Step Motor Controller

JXCE□/9□/P□/D1/L□/M1 Series

CE UKCA ＊ Excluding the JXC□F

c UL us RoHS

How to Order

JXC D 1 7 T – □

❶ ❷ ❸ ❹ ❺

❶ Communication protocol

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

❷ Number of axes, Special specification

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

❸ Mounting

7	Screw mounting
8＊1	DIN rail

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

❹ Option

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

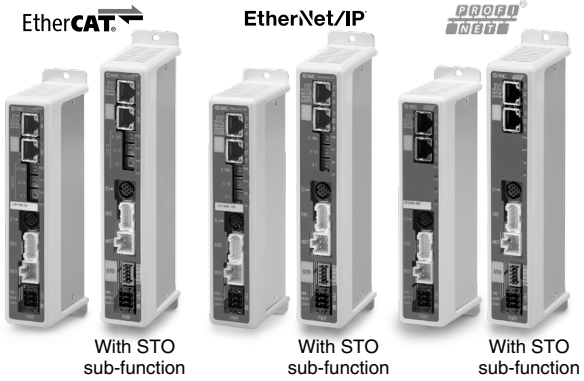
＊ Select "Nil" for anything other than JXCD1 and JXCM1.

❺ 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



With STO sub-function | With STO sub-function | With STO sub-function

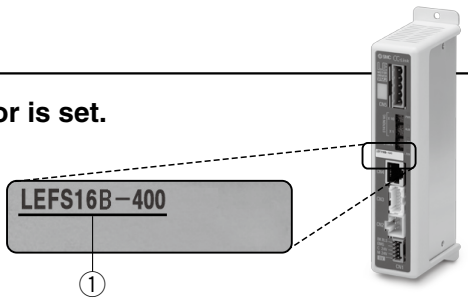
DeviceNet IO-Link CC-Link

With STO sub-function

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

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

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



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

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

A blank controller is a controller to which the customer can write the data of the actuator it is to be combined and used with. For data writing, use the controller setting software ACT Controller 2 or the dedicated software JXC-BCW.

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

Hardware Requirements

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

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

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

Specifications

Model			JXCE1	JXCEF	JXC91	JXC9F	JXCP1	JXCPF	JXCD1	JXCL1	JXCLF	JXCM1
Network			EtherCAT		EtherNet/IP™		PROFINET		DeviceNet®	IO-Link		CC-Link
Compatible motor			Step motor (Servo/24 VDC)									
Power supply			Power voltage: 24 VDC ±10%									
Current consumption (Controller)			200 mA or less		130 mA or less		200 mA or less		100 mA or less	100 mA or less		100 mA or less
Compatible encoder			Incremental/Battery-less absolute									
Communication specifications	Applicable system	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) Volume 2 (Edition 1.15)		Specification Version 2.32		Volume 1 (Edition 3.14) Volume 3 (Edition 1.13)	Version 1.1 Port Class A		Ver. 1.10
	Communication speed		100 Mbps*2		10/100 Mbps*2 (Automatic negotiation)		100 Mbps*2		125/250/500 kbps	230.4 kbps (COM3)		156 kbps, 625 kbps, 2.5 Mbps, 5 Mbps, 10 Mbps
	Configuration file*3		ESI file		EDS file		GSDML file		EDS file	IODD file		CSP+ file
	I/O occupation area		Input 20 bytes Output 36 bytes		Input 36 bytes Output 36 bytes		Input 36 bytes Output 36 bytes		Input 4, 10, 20 bytes Output 4, 12, 20, 36 bytes	Input 14 bytes Output 22 bytes		1 station, 2 stations, 4 stations
	Terminating resistor		Not included									
Memory			EEPROM									
LED indicator			PWR, RUN, ALM, ERR		PWR, ALM, MS, NS		PWR, ALM, SF, BF		PWR, ALM, MS, NS	PWR, ALM, COM		PWR, ALM, 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	—	STO,SS1-t	—	STO,SS1-t	—		STO, SS1-t	—
Safety standards			—	EN61508 SIL3*5 EN62061 SIL CL3*5 EN ISO13849-1 Cat.3 PLe*5	—	EN61508 SIL3*5 EN62061 SIL CL3*5 EN ISO13849-1 Cat.3 PLe*5	—	EN61508 SIL3*5 EN62061 SIL CL3*5 EN ISO13849-1 Cat.3 PLe*5	—		EN 61508 SIL 3*5 EN 62061 SIL CL 3*5 EN ISO 13849-1 Cat. 3 PL e*5	—
Weight [g]	Screw mounting		220	250	210	240	220	250	210	190	220	170
	DIN rail mounting		240	270	230	260	240	270	230	210	240	190

*1 Please note that versions are subject to change.
*2 Use a shielded communication cable with CAT5 or higher for the PROFINET, EtherNet/IP™, and EtherCAT.
*3 The files can be downloaded from the SMC website.
*4 The operating temperature range for both controller version 1 products and controller version 2 products is 0 to 40°C. Refer to 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□.

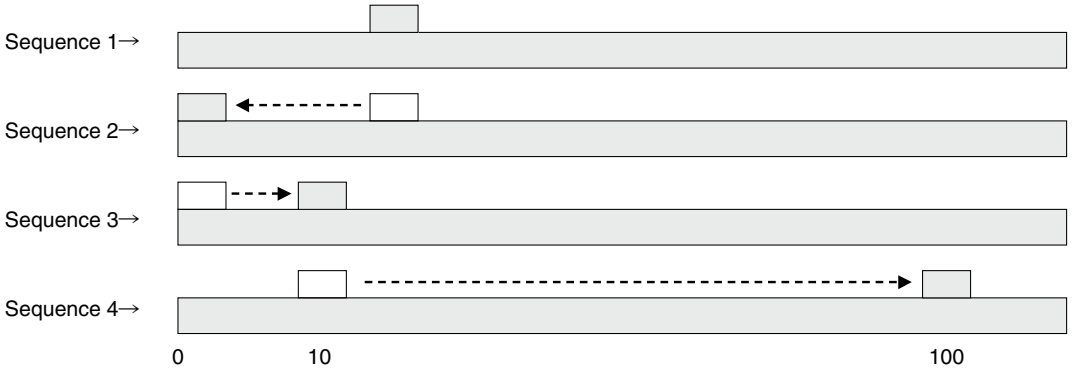
<Application example> Movement between 2 points

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.

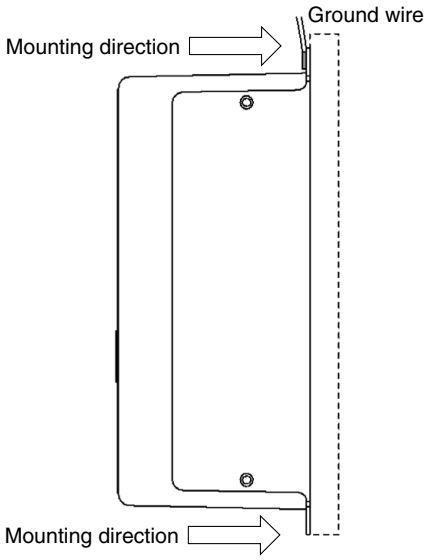
<Numerical data defined operation>
Sequence 1: Servo ON instruction
Sequence 2: Instruction to return to origin
Sequence 3: Specify step data No. 0 and turn ON the input instruction flag (position). Input 10 in the target position. Subsequently the start flag turns ON.
Sequence 4: Turn ON step data No. 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.



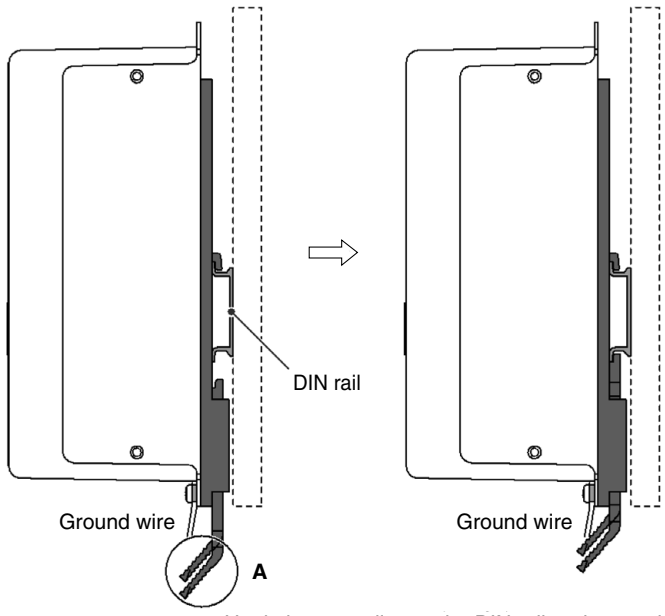
How to Mount

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



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

Before locked onto DIN rail **DIN rail is locked.**

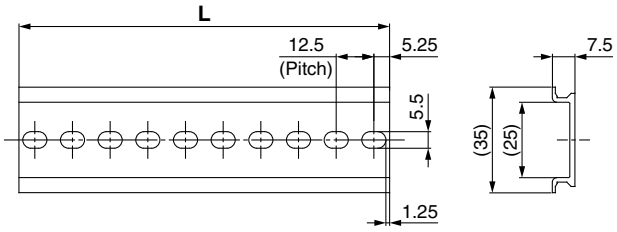


Hook the controller on the DIN rail and press the lever of section A in the arrow direction to lock it.

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

DIN rail
AXT100-DR-□

∗ For □, enter a number from the No. line in the table below.
Refer to the dimension drawings on pages 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
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5

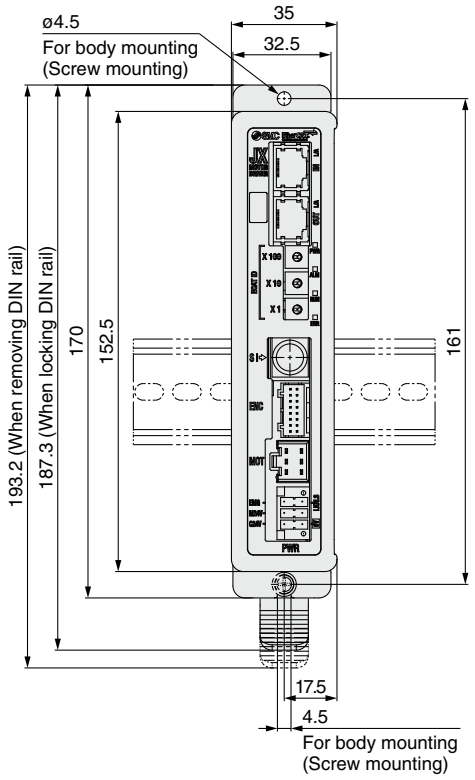
No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

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

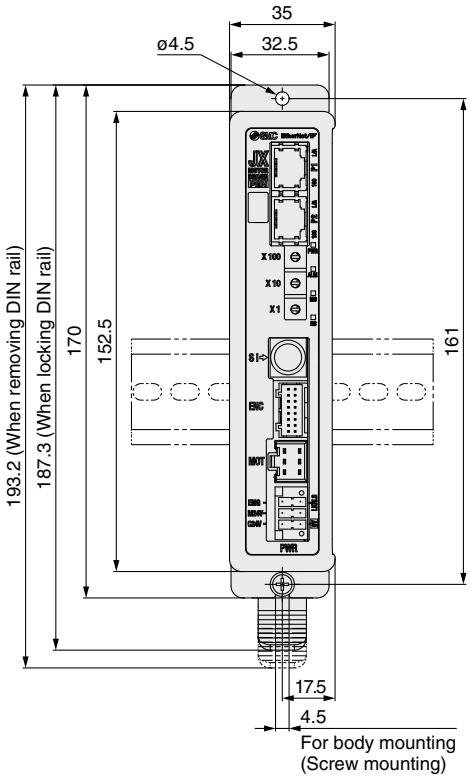
This should be used when the DIN rail mounting adapter is mounted onto a screw mounting type controller afterward.

Dimensions

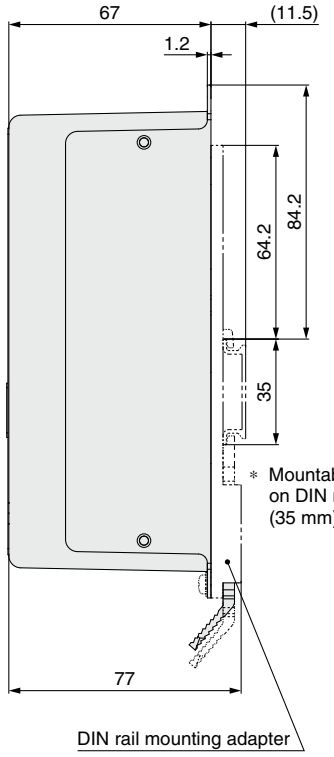
JXCE1



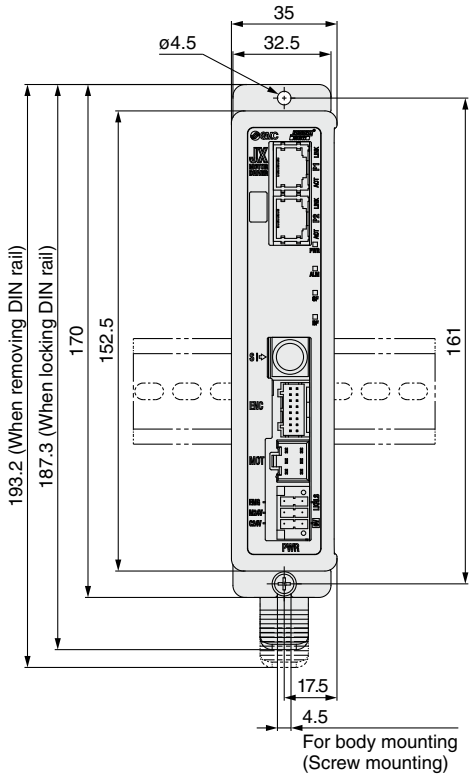
JXC91



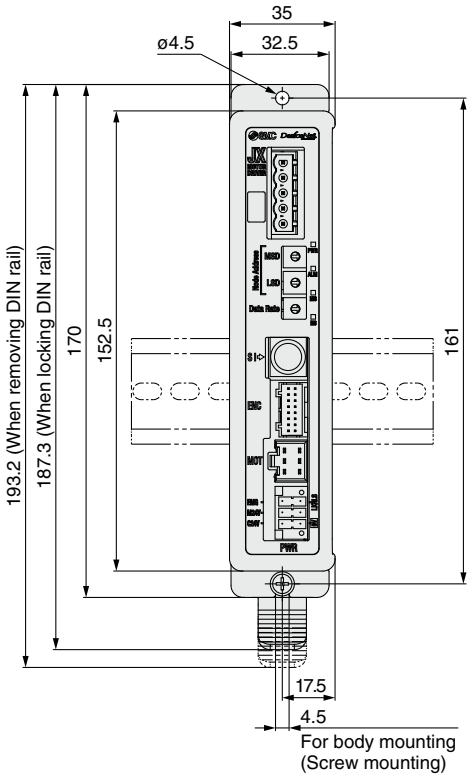
JXCE1/JXC91



JXCP1



JXCD1



JXCP1/JXCD1