

# Step Motor Controller



**New**  
Ether**CAT**® Type



**New**  
**PROFI**®  
**NET** Type



**New**  
Device**Net**™ Type



Ether**Net/IP**™ Type



## Two types of operation command

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

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

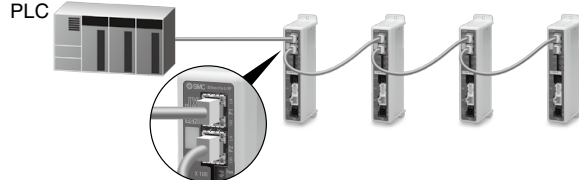
## Numerical monitoring available

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

## Transition wiring of communication cables

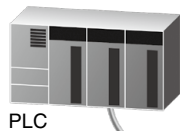
Two communication ports are provided.

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



## Application Examples

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



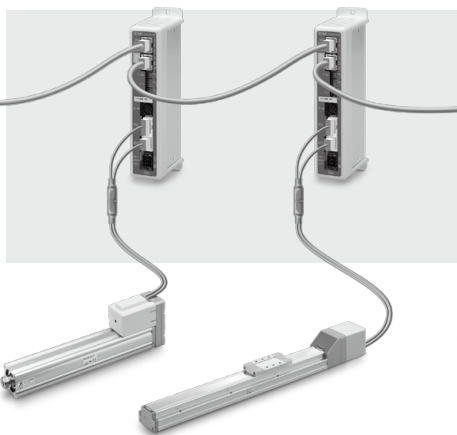
Communication protocol

Ether**CAT**®  
Ether**Net/IP**™

**PROFI**®  
**NET**

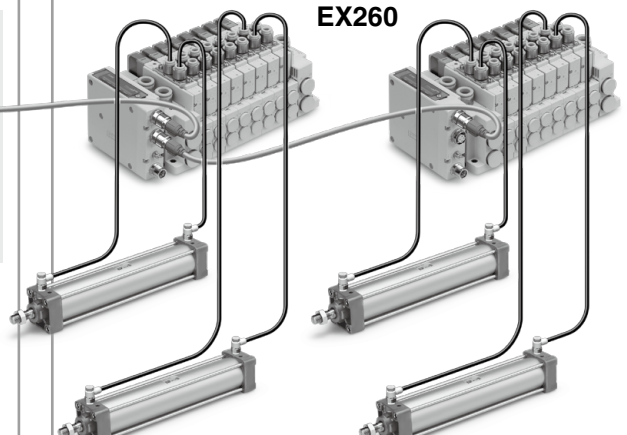
Device**Net**™

### Electric Actuators

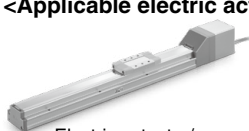


### Air Cylinders

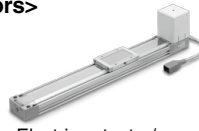
EX260



### <Applicable electric actuators>



Electric actuator/  
Slider type  
LEF Series



Electric actuator/  
Low profile slider type  
LEM Series



Electric actuator/  
Guide rod slider  
LEL Series



Electric actuator/  
Rod type  
LEY/LEYG Series



Electric slide table  
LES/LESH Series



Electric actuator/  
Miniature type  
LEPY/LEPS Series



Electric gripper  
LEH Series



Electric actuator/  
Rotary table  
LER Series

# JXCE1/91/P1/D1 Series



15-E667

# JXCE1/91/P1/D1 Series

## System Construction

### ● Electric actuators

LEY/LEYG Series  
LEF Series  
LES/LESH Series  
LER Series  
LEL Series  
LEPY/LEPS Series  
LEH Series  
LEM Series

### Actuator cable ●

Standard cable	Robotic cable
LE-CP-□-S	LE-CP-□

Provided by customer

Power supply for controller  
24 VDC

To PWR



● Power supply plug P.6  
(Accessory)

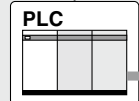
To ENC



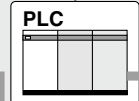
To MOT



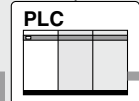
Provided by customer



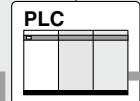
Provided by customer



Provided by customer



Provided by customer



EtherCAT™



EtherNet/IP™



PROFINET



DeviceNet™



### ● Communication plug connector for DeviceNet™ P.6

Straight type	JXC-CD-S
T-branch type	JXC-CD-T

To SI



## Options

### ● Teaching box

(With 3 m cable)  
LEC-T1-3JG□

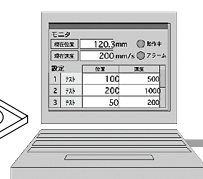


### ● Controller setting kit

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



Communication cable ● (3 m)



PC

● USB cable  
(A-mini B type)  
(0.3 m)

### ● Conversion cable\*1 P.6

P5062-5  
(0.3 m)

The conversion cable can be used for connecting this controller to the optional teaching box [LEC-T1] or the controller setting kit [LEC-W2] offered with the LEC series.

\*1 To connect the teaching box or LEC controller setting kit communication cable to the controller, a conversion cable is required.

# Step Motor Controller

## JXCE1/91/P1/D1 Series



### How to Order

#### Actuator + Controller

**LEFS16B-100 - R1 CD17T**

#### Actuator type

Refer to "How to Order" in the actuator catalog.  
For compatible actuators, refer to the table below. Example: LEFS16B-100B-R1C917

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

\* Only the step motor type is applicable.

#### Controller

Nil	Without controller
C□1□□	With controller

**CD17T**

#### Communication protocol

E	EtherCAT®
9	EtherNet/IP™
P	PROFINET
D	DeviceNet™

#### For single axis

#### Mounting

7	Screw mounting
8*1	DIN rail

\*1 DIN rail is not included. It must be ordered separately. (Page 6)

#### Communication plug connector for DeviceNet™

Nil	Without plug connector
S	Straight type
T	T-branch type

\* Select "Nil" for anything other than DeviceNet™.

#### Caution

##### [CE-compliant products]

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

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

#### Actuator cable type/length

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

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

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

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

#### Controller

**JXC D17T - LEFS16B-100**

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

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

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

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

#### Communication protocol

E	EtherCAT®
9	EtherNet/IP™
P	PROFINET
D	DeviceNet™

#### For single axis

#### Mounting

7	Screw mounting
8*1	DIN rail

\*1 DIN rail is not included. It must be ordered separately. (Page 6)

#### 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).

#### Communication plug connector for DeviceNet™

Nil	Without plug connector
S	Straight type
T	T-branch type

\* Select "Nil" for anything other than DeviceNet™.

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

# JXCE1/91/P1/D1 Series

## Specifications

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

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

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

\*3 The files can be downloaded from the SMC website: <http://www.smcworld.com>

### ■Trademark

EtherNet/IP™ is a trademark of ODVA.

DeviceNet™ is a trademark of ODVA.

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

## Example of Operation Command

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

### <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>

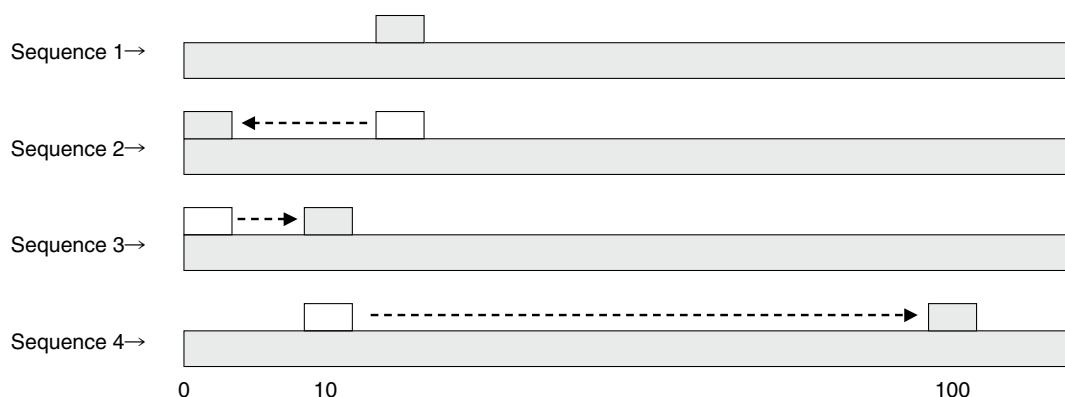
Sequence 1: Servo ON instruction

Sequence 2: Instruction to return to origin

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

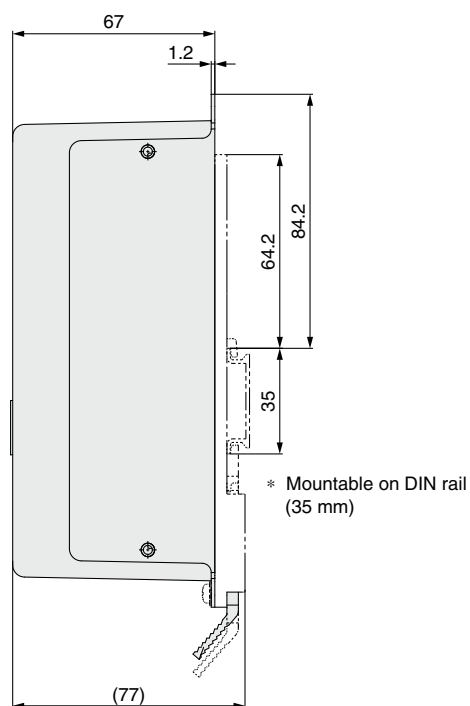
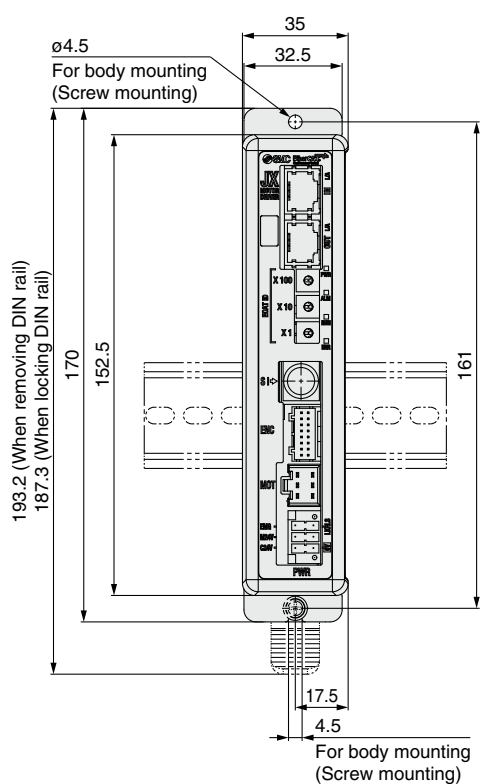
Sequence 4: Turn ON step data No. 0 and the input instructions flag (position) to change the target position to 100 while the start flag is ON.

The same operation can be performed with any operation command.

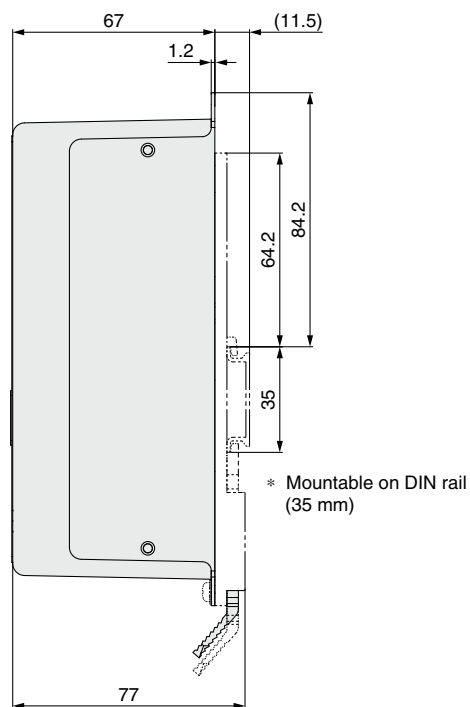
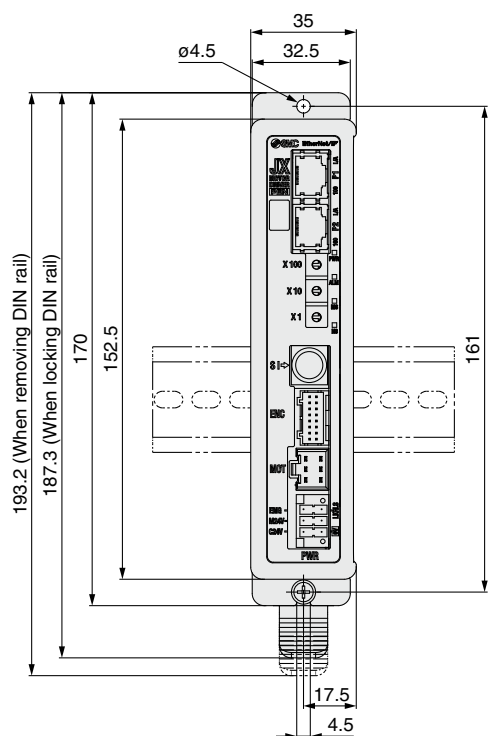


## Dimensions

**JXCE1**



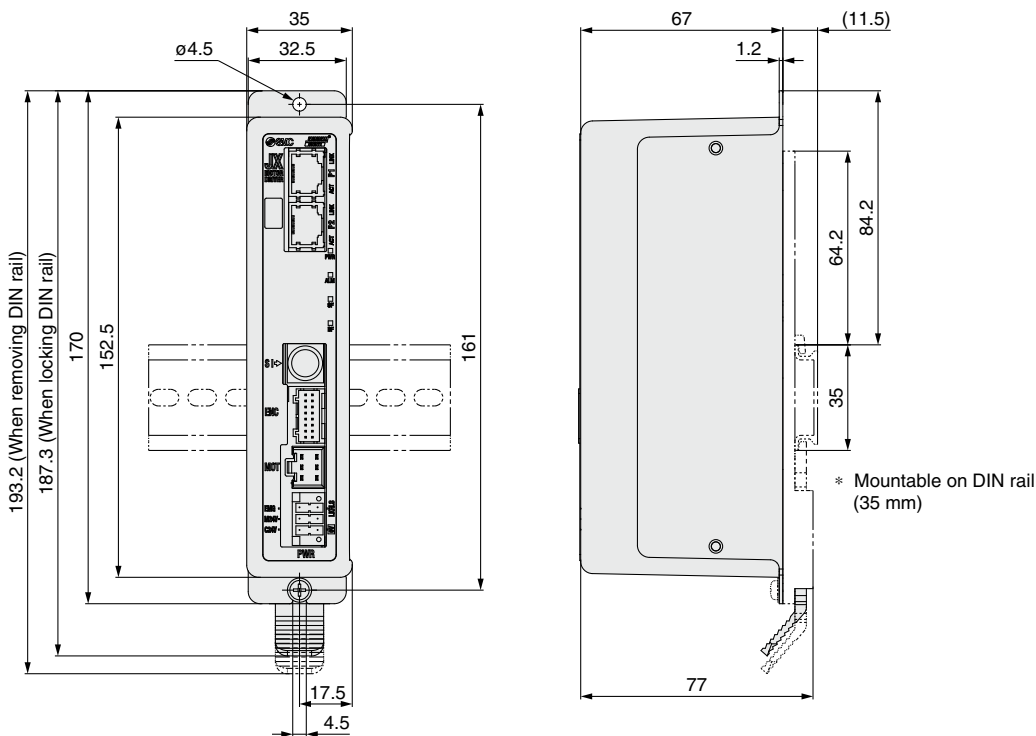
**JXC91**



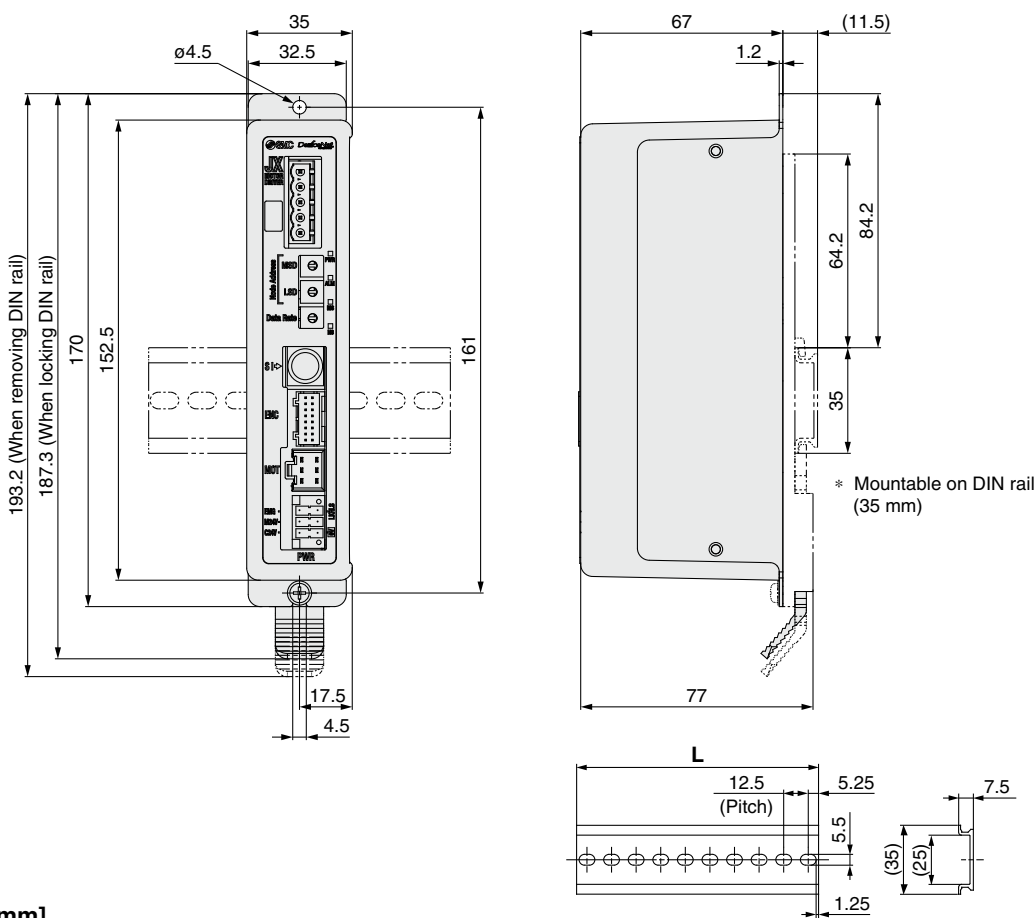
# JXCE1/91/P1/D1 Series

## Dimensions

### JXCP1



### JXCD1



### L Dimensions [mm]

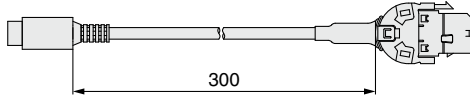
No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5
No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5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

## Options

### • DIN rail AXT100-DR-□

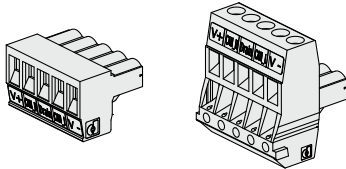
\* For □, enter a number from the No. line in the table. (Page 5)  
Refer to the dimension drawings (Page 5) for the mounting dimensions.

### • Conversion cable P5062-5 (Cable length: 0.3 m)



### • Communication plug connector for DeviceNet™

**Straight type**    **T-branch type**  
**JXC-CD-S**      **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™

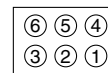
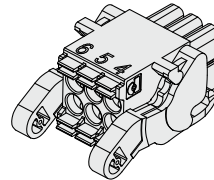
### • DIN rail mounting adapter

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

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

### • Power supply plug JXC-CPW


\* The power supply plug is an accessory.



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

#### Power supply plug

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

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