

Compatible actuators



# Step Motor Driver

## LECPA Series



### How to Order

#### ⚠ Caution

##### [CE-compliant products]

- EMC compliance was tested by combining the electric actuator LE series and the LECPA series. The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.
- For the LECPA series (step motor driver), EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 736 for the noise filter set. Refer to the LECPA Operation Manual for installation.

##### [UL-compliant products]

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

## LECP AN 1 - LEFS16B-100

#### Driver type

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

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

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

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

#### Driver mounting

Nil	Screw mounting
D*1	DIN rail

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

#### Actuator part number

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

BC	Blank controller*1
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\*1 Requires dedicated software (LEC-BCW)

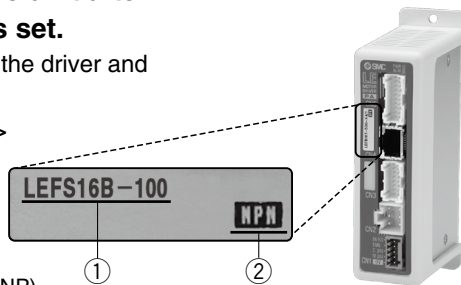
- \* When controller equipped type is selected when ordering the LE series, you do not need to order this driver.
- \* When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) separately.

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

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

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

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



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

### Precautions for blank controllers (LECPA□□-BC)

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

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

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

## Specifications

Item	LECPA
Compatible motor	Step motor (Servo/24 VDC)
Power supply*1	Power voltage: 24 VDC ±10%*2 [Including motor drive power, control power, stop, lock release]
Parallel input	5 inputs (Except photo-coupler isolation, pulse input terminal, COM terminal)
Parallel output	9 outputs (Photo-coupler isolation)
Pulse signal input	Maximum frequency: 60 kpps (Open collector), 200 kpps (Differential) Input method: 1 pulse mode (Pulse input in direction), 2 pulse mode (Pulse input in differing directions)
Compatible encoder	Incremental A/B phase (Encoder resolution: 800 pulse/rotation)
Serial communication	RS485 (Modbus protocol compliant)
Memory	EEPROM
LED indicator	LED (Green/Red) one of each
Lock control	Forced-lock release terminal*3
Cable length [m]	I/O cable: 1.5 or less (Open collector), 5 or less (Differential), Actuator cable: 20 or less
Cooling system	Natural air cooling
Operating temperature range [°C]	0 to 40 (No freezing)
Operating humidity range [%RH]	90 or less (No condensation)
Storage temperature range [°C]	-10 to 60 (No freezing)
Storage humidity range [%RH]	90 or less (No condensation)
Insulation resistance [MΩ]	Between the housing and SG terminal: 50 (500 VDC)
Weight [g]	120 (Screw mounting), 140 (DIN rail mounting)

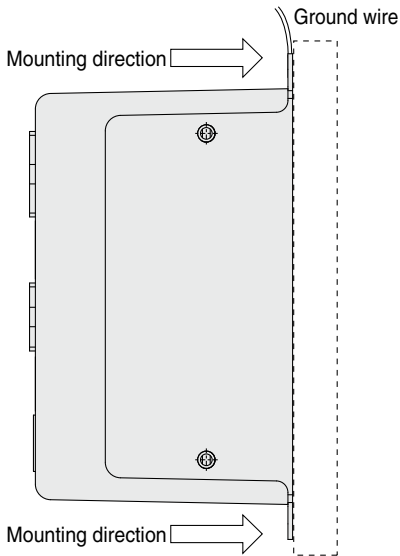
\*1 Do not use the power supply of "inrush current prevention type" for the driver power supply. When compliance with UL is required, the electric actuator and driver should be used with a UL1310 Class 2 power supply.

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

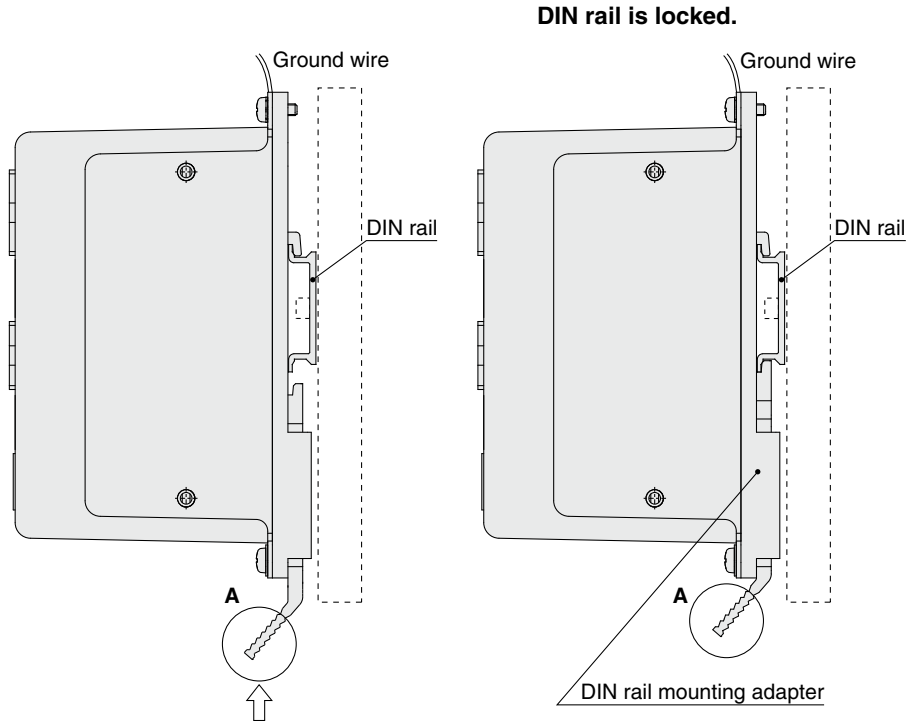
\*3 Applicable to non-magnetizing locks

## How to Mount

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



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

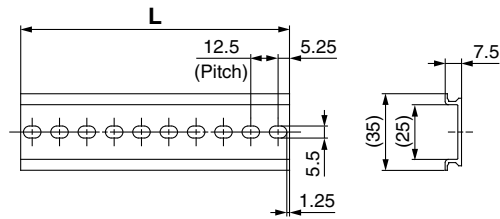


Hook the driver on the DIN rail and press the lever of section A in the arrow direction to lock it.

\* The space between the drivers should be 10 mm or more.

### DIN rail AXT100-DR-□

\* For □, enter a number from the No. line in the table below.  
Refer to the dimension drawings on page 733 for the mounting dimensions.



#### L Dimensions [mm]

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

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

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

LEFS  
LEFBLEJS  
LEJB

LEL

LEM

LEY  
LEYGLES  
LESHLEPY  
LEPS

LER

LEH

LEY-X5

11-LEFS

11-LEJS

25A-

LEC□

JXC□

LECS□  
LECS□-T

LECY□

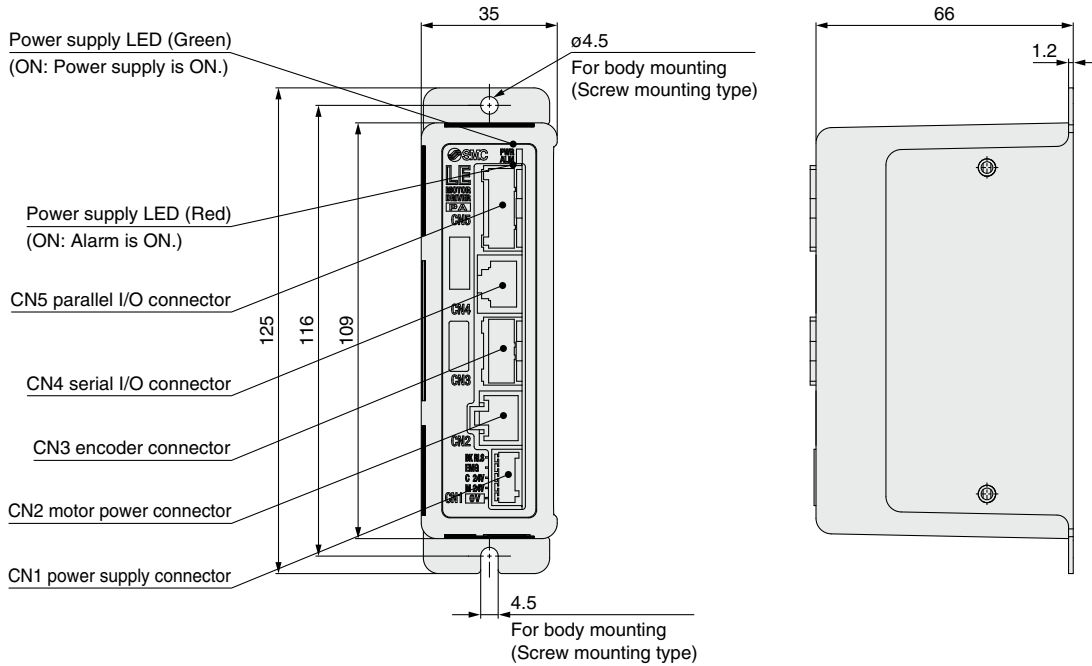
Motorless

LAT3

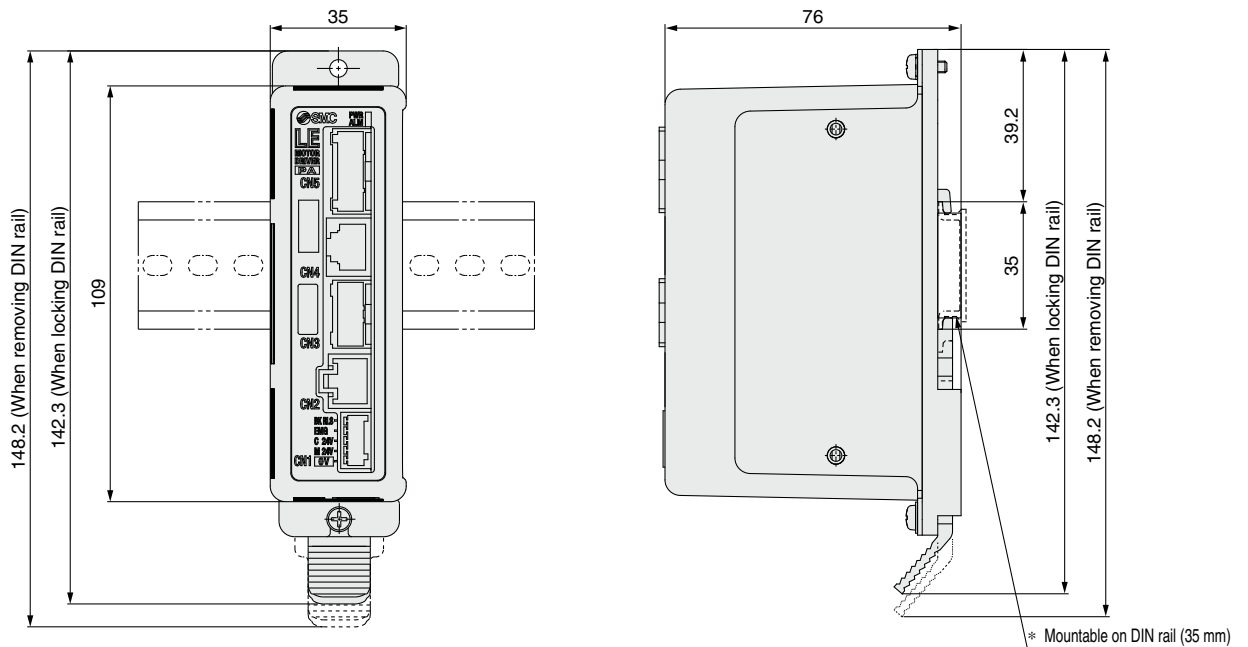
# LECPA Series

## Dimensions

### a) Screw mounting (LECPA□□-□)



### b) DIN rail mounting (LECPA□□D-□)



## Wiring Example 1

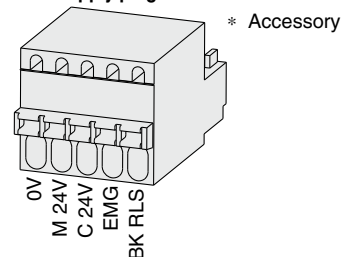
### Power Supply Connector: CN1

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

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

Terminal name	Function	Details
0V	Common supply (-)	The M 24V terminal, C 24V terminal, EMG terminal, and BK RLS terminal are common (-).
M 24V	Motor power supply (+)	Motor power supply (+) supplied to the driver
C 24V	Control power supply (+)	Control power supply (+) supplied to the driver
EMG	Stop (+)	Input (+) for releasing the stop
BK RLS	Lock release (+)	Input (+) for releasing the lock

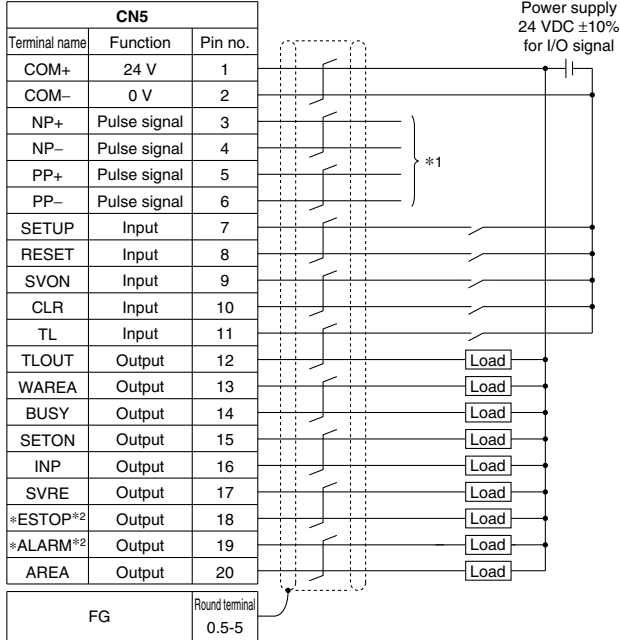
### Power supply plug for LECPA: LEC-D-1-1



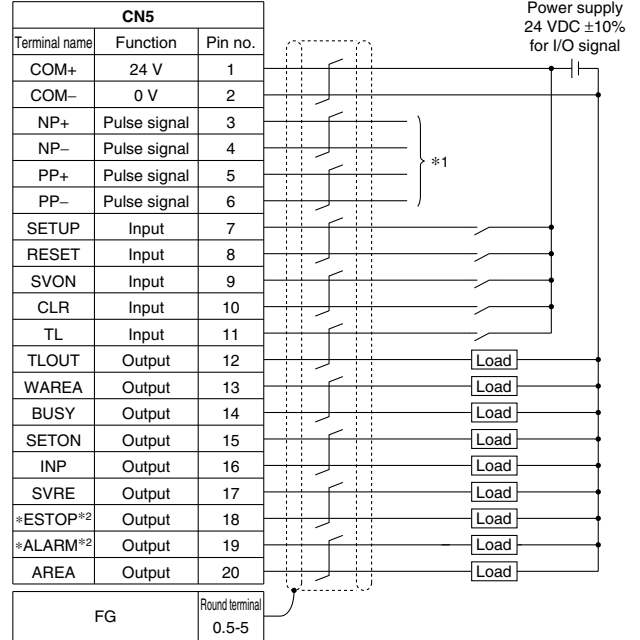
## Wiring Example 2

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

### LECPAN□□-□ (NPN)



### LECPAP□□-□ (PNP)



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

### Input Signal

Name	Details
COM+	Connects the power supply 24 V for input/output signal
COM-	Connects the power supply 0 V for input/output signal
SETUP	Instruction to return to origin
RESET	Alarm reset
SVON	Servo ON instruction
CLR	Deviation reset
TL	Instruction to pushing operation

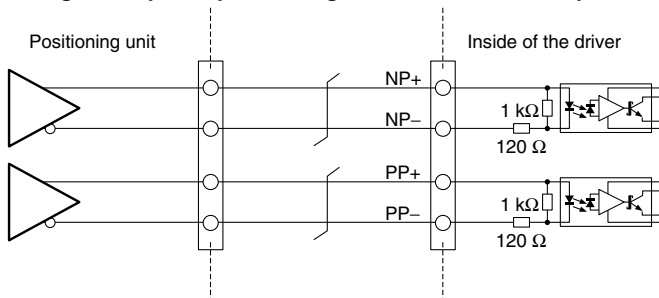
### Output Signal

Name	Details
BUSY	Outputs when the actuator is moving
SETON	Outputs when returning to origin
INP	Outputs when target position is reached
SVRE	Outputs when servo is ON
*ESTOP* <sup>3</sup>	OFF when EMG stop is instructed
*ALARM* <sup>3</sup>	OFF when alarm is generated
AREA	Outputs within the area output setting range
WAREA	Outputs within W-AREA output setting range
TLOUT	Outputs during pushing operation

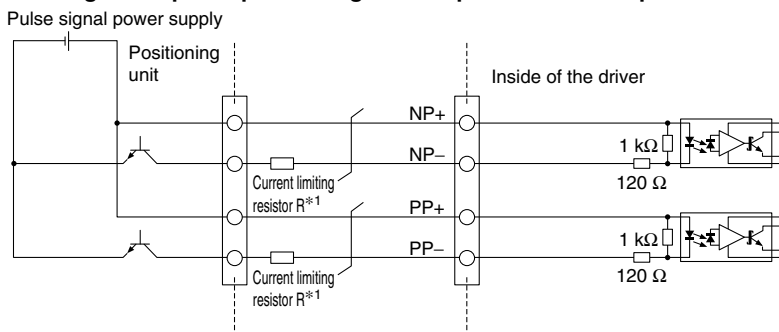
\*3 Negative-logic (N.C.) circuit signal

## Pulse Signal Wiring Details

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



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



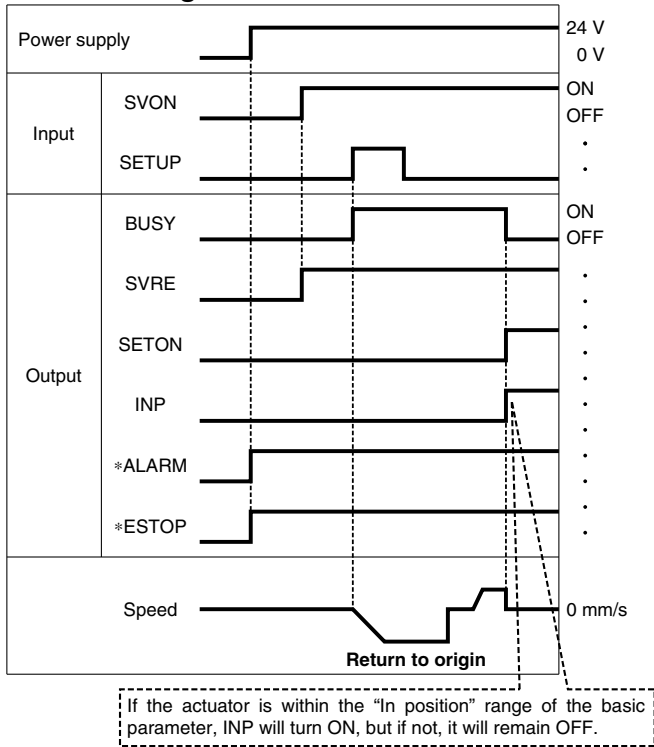
\*1 Connect the current limiting resistor R in series to correspond to the pulse signal voltage.

Pulse signal power supply voltage	Current limiting resistor R specifications	Current limiting resistor part no.
24 VDC ±10%	3.3 kΩ ±5% (0.5 W or more)	LEC-PA-R-332
5 VDC ±5%	390 Ω ±5% (0.1 W or more)	LEC-PA-R-391

- LEFS
- LEFB
- LEJS
- LEJB
- LEL
- LEM
- LEY
- LEYG
- LES
- LESH
- LEPY
- LEPS
- LER
- LEH
- LEH
- LEY-X5
- 11-LEFS
- 11-LEJS
- 25A-
- LEC□
- JXC□
- LECS□
- LECS□-T
- LECY□
- Motorless
- LAT3

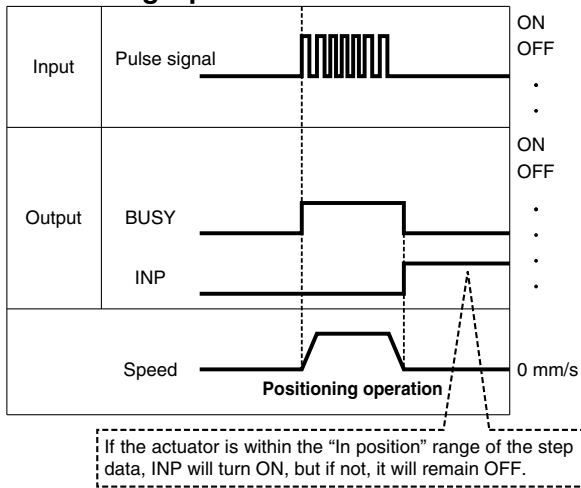
## Signal Timing

### Return to Origin

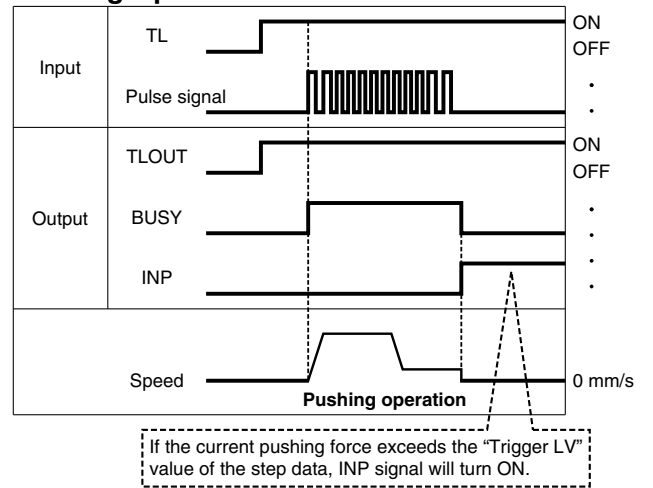


\* \*ALARM" and \*ESTOP" are expressed as negative-logic circuits.

### Positioning Operation

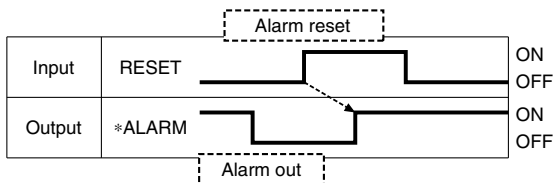


### Pushing Operation



\* If pushing operation is stopped when there is no pulse deviation, the moving part of the actuator may pulsate.

### Alarm Reset



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

## Options

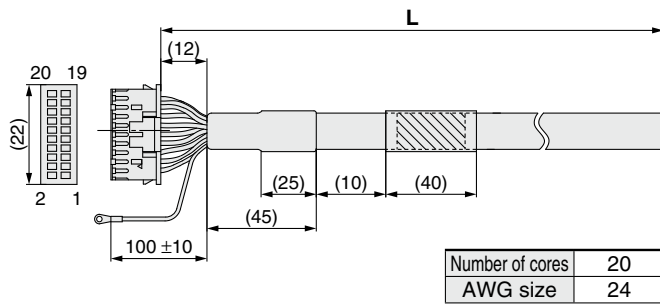
### [I/O cable]

## LEC-C L5 - 1

I/O cable type	
L5	For LECPA

I/O cable length (L)	
1	1.5 m
3	3 m*1
5	5 m*1

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



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

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

Round terminal	Color
0.5-5	Green

### Weight

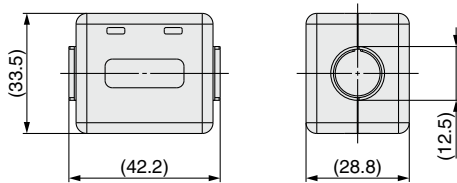
Product no.	Weight [g]
LEC-CL5-1	190
LEC-CL5-3	370
LEC-CL5-5	610

### [Noise filter set]

#### Step Motor Driver (Pulse Input Type)

## LEC-NFA

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



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

### [Current limiting resistor]

This optional resistor (LEC-PA-R-□) is used when the pulse signal output of the positioning unit is open collector output.

## LEC-PA-R-□

### Current limiting resistor

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

- \* Select a current limiting resistor that corresponds to the pulse signal power supply voltage.
- \* For the LEC-PA-R-□, two pieces are shipped as a set.
- \* For pulse signal wiring details, refer to page 734.

- LEFS
- LEFB
- LEJS
- LEJB
- LEL
- LEM
- LEY
- LEYG
- LES
- LESH
- LEPY
- LEPS
- LER
- LEH
- LEY-X5
- 11-LEFS
- 11-LEJS
- 25A-
- LEC
- JXC
- LECS
- LECS-T
- LECY
- Motorless
- LAT3