

# Step Motor Controller



- Parallel I/O
- Step motor (Servo/24 VDC)
- Number of step data: 64 points

Step data input type

**JXC51/61 Series**



- Step motor (Servo/24 VDC)
- Number of step data: 64 points

**New** A controller with STO sub-function has been added.



- Product certification obtained by a third party (EN 61508 SIL 3, EN 62061 SIL CL 3, EN ISO 13849-1 Cat. 3 PL e)
- EN 61800-5-2 STO (Safe Torque Off) function

**IO-Link**  
**JXCLF Series**



**EtherCAT**  
direct input type

**JXCE1 Series**

Applicable network

**EtherCAT**



**EtherNet/IP™**  
direct input type

**JXC91 Series**

Applicable network

**EtherNet/IP**



**PROFINET**  
direct input type

**JXCP1 Series**

Applicable network

**PROFINET**



**DeviceNet®**  
direct input type

**JXCD1 Series**

Applicable network

**DeviceNet**



**IO-Link**  
direct input type

**JXCL1 Series**

Applicable network

**IO-Link**



**CC-Link**  
direct input type

**JXCM1 Series**

Applicable network

**CC-Link**



**JXC Series**



CAT.ES100-141B

# Simple setting allows for immediate use!

## “Easy Mode” for simple setting

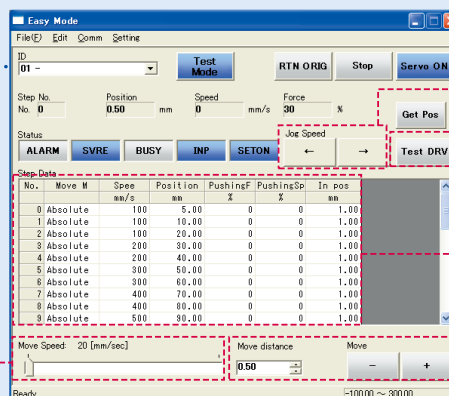
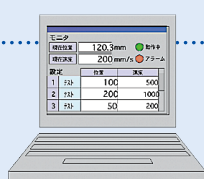
For immediate use, select “Easy Mode.”



JXC51/61

### <When a PC is used> Controller setting software

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



Setting of jog and speed of the constant rate

Jogging

Start testing

Step data setting

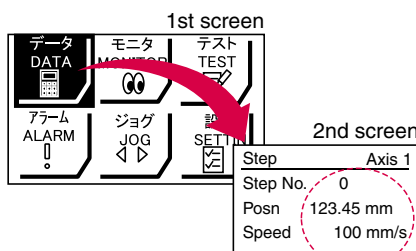
Move for the constant rate

### <When a TB (teaching box) is used>

- 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.

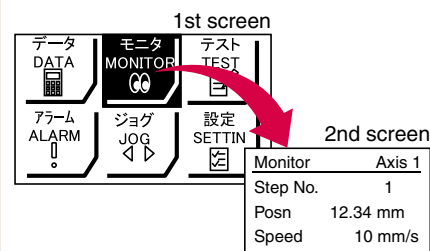


#### Example of setting the step data



After entering the values, they can be registered by pressing “SET.”

#### Example of checking the operation status



The operation status can be checked.

### 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 |

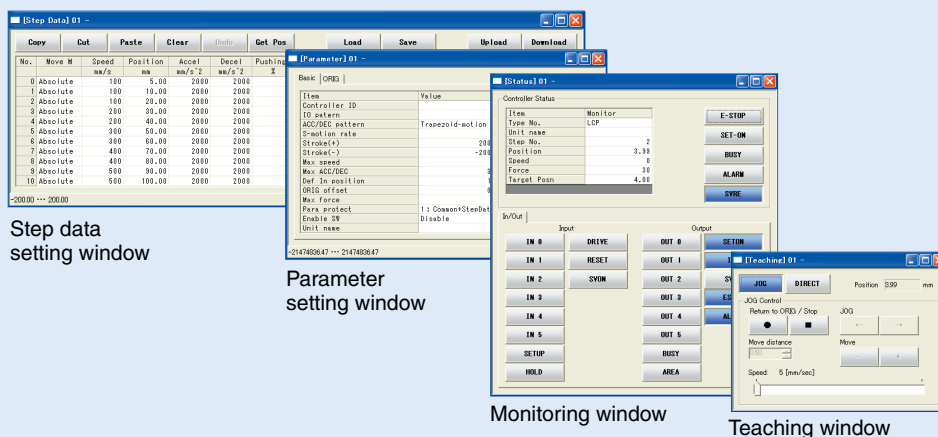
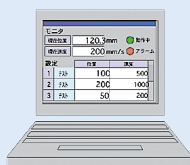
## ◎ “Normal Mode” for detailed setting

Select “Normal Mode” when detailed setting is required.

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

### <When a PC is used> Controller setting software

- Step data setting, parameter setting, monitoring, teaching, etc., are displayed in different windows.

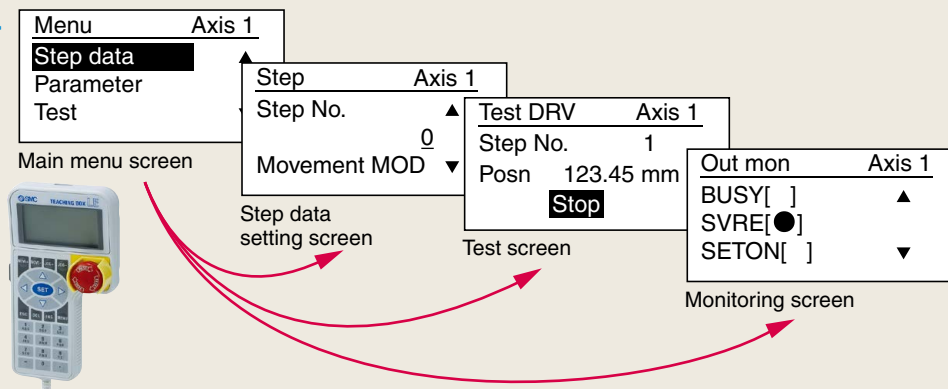


### <When a TB (teaching box) is used>

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

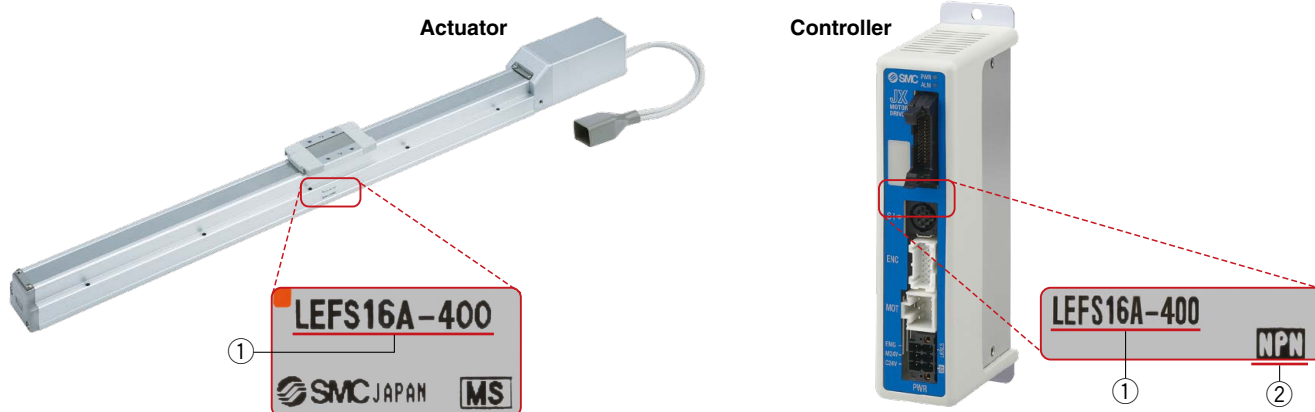


## The actuator and controller are provided as a set. (They can be ordered separately as well.)

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

# EtherCAT/EtherNet/IP™/PROFINET/ DeviceNet®/IO-Link/CC-Link Direct Input Type Step Motor Controller/JXC□ Series p. 18

Ether**CAT**®

EtherNet/IP®

**PROFI**  
**NET**

DeviceNet®

**IO-Link**

CC-Link



JXCE1



JXC91



JXCP1



JXCD1



JXCL1



JXCLF



JXCM1

With  
STO  
sub-  
function

### 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

Ether**CAT**®

EtherNet/IP®

**PROFI**  
**NET**

DeviceNet®

**IO-Link**

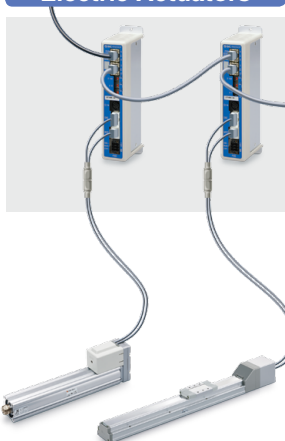
CC-Link



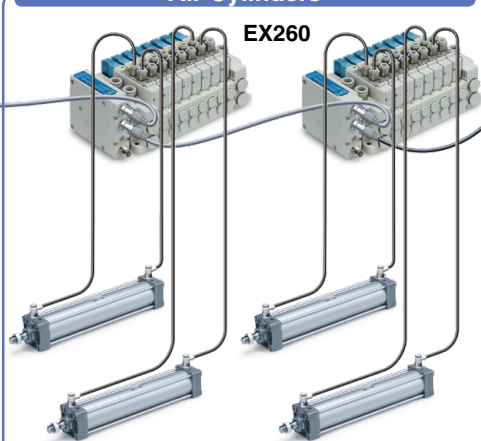
Both air and electric systems can be established under the same protocol.

Can be additionally installed in an existing network

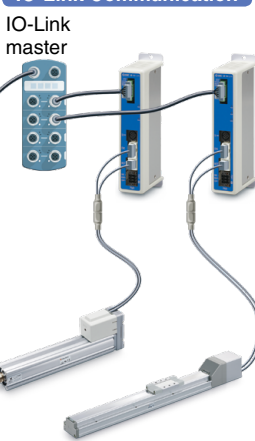
### Electric Actuators



### Air Cylinders



### IO-Link Communication



### <Applicable Electric Actuators>



High Rigidity and  
High Precision Slider Type  
LEKFS Series



Slider Type  
LEF Series



Low Profile Slider Type  
LEM Series



Guide Rod Slider  
LEL Series



Rod Type  
LEY/LEYG Series



Slide Table/High Precision Type  
LESYH Series



Slide Table  
LES/LESH Series



Miniature Type  
LEPY/LEPS Series



Gripper  
LEH Series

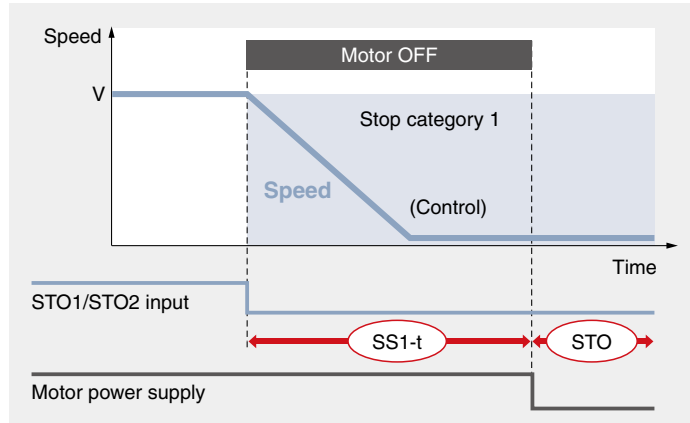


Rotary Table  
LER Series

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

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

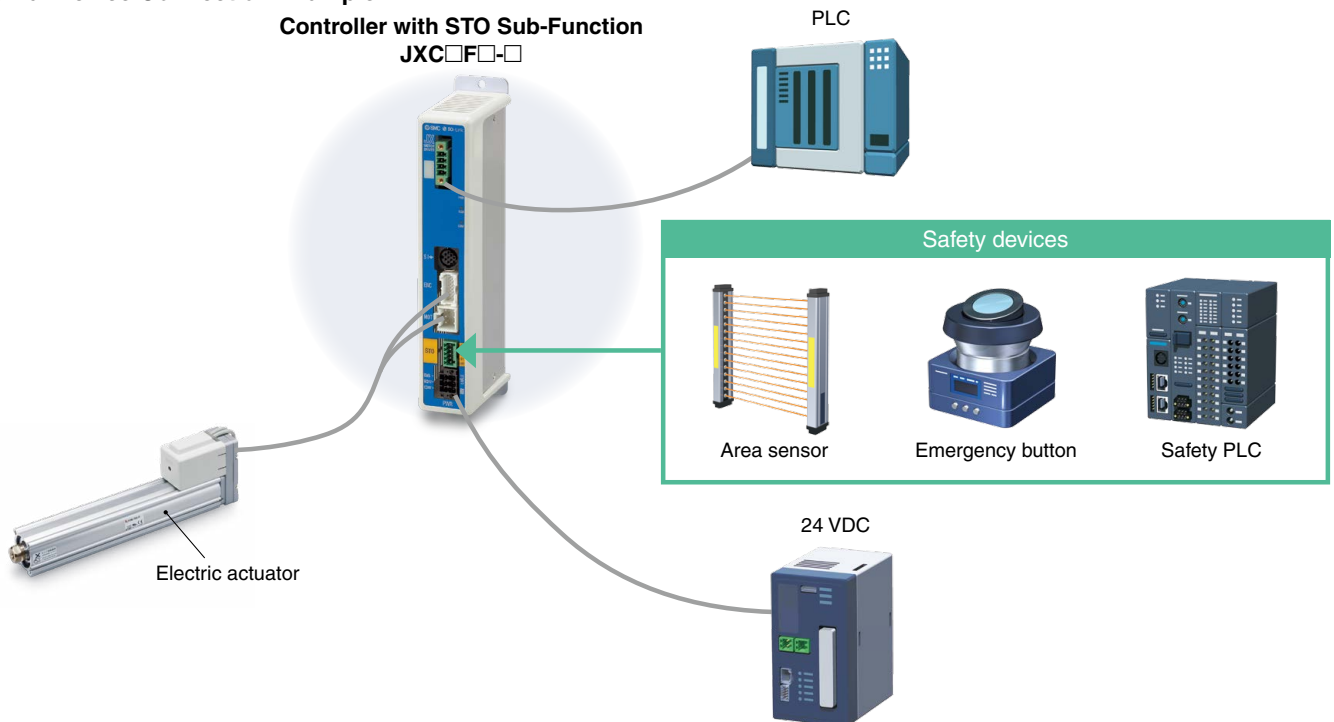
When the STO signal is input from the safety device, after the SS1-t operation is completed, the unit shifts to the STO operation and the power supply of the motor is turned OFF.



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



## Certified by a third-party organization

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



EN 61508 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.

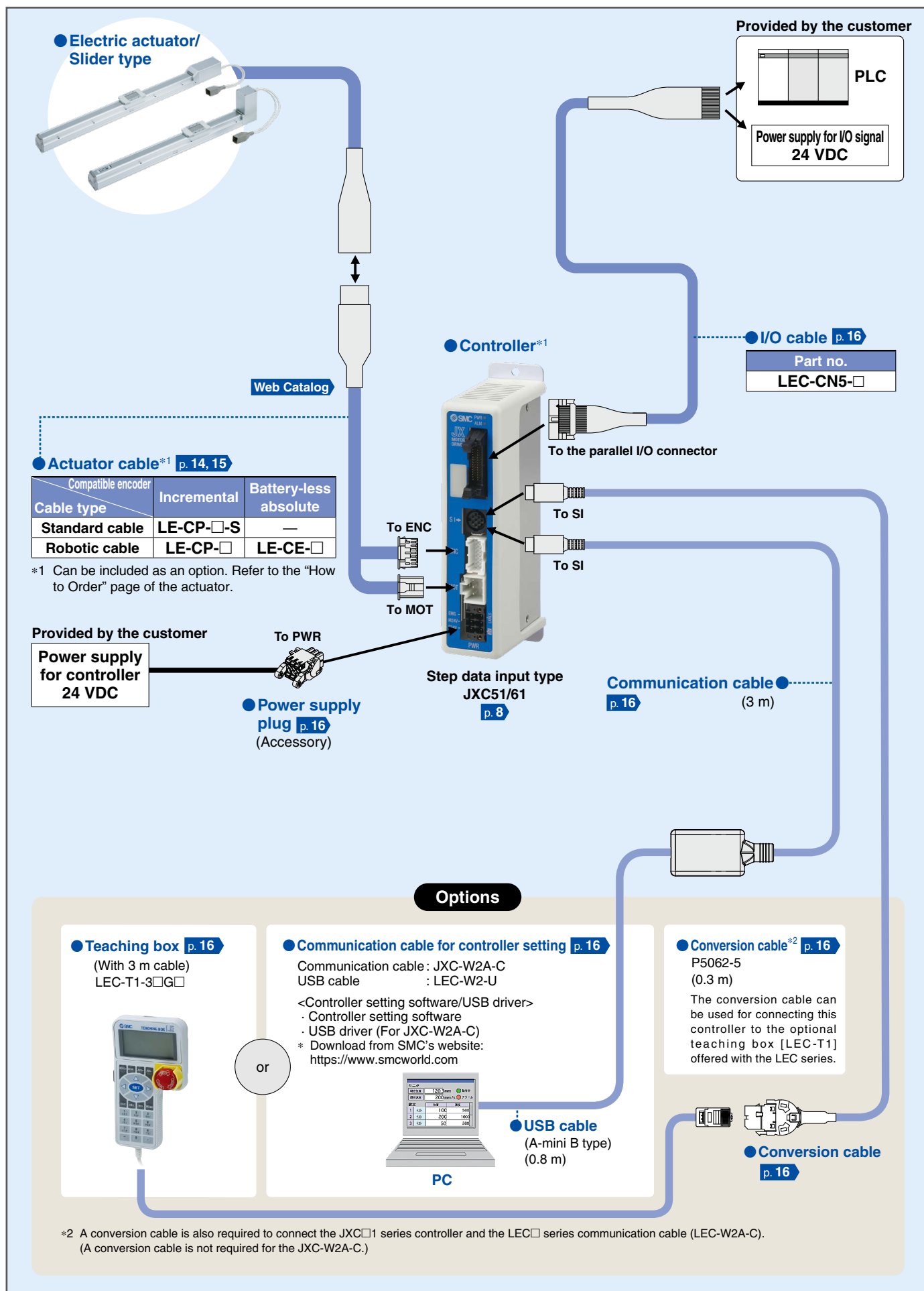
### PL (Performance Level)

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.

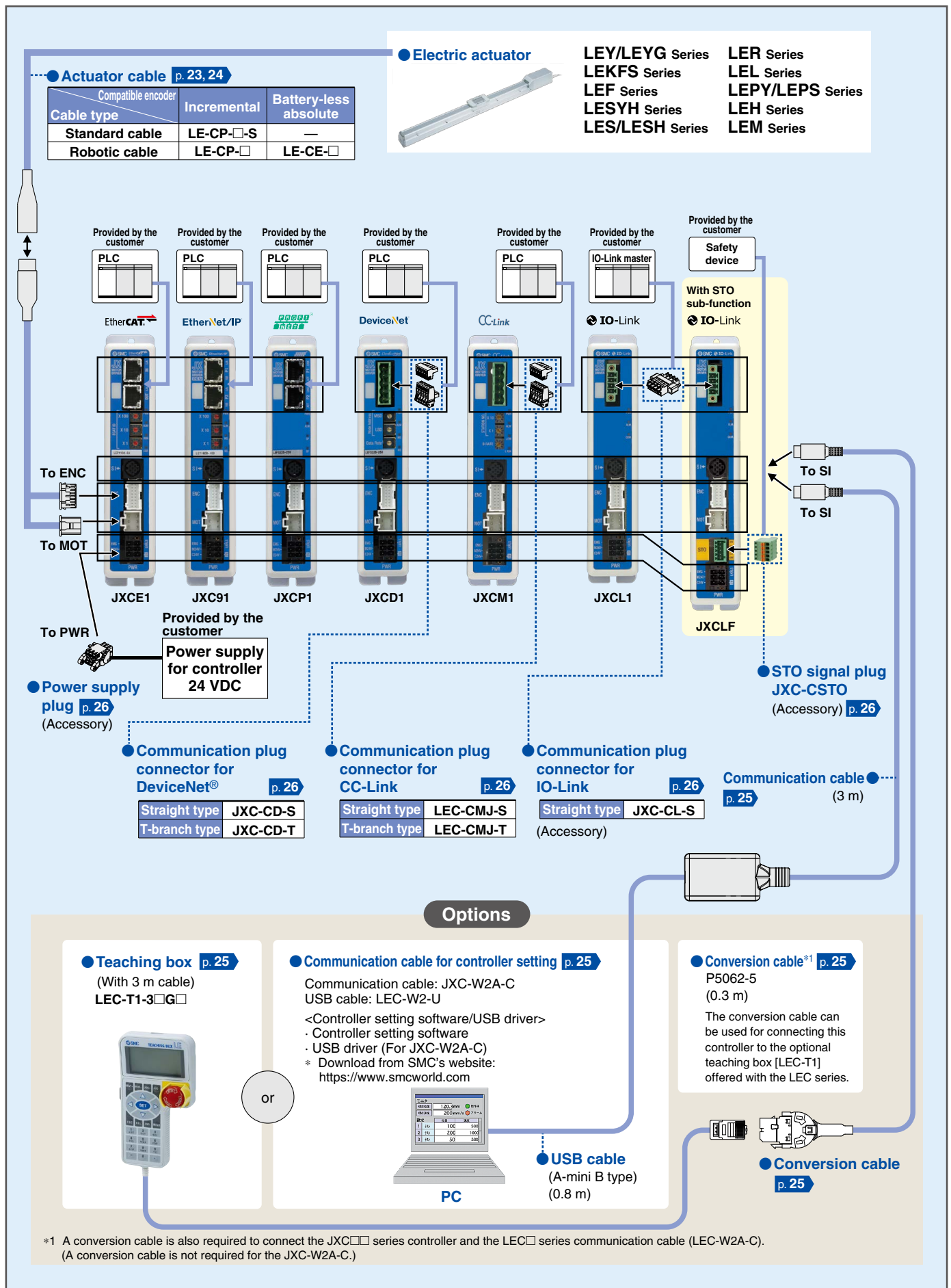
\*1 The above safety integrity level is the max. value. The achievable level varies depending on the configuration and inspection method of the component. Be sure to refer to "Safety Manual: JXC#-OMY0009" for more information.



## System Construction/General Purpose I/O



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



# CONTENTS

## Controller (Step Data Input Type) JXC51/61 Series



JXC51/61

|                               |       |
|-------------------------------|-------|
| How to Order .....            | p. 8  |
| Specifications .....          | p. 8  |
| How to Mount .....            | p. 9  |
| Dimensions .....              | p. 10 |
| Wiring Example .....          | p. 11 |
| Step Data Setting .....       | p. 12 |
| Signal Timing .....           | p. 13 |
| Actuator Cable .....          | p. 14 |
| Options: Actuator Cable ..... | p. 15 |
| Options .....                 | p. 16 |

## Step Motor Controller JXCE1/91/P1/D1/L□/M1 Series

EtherCAT<sup>®</sup> EtherNet/IP<sup>®</sup> PROFINET<sup>®</sup> DeviceNet<sup>®</sup>



JXCE1



JXC91



JXCP1



JXCD1

|                                    |       |
|------------------------------------|-------|
| How to Order .....                 | p. 18 |
| Specifications .....               | p. 19 |
| Example of Operation Command ..... | p. 19 |
| Dimensions .....                   | p. 20 |
| Actuator Cable .....               | p. 23 |
| Options: Actuator Cable .....      | p. 24 |
| Options .....                      | p. 25 |

IO-Link

CC-Link

IO-Link

With STO  
sub-function



JXCL1



JXCM1



JXCLF

|                                                                  |       |
|------------------------------------------------------------------|-------|
| Precautions Relating to Differences in Controller Versions ..... | p. 27 |
|------------------------------------------------------------------|-------|



# Controller (Step Data Input Type)

## JXC51/61 Series



### How to Order

JXC 5 1 7 1 -  

①      ②      ③      ④

#### 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

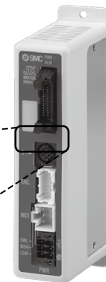
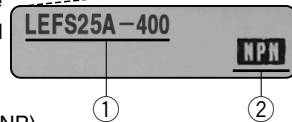
\*1 Requires dedicated software (JXC-BCW)

### 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.>

- 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).



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

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

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

**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>

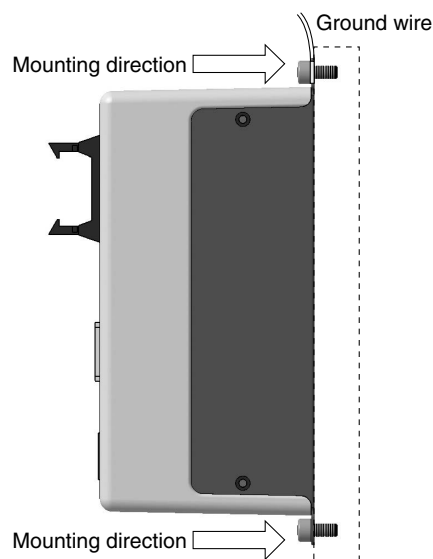
## Specifications

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

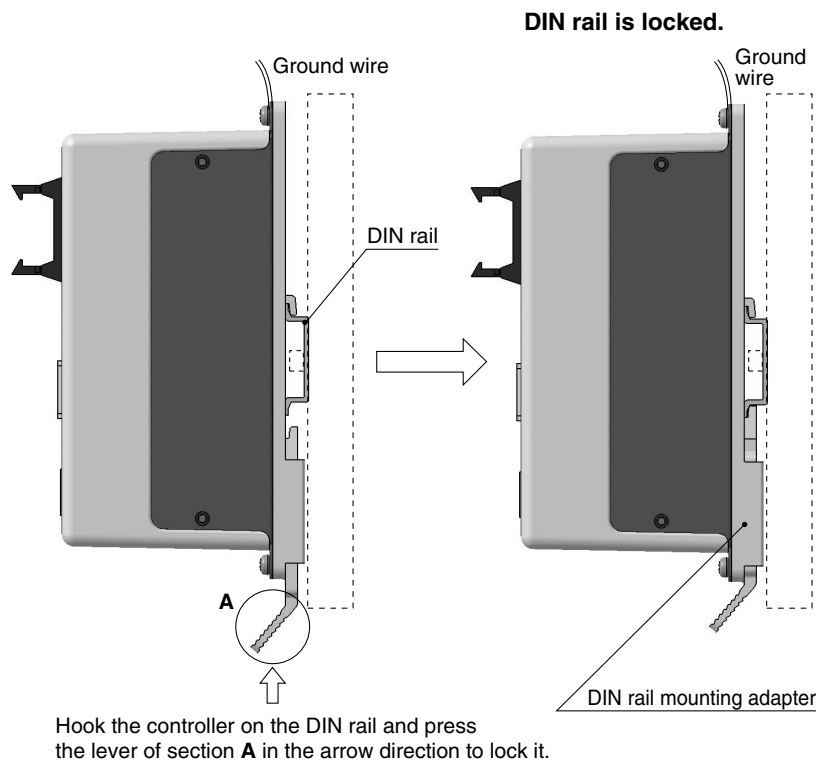
# JXC51/61 Series

## How to Mount

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



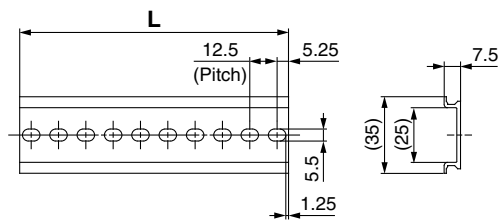
### b) DIN rail mounting (JXC□18□-□) (Installation with the DIN rail)



\* 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 10 for the mounting dimensions.



#### L Dimensions [mm]

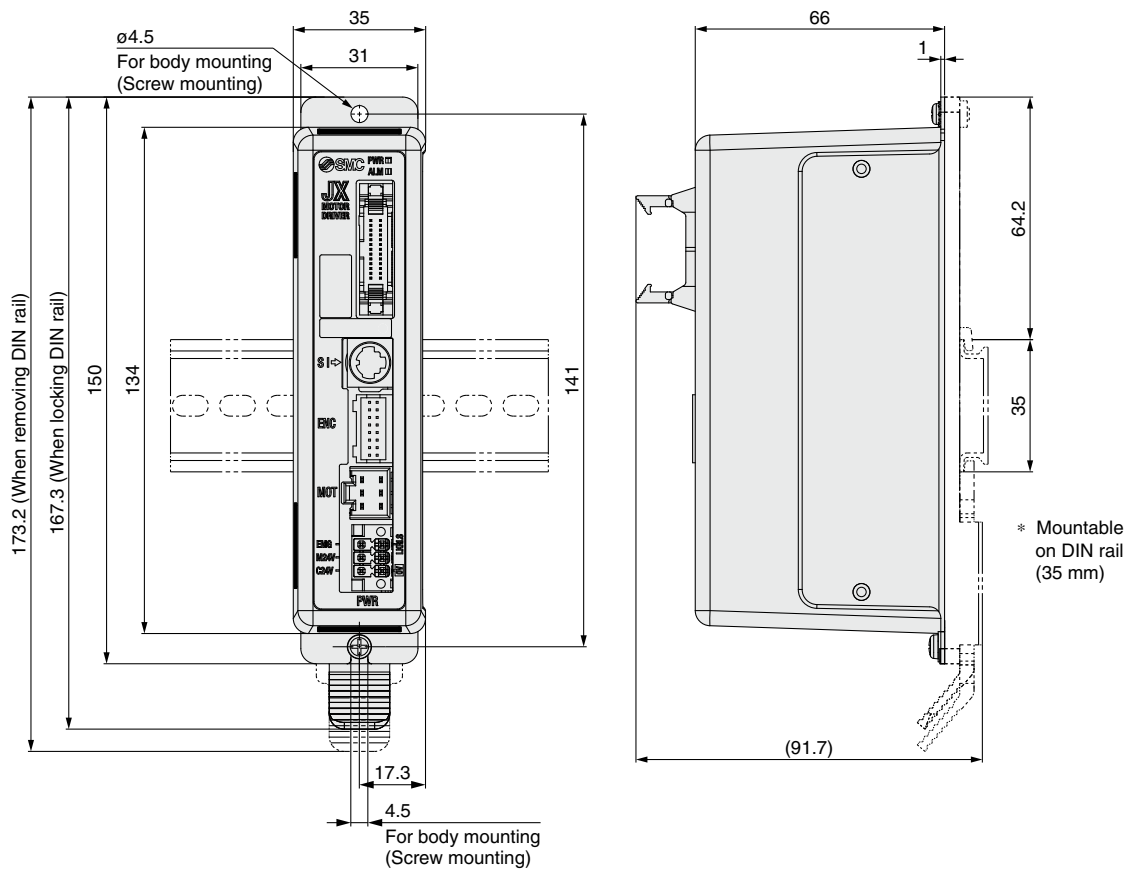
| No. | 1  | 2    | 3  | 4    | 5  | 6    | 7  | 8     | 9   | 10    | 11  | 12    | 13  | 14    | 15  | 16    | 17  | 18    | 19  | 20    |
|-----|----|------|----|------|----|------|----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| L   | 23 | 35.5 | 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-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**



JXC51/61 Series

JXCE1/91/P1/D1/L□/M1 Series

# JXC51/61 Series

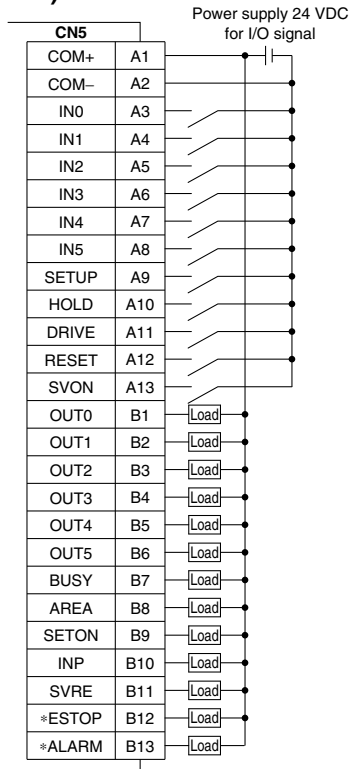
## Wiring Example

### 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

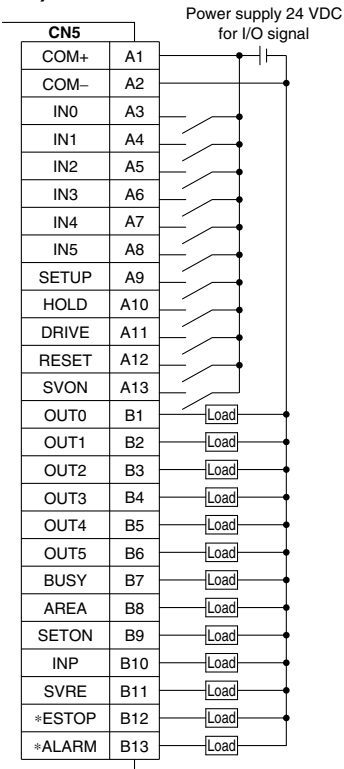
##### JXC51□□-□ (NPN)



#### 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.<br>(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                                                        |

##### JXC61□□-□ (PNP)



#### 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<br>(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                                                                                         |

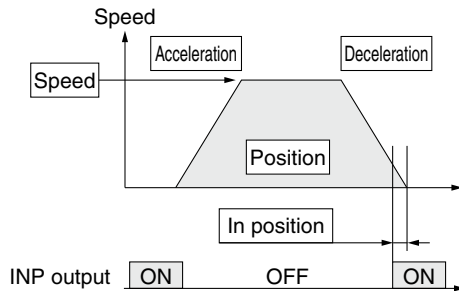
\*<sup>1</sup> Signal of negative-logic circuit (N.C.)

## 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.

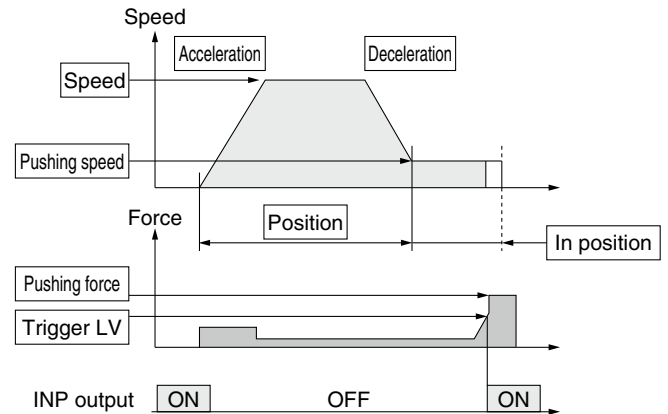
#### Step Data (Positioning)

| 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.<br>(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<br>(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.

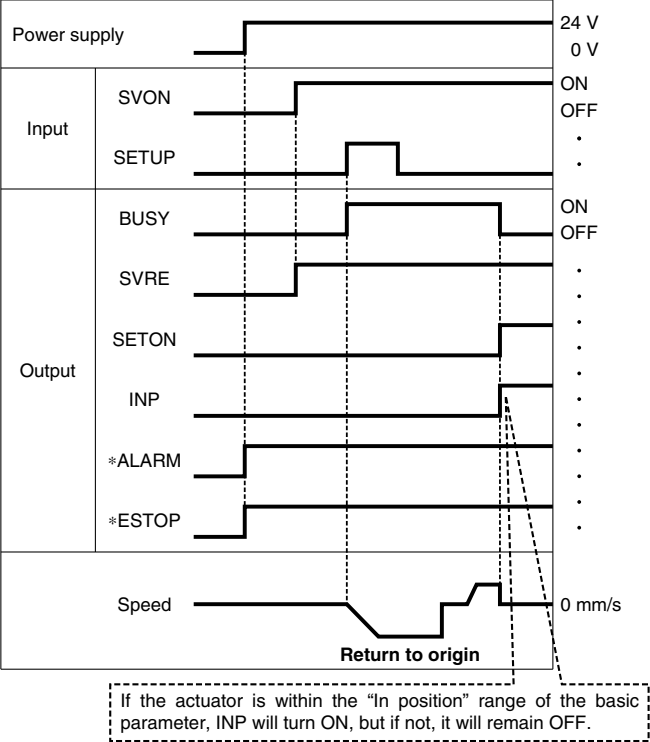
#### Step Data (Pushing)

| 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.<br>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.<br>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<br>(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.                                                      |



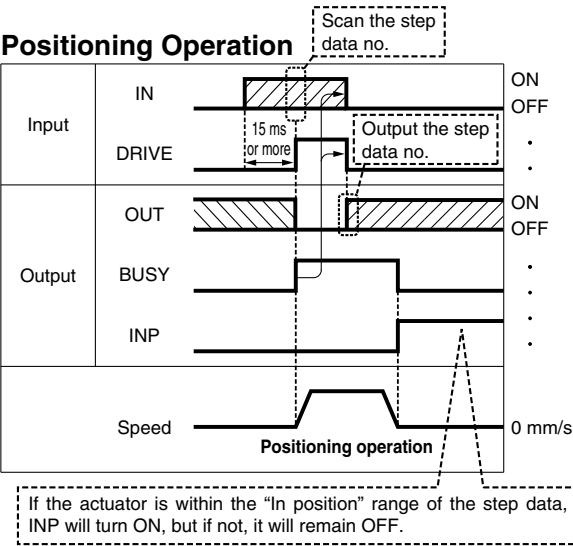
Signal Timing

Return to Origin



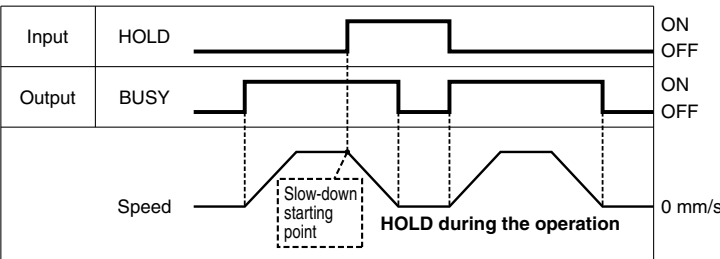
\* \*ALARM and \*ESTOP are expressed as negative-logic circuits.

Positioning Operation



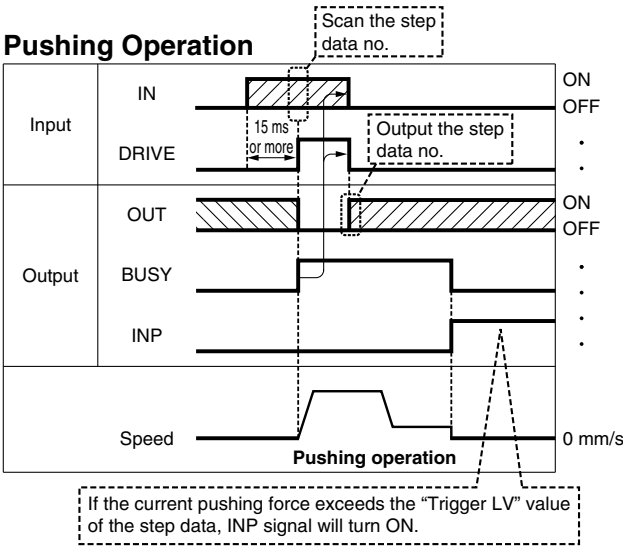
\* "OUT" is output when "DRIVE" is changed from ON to OFF.  
Refer to the operation manual for details on the controller for the LEM series.  
(When power supply is applied, "DRIVE" or "RESET" is turned ON or  
\*ESTOP is turned OFF, all of the "OUT" outputs are OFF.)

HOLD

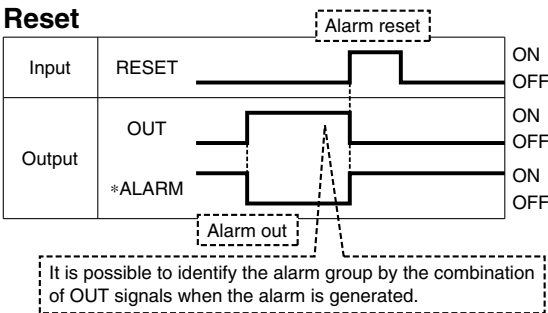


\* When the actuator is within the "In position" range in the pushing operation, it does not stop even if HOLD signal is input.

Pushing Operation



Reset



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

## Actuator Cable

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

**LE-CP-1-** 1 -  

Cable length (L) [m]

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

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

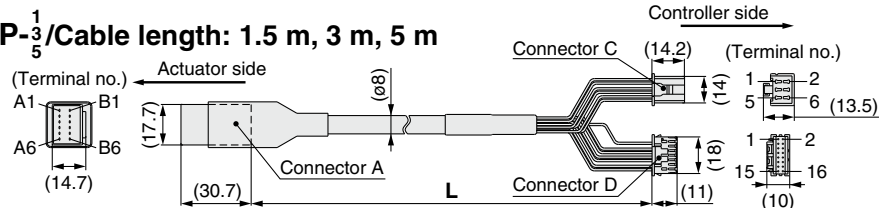
**Cable type**

|     |                                |
|-----|--------------------------------|
| Nil | Robotic cable (Flexible cable) |
| S   | Standard cable                 |

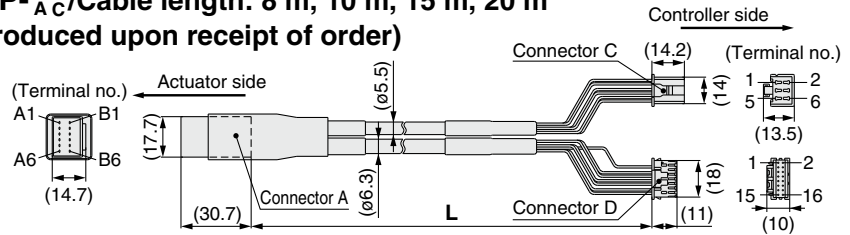
### Weight

| 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       |                |

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



**LE-CP- $\frac{8}{A}$** /Cable length: 8 m, 10 m, 15 m, 20 m  
(\*1 Produced upon receipt of order)



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

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

**LE-CP-1-B-** 1 - B -  

Cable length (L) [m]

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

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

**With lock and sensor**

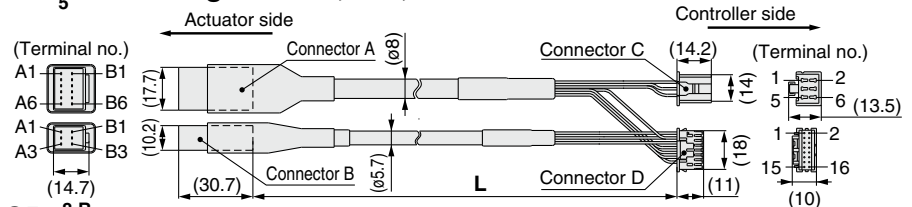
**Cable type**

|     |                                |
|-----|--------------------------------|
| Nil | Robotic cable (Flexible cable) |
| S   | Standard cable                 |

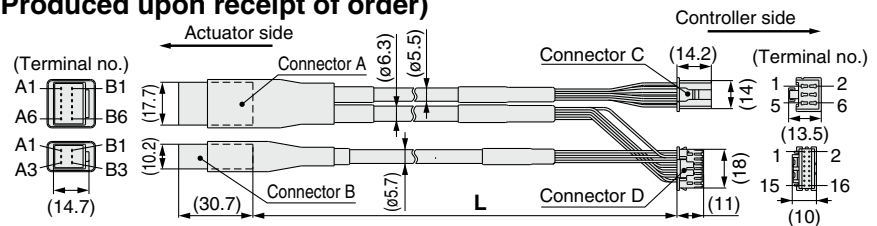
### Weight

| 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       |                |

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



**LE-CP- $\frac{8}{A}$** /Cable length: 8 m, 10 m, 15 m, 20 m  
(\*1 Produced upon receipt of order)



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

# JXC51/61 Series

## Options: Actuator Cable

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

### LE-CE-1

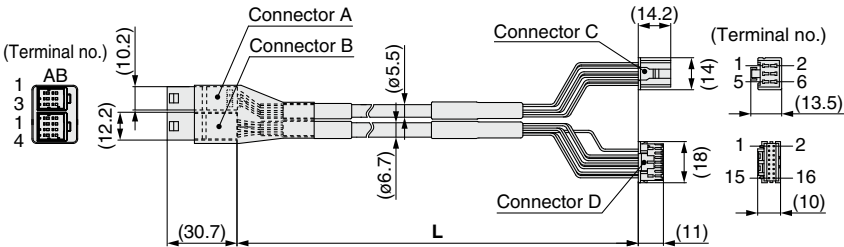
Cable length (L) [m]

|   |      |
|---|------|
| 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       |               |



| Signal    | Connector A terminal no. | Cable color | Connector C terminal no. |
|-----------|--------------------------|-------------|--------------------------|
| A         | B-1                      | Brown       | 2                        |
| $\bar{A}$ | A-1                      | Red         | 1                        |
| B         | B-2                      | Orange      | 6                        |
| $\bar{B}$ | A-2                      | Yellow      | 5                        |
| COM-A/COM | B-3                      | Green       | 3                        |
| COM-B/—   | A-3                      | Blue        | 4                        |

| Signal    | Connector B terminal no. | Cable color | Connector D terminal no. |
|-----------|--------------------------|-------------|--------------------------|
| Vcc       | B-1                      | Brown       | 12                       |
| GND       | A-1                      | Black       | 13                       |
| $\bar{A}$ | B-2                      | Red         | 7                        |
| A         | A-2                      | Black       | 6                        |
| $\bar{B}$ | B-3                      | Orange      | 9                        |
| B         | A-3                      | Black       | 8                        |
| SD+ (RX)  | B-4                      | Yellow      | 11                       |
| SD- (TX)  | A-4                      | Black       | 10                       |
|           |                          | Black       | 3                        |

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

### LE-CE-1-B

Cable length (L) [m]

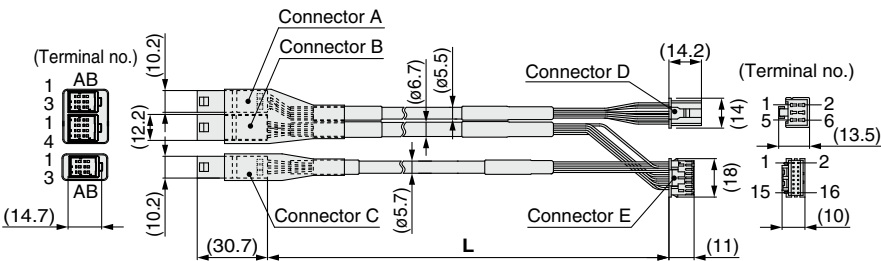
|   |      |
|---|------|
| 1 | 1.5  |
| 3 | 3    |
| 5 | 5    |
| 8 | 8*1  |
| A | 10*1 |
| B | 15*1 |
| C | 20*1 |

\*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       |               |



| Signal    | Connector A terminal no. | Cable color | Connector D terminal no. |
|-----------|--------------------------|-------------|--------------------------|
| A         | B-1                      | Brown       | 2                        |
| $\bar{A}$ | A-1                      | Red         | 1                        |
| B         | B-2                      | Orange      | 6                        |
| $\bar{B}$ | A-2                      | Yellow      | 5                        |
| COM-A/COM | B-3                      | Green       | 3                        |
| COM-B/—   | A-3                      | Blue        | 4                        |

| Signal    | Connector B terminal no. | Cable color | Connector E terminal no. |
|-----------|--------------------------|-------------|--------------------------|
| Vcc       | B-1                      | Brown       | 12                       |
| GND       | A-1                      | Black       | 13                       |
| $\bar{A}$ | B-2                      | Red         | 7                        |
| A         | A-2                      | Black       | 6                        |
| $\bar{B}$ | B-3                      | Orange      | 9                        |
| B         | A-3                      | Black       | 8                        |
| SD+ (RX)  | B-4                      | Yellow      | 11                       |
| SD- (TX)  | A-4                      | Black       | 10                       |
|           |                          | Black       | 3                        |

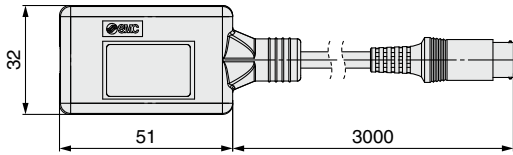
  

| Signal     | Connector C terminal no. | Cable color | Connector E terminal no. |
|------------|--------------------------|-------------|--------------------------|
| Lock (+)   | B-1                      | Red         | 4                        |
| Lock (-)   | A-1                      | Black       | 5                        |
| Sensor (+) | B-3                      | Brown       | 1                        |
| Sensor (-) | A-3                      | Blue        | 2                        |

## Options

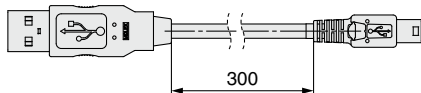
### ■ Communication cable for controller setting

#### ① Communication cable JXC-W2A-C



\* It can be connected to the controller directly.

#### ② USB cable LEC-W2-U



#### ③ Controller setting kit JXC-W2A

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

#### <Controller setting software/USB driver>

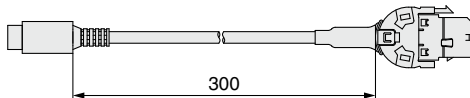
- Controller setting software
  - USB driver (For JXC-W2A-C)
- Download from SMC's website: <https://www.smcworld.com>

#### Hardware Requirements

|                         |                                    |
|-------------------------|------------------------------------|
| OS                      | Windows®7, Windows®8.1, Windows®10 |
| Communication interface | USB 1.1 or USB 2.0 ports           |
| Display                 | 1024 x 768 or more                 |

\* Windows®7, Windows®8.1, and Windows®10 are registered trademarks of Microsoft Corporation in the United States.

### ■ 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 controller, a conversion cable is required.

### ■ I/O Cable

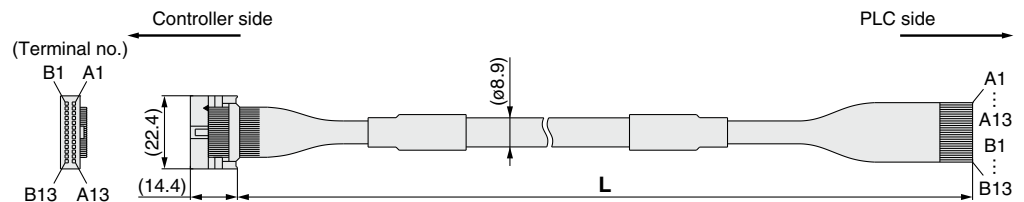
#### LEC-CN5-1

| 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        |

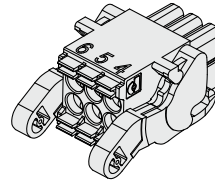


| Connector pin no. | Insulation color | Dot mark | Dot color |
|-------------------|------------------|----------|-----------|
| A1                | Light brown      | ■        | Black     |
| A2                | Light brown      | ■        | Red       |
| A3                | Yellow           | ■        | 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           |          |           |

### ■ 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      | ②     | ③        |
| 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                                      |

### ■ Teaching box

**LEC-T1-3 J G**

Teaching box

Cable length [m]

3 3

Initial language

J Japanese  
E English

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

Enable switch (Option)

Stop switch

Enable switch

|     |                             |
|-----|-----------------------------|
| Nil | None                        |
| S   | Equipped with enable switch |

\* Interlock switch for jog and test function

Stop switch

G Equipped with stop switch

#### Specifications

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



# Step Motor Controller

## JXCE1/91/P1/D1/L□/M1 Series



### How to Order

JXC D 1 7 T -

#### Communication protocol

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

#### Number of axes, Special specification

|   |                               |
|---|-------------------------------|
| 1 | 1 axis, Standard              |
| F | 1 axis, With STO sub-function |

#### Mounting

|     |                |
|-----|----------------|
| 7   | Screw mounting |
| 8*1 | DIN rail       |

\*1 The DIN rail is not included. It must be ordered separately. (Refer to page 25.)

#### Option

|     |                                       |
|-----|---------------------------------------|
| Nil | Without option                        |
| S   | With straight type communication plug |
| T   | With T-branch type communication plug |

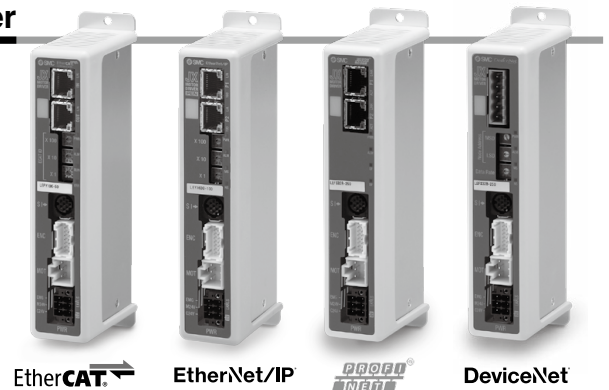
\* Select "Nil" for anything other than JXCD1 and JXCM1.

#### Actuator part number

Without cable specifications and actuator options  
Example: Enter "LEFS16B-100"  
for the LEFS16B-100B-S1□□.

BC Blank controller\*1

\*1 Requires dedicated software (JXC-BCW)



EtherCAT

EtherNet/IP

PROFINET

DeviceNet



IO-Link

CC-Link

With STO sub-function

IO-Link

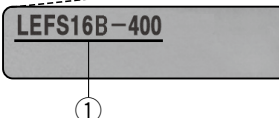
JXC51/61 Series

JXCE1/91/P1/D1/L□/M1 Series

### 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 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. Use the dedicated software (JXC-BCW) for data writing.

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

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



# JXCE1/91/P1/D1/L□/M1 Series

## Specifications

| Model                            |                      |                                   | JXCE1                                                     | JXC91                                              | JXCP1                                               | 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    | Protocol                          | 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)<br>Volume 2 (Edition 1.15) | Specification Version 2.32                          | Volume 1 (Edition 3.14)<br>Volume 3 (Edition 1.13) | Version 1.1<br>Port Class A |                                                                         | Ver. 1.10              |
|                                  | Communication speed  | 100 Mbps*2                        | 10/100 Mbps*2<br>(Automatic negotiation)                  | 100 Mbps*2                                         | 125/250/500 kbps                                    | 230.4 kbps (COM3)                                  |                             | 156 kbps, 625 kbps,<br>2.5 Mbps, 5 Mbps,<br>10 Mbps                     |                        |
|                                  | Configuration file*3 | ESI file                          | EDS file                                                  | GSDML file                                         | EDS file                                            | IODD file                                          |                             | CSP+ file                                                               |                        |
|                                  | I/O occupation area  | Input 20 bytes<br>Output 36 bytes | Input 36 bytes<br>Output 36 bytes                         | Input 36 bytes<br>Output 36 bytes                  | Input 4, 10, 20 bytes<br>Output 4, 12, 20, 36 bytes | Input 14 bytes<br>Output 22 bytes                  |                             | 1 station, 2 stations,<br>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, L ERR, 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                                   |                                                    |                                                     |                                                    |                             |                                                                         |                        |
| Operating humidity range [%RH]   |                      |                                   | 90 or less (No condensation)                              |                                                    |                                                     |                                                    |                             |                                                                         |                        |
| Insulation resistance [MΩ]       |                      |                                   | Between all external terminals and the case: 50 (500 VDC) |                                                    |                                                     |                                                    |                             |                                                                         |                        |
| Safety function                  |                      |                                   | —                                                         |                                                    |                                                     | —                                                  |                             | STO, SS1-t                                                              | —                      |
| Safety standards                 |                      |                                   | —                                                         |                                                    |                                                     | —                                                  |                             | EN 61508 SIL 3*5<br>EN 62061 SIL CL 3*5<br>EN ISO 13849-1 Cat. 3 PL e*5 | —                      |
| Weight [g]                       | Screw mounting       | 220                               | 210                                                       | 220                                                | 210                                                 | 190                                                | 220                         |                                                                         | 170                    |
|                                  | DIN rail mounting    | 240                               | 230                                                       | 240                                                | 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 the **Web Catalog** 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: JXC#-OMY0009" for more information.

### ■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>

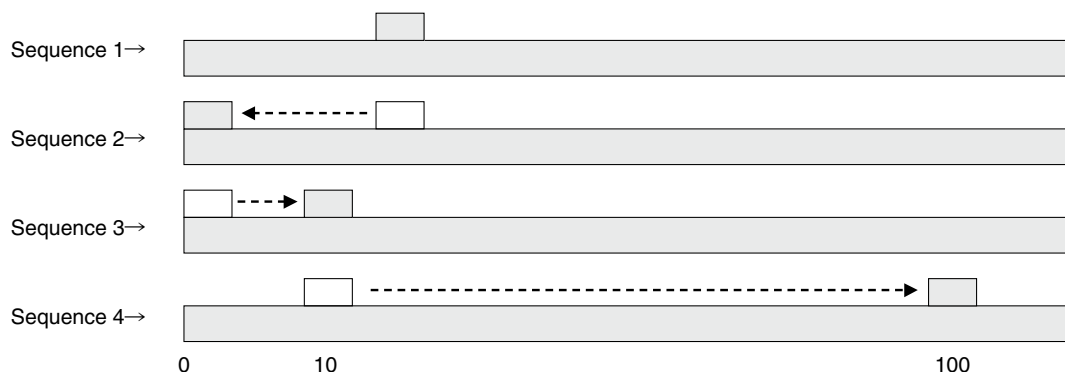
Sequence 1: Servo ON instruction

Sequence 2: Instruction to return to origin

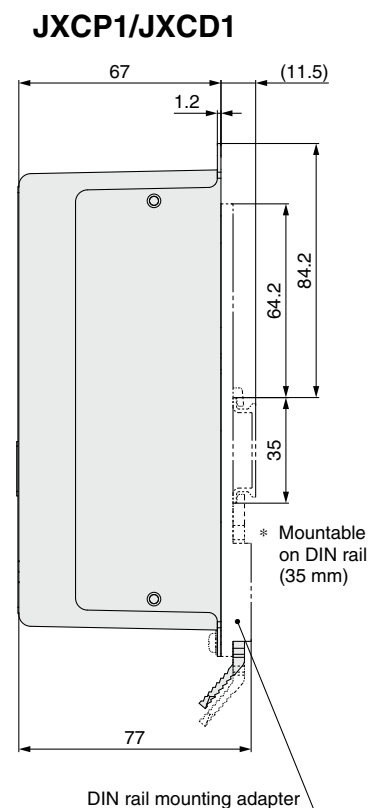
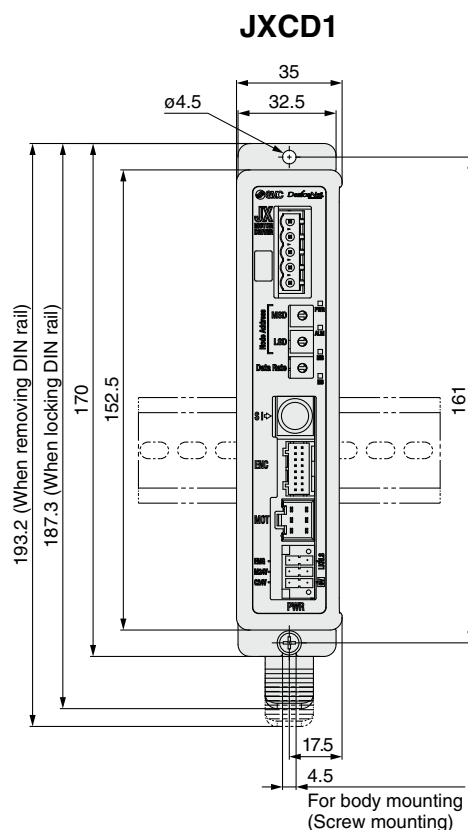
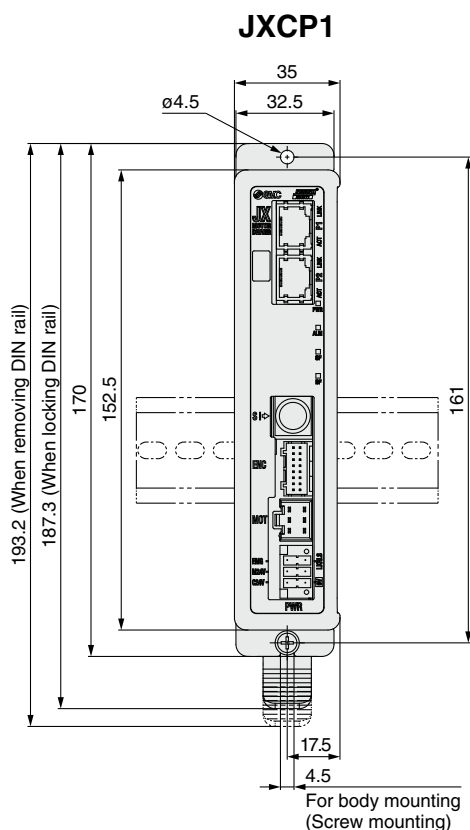
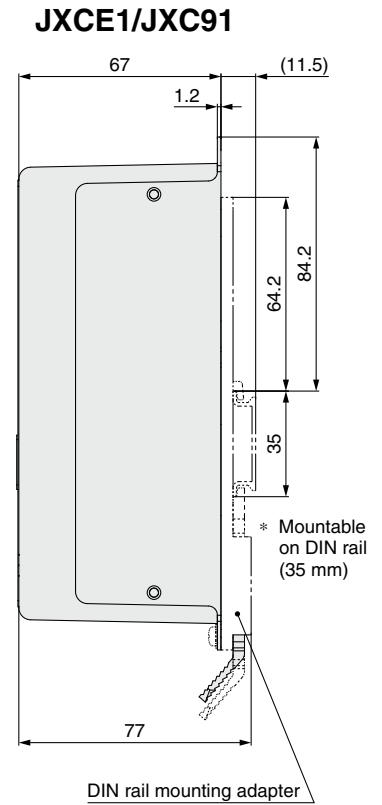
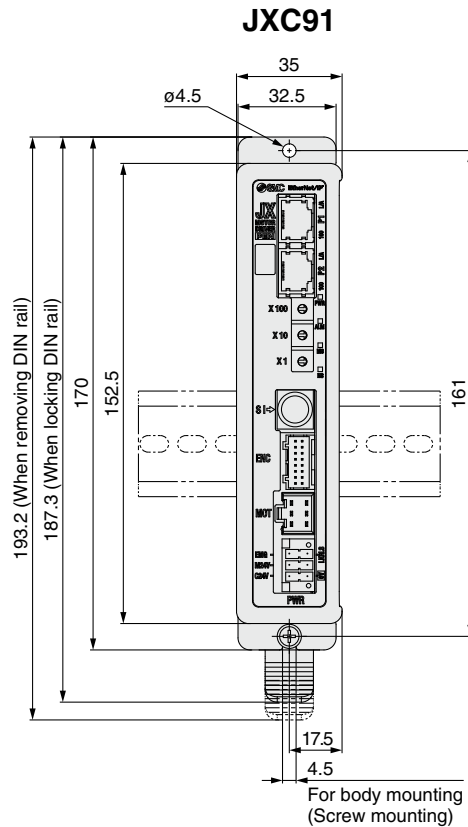
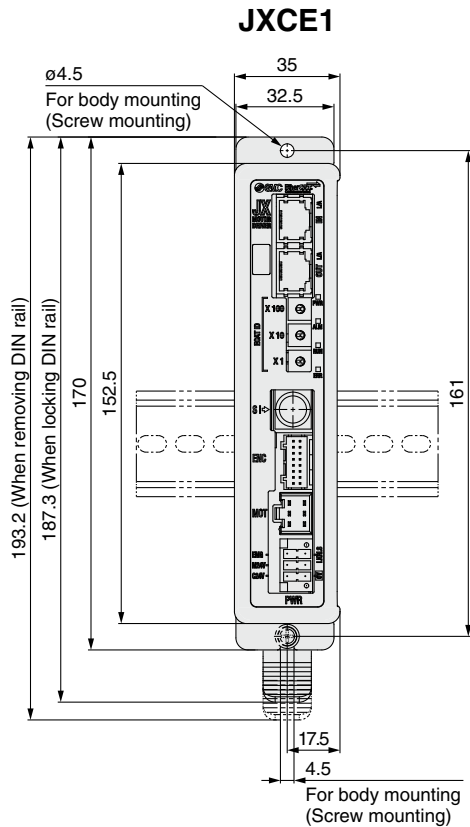
Sequence 3: Specify step data No. 0 and turn ON the input instruction flag (position). Input 10 in the target position. Subsequently the start flag turns ON.

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.



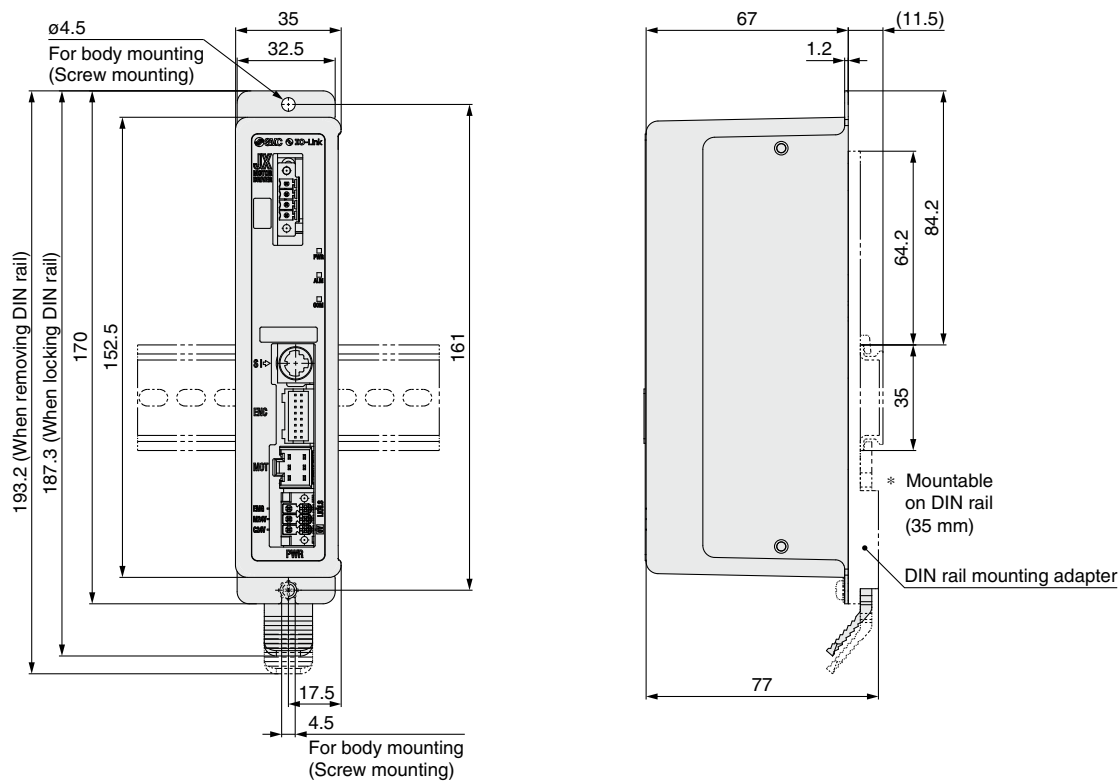
## Dimensions



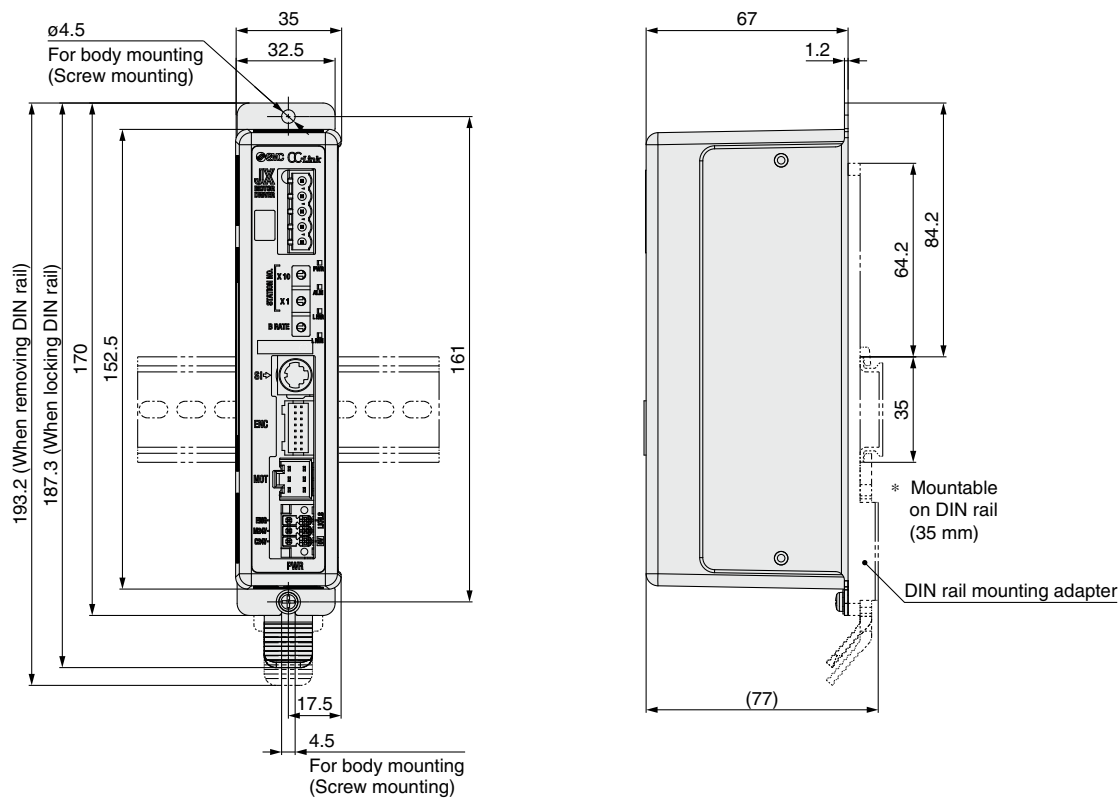
# JXCE1/91/P1/D1/L□/M1 Series

## Dimensions

### JXCL1

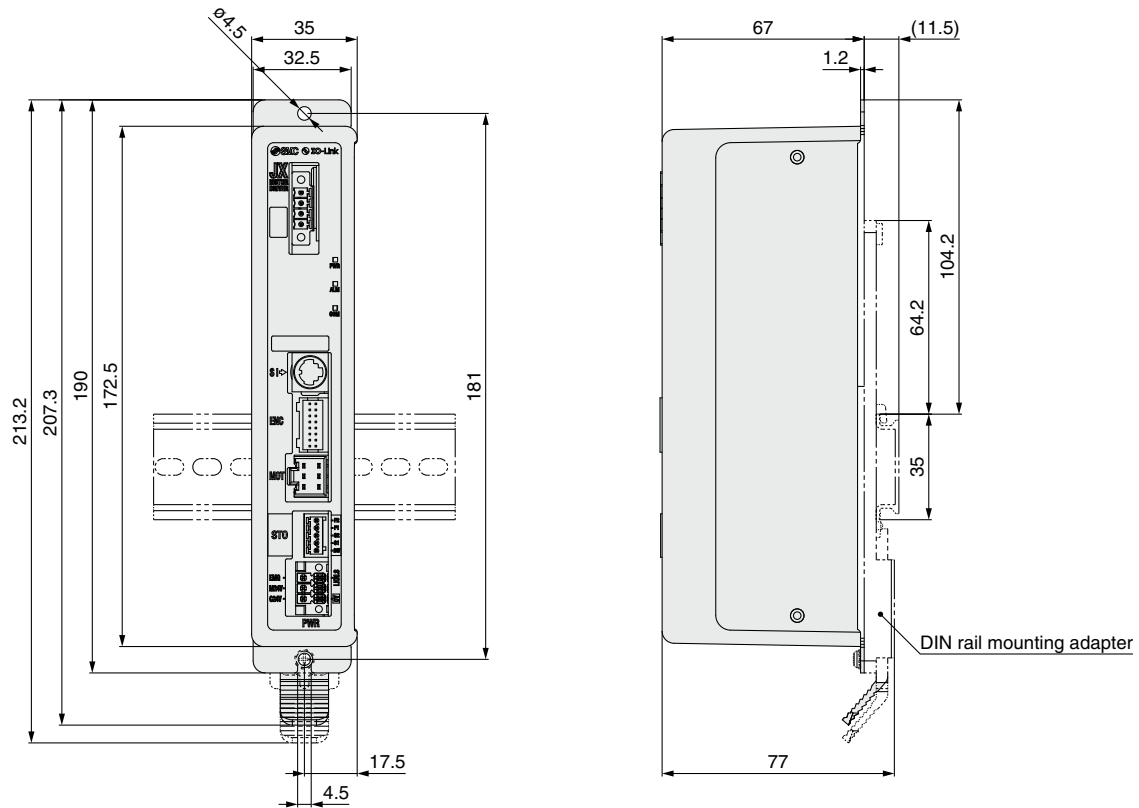


### JXCM1



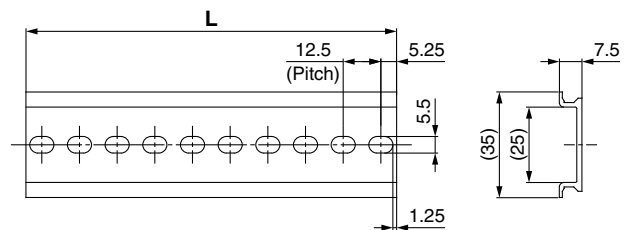
## Dimensions

### JXCLF



### DIN rail AXT100-DR-□

\* For □, enter a number from the No. line in the table below.  
Refer to the dimension drawings on pages 20 to 22 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-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.

# JXCE1/91/P1/D1/L□/M1 Series

## Actuator Cable

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

LE-CP-1-□

Cable length (L) [m]

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

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

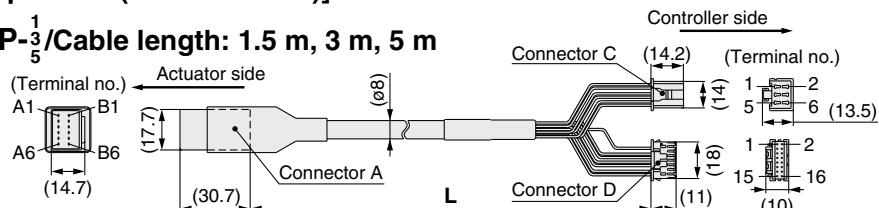
Cable type

|     |                                |
|-----|--------------------------------|
| Nil | Robotic cable (Flexible cable) |
| S   | Standard cable                 |

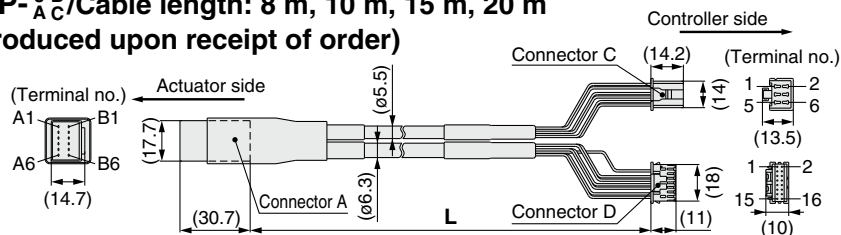
### Weight

| 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       |                |

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



LE-CP- $\frac{8}{A}$ /Cable length: 8 m, 10 m, 15 m, 20 m  
(\*1 Produced upon receipt of order)



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

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

LE-CP-1-B-□

Cable length (L) [m]

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

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

With lock and sensor

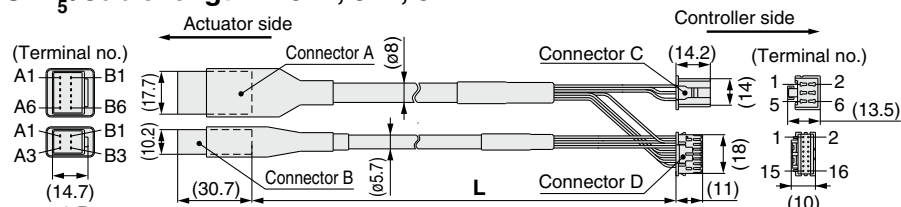
Cable type

|     |                                |
|-----|--------------------------------|
| Nil | Robotic cable (Flexible cable) |
| S   | Standard cable                 |

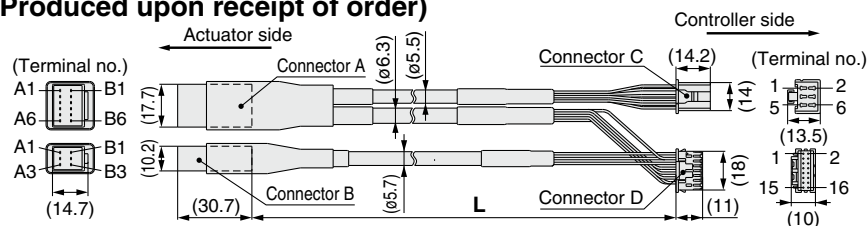
### Weight

| 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       |                |

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



LE-CP- $\frac{8}{A}$ /Cable length: 8 m, 10 m, 15 m, 20 m  
(\*1 Produced upon receipt of order)



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

## Options: Actuator Cable

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

### LE-CE-1

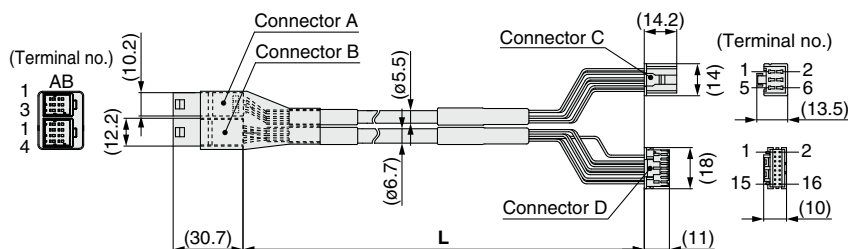
Cable length (L) [m]

|   |      |
|---|------|
| 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       |               |



| Signal    | Connector A terminal no. | Cable color | Connector C terminal no. |
|-----------|--------------------------|-------------|--------------------------|
| A         | B-1                      | Brown       | 2                        |
| $\bar{A}$ | A-1                      | Red         | 1                        |
| B         | B-2                      | Orange      | 6                        |
| $\bar{B}$ | A-2                      | Yellow      | 5                        |
| COM-A/COM | B-3                      | Green       | 3                        |
| COM-B/—   | A-3                      | Blue        | 4                        |

| Signal    | Connector B terminal no. | Cable color | Connector D terminal no. |
|-----------|--------------------------|-------------|--------------------------|
| Vcc       | B-1                      | Brown       | 12                       |
| GND       | A-1                      | Black       | 13                       |
| $\bar{A}$ | B-2                      | Red         | 7                        |
| A         | A-2                      | Black       | 6                        |
| $\bar{B}$ | B-3                      | Orange      | 9                        |
| B         | A-3                      | Black       | 8                        |
| SD+ (RX)  | B-4                      | Yellow      | 11                       |
| SD- (TX)  | A-4                      | Black       | 10                       |
|           |                          | Black       | 3                        |

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

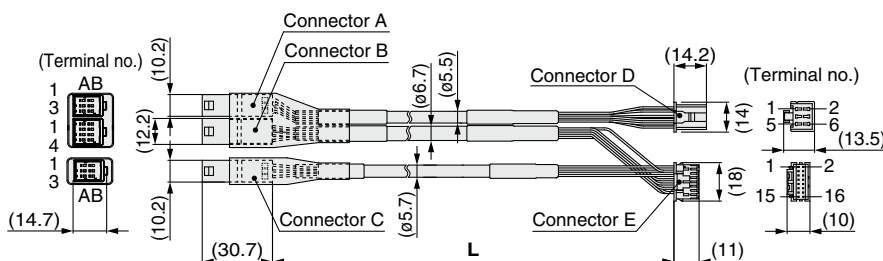
### LE-CE-1-B

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       |               |

| Signal    | Connector A terminal no. | Cable color | Connector D terminal no. |
|-----------|--------------------------|-------------|--------------------------|
| A         | B-1                      | Brown       | 2                        |
| $\bar{A}$ | A-1                      | Red         | 1                        |
| B         | B-2                      | Orange      | 6                        |
| $\bar{B}$ | A-2                      | Yellow      | 5                        |
| COM-A/COM | B-3                      | Green       | 3                        |
| COM-B/—   | A-3                      | Blue        | 4                        |

| Signal    | Connector B terminal no. | Cable color | Connector E terminal no. |
|-----------|--------------------------|-------------|--------------------------|
| Vcc       | B-1                      | Brown       | 12                       |
| GND       | A-1                      | Black       | 13                       |
| $\bar{A}$ | B-2                      | Red         | 7                        |
| A         | A-2                      | Black       | 6                        |
| $\bar{B}$ | B-3                      | Orange      | 9                        |
| B         | A-3                      | Black       | 8                        |
| SD+ (RX)  | B-4                      | Yellow      | 11                       |
| SD- (TX)  | A-4                      | Black       | 10                       |
|           |                          | Black       | 3                        |

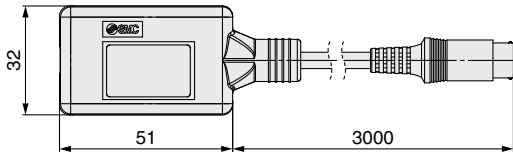
| Signal     | Connector C terminal no. | Cable color | Connector E terminal no. |
|------------|--------------------------|-------------|--------------------------|
| Lock (+)   | B-1                      | Red         | 4                        |
| Lock (-)   | A-1                      | Black       | 5                        |
| Sensor (+) | B-3                      | Brown       | 1                        |
| Sensor (-) | A-3                      | Blue        | 2                        |

# JXCE1/91/P1/D1/L□/M1 Series

## Options

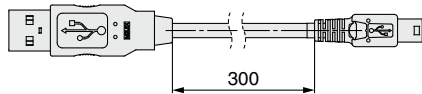
### ■ Communication cable for controller setting

#### ① Communication cable JXC-W2A-C



\* It can be connected to the controller directly.

#### ② USB cable LEC-W2-U



#### ③ Controller setting kit JXC-W2A

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

##### <Controller setting software/USB driver>

- Controller setting software
- USB driver (For JXC-W2A-C)

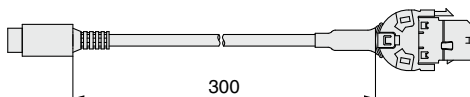
Download from SMC's website: <https://www.smcworld.com>

### Hardware Requirements

|                         |                                    |
|-------------------------|------------------------------------|
| OS                      | Windows®7, Windows®8.1, Windows®10 |
| Communication interface | USB 1.1 or USB 2.0 ports           |
| Display                 | 1024 x 768 or more                 |

\* Windows®7, Windows®8.1, and Windows®10 are registered trademarks of Microsoft Corporation in the United States.

### ■ 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 controller, a conversion cable is required.

### ■ 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 22. Refer to the dimension drawings on pages 20 to 22 for the mounting dimensions.

### ■ Teaching box

LEC-T1-3□G□

Teaching box

Cable length [m]  
3 3

Initial language

|   |          |
|---|----------|
| J | Japanese |
| E | English  |

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

Enable switch (Option)

Enable switch

|     |                             |
|-----|-----------------------------|
| NII | None                        |
| S   | Equipped with enable switch |

\* Interlock switch for jog and test function

Stop switch

G Equipped with stop switch



### Specifications

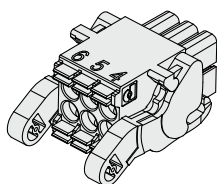
| Item                             | Description                         |
|----------------------------------|-------------------------------------|
| Switch                           | Stop switch, Enable switch (Option) |
| Cable length [m]                 | 3                                   |
|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



## Options

### ■ Power supply plug JXC-CPW

\* The power supply plug is an accessory.



|   |   |   |
|---|---|---|
| 6 | 5 | 4 |
| 3 | 2 | 1 |

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

### ■ STO signal plug JXC-CSTO



|   |
|---|
| ⑤ |
| ④ |
| ③ |
| ② |
| ① |

#### 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

| 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       |

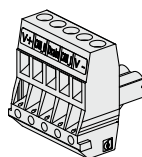
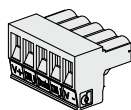
### ■ Communication plug connector

For DeviceNet®

Straight type  
JXC-CD-S

T-branch type  
JXC-CD-T

Communication plug  
connector for DeviceNet®

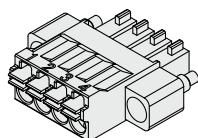


| Terminal name | Details                         |
|---------------|---------------------------------|
| V+            | Power supply (+) for DeviceNet® |
| CAN_H         | Communication wire (High)       |
| Drain         | Grounding wire/Shielded wire    |
| CAN_L         | Communication wire (Low)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



# JXC51/61/E1/91/P1/D1/L□/M1 Series

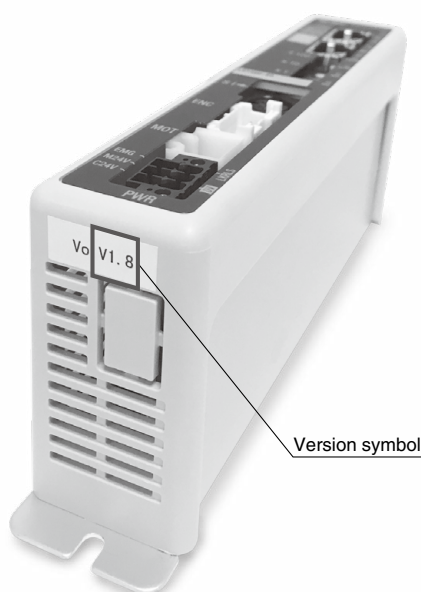
## Precautions Relating to Differences in Controller Versions

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 (.bkp) 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

JXC91□ Series

XR S3.0 T1.0

##### Applicable models

JXC51□ Series  
JXC61□ Series  
JXCE1□ Series  
JXCP1□ Series  
JXCD1□ Series  
JXCL□□ Series  
JXCM1□ Series

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

WP V2.1

##### Applicable models

JXC91□ Series

WP S2.2 T1.1

##### Applicable models

JXCE1□ Series  
JXCP1□ Series  
JXCD1□ Series  
JXCL□□ Series

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

XR V1.0

##### Applicable models

JXC91□ Series

XR S1.0 T1.0

##### Applicable models

JXCE1□ Series  
JXCP1□ Series  
JXCD1□ Series  
JXCL□□ 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

| 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<br>JXCD1□ series<br>JXCE1□ series<br>JXCP1□ series<br>JXCL1□ 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     | 25    | 25     | 16, 25    | 50    | 32, 40 |
|                                                                                   | Version 3.5 (V3.5, S3.5)           |                                   |                |            |                |            |                |       |        |           |       |        |
|                                                                                   | 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 |       |        | 8, 16, 25 |       |        |
|                                                                                   |                                    |                                   |                |            |                |            |                |       |        |           |       |        |
| JXCM1□ series<br>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     | 25    | 25     | 16, 25    | 50    | 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 |       |        | 8, 16, 25 |       |        |
|                                                                                   |                                    |                                   |                |            |                |            |                |       |        |           |       |        |

## Safety Instructions

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

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

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

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

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

### Warning

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

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

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

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

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

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

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

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

### Caution

#### 1. The product is provided for use in manufacturing industries.

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

## Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

### Limited warranty and Disclaimer

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

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

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

### Compliance Requirements

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

### Caution

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

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

### Revision History

**Edition B** \* The JXCLF series controller with STO sub-function has been added.  
\* Number of pages has been increased from 24 to 32.

AR

## Safety Instructions

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

# SMC Corporation

Akihabara UDX 15F,  
4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN  
Phone: 03-5207-8249 Fax: 03-5298-5362  
<https://www.smcworld.com>  
© 2022 SMC Corporation All Rights Reserved

Specifications are subject to change without prior notice  
and any obligation on the part of the manufacturer.

D-G