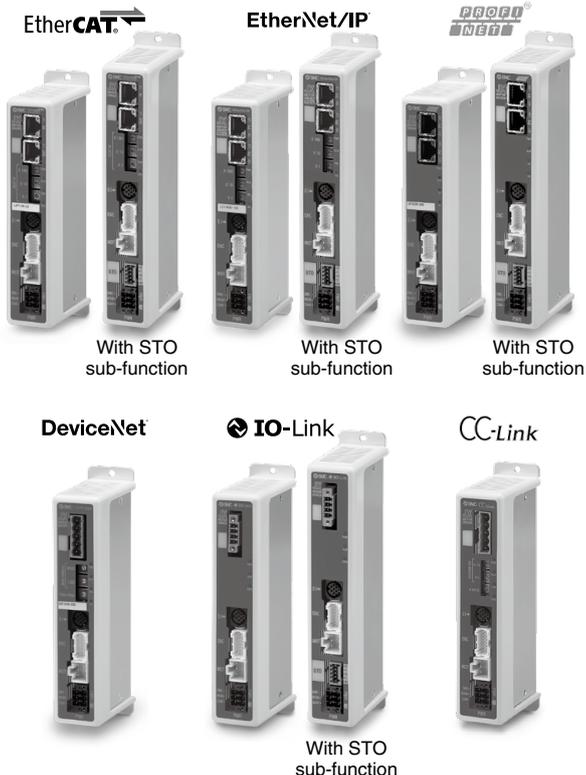
<b>Nil</b>	Without option
<b>S</b>	With straight type communication plug
<b>T</b>	With T-branch type communication plug

\* Select "Nil" for anything other than JXCD1 and JXCM1.

### 5 Actuator part number

Without cable specifications and actuator options Example: Enter "LEFS16B-100" for the LEFS16B-100B-S□□.	
<b>BC</b>	Blank controller*1

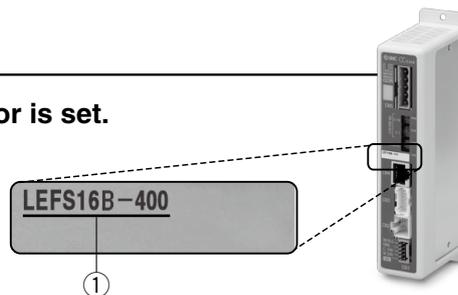
\*1 Requires dedicated software (JXC-BCW or ACT Controller 2)



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

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

- ① Check the actuator label for the model number. This number should match that of the controller.



\* Refer to the operation manual for using the products. Please download it via our website: <https://www.smcworld.com>

### Precautions for blank controllers (JXC□□□□-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. For data writing, use the controller setting software ACT Controller 2 or the dedicated software JXC-BCW.

- Both ACT Controller 2 and JXC-BCW can be downloaded from the SMC website.
- To use this software, order the communication cable for controller setting (JXC-W2A-C) and the USB cable (LEC-W2-U) separately.

#### Hardware Requirements

OS	Windows®10 (64 bit)	Windows®11	Windows®7	Windows®8	Windows®10
Software	ACT Controller 2 (With JXC-BCW function)		JXC-BCW		

\* Windows®7, Windows®8, Windows®10, and Windows®11 are registered trademarks of Microsoft Corporation in the United States.

SMC website: <https://www.smcworld.com>

# Step Motor Controller **JXCE□/9□/P□/D1/L□/M1 Series**

## Specifications

Model		JXCE1	JXCEF	JXC91	JXC9F	JXCP1	JXCPF	JXCD1	JXCL1	JXCLF	JXCM1
Network		EtherCAT		EtherNet/IP™		PROFINET		DeviceNet®	IO-Link		CC-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		100 mA or less
Compatible encoder		Incremental/Battery-less absolute									
Communication specifications	Applicable system	EtherCAT*2		EtherNet/IP™*2		PROFINET*2		DeviceNet®	IO-Link		CC-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		Ver. 1.10
	Communication speed	100 Mbps*2		10/100 Mbps*2 (Automatic negotiation)		100 Mbps*2		125/250/500 kbps	230.4 kbps (COM3)		156 kbps, 625 kbps, 2.5 Mbps, 5 Mbps, 10 Mbps
	Configuration file*3	ESI file		EDS file		GSDML file		EDS file	IODD file		CSP+ 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		1 station, 2 stations, 4 stations
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		PWR, ALM, LERR, L.RUN
Cable length [m]		Actuator cable: 20 or less									
Cooling system		Natural air cooling									
Operating temperature range [°C]		0 to 55 (No freezing)*4, *6									
Operating humidity range [%RH]		90 or less (No condensation)									
Enclosure		IP30 (Excludes the connector)									
Insulation resistance [MΩ]		Between all external terminals and the case: 50 (500 VDC)									
Safety function		—	STO, SS1-t	—	STO, SS1-t	—	STO, SS1-t	—	—	STO, SS1-t	—
Safety standards		—	EN61508 SIL3*5 EN62061 SIL CL3*5 EN ISO13849-1 Cat.3 PL e*5	—	EN61508 SIL3*5 EN62061 SIL CL3*5 EN ISO13849-1 Cat.3 PL e*5	—	EN61508 SIL3*5 EN62061 SIL CL3*5 EN ISO13849-1 Cat.3 PL e*5	—	—	EN 61508 SIL 3*5 EN 62061 SIL CL 3*5 EN ISO 13849-1 Cat. 3 PL e*5	—
Weight [g]	Screw mounting	220	250	210	240	220	250	210	190	220	170
	DIN rail mounting	240	270	230	260	240	270	230	210	240	190

\*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.

\*4 The operating temperature range for both controller version 1 products and controller version 2 products is 0 to 40°C. Refer to page 1077 for details on identifying controller version symbols.

\*5 The above safety integrity level is the max. value. The achievable level varies depending on the configuration and inspection method of the component.

Be sure to refer to "Safety Manual" for more information. H, Germany.

\*6 If the vertical work load for the LEY40□E or LEYG40□E series product is equal to or greater than the weight below, use the controller at an ambient temperature at 40°C or less.

Series	Weight [kg]	Series	Weight [kg]
LEY40□EA	9	LEYG40□EA	7
LEY40□EB	19	LEYG40□EB	17
LEY40□EC	38	LEYG40□EC	36

### ■Trademark

EtherNet/IP® is a registered trademark of ODVA, Inc.

DeviceNet® is a registered trademark of ODVA, Inc.

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 JXCL□.

### <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>

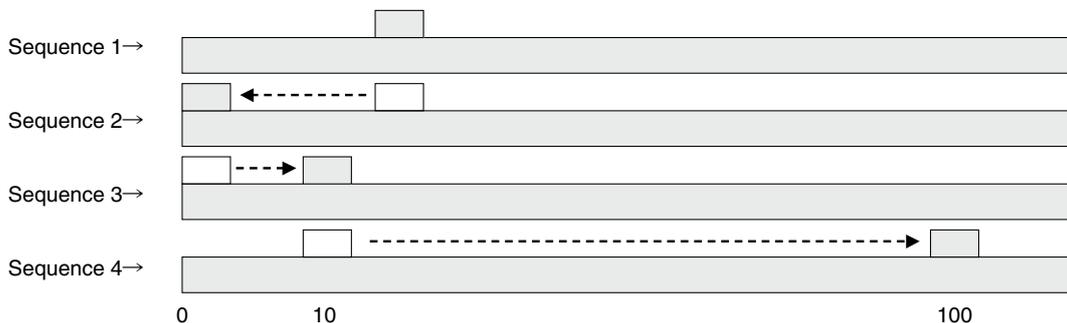
Sequence 1: Servo ON instruction

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.

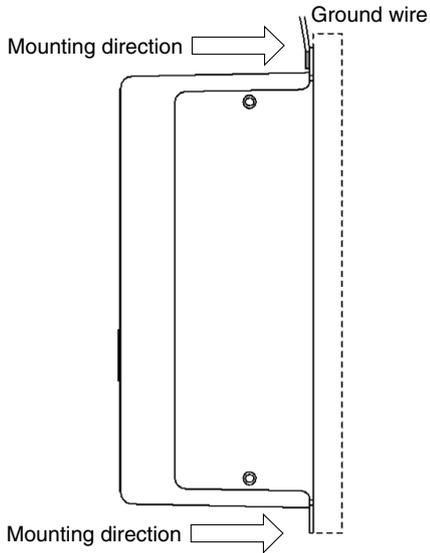
The same operation can be performed with any operation command.



# JXCE□/9□/P□/D1/L□/M1 Series

## How to Mount

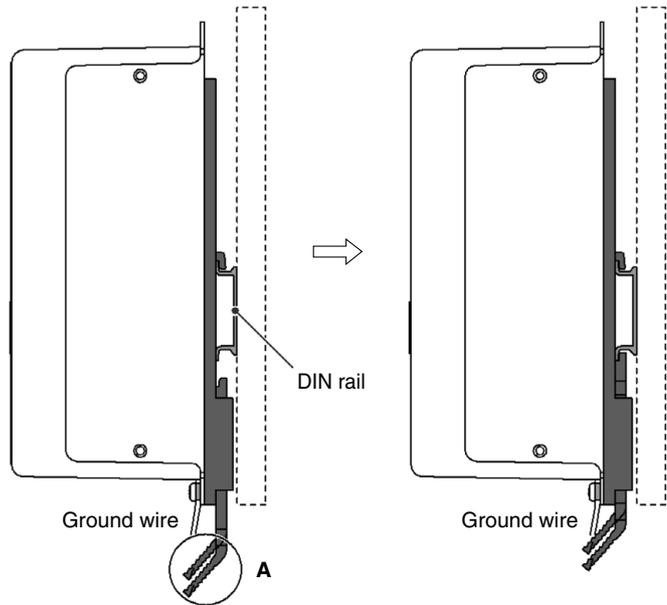
a) Screw mounting (JXC□17-□, JXC□F7-□)  
(Installation with two M4 screws)



b) DIN rail mounting (JXC□18-□, JXC□F8-□)  
(Installation with the DIN rail)

Before locked onto DIN rail

DIN rail is locked.

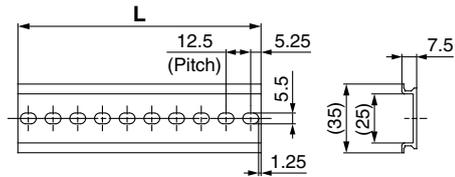


Hook the controller on the DIN rail and press the lever of section A in the arrow direction to lock it.

\* 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 dimension drawings on pages 1066 to 1068 for the mounting dimensions.



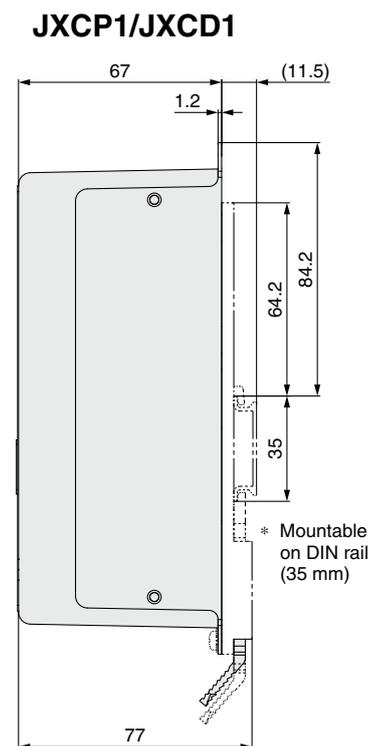
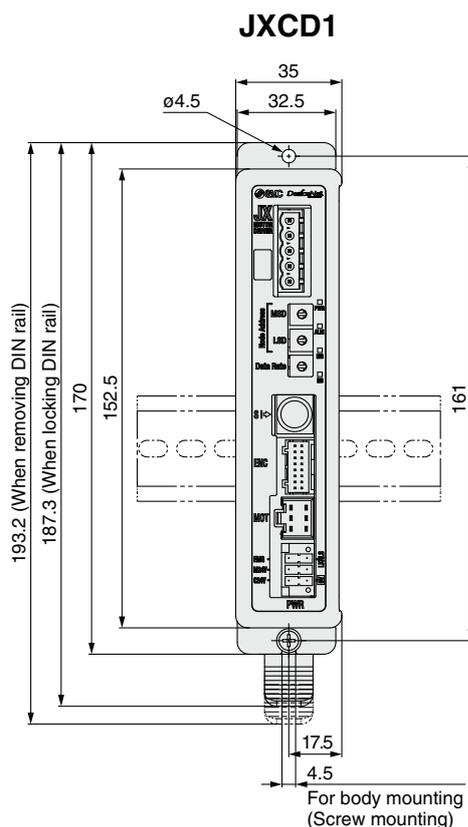
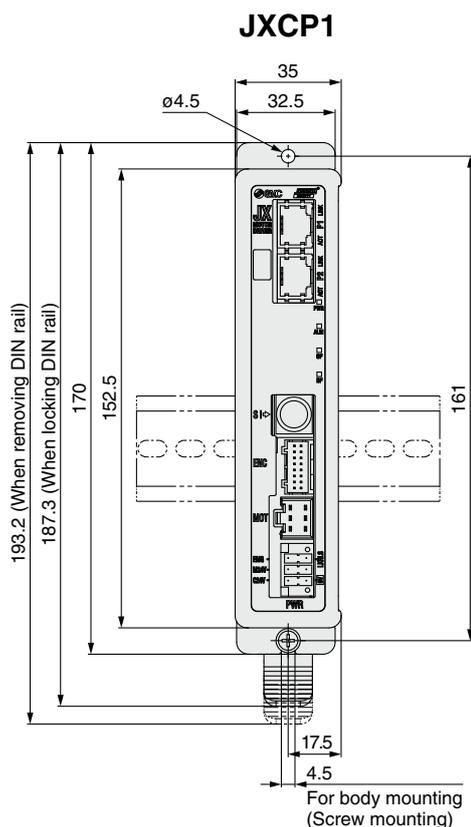
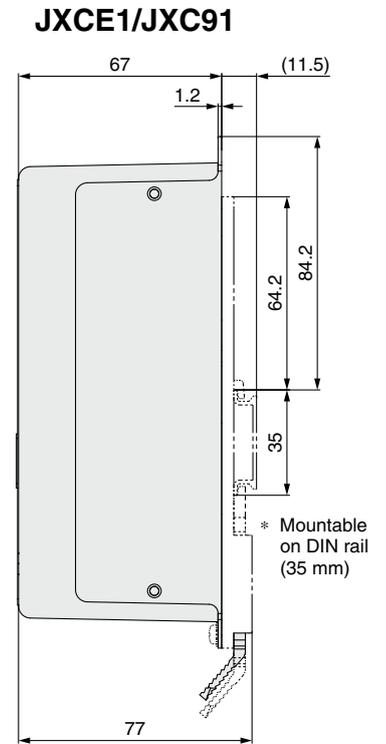
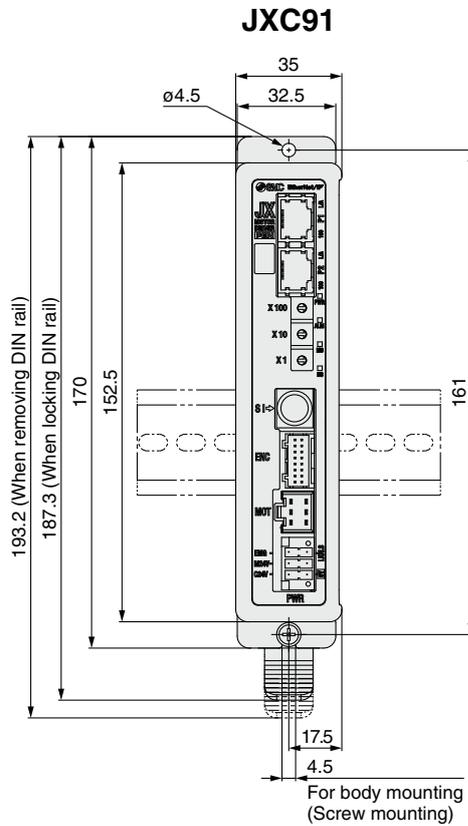
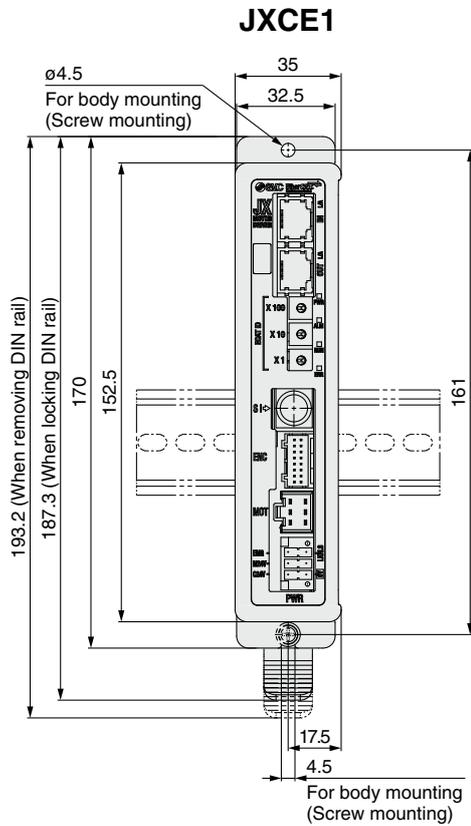
### L Dimensions [mm]

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

## DIN rail mounting adapter LEC-3-D0 (with 2 mounting screws)

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

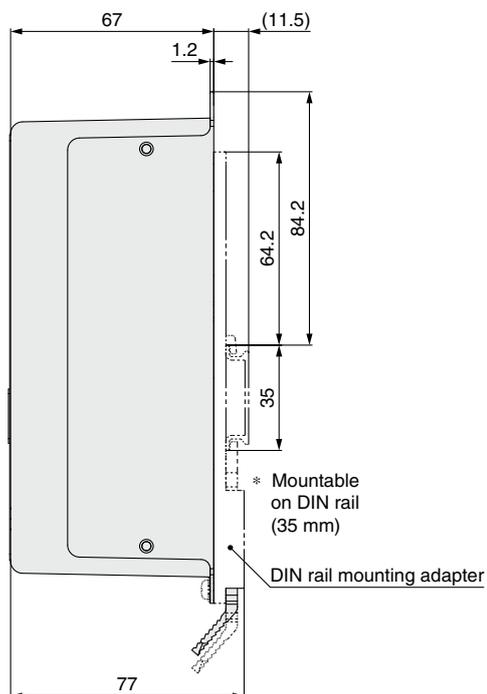
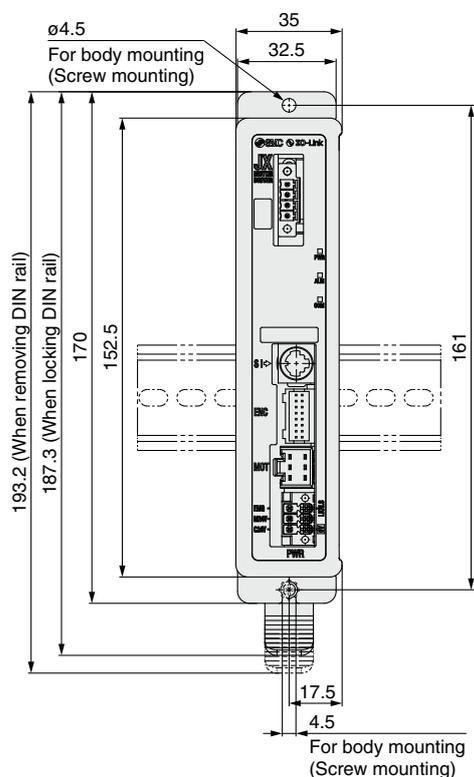
**Dimensions**



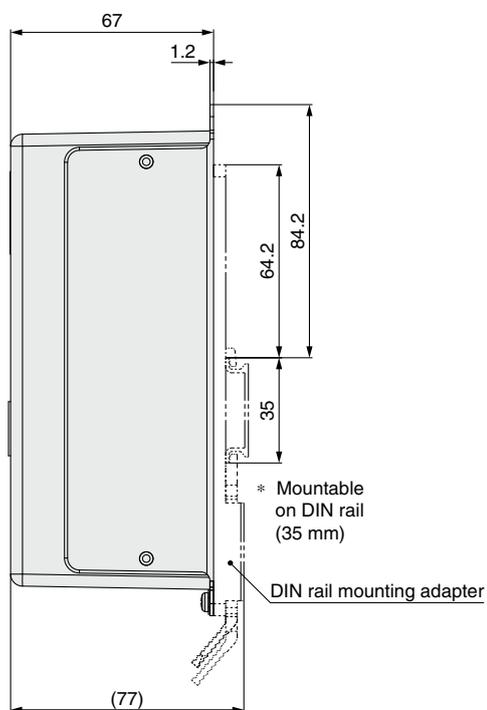
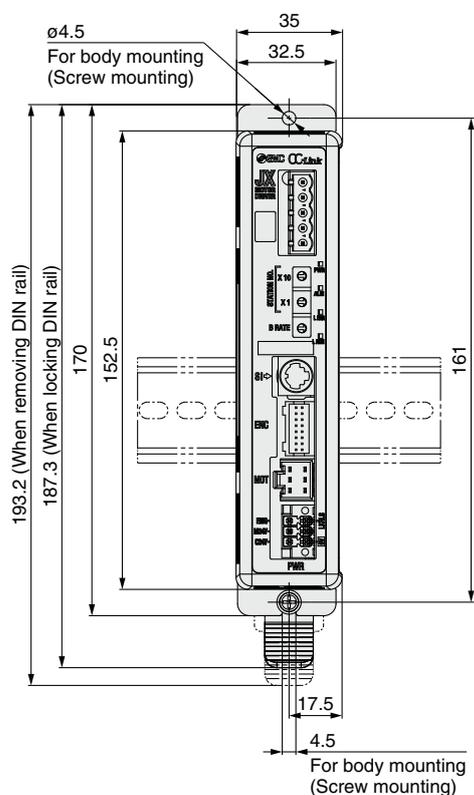
# JXCE□/91/P1/D1/L□/M1 Series

## Dimensions

### JXCL1

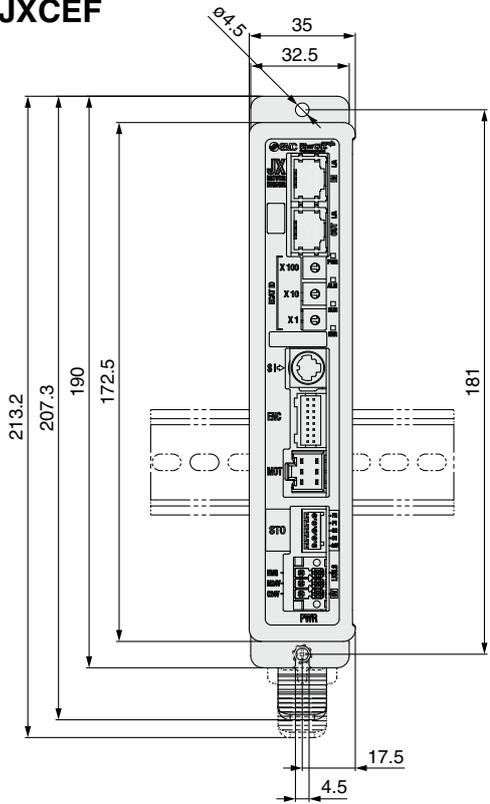


### JXCM1

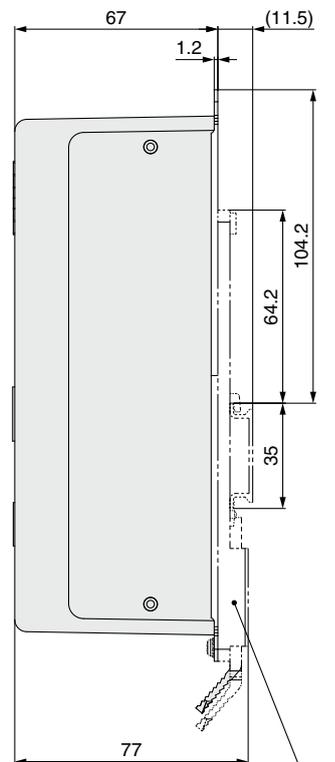
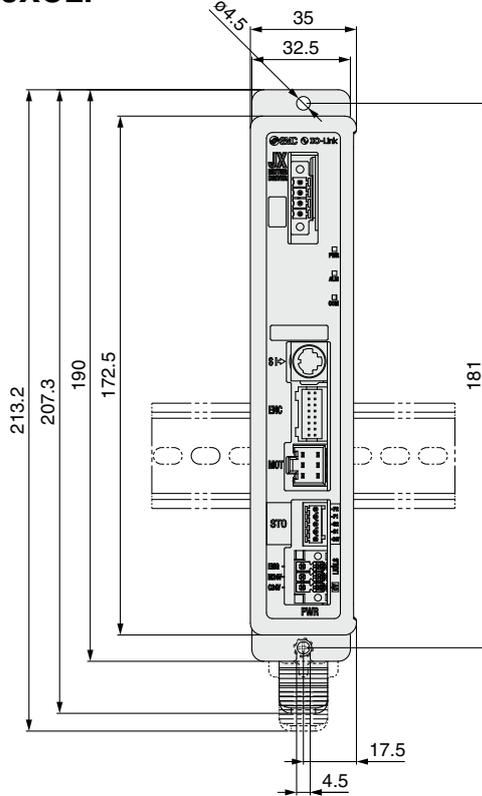


**Dimensions**

**JXCEF**

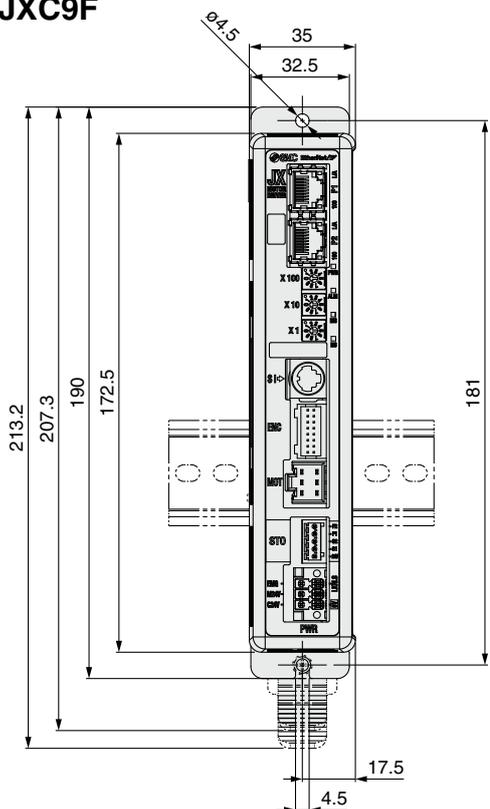


**JXCLF**

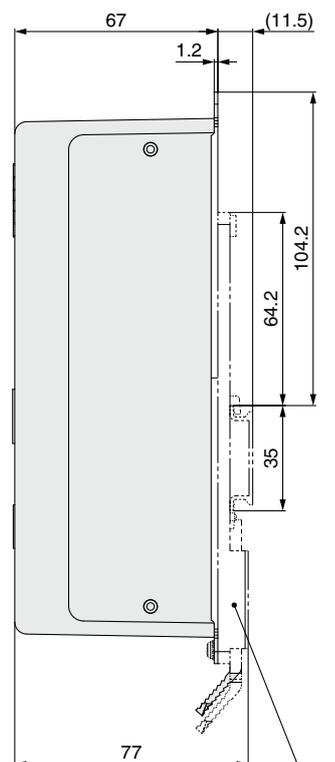
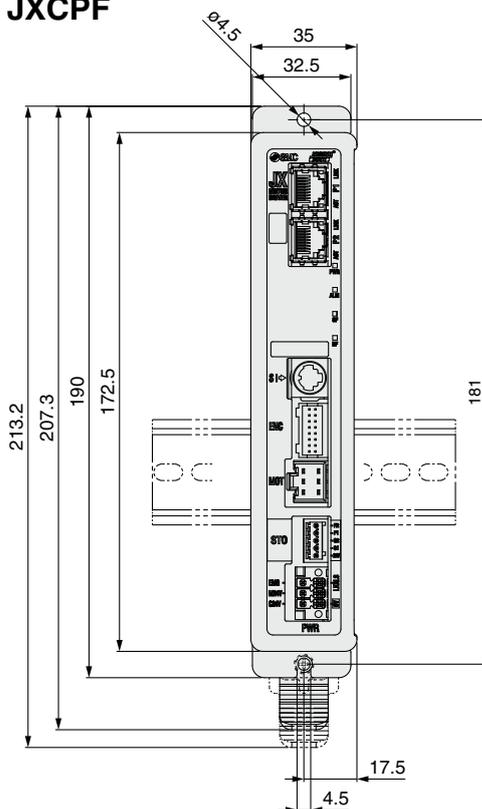


DIN rail mounting adapter

**JXC9F**



**JXCPF**



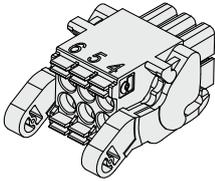
DIN rail mounting adapter

# JXCE□/9□/P□/D1/L□/M1 Series

## Options

### ■ Power supply plug JXC-CPW

\* The power supply plug is an accessory.



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

#### Power supply plug

Terminal name	Function	Details
0V	Common supply (-)	The M24V terminal, C24V terminal, EMG terminal, and 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

### ■ STO signal plug JXC-CSTO



⑤
④
③
②
①

#### STO signal plug

Pin no.	Signal name	Details
1	24V	+24 V output (Max. 100 mA)
2	STO1	STO input 1
3	STO2	STO input 2
4	Feedback 1	STO1 feedback signal
5	Feedback 2	STO2 feedback signal

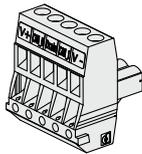
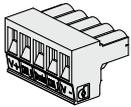
### ■ Communication plug connector

For DeviceNet®

**Straight type**  
JXC-CD-S

**T-branch type**  
JXC-CD-T

**Communication plug connector for DeviceNet®**

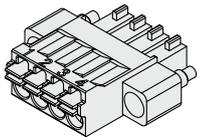


Terminal name	Details
V+	Power supply (+) for DeviceNet®
CAN_H	Communication wire (High)
Drain	Grounding wire/Shielded wire
CAN_L	Communication wire (Low)
V-	Power supply (-) for DeviceNet®

For IO-Link

**Straight type**  
JXC-CL-S

\* The communication plug connector for IO-Link is an accessory.



**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

For CC-Link

**Straight type**  
LEC-CMJ-S

**T-branch type**  
LEC-CMJ-T

**Communication plug connector for CC-Link**



Terminal name	Details
DA	CC-Link communication line A
DB	CC-Link communication line B
DG	CC-Link ground line
SLD	CC-Link shield
FG	Frame ground

### ■ DIN rail mounting adapter LEC-3-D0

\* With 2 mounting screws

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

### ■ DIN rail AXT100-DR-□

\* For □, enter a number from the No. line in the table on page 1068. Refer to the dimension drawings on pages 1066 to 1068 for the mounting dimensions.



Compatible actuators



# Step Motor Controller

## JXCEH/9H/PH Series



\* For details, refer to page 1343 and onward.

### How to Order

#### ⚠ Caution

##### [CE/UKCA-compliant products]

- ① EMC compliance was tested by combining the electric actuator LE series and the JXCEH/PH 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.
- ② For the JXCEH/PH series (step motor controller), EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 1076 for the noise filter set. Refer to the JXCEH/PH Operation Manual for installation.

## JXC PH 7 -

#### Communication protocol

E	EtherCAT
9	EtherNet/IP™
P	PROFINET

#### High performance

#### Mounting

7	Screw mounting
8*1	DIN rail

\*1 The DIN rail is not included. It must be ordered separately. (Refer to page 1076.)



#### Actuator part number

Without cable specifications and actuator options  
Example: Enter "LEFS16FB-100"  
for the LEFS16FB-100B-S1□□.

BC Blank controller\*1

\*1 Requires dedicated software (JXC-BCW)

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

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

- ① Check the actuator label for the model number. This number should match that of the controller.

LEFS16FB-400

①



\* Refer to the operation manual for using the products. Please download it via our website: <https://www.smcworld.com>

#### Precautions for blank controllers (JXC□H□-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. For data writing, use the controller setting software ACT Controller 2 or the dedicated software JXC-BCW.

- Both ACT Controller 2 and JXC-BCW can be downloaded from the SMC website.
- To use this software, order the communication cable for controller setting (JXC-W2A-C) and the USB cable (LEC-W2-U) separately.

#### Hardware Requirements

OS	Windows®10 (64 bit)	Windows®11	Windows®7	Windows®8	Windows®10
Software	ACT Controller 2 (With JXC-BCW function)		JXC-BCW		

\* Windows®7, Windows®8, Windows®10, and Windows®11 are registered trademarks of Microsoft Corporation in the United States.

SMC website: <https://www.smcworld.com>

## Specifications

Model		JXCEH	JXC9H	JXCPH	
Network		EtherCAT	EtherNet/IP™	PROFINET	
Compatible motor		Step motor (Servo/24 VDC)			
Power supply		Power voltage: 24 VDC ±10%			
Current consumption (Controller)		200 mA or less	200 mA or less	200 mA or less	
Compatible encoder		Battery-less absolute/Incremental			
Communication specifications	Applicable system	Protocol	EtherCAT*2	EtherNet/IP™*2	PROFINET*2
		Version*1	Conformance Test Record V.1.2.6	Volume 1 (Edition 3.14) Volume 2 (Edition 1.15)	Specification Version 2.32
	Communication speed		100 Mbps*2	10/100 Mbps*2 (Automatic negotiation)	100 Mbps*2
	Configuration file*3		ESI file	EDS file	GSDML file
	I/O occupation area		Input 20 bytes Output 36 bytes	Input 36 bytes Output 36 bytes	Input 36 bytes Output 36 bytes
	Terminating resistor		Not included		
Memory		EEPROM			
LED indicator		PWR, RUN, ALM, ERR	PWR, ALM, MS, NS	PWR, ALM, SF, BF	
Cable length [m]		Actuator cable: 20 or less			
Cooling system		Natural air cooling			
Operating temperature range [°C]		0 to 40 (No freezing)*4			
Operating humidity range [%RH]		90 or less (No condensation)			
Enclosure		IP30 (Excludes the connector)			
Insulation resistance [MΩ]		Between all external terminals and the case: 50 (500 VDC)			
Weight [g]		260 (Screw mounting) 280 (DIN rail mounting)	250 (Screw mounting) 270 (DIN rail mounting)	260 (Screw mounting) 280 (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.

\*4 The operating temperature range for both controller version 1 products and controller version 2 products is 0 to 40°C. Refer to page 1077 for details on identifying controller version symbols.

### ■ Trademark

EtherNet/IP® is a registered trademark of ODVA, Inc.

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>

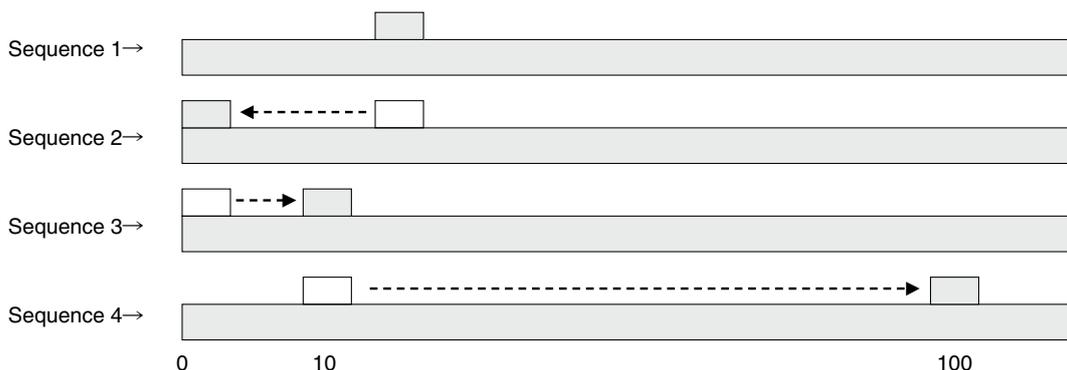
Sequence 1: Servo ON instruction

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.

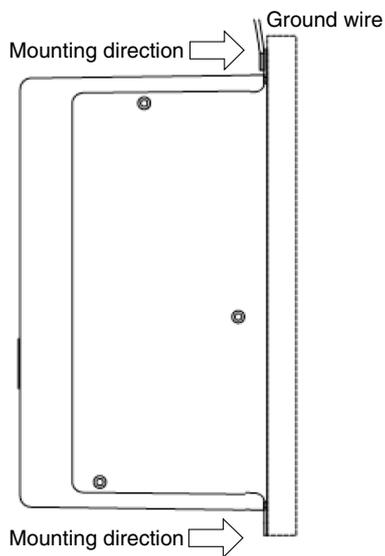
The same operation can be performed with any operation command.



# JXCEH/9H/PH Series

## How to Mount

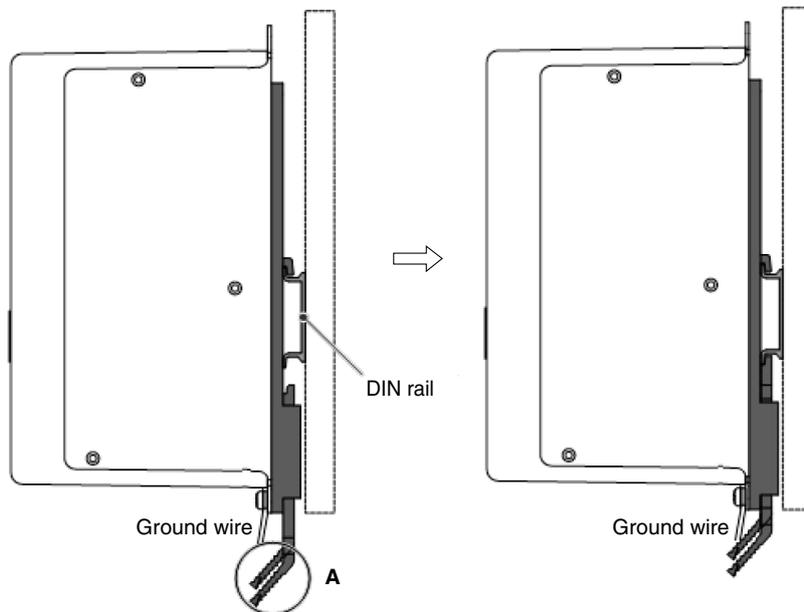
a) Screw mounting (JXC□H7-□)  
(Installation with two M4 screws)



b) DIN rail mounting (JXC□H8-□)  
(Installation with the DIN rail)

Before locked onto DIN rail

DIN rail is locked.

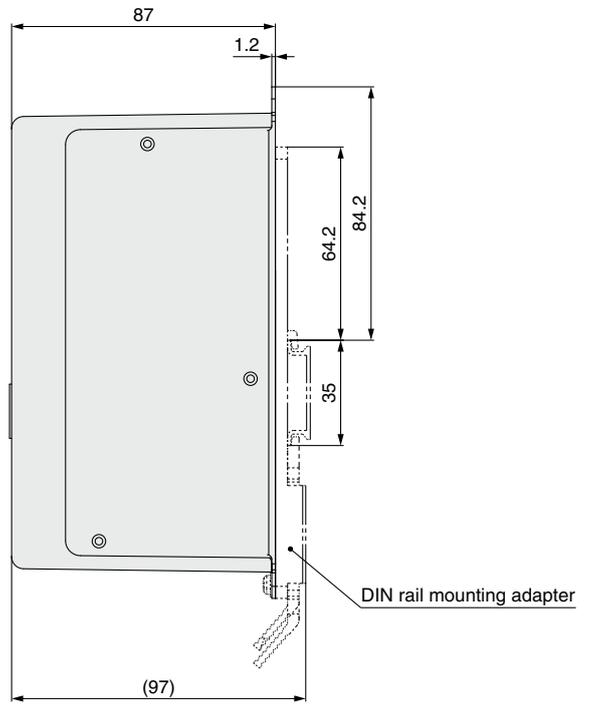
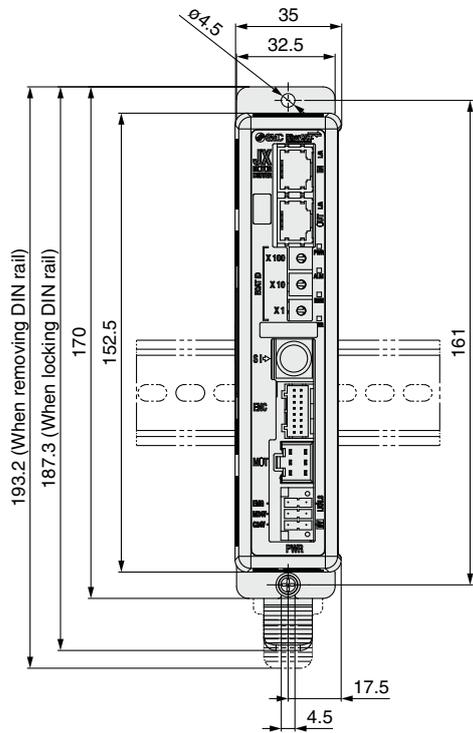


Hook the controller on the DIN rail and press the lever of section A in the arrow direction to lock it.

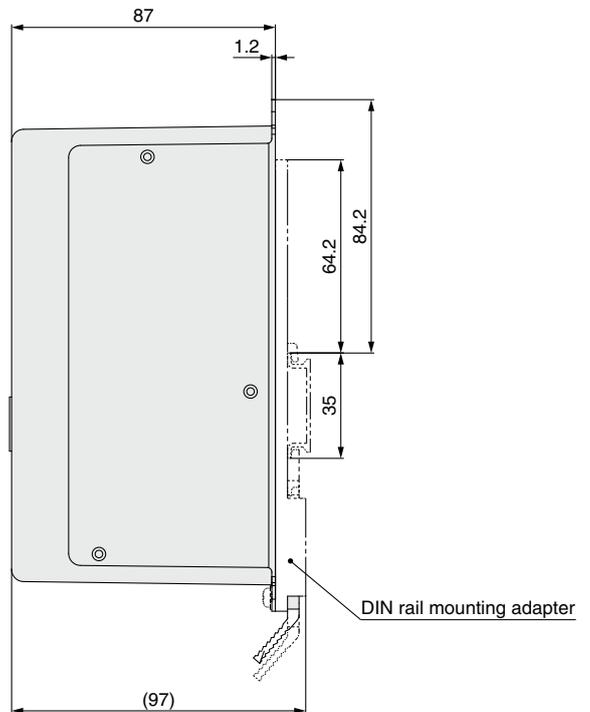
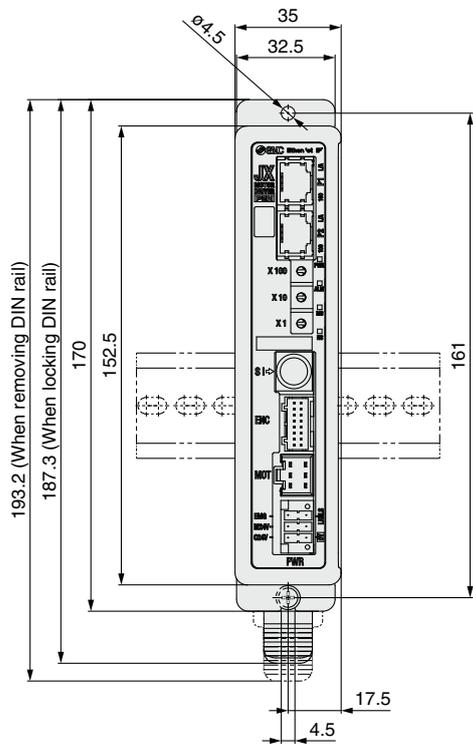
\* When size 25 or more of the LE series are used, the space between the controllers should be 10 mm or more.

## Dimensions

### JXCEH



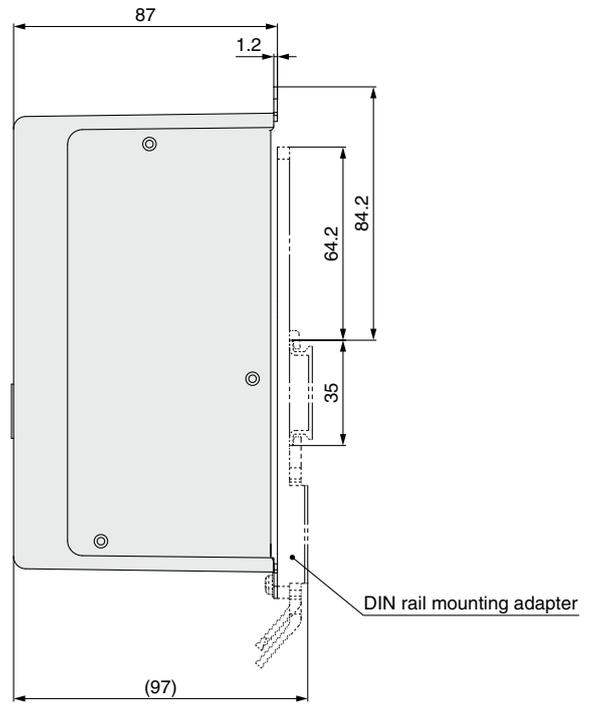
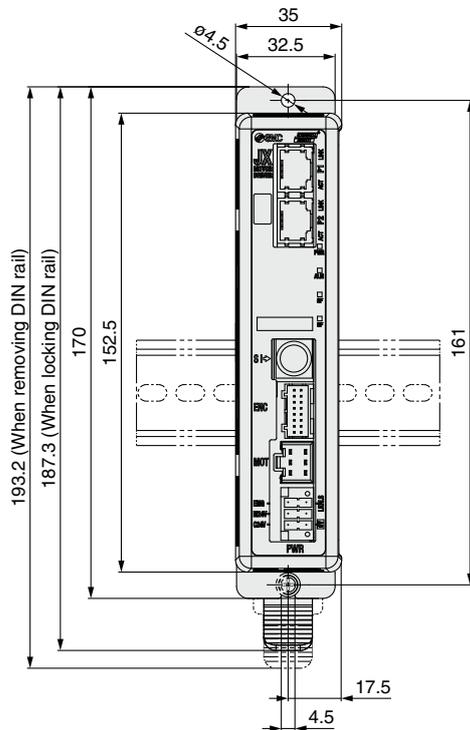
### JXC9H



# JXCEH/9H/PH Series

## Dimensions

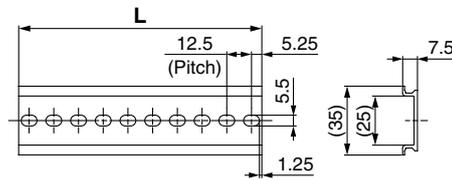
### JXCPH



### DIN rail

#### AXT100-DR-□

\* For □, enter a number from the No. line in the table below.  
Refer to the dimension drawings on pages 1074 and 1075 for the mounting dimensions.



#### 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

### DIN rail mounting adapter

#### LEC-3-D0 (with 2 mounting screws)

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

## Options

### ■ DIN rail mounting adapter LEC-3-D0

- \* With 2 mounting screws

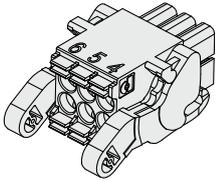
This should be used when the DIN rail mounting adapter is mounted onto a screw mounting type controller afterward.

### ■ DIN rail AXT100-DR-□

- \* For □, enter a number from the No. line in the table on page 1075. Refer to the dimension drawings on pages 1074 and 1075 for the mounting dimensions.

### ■ Power supply plug JXC-CPW

- \* The power supply plug is an accessory.



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

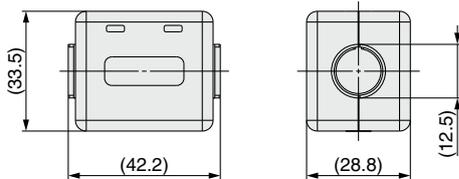
### Power supply plug

Terminal name	Function	Details
0V	Common supply (-)	The M24V terminal, C24V terminal, EMG terminal, and 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

### ■ Noise filter set

## LEC – NFA

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



- \* Refer to the JXCEH/PH series Operation Manual for installation.

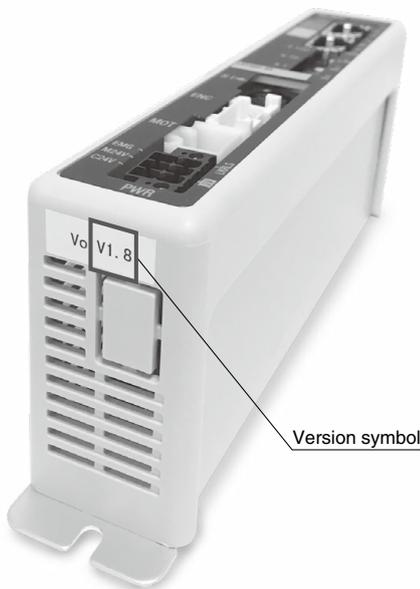


# JXC51/61/E□/9□/P□/D1/L□/M1 Series Precautions Relating to Differences in Controller Versions

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

- If using the JXC□□-BC, please use the latest version of the JXC-BCW (parameter writing tool).
- There are currently 3 versions available: version 1 products (V1.□ or S1.□), version 2 products (V2.□ or S2.□), and version 3 products (V3.□ or S3.□). Keep in mind that in order to write a backup file (.bcp) to another controller with the JXC-BCW, it needs to be the same version as the controller that created the file. (For example, a backup file created by a version 1 product can only be written to another version 1 product, and so on.)

## Identifying Version Symbols



### JXC□□ Series Version V3.□ or S3.□ Products

XR V3.0

#### Applicable models

JXC9□ Series

XR S3.0 T1.0

#### Applicable models

JXC51 Series  
JXC61 Series  
JXCE□ Series  
JXCP□ Series  
JXCD1 Series  
JXCL□ Series  
JXCM1 Series

### JXC□□ Series Version V2.□ or S2.□ Products

WP V2.1

#### Applicable models

JXC9□ Series

WP S2.2 T1.1

#### Applicable models

JXCE□ Series  
JXCP□ Series  
JXCD1 Series  
JXCL□ Series

### JXC□□ Series Version V1.□ or S1.□ Products

XR V1.0

#### Applicable models

JXC9□ Series

XR S1.0 T1.0

#### Applicable models

JXCE□ Series  
JXCP□ Series  
JXCD1 Series  
JXCL□ Series  
JXC5H Series  
JXC6H Series

Precautions Relating to Differences in Controller Versions **JXC51/61/E□/9□/P□/D1/L□/M1 Series**

**Blank Controller Versions and Applicable Battery-less Absolute Type Electric Actuator Sizes**

■ The applicable battery-less absolute type electric actuator size range differs depending on the controller version.

Be sure to confirm the controller version before using a blank controller.

**Blank Controller Versions/Applicable Electric Actuator Sizes (JXC□1/JXC□F Series)**

Blank controller		Applicable electric actuator size										
Series	Controller version	LEFS□E	LEFB□E	LEKFS□E	LEY□E	LEY□E-X8	LEYG□E	LES□E	LESH□E	LESYH□E	LER□E	LEHF□E
JXC91□ series JXCD1□ series JXCE1□ series JXCP1□ series JXCL1□ series	Version 3.4 (V3.4, S3.4) Version 3.5 (V3.5, S3.5)	25, 32, 40	25, 32, 40	25, 32, 40	25, 32, 40	25, 32, 40	25, 32, 40	25	25	16, 25	50	32, 40
	Version 3.6 (V3.6, S3.6) or higher	16, 25, 32, 40	16, 25, 32, 40	16, 25, 32, 40	16, 25, 32, 40		16, 25, 32, 40			8, 16, 25		
JXCM1□ series JXC51/61 series	Version 3.4 (V3.4, S3.4)	25, 32, 40	25, 32, 40	25, 32, 40	25, 32, 40		25, 32, 40			25, 32, 40		
	Version 3.5 (V3.5, S3.5) or higher	16, 25, 32, 40	16, 25, 32, 40	16, 25, 32, 40	16, 25, 32, 40	16, 25, 32, 40	8, 16, 25					
JXC□F series	All versions											

Compatible actuators

LEF LEY/G LES/H

LEP LER LEH

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

## JXC92 Series



\* For details, refer to page 1343 and onward.

### 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

- \* 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 actuator to be connected.

### 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)

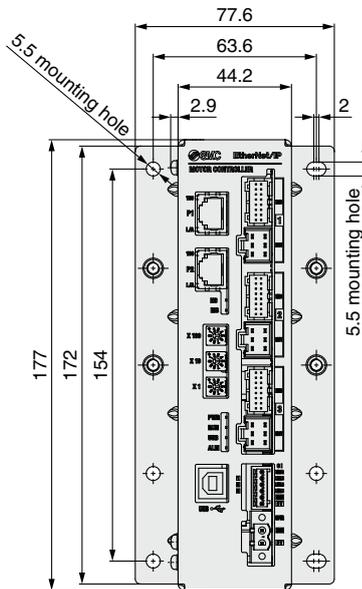
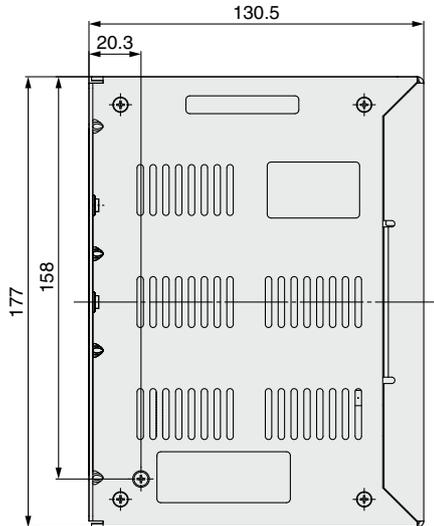
Item	Specifications	
Number of axes	Max. 3 axes	
Compatible motor	Step motor (Servo/24 VDC)	
Compatible encoder	Incremental	
Power supply*1	Control power supply Power voltage: 24 VDC ±10% Max. current consumption: 500 mA Motor power supply Power voltage: 24 VDC ±10% Max. current consumption: Based on 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)	
Enclosure	IP20	
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-magnetizing locks

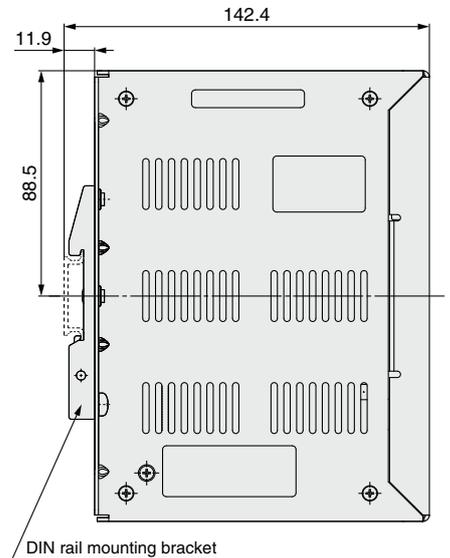
## Dimensions

### EtherNet/IP™ Type JXC92

#### Screw mounting

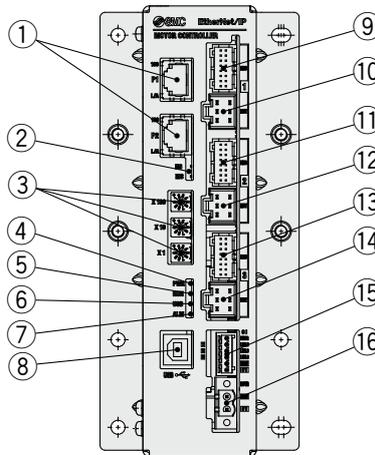


#### DIN rail mounting



## Controller Details

### EtherNet/IP™ Type JXC92



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

\*1 Connectors are included. (Refer to page 1085.)

Compatible actuators



\*1 Excludes the continuous rotation (360°) specification

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

## JXC73/83/93 Series



\* For details, refer to page 1343 and onward.

### How to Order

#### Parallel I/O (JXC73/83)

##### Controller



JXC 7 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 7

EtherNet/IP™ type

Mounting

Symbol	Mounting
7	Screw mounting
8	DIN rail

4-axis type

\* 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 actuator to be connected.

## 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
<b>Number of axes</b>	Max. 4 axes
<b>Compatible motor</b>	Step motor (Servo/24 VDC)
<b>Compatible encoder</b>	Incremental
<b>Power supply*1</b>	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
<b>Parallel input</b>	16 inputs (Photo-coupler isolation)
<b>Parallel output</b>	32 outputs (Photo-coupler isolation)
<b>Serial communication</b>	USB2.0 (Full Speed 12 Mbps)
<b>Memory</b>	Flash-ROM/EEPROM
<b>LED indicator</b>	PWR, RUN, USB, ALM
<b>Lock control</b>	Forced-lock release terminal*3
<b>Cable length</b>	I/O cable: 5 m or less, Actuator cable: 20 m or less
<b>Cooling system</b>	Natural air cooling
<b>Operating temperature range</b>	0°C to 40°C (No freezing)
<b>Operating humidity range</b>	90% RH or less (No condensation)
<b>Storage temperature range</b>	-10°C to 60°C (No freezing)
<b>Storage humidity range</b>	90% RH or less (No condensation)
<b>Enclosure</b>	IP20
<b>Insulation resistance</b>	Between all external terminals and the case: 50 MΩ (500 VDC)
<b>Weight</b>	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-magnetizing 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	
<b>Number of axes</b>	Max. 4 axes	
<b>Compatible motor</b>	Step motor (Servo/24 VDC)	
<b>Compatible encoder</b>	Incremental	
<b>Power supply*1</b>	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	
<b>Communication</b>	<b>Protocol</b>	EtherNet/IP™*4
	<b>Communication speed</b>	10 Mbps/100 Mbps (automatic negotiation)
	<b>Communication method</b>	Full duplex/Half duplex (automatic negotiation)
	<b>Configuration file</b>	EDS file
	<b>Occupied area</b>	Input 16 bytes/Output 16 bytes
	<b>IP address setting range</b>	Manual setting by switches: From 192.168.1.1 to 254, Via DHCP server: Arbitrary address
	<b>Vendor ID</b>	7 h (SMC Corporation)
	<b>Product type</b>	2 Bh (Generic Device)
	<b>Product code</b>	DCh
<b>Serial communication</b>	USB2.0 (Full Speed 12 Mbps)	
<b>Memory</b>	Flash-ROM/EEPROM	
<b>LED indicator</b>	PWR, RUN, USB, ALM, NS, MS, L/A, 100	
<b>Lock control</b>	Forced-lock release terminal*3	
<b>Cable length</b>	Actuator cable: 20 m or less	
<b>Cooling system</b>	Natural air cooling	
<b>Operating temperature range</b>	0°C to 40°C (No freezing)	
<b>Operating humidity range</b>	90% RH or less (No condensation)	
<b>Storage temperature range</b>	-10°C to 60°C (No freezing)	
<b>Storage humidity range</b>	90% RH or less (No condensation)	
<b>Enclosure</b>	IP20	
<b>Insulation resistance</b>	Between all external terminals and the case: 50 MΩ (500 VDC)	
<b>Weight</b>	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-magnetizing locks

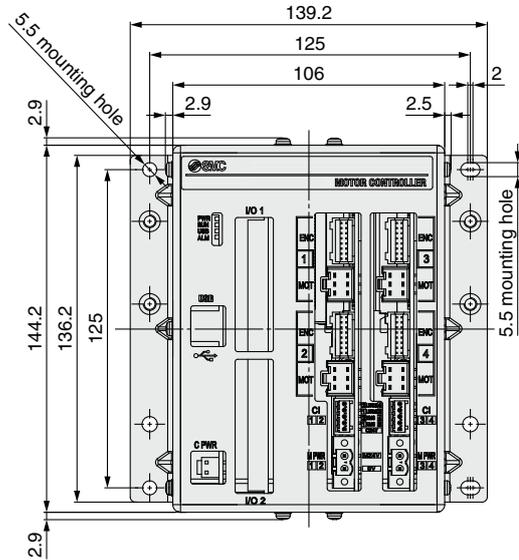
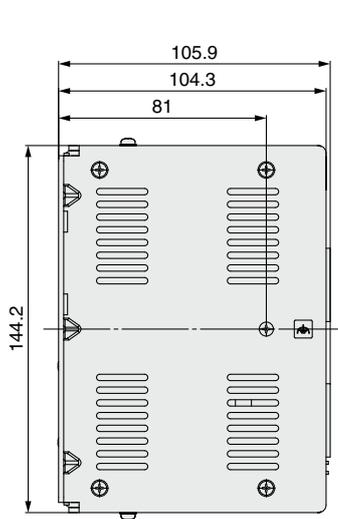
\*4 EtherNet/IP™ is a trademark of ODVA.

# JXC73/83/93 Series

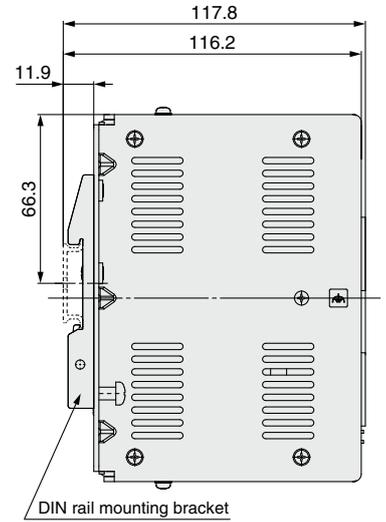
## Dimensions

### Parallel I/O JXC73/83

#### Screw mounting

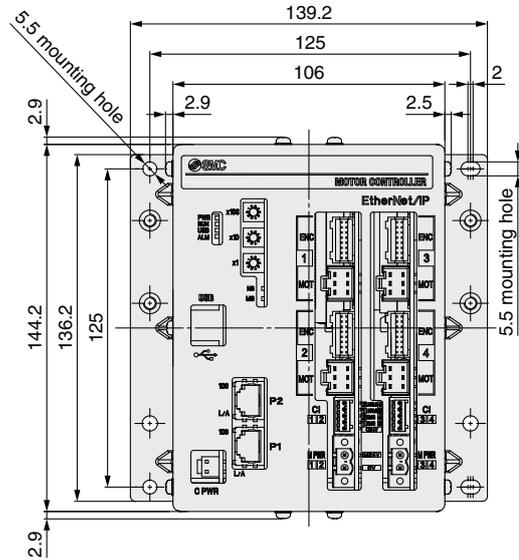
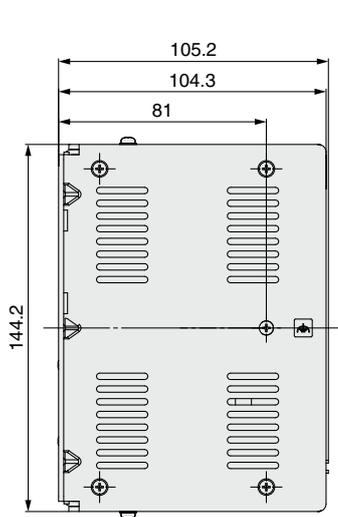


#### DIN rail mounting

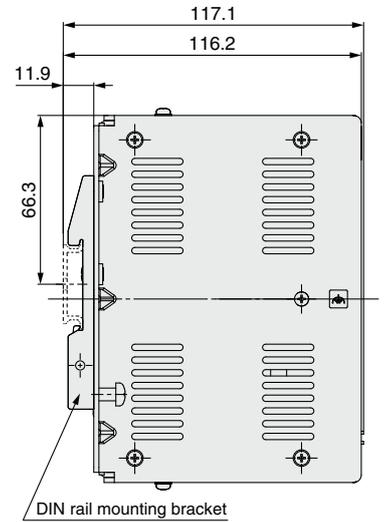


### EtherNet/IP™ Type JXC93

#### Screw mounting

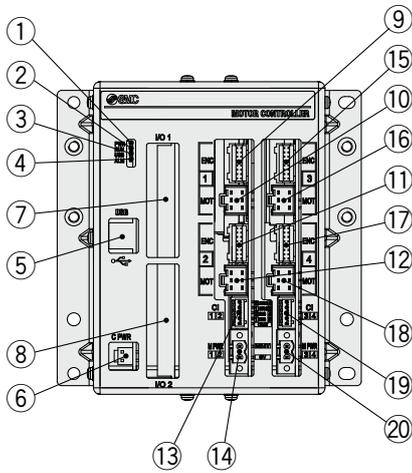


#### DIN rail mounting



## Controller Details

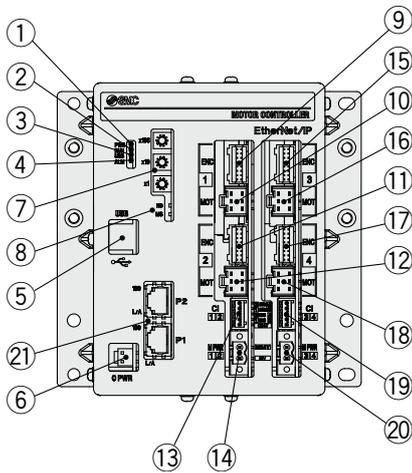
### Parallel I/O JXC73/83



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

\*1 Connectors are included. (Refer to page 1085.)

### EtherNet/IP™ Type JXC93



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

\*1 Connectors are included. (Refer to page 1085.)

# JXC73/83/92/93 Series

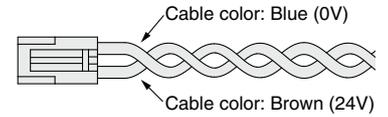
## Wiring Example 1

**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**



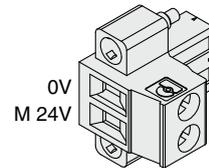
**Motor Power Supply Connector (For 3/4 Axes)\*2: M PWR** 2 pcs.\*3 For 3 Axes  
JXC92 For 4 Axes  
JXC73/83/93

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**

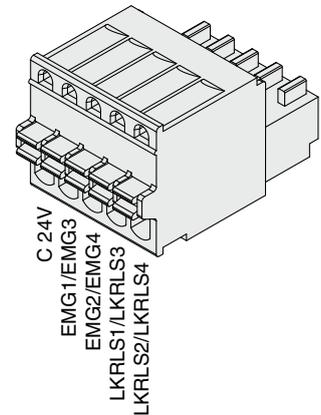


**Motor Control Power Supply Connector (For 4 Axes)\*4: CI** 2 pcs. For 4 Axes  
JXC73/83/93

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**

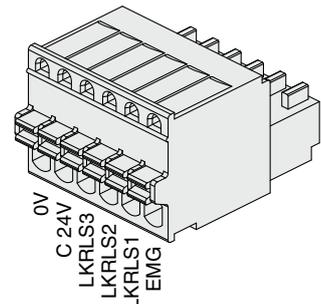


**Control Power Supply Connector (For 3 Axes)\*5: CI** 1 pc. For 3 Axes  
JXC92

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**



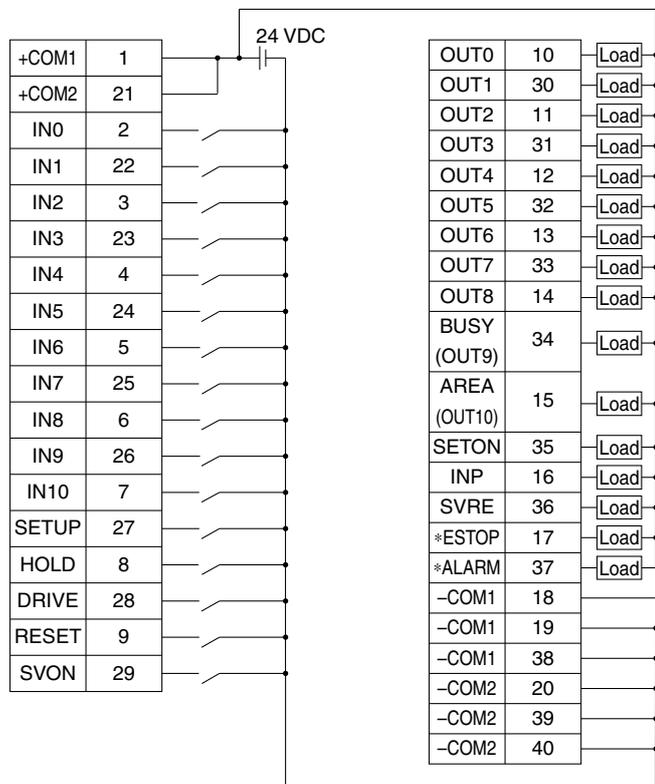
## Wiring Example 2

### Parallel I/O Connector

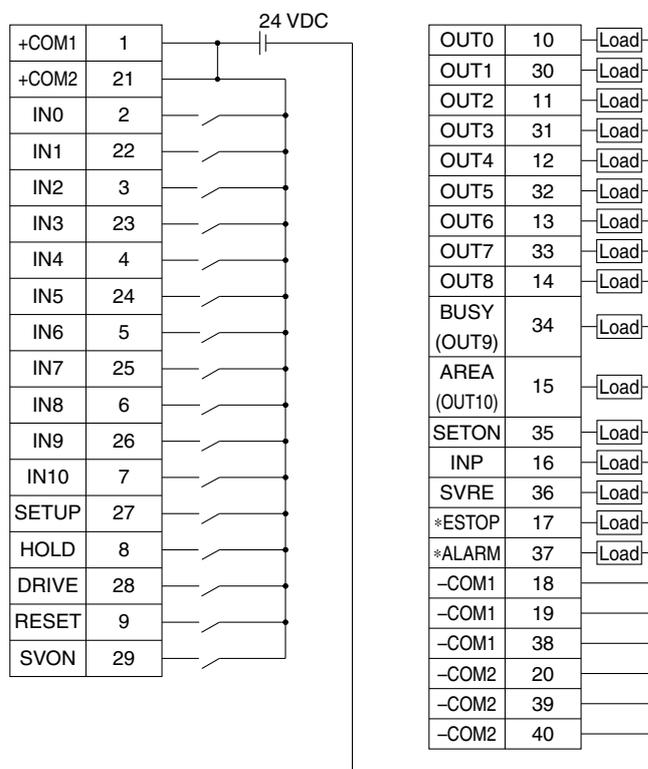
- \* When you connect a PLC to the I/O 1 or I/O 2 parallel I/O connector, use the I/O cable (JXC-C2-□).
- \* The wiring changes depending on the type of parallel I/O (NPN or PNP).

### 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	Temporarily stops operation
DRIVE	Instruction to drive
RESET	Resets alarm and interrupts operation
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	OFF when EMG stop is instructed
*ALARM*1	OFF when alarm is generated
-COM1 -COM2	Connects the power supply 0 V for input/output signal

\*1 Negative-logic circuit signal

# JXC73/83/92/93 Series

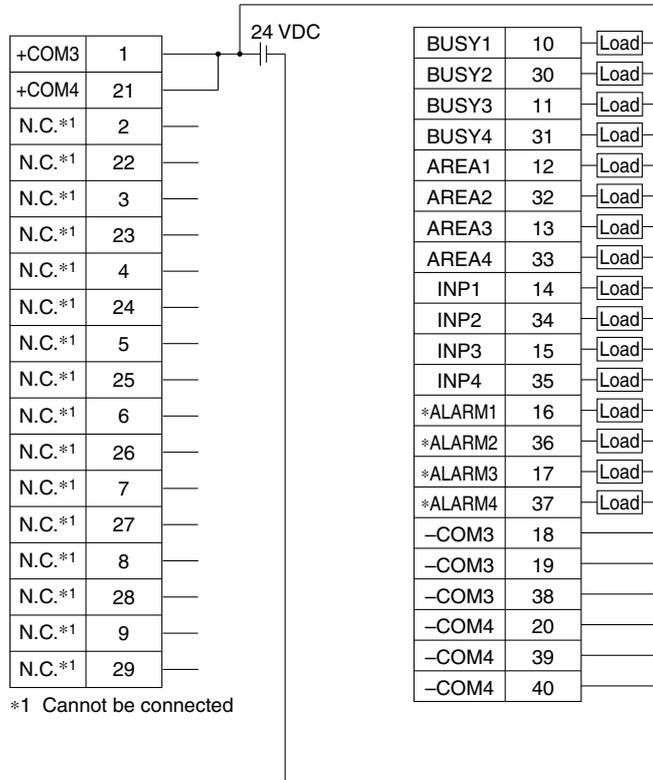
## Wiring Example 2

### 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 parallel I/O (NPN or PNP).

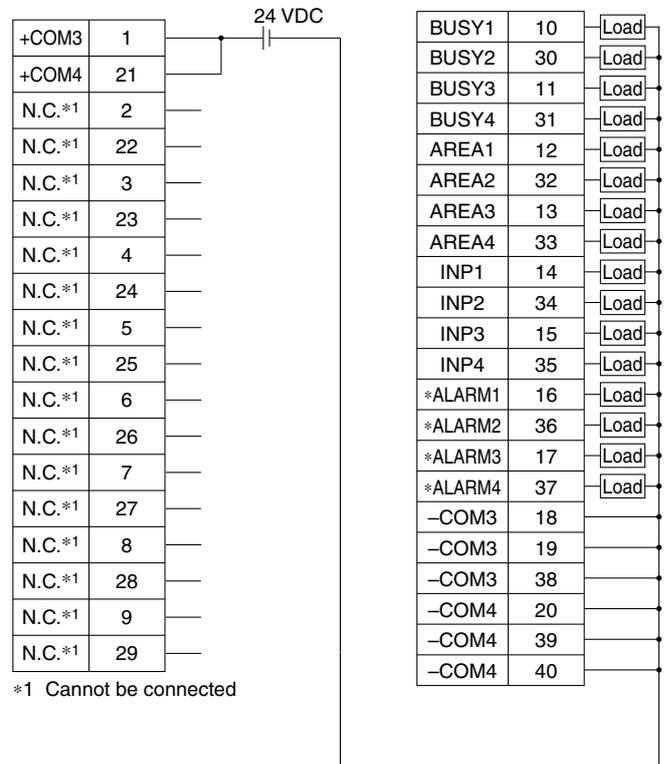
### I/O 2 Wiring example

#### NPN JXC73



\*1 Cannot be connected

#### PNP JXC83



\*1 Cannot be connected

### 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

## 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.)

For 4 Axes  
JXC73/83

### JXC - C2 -

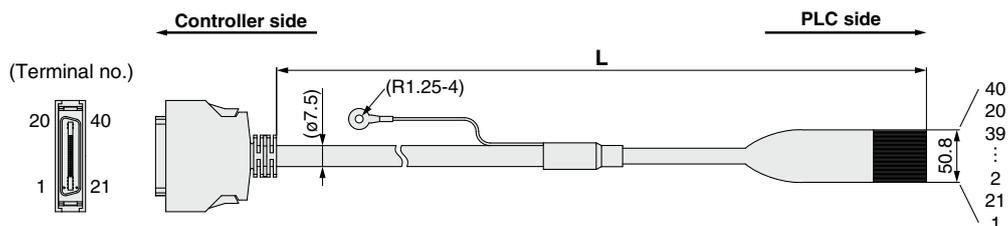
Cable length (L) [m]

1	1.5
3	3
5	5

Number of cores	40
AWG size	AWG28

#### Weight

Product no.	Weight [g]
JXC-C2-1	160
JXC-C2-3	300
JXC-C2-5	480



Pin no.	Wire color						
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	Gray (Black 1)	7	Gray (Black 2)	12	Gray (Black 3)	17	Gray (Black 4)
22	Gray (Red 1)	27	Gray (Red 2)	32	Gray (Red 3)	37	Gray (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)

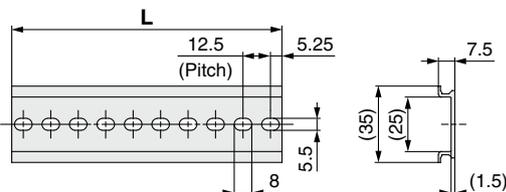
DIN rail

For 3 Axes  
JXC92

For 4 Axes  
JXC73/83/93

### AXT100 - DR -

\* For , enter a number from the No. line in the table below. Refer to the dimension drawings on pages 1080 and 1083 for the mounting dimensions.



#### L Dimensions

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 afterward.

# JXC73/83/92/93 Series

## Options

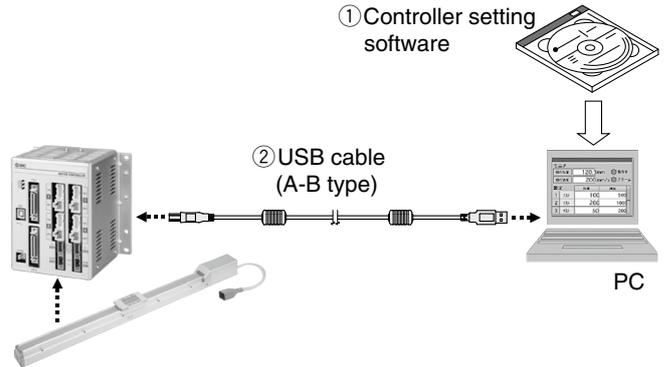
### Controller setting kit

For 4 Axes  
JXC73/83/93

### JXC-W1

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

① Controller setting software



## 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 (The same cable as the JXC-MA1-2)

- \* Can be ordered separately
- \* The controller setting software can also be downloaded from the SMC website.

## Hardware Requirements

### PC with Windows®7, Windows®8.1, or Windows®10 and USB1.1 or USB2.0 port

- \* Please download the USB driver for Windows®10 via our website: <https://www.smcworld.com>
- \* Windows®7, Windows®8.1, and Windows®10 are registered trademarks of Microsoft Corporation in the United States.

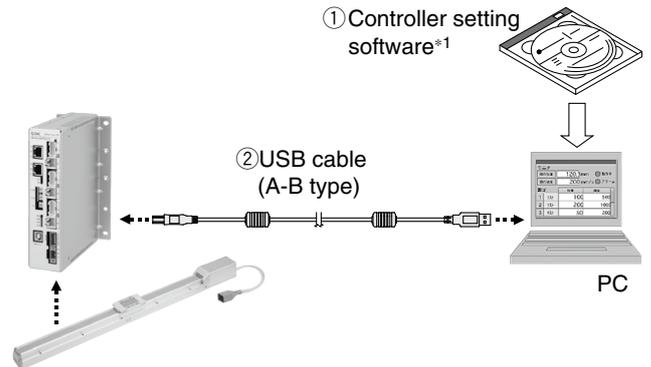
### Controller setting kit

For 3 Axes  
JXC92

### JXC-MA1\*1

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

① Controller setting software\*1



## 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 (The same cable as the JXC-W1-2)

- \* Can be ordered separately
- \* The controller setting software can also be downloaded from the SMC website.

## Hardware Requirements

### PC with Windows®7, Windows®8.1, or Windows®10 and USB1.1 or USB2.0 port

- \*1 The controller setting software also includes software dedicated for 4 axes.
- \* Please download the USB driver for Windows®10 via our website: <https://www.smcworld.com>
- \* Windows®7, Windows®8.1, and Windows®10 are registered trademarks of Microsoft Corporation in the United States.



# Actuator Cable 1

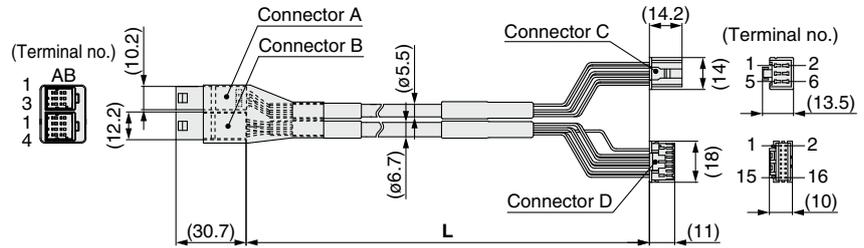
[Robotic cable for battery-less absolute (Step motor 24 VDC)]

## LE-CE-1

Cable length (L) [m]

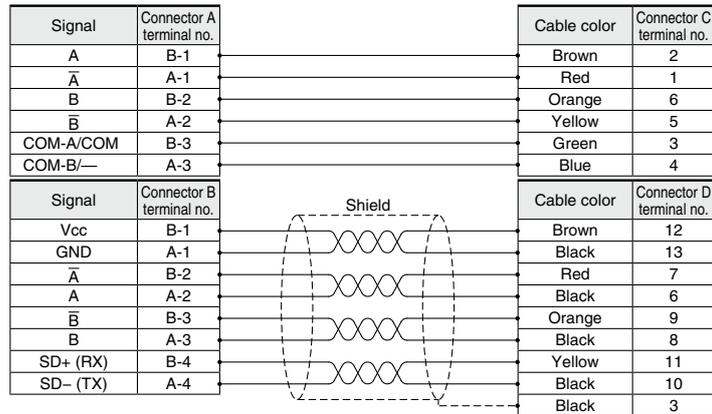
1	1.5
3	3
5	5
8	8*1
A	10*1
B	15*1
C	20*1

\*1 Produced upon receipt of order



### Weight

Product no.	Weight [g]	Note
LE-CE-1	190	Robotic cable
LE-CE-3	360	
LE-CE-5	570	
LE-CE-8	900	
LE-CE-A	1120	
LE-CE-B	1680	
LE-CE-C	2210	



[Robotic cable with lock for battery-less absolute (Step motor 24 VDC)]

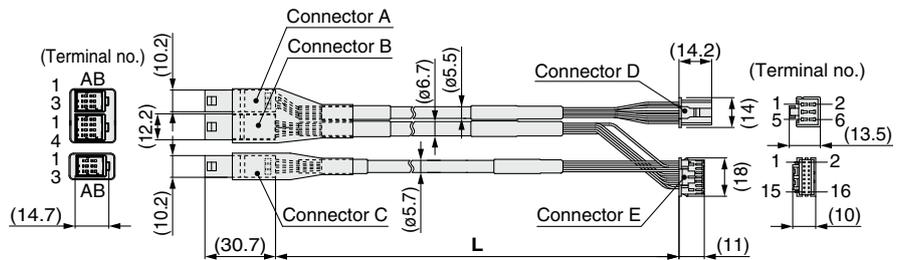
## LE-CE-1-B

Cable length (L) [m]

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

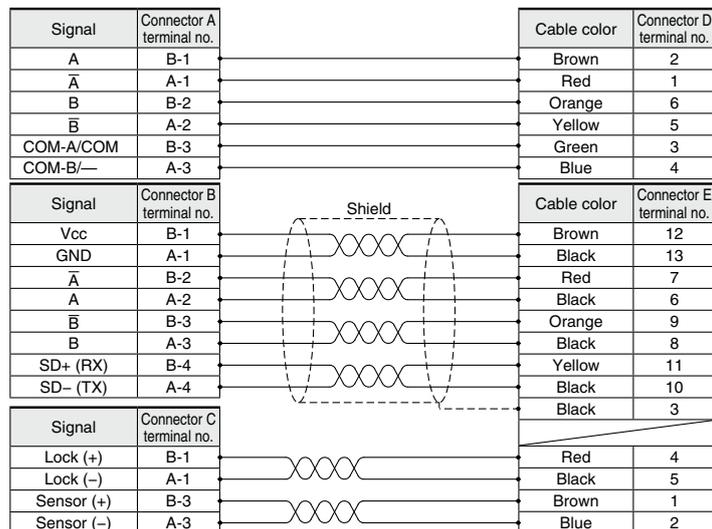
\*1 Produced upon receipt of order

With lock and sensor



### Weight

Product no.	Weight [g]	Note
LE-CE-1-B	240	Robotic cable
LE-CE-3-B	460	
LE-CE-5-B	740	
LE-CE-8-B	1170	
LE-CE-A-B	1460	
LE-CE-B-B	2120	
LE-CE-C-B	2890	



Compatible controllers

JXC LECPA

# Actuator Cable 2

[Robotic cable, standard cable for incremental (Step motor 24 VDC)]

LE-CP-1-□

LE-CP- $\frac{1}{5}$  $\frac{8}{3}$  $\frac{B}{AC}$ /Cable length: 1.5 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m

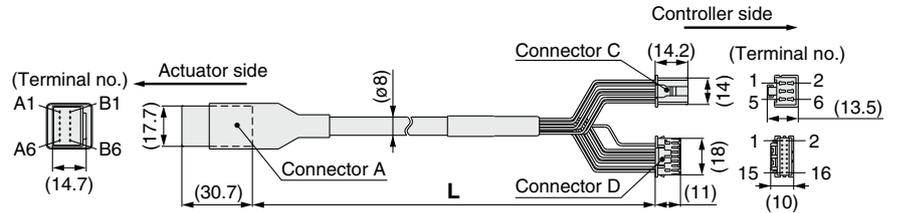
Cable length (L) [m]

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)

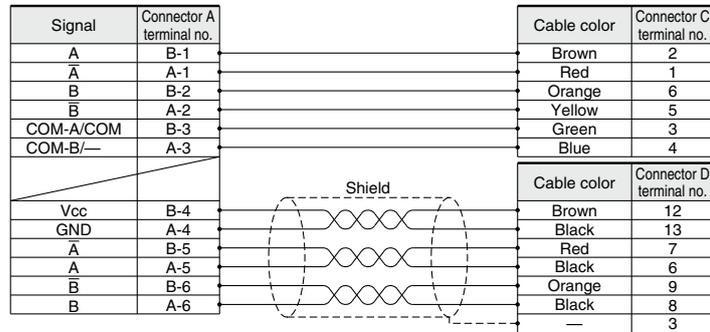
Cable type

Nil	Robotic cable (Flexible cable)
S	Standard cable



Weight

Product no.	Weight [g]	Note
LE-CP-1-S	190	Standard cable
LE-CP-3-S	280	
LE-CP-5-S	460	
LE-CP-1	140	Robotic cable
LE-CP-3	260	
LE-CP-5	420	
LE-CP-8	790	
LE-CP-A	980	
LE-CP-B	1460	
LE-CP-C	1940	



[Robotic cable, standard cable with lock and sensor for incremental (Step motor 24 VDC)]

LE-CP-1-B-□

LE-CP- $\frac{1}{5}$  $\frac{8}{3}$  $\frac{B}{AC}$ /Cable length: 1.5 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m

Cable length (L) [m]

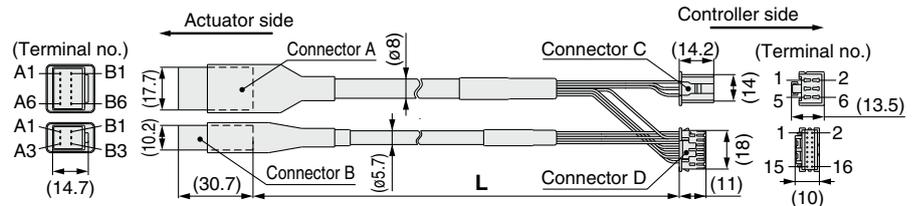
1	1.5
3	3
5	5
8	8*1
A	10*1
B	15*1
C	20*1

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

With lock and sensor

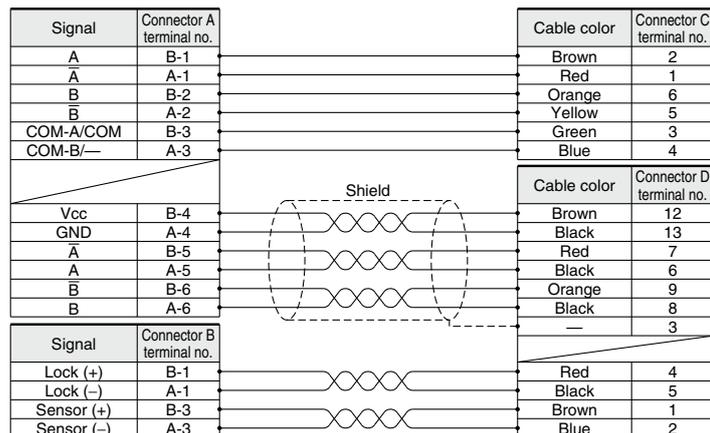
Cable type

Nil	Robotic cable (Flexible cable)
S	Standard cable



Weight

Product no.	Weight [g]	Note
LE-CP-1-B-S	240	Standard cable
LE-CP-3-B-S	380	
LE-CP-5-B-S	630	
LE-CP-1-B	190	Robotic cable
LE-CP-3-B	360	
LE-CP-5-B	590	
LE-CP-8-B	1060	
LE-CP-A-B	1320	
LE-CP-B-B	1920	
LE-CP-C-B	2620	



Compatible controller

LECA6

# Actuator Cable 3

[Robotic cable for incremental (Servo motor 24 VDC)]

LE-CA-1

Cable length (L) [m]

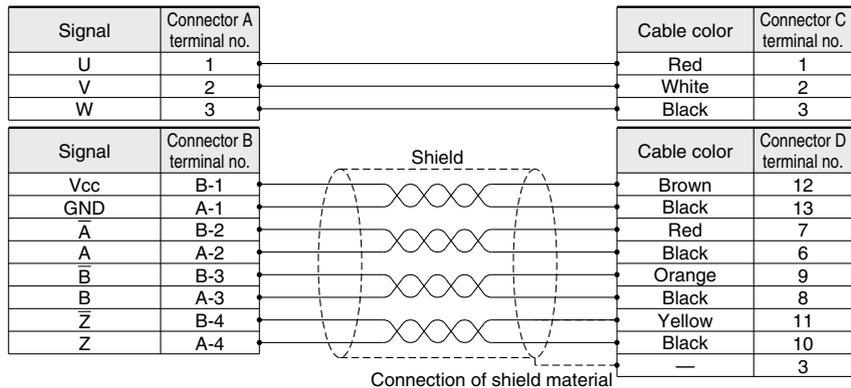
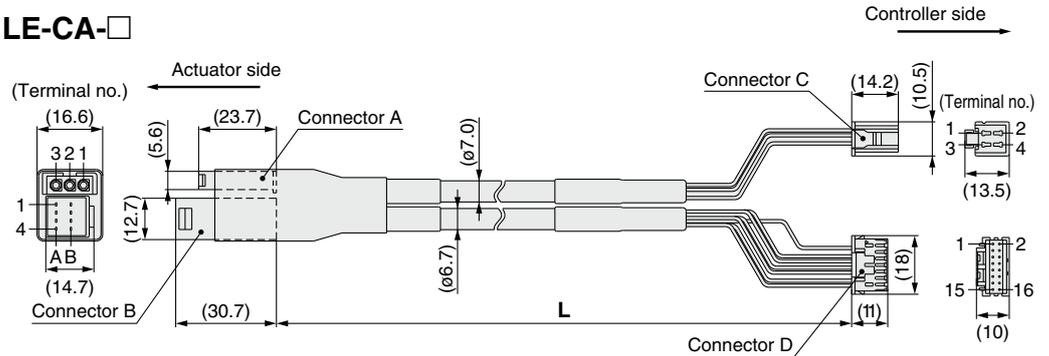
1	1.5
3	3
5	5
8	8*1
A	10*1
B	15*1
C	20*1

\*1 Produced upon receipt of order

Weight

Product no.	Weight [g]
LE-CA-1	220
LE-CA-3	420
LE-CA-5	700
LE-CA-8	1100
LE-CA-A	1370
LE-CA-B	2050
LE-CA-C	2720

LE-CA-□



[Robotic cable with lock and sensor for incremental (Servo motor 24 VDC)]

LE-CA-1-B

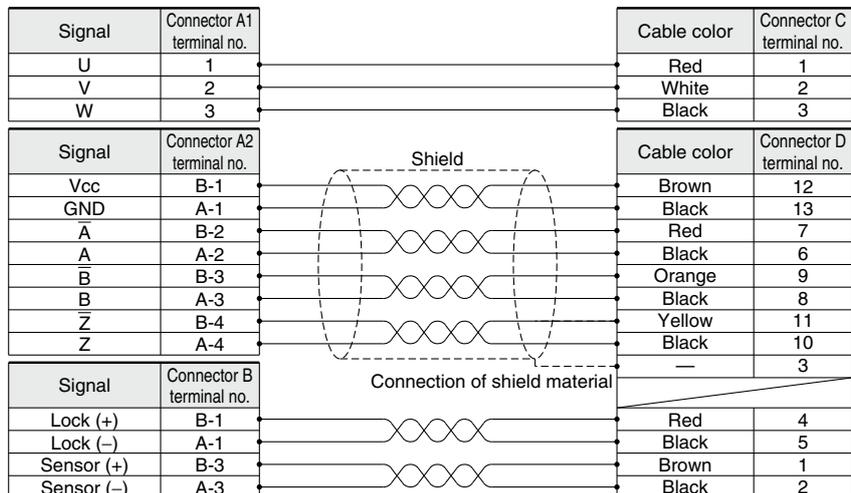
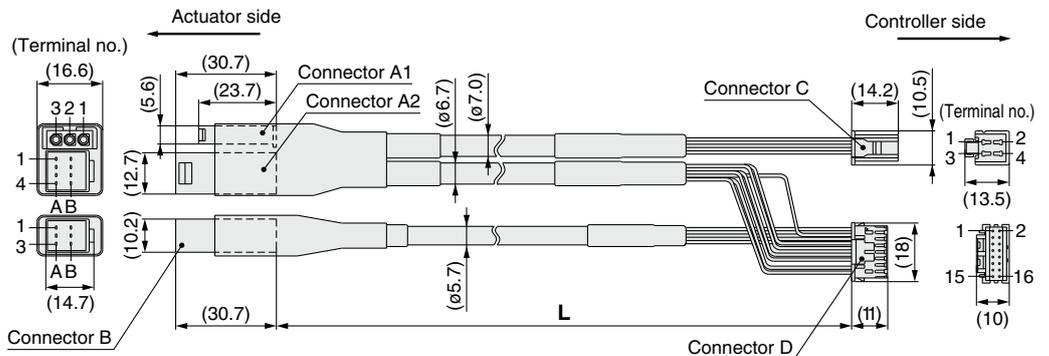
Cable length (L) [m]

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

With lock and sensor

LE-CA-□-B



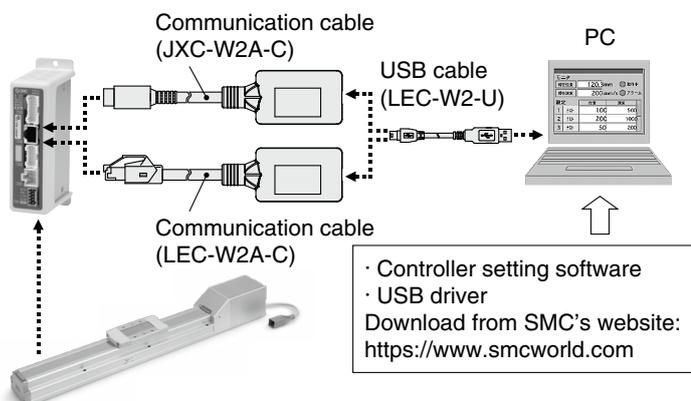
Compatible controllers

JXC□1 LECA6

LECPA

# JXC-W2A-C/LEC-W2□-□

## Communication Cable for Controller Setting



### How to Order

**JXC Series JXC-W2A-C**

\* For JXC□ series

**LEC Series LEC-W2A-C**

\* For LECPA, LECA6 series

**LEC-W2-U**

Communication cable

USB cable

### Controller setting kit JXC-W2A

A set which includes a communication cable (JXC-W2A-C) and a USB cable (LEC-W2-U)

### Compatible Controllers/Drivers

JXC51/61/E□/9□/P□/D1/L□/M1

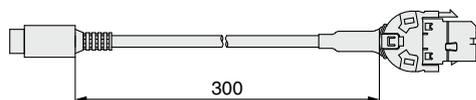
LECPA Series

LECA6 Series

\* The LECPA and LECA6 can only be connected with the LEC-W2A-C cable.

\* To connect the LEC-W2A-C to a JXCE1/91/P1/D1/L1 series product, use the conversion cable (P5062-5) as a relay.

### Conversion Cable P5062-5 (Cable length: 300 mm)



\* To connect the teaching box (LEC-T1-3□G□) or communication cable for controller setting (LEC-W2A-C) to the LECPA or JXC□ controller, a conversion cable is required.

Compatible controllers

JXC□1 LECA6

LECPA

# LEC-T1 Teaching Box



## How to Order



LEC-T1-3 J G □

Teaching box

Enable switch

Cable length [m]  
3 3

Nil	None
S	Equipped with enable switch

\* Interlock switch for jog and test function

Initial language

J	Japanese
E	English

Stop switch

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

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

## Specifications

### Standard functions

- Chinese character display
- Stop switch is provided.

### Option

- Enable switch is provided.

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)

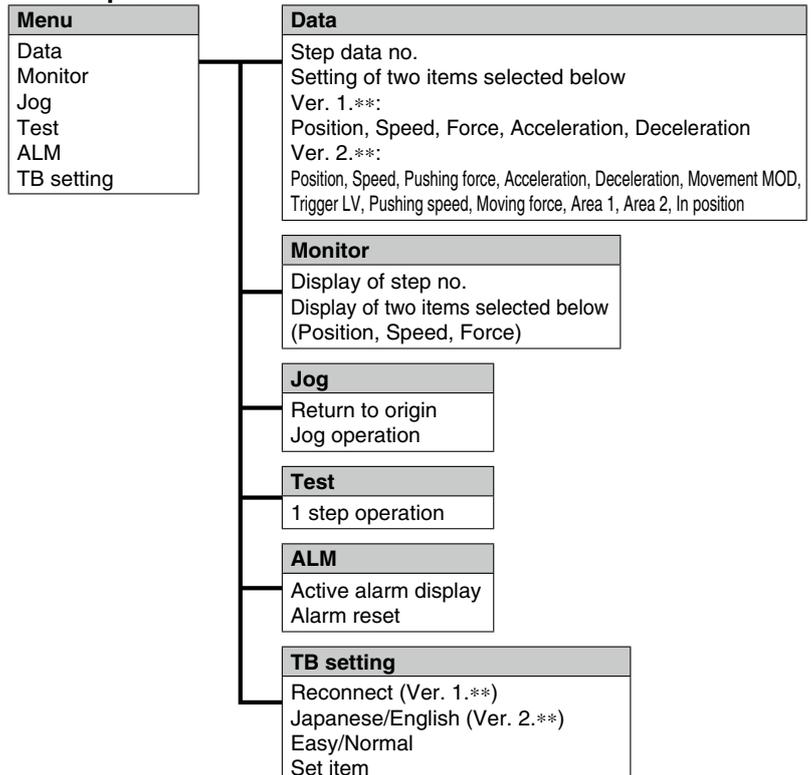
### [UL-compliant products]

When compliance with 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

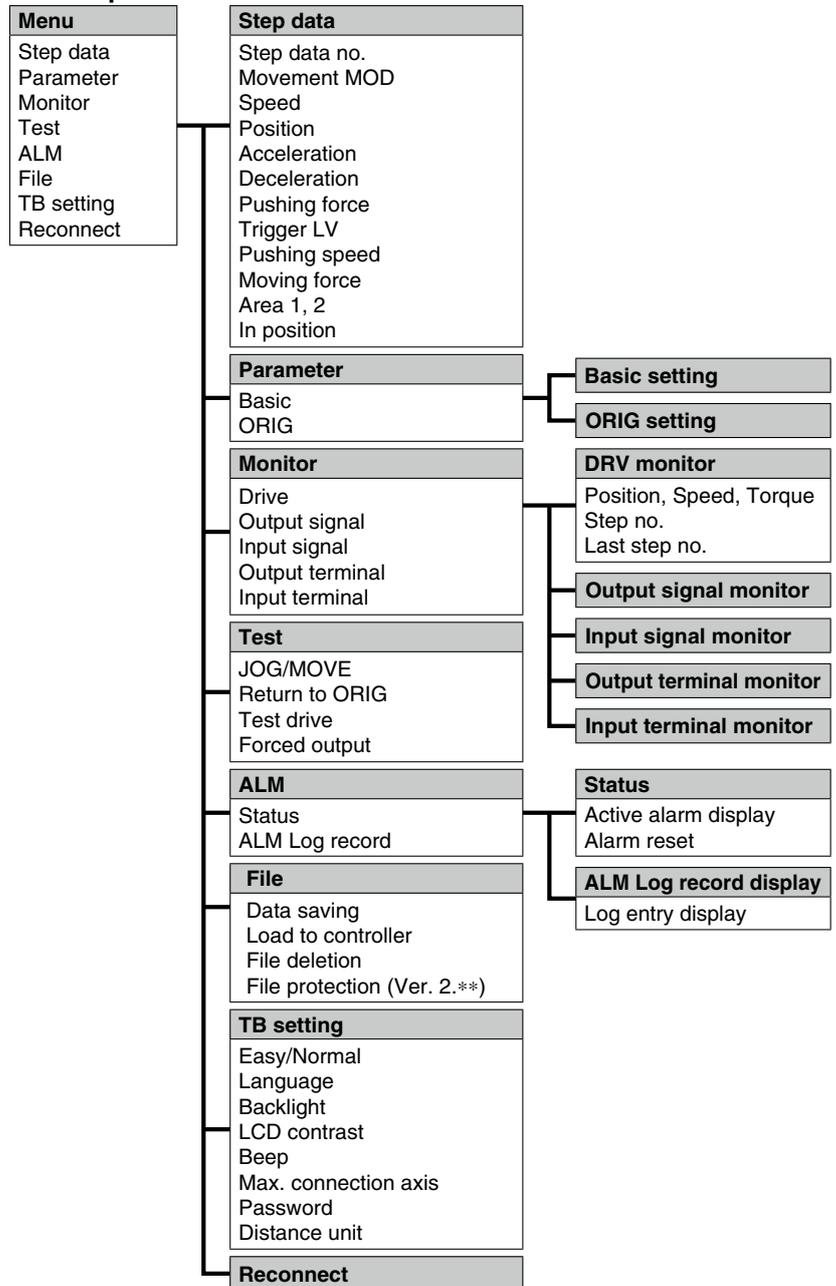
### Menu Operations Flowchart



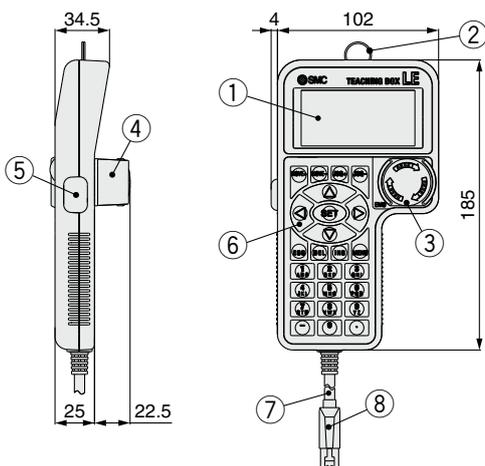
## Normal Mode

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

## Menu Operations Flowchart



## Dimensions



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

Compatible controller  
JXC□1

# JX-T1 Teaching Box



## Specifications

Items	Description
<b>Display screen specifications</b>	TFT color LCD/4.3 inches/488 x 272/16 million colors Analog resistive touch panel
<b>Power consumption</b>	6.9 W or less
<b>Operating temperature range</b>	0 to 45°C (No freezing)
<b>Operating humidity range</b>	10 to 90%RH (No condensation)
<b>Storage temperature range</b>	-10 to 60°C (No freezing)
<b>Storage humidity range</b>	10 to 90%RH (No condensation)
<b>Compatible languages</b>	Japanese, English
<b>Connected controller</b>	JXC□1/H/F series controller
<b>Data saving</b>	USB flash drive (FAT32)
<b>Standards</b>	CE/UKCA
<b>Weight</b>	Body only: 890 g With stop switch unit mounted: 1060 g
<b>Enclosure</b>	IP20

## How to Order

Teaching Box (Body)

**JX-T1**

Communication Cable (Option)

**JX-T1C-C**



### Connected model

Symbol	Description
<b>C</b>	For JXC□1/H/F connection (Not compatible with the stop switch)
<b>CG</b>	For JXC□1/H/F connection (Compatible with the stop switch)

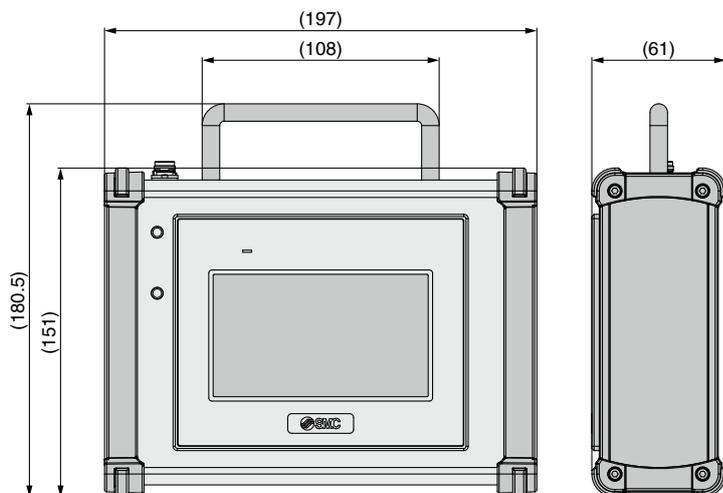
Stop Switch Unit (Option)

**JX-T1U**

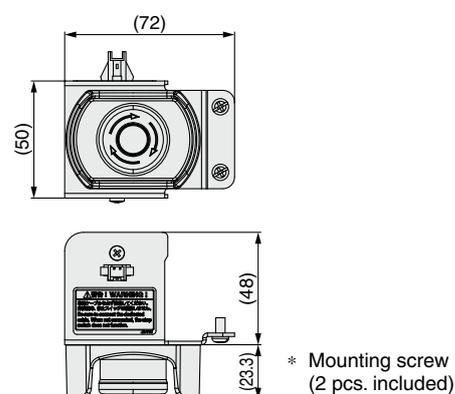
\* Mounting screw (2 pcs. included)

## Dimensions

Teaching box (Body)  
JX-T1



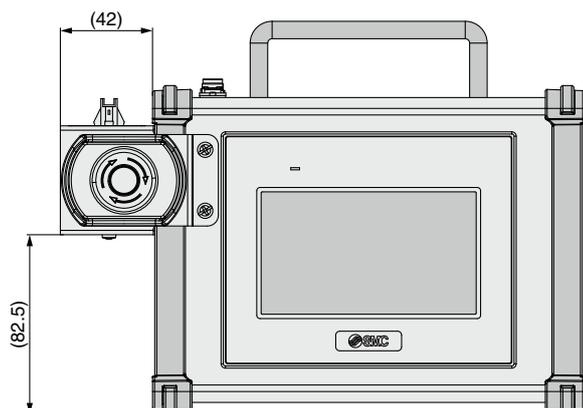
Stop switch unit  
JX-T1U



\* Mounting screw (2 pcs. included)

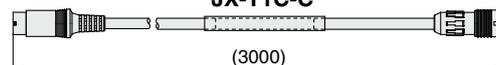
- \* When connecting the JXC series controller, if a stop switch unit is required, be sure to purchase it separately.
- \* The customer must mount the stop switch unit on the teaching box.
- \* When mounting the stop switch unit, the JX-TC-CG stop switch compatible communication cable is required. Be sure to purchase it separately.

Stop switch unit mounting



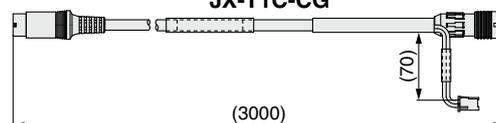
Communication cable for JXC series connection  
(Not compatible with the stop switch)

**JX-T1C-C**



Communication cable for JXC series connection  
(Compatible with the stop switch)

**JX-T1C-CG**



- \* When mounting the stop switch unit, the JX-TC-CG stop switch compatible communication cable is required. Be sure to purchase it separately.



Compatible actuators

LEKFS LEF□F LEF  
LEM LEL LEY  
LESYH LES

# LE-ML-P-X117

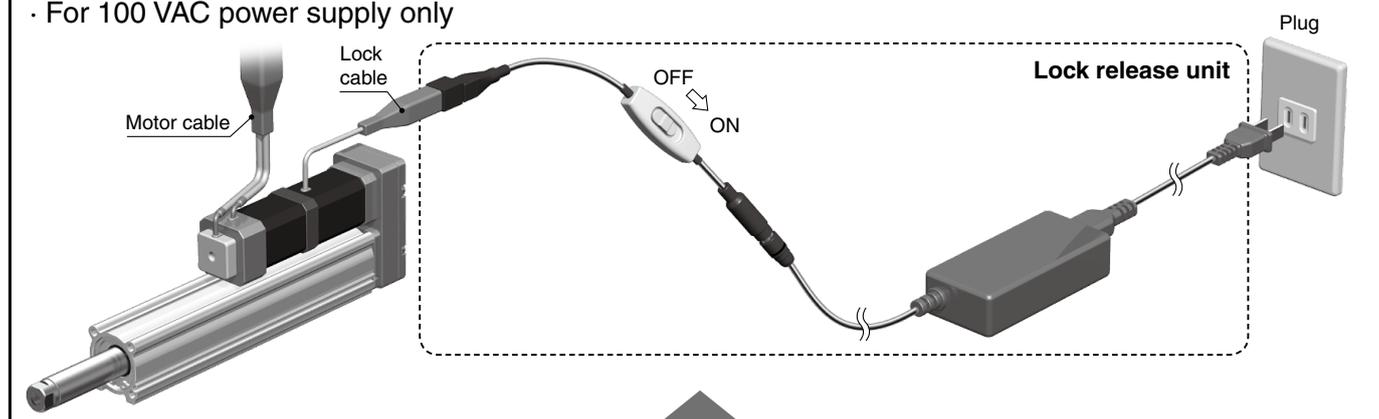
## Lock Release Unit/ Electric Actuator **With Lock** For the LE□ Series



**Lock release is only possible with 100 VAC power supply.**

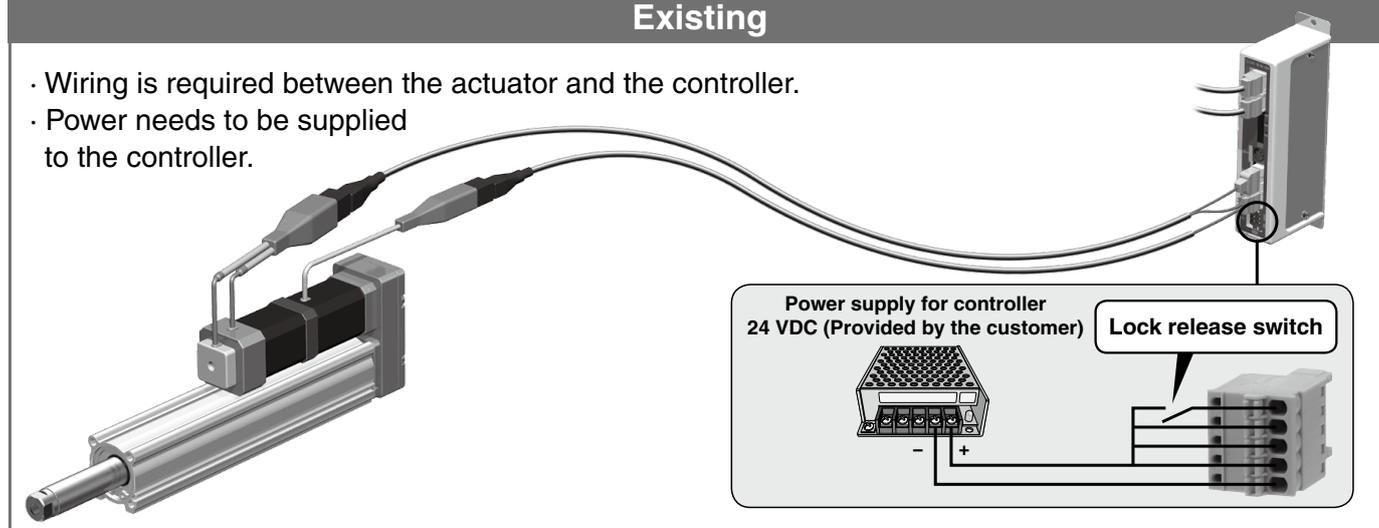
### For the lock release unit

- Wiring is **not required** between the actuator and the controller.
- For 100 VAC power supply only



### Existing

- Wiring is required between the actuator and the controller.
- Power needs to be supplied to the controller.

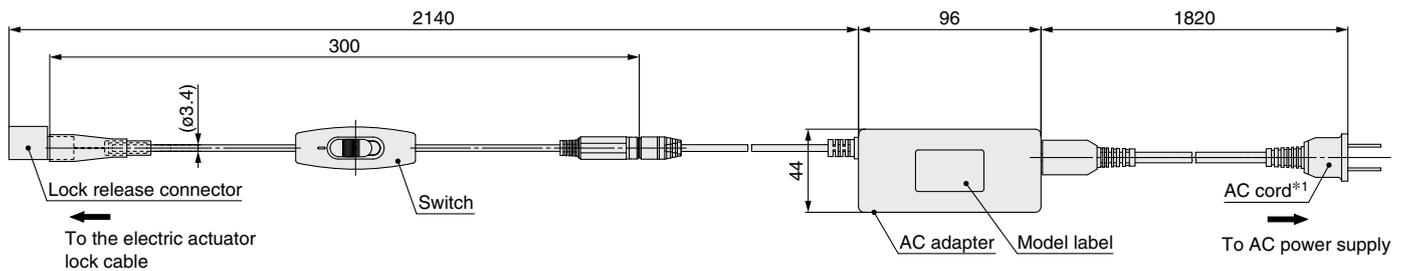


### Specifications

Model	LE-ML-P-X117
Compatible motor	Electric actuator with lock: LE series · Step motor (Servo/24 VDC) · Servo motor (24 VDC)
Input voltage [V]	100 to 125 VAC 50/60 Hz
Output voltage [V]	24 VDC
Output current [A]	1 A MAX
Standards	CE marking (EMC directive/RoHS directive)



## Dimensions



\*1 AC cord is only for use in Japan.  
(Rated voltage 125 V, Plug JIS C8303, Inlet IEC60320-C8)

## ⚠ Caution

### 1. Be sure to implement drop-prevention measures and confirm the safety of this unit before operation.

If the electric actuator lock is released with the product mounted vertically, the workpiece being held may drop due to its own weight.

### 2. This unit can only be used during electric actuator installation and maintenance, before the electric actuator and controller are connected. When connecting the electric actuator to the controller, remove this unit from the electric actuator, and be sure to connect the lock cable to the controller.

The lock release control of the electric actuator is conducted by the controller. Therefore, abnormal operation or malfunction may occur if the electric actuator is operated without the lock cable connected to the controller.