

Step Motor Controller



New DeviceNet™ Type



New PROFINET® Type



EtherNet/IP™ Type



Two types of operation command

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

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

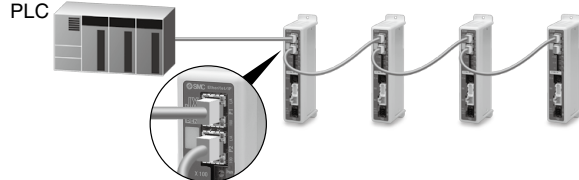
Numerical monitoring available

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

Transition wiring of communication cable

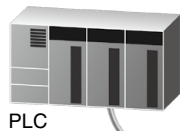
Two communication ports are provided.

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



Application Examples

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

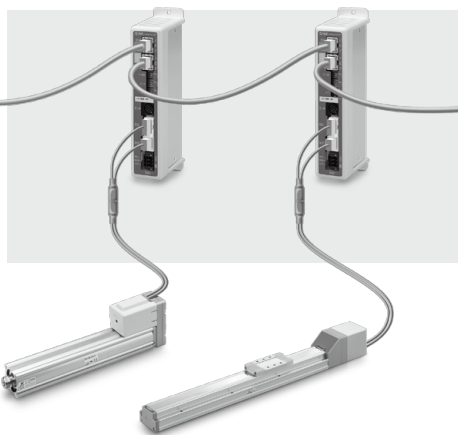


PLC

Communication
protocol
EtherNet/IP
DeviceNet™

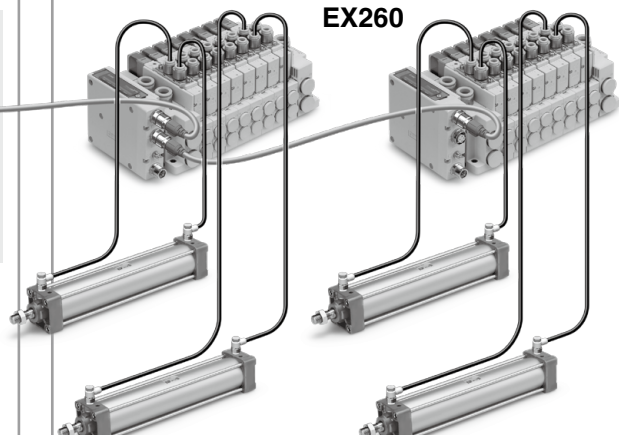


Electric Actuators

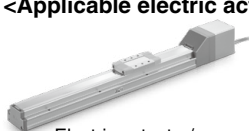


Air Cylinders

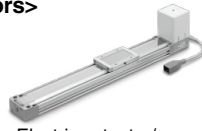
EX260



<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

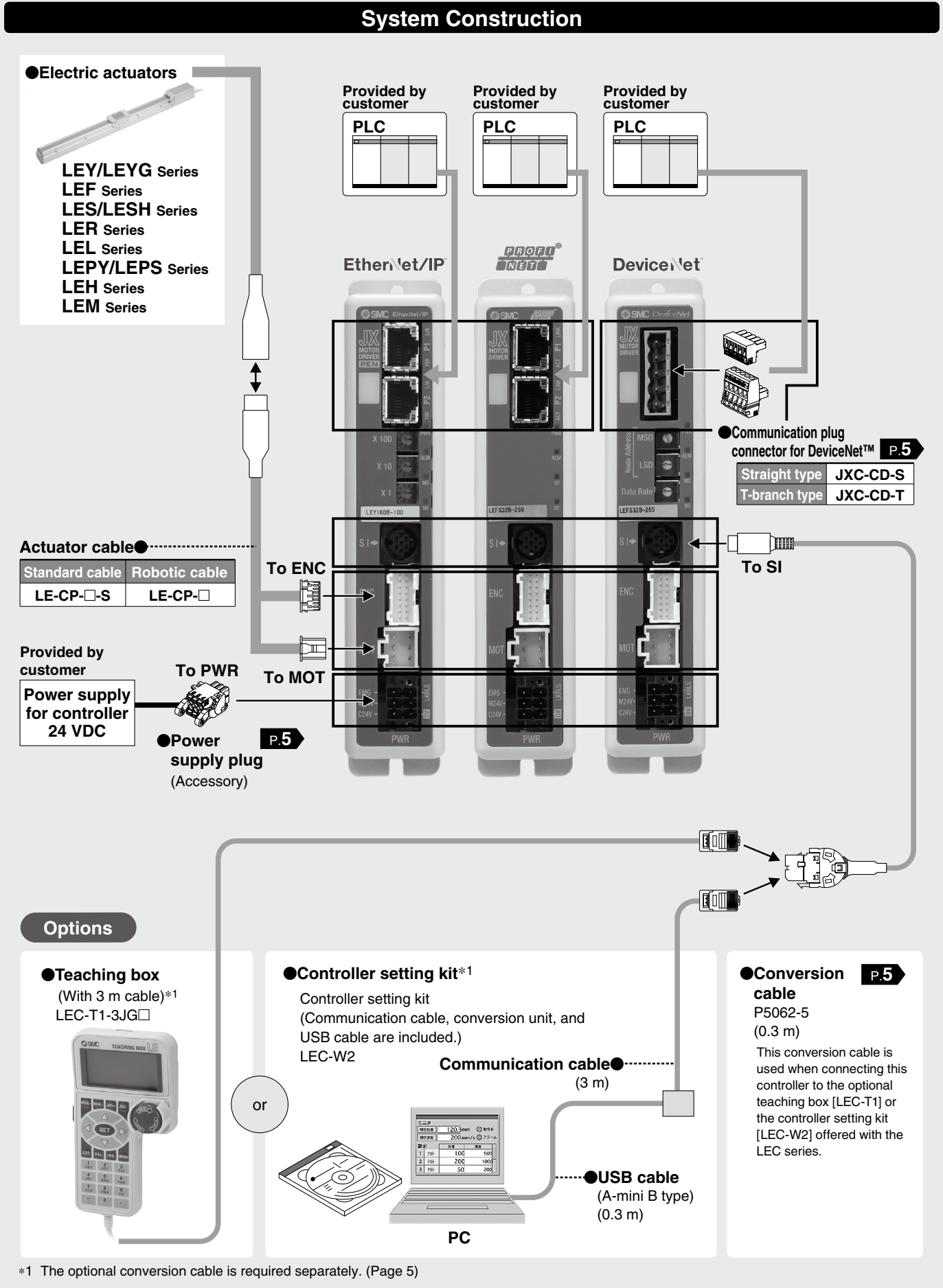


Electric actuator/
Rotary table
LER Series

JXC91/D1/P1 Series



JXC91/D1/P1 Series



Step Motor Controller

JXC91/D1/P1 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

9	EtherNet/IP™
D	DeviceNet™
P	PROFINET

For single axis

Mounting

7	Screw mounting
8*1	DIN rail

*1 DIN rail is not included. Order it separately. (Page 5)

Communication plug connector for DeviceNet™

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

* Select "Nil" when using the EtherNet/IP™ or PROFINET.

Caution

[CE-compliant products]

EMC compliance was tested by combining the electric actuator LE series and the JXC91/D1/P1 series.

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

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 in the model selection page of the electric actuators **Web Catalog**.

Controller

JXC D17T - LEY16-100

Communication protocol

9	EtherNet/IP™
D	DeviceNet™
P	PROFINET

For single axis

Mounting

7	Screw mounting
8*1	DIN rail

*1 DIN rail is not included. Order it separately. (Page 5)

Actuator part number

Except cable specifications and actuator options
Example: Enter "LEFS16B-100" for the LEFS16B-S1□□.

Communication plug connector for DeviceNet™

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

* Select "Nil" when using the EtherNet/IP™ or PROFINET.

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 in the model selection page of the electric actuators **Web Catalog**.

JXC91/D1/P1 Series

Specifications

Model			JXC91	JXCD1	JXCP1
Compatible motor			Step motor (Servo/24 VDC)		
Power supply			Power voltage: 24 VDC ±10%		
Current consumption (Controller)			130 mA or less	100 mA or less	200 mA or less
Compatible encoder			Incremental A/B phase (800 pulse/rotation)		
Communication specifications	Applicable system	Protocol	EtherNet/IP™*2	DeviceNet™	PROFINET*2
		Version*1	Volume 1 (Edition 3.14) Volume 2 (Edition 1.15)	Volume 1 (Edition 3.14) Volume 3 (Edition 1.13)	Specification Version 2.32
	Communication speed		10/100 Mbps*2 (Automatic negotiation)	125/250/500 kbps	100 Mbps*2
	Configuration file*3		EDS file	EDS file	GSDML file
	I/O occupation area		Input 36 bytes/Output 36 bytes	Input 4, 12, 20, 36 bytes Output 4, 10, 20 bytes	Input 36 bytes/Output 36 bytes
	Terminating resistor		Not included		
Memory			EEPROM		
LED indicator			PWR, ALM, MS, NS		PWR, ALM, SF, BF
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]			210 (Screw mounting) 230 (DIN rail mounting)		220 (Screw mounting) 240 (DIN rail mounting)

*1 Please note that versions are subject to change.

*2 Use a CAT5 or higher communication cable for the PROFINET and EtherNet/IP™.

*3 The file 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.

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 defining 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. defining 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 defining operation>

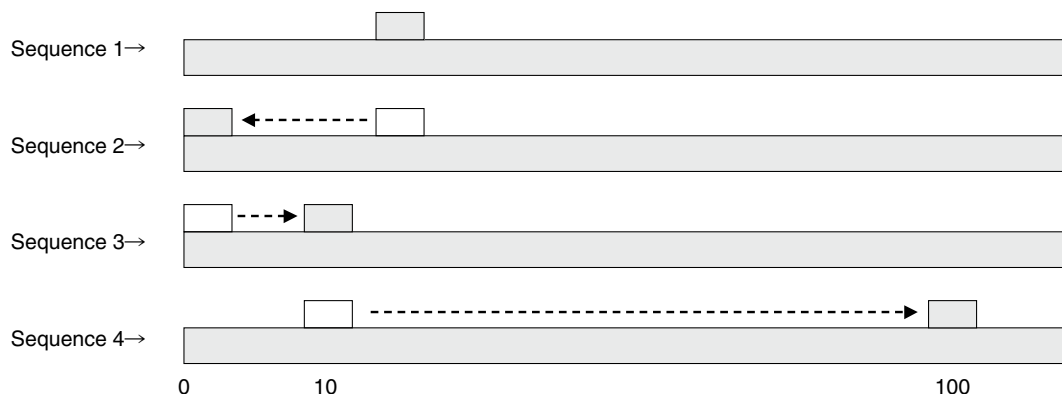
Sequence 1: Servo ON instruction

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.

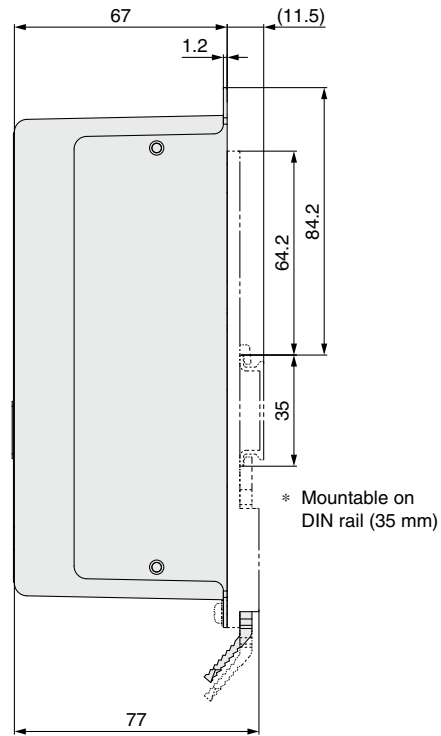
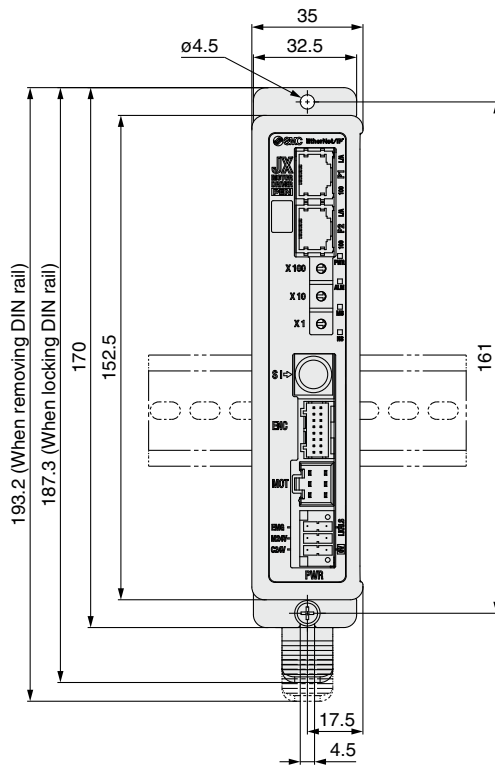
Sequence 4: Turn ON step data No. 0 and the input instructions flag (position) to change the target position to 100 while the start flag is ON.

The same operation can be performed with any operation command.



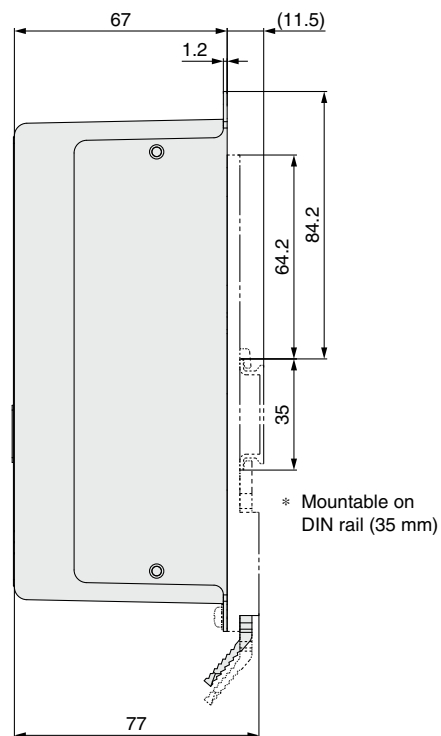
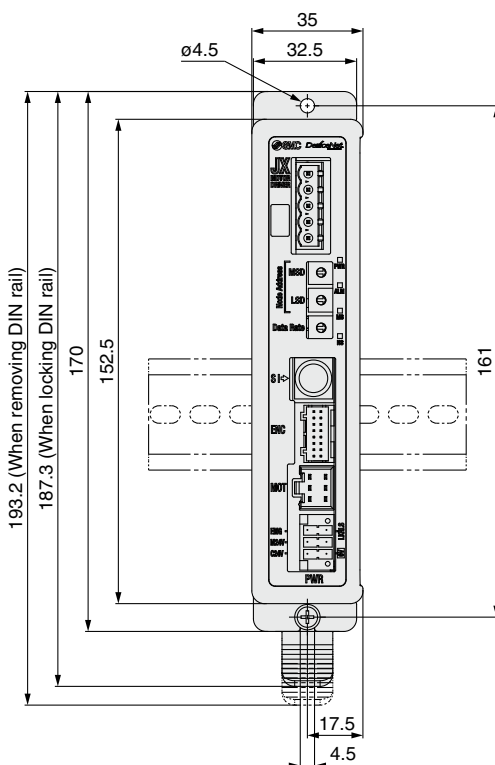
Dimensions

**JXC
91**



* Mountable on
DIN rail (35 mm)

**JXC
D1**

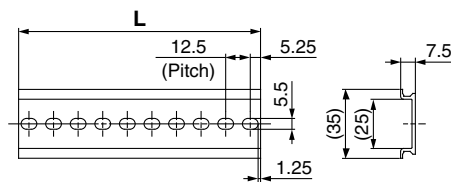
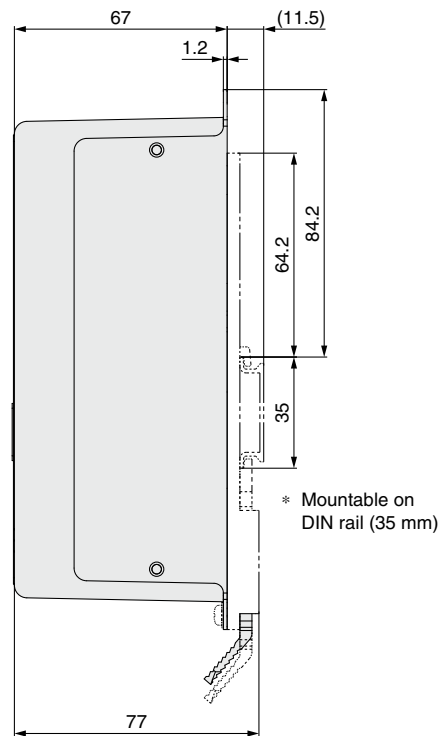
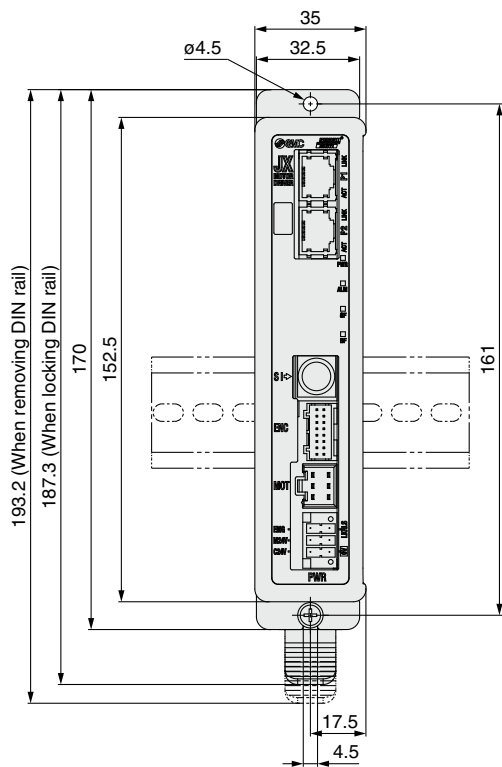


* Mountable on
DIN rail (35 mm)

JXC91/D1/P1 Series

Dimensions

JXC
P1



L Dimensions [mm]

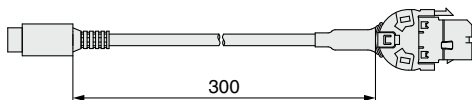
No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5
No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5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

Options

• DIN rail AXT100-DR-□

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

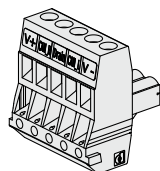
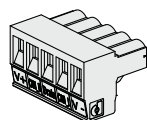
• Conversion cable P5062-5 (Cable length: 0.3 m)



• Communication plug connector for DeviceNet™

Straight type
JXC-CD-S

T-branch type
JXC-CD-T



Communication plug connector for DeviceNet™

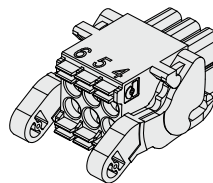
Terminal name	Details
V+	Power supply (+) for DeviceNet™
CAN_H	Communication wire (High)
Drain	Grounding wire/Shielded wire
CAN_L	Communication wire (Low)
V-	Power supply (-) for DeviceNet™

• DIN rail mounting adapter

LEC-3-D0 (with 2 mounting screws)

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


• Power supply plug JXC-CPW * Power supply plug is an accessory.



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

Power supply plug

Terminal name	Function	Details
0V	Common supply (-)	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

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