



Operation Manual

PRODUCT NAME

***Electric Actuator / Rod Type
Dust-tight / Water-jet-proof
(IP65 Equivalent / IP67 Equivalent)***

MODEL / Series / Product Number

LEY Series
Applicable models: LEY□E-X8



※This manual describes the dedicated terms for **“LEY□E-X8”**

Refer to the manual of LEY series about other details. (No.LEY-OM00212)

※Refer to the manual relevant to the controller being used for full operating instructions.

SMC Corporation

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LEY/LEYG Series/Electric Actuator 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.

*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: Manipulating industrial robots -Safety.

etc.



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.

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.



LEY/LEYG Series/Electric Actuator Safety Instructions

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 regulation 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.

Products that SMC manufactures or sells are not measurement instruments that are qualified by pattern approval tests relating to the measurement laws of each country.

Therefore, SMC products cannot be used for business or certification ordained by the measurement laws of each country.

1. Rod type / LEY Series

1.1 Specification

Model		LEY 25□E-X8			LEY 32□E-X8			LEY 40□E-X8			
Work load [kg] ^{Note 1)}	Horizontal	(3000 [mm/s ²])	20	40	60	30	45	60	50	60	80
		(2000 [mm/s ²])	30	55	70	40	60	80	60	70	90
	Vertical	(3000 [mm/s ²])	7	15	29	10	21	42	12	26	52
Pushing force [N] ^{Note 2) Note 3) Note 4)}			63 to 122	126 to 238	232 to 452	80 to 189	156 to 370	296 to 707	132 to 283	266 to 553	562 to 1058
Speed [mm/s] ^{Note 4)}			18 to 400	9 to 200	5 to 100	24 to 400	12 to 200	6 to 100	24 to 400	12 to 230	6 to 110
Max acceleration/deceleration [mm/s ²]			3,000								
Pushing speed [mm/s] ^{Note 5)}			35 or less			30 or less			30 or less		
Positioning repeatability [mm]			+/- 0.02								
Lost motion [mm] ^{Note 6)}			0.1 or less								
Lead [mm]			12	6	3	16	8	4	16	8	4
Impact resistance/vibration Resistance [m/s ²] ^{Note 7)}			50/20								
Drive method			Ball screw (LEY*D)								
Guide type			Sliding bush (Piston rod part)								
Enclosure ^{Note 8)}			IP65equivalent / IP67 equivalent ^{Note 14)}								
Operating temperature range [°C]			5 to 40								
Operating humidity range [%RH]			90 or less (No condensation)								
Motor size	□42			□56.4			□56.4				
	Type of Motor		Battery-less absolute (Step motor 24 VDC)								
	Encoder		Battery-less absolute (4096 pulse / rotation)								
	Rated voltage [VDC]		24VDC +/- 10%								
	Power consumption [W] ^{Note 9)}		40			50			50		
	Standby power consumption when operating [W] ^{Note 10)}		15			48			48		
Moment max. power Consumption [W] ^{Note 11)}		48			104			106			
Lock unit specifications	Rated voltage ^{Note 12)}		No excitation operating type								
	Holding force [N]		78	157	294	108	216	421	127	264	519
	Power consumption [W] ^{Note 13)}		5			5			5		
	Rated voltage [V]		24 VDC +/- 10%								

- Horizontal: The maximum value of the work load. An external guide is necessary to support the load. (Friction coefficient of guide: 0.1 or less)
The actual work load and transfer speed change according to the condition of the external guide. Also, speed changes according to the work load.
Vertical: Speed changes according to the work load. Check "Model Selection" in the Catalog.
- Pushing force accuracy is ±20% (F.S.).
- The pushing force values for LEY25□□E is 30% to 50%, for LEYG32□□E is 30% to 70% and for LEYG40□□E is 35% To 65%.
- The speed and force may change depending on the cable length, load and mounting conditions. Furthermore, if the cable length exceeds 5m, then it will decrease by up to 10% for each 5m. (At 15m: Reduced by up to 20%)
- The allowable speed for the pushing operation.
- A reference value for correcting an error in reciprocal operation
- Impact resistance: No malfunction occurred when it was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the electric actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the electric actuator in the initial state.)
- Do not use the product in an environment where it is exposed to oils such as cutting oil, and water.
Please install an appropriate protective countermeasure.
Refer to the table below for details of the enclosure rating.
- The Power consumption (including the controller) is for when the electric actuator is operating.
- The standby power consumption when operating (including the controller) is for when the electric actuator is stopped in the set position during operation.
Except during the pushing operation.
- The maximum instantaneous power consumption (including the controller) is for when the electric actuator is operating. This value can be used for the selection of the power supply.
- With lock only
- For an electric actuator with lock, add the power consumption for the lock.
- Excludes the controller body and the connector part on the controller side.

Details of enclosure rating

Enclosure rating			Details
IP65	Solid foreignobjects	Dust-tight	Dust particles are prevented from entering the device.
	Entry of water	Water-jet-proof	The direct application of water jets to the device from any direction will not cause any damage.
IP67	Solid foreign objects	Dust-tight	Dust particles are prevented from entering the device.
	Entry of water	Immersible	The amount of water that enters the device when the electric actuator (in the stopped state) is submersed in up to 1 m of water for up to 30 mins will not cause any damage.

*Be sure to take appropriate protective measures if the product is to be used in an environment where it will be constantly exposed to water or fluids other than water splash.

In particular, the product cannot be used in environments where oils, such as cutting oil or cutting fluid, are present.

1.2 How to Order

LEY 25 D E B - 50 [] [] [] - M1 CD17T - X8

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

Refer to the catalog for Controller.

• Made to order:
Dust-tight/
Water-jet-proof

① Size

25
32
40

② Motor mounting position

D	In-line
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③ Motor type

E	Battery-less absolute (Step motor 24 VDC)
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④ Lead [mm]

Symbol	LEY25	LEY32/40
A	12	16
B	6	8
C	3	4

⑤ Stroke [mm]

30	30
to	to
500	500

* For details, refer to the applicable stroke table below.

⑥ Motor option

Nil	Without option
B	With lock

⑦ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

⑧ Mounting*2

Symbol	Type	Motor mounting position
		In-line
Nil	Ends tapped/ Body bottom tapped*3	●
F	Rod flange*3	●

⑨ Actuator cable type/length

Robotic cable			[m]
MN	None	M8	4
M1	1.5	MA	4
M3	3	MB	4
M5	5	MC	4

⑩ Controller

Refer to the catalog for Controller.

Applicable Stroke Table*1

●: Standard

Model	Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range
LEY25		●	●	●	●	●	●	●	●	●	—	—	30 to 400
LEY32/40		●	●	●	●	●	●	●	●	●	●	●	30 to 500

⚠ Caution

Electric actuator and controller are sold as a set.

When purchasing without controller, make sure that the combination of electric actuator and controller is correct.

<Be sure to check the following before use.>

(1) "Electric actuator matches "Electric actuator part number described in controller.

Example) Electric actuator number: LEY25DEB-50-M1CD17T-X8

(1)

(1)

LEY25DEB-50



2. Specific product precautions

About precautions for installation of electric actuator, refer to [Specific precautions for Battery-less absolute encoder] that is described in the manual of used controller.

Precautions for use

1. Please install the tube. (Outside diameter of applicable tube: $\Phi 4$)
Please set up the tube end in the place where water doesn't splash.
2. If grease lubrication performance is reduced due to operating environment or operating conditions, please re-apply grease.
Grease must be applied to the scraper (piston rod) and the ball screw shaft.
Refer to the table below for the grease required.

Maintenance period (approx.)

Scraper (piston rod)	1 million full strokes or 200 km.
Ball screw shaft	Approximately 6 months

Grease pack order number (Arrange separately): GR-S-010 (10g), GR-S-020 (20g), GR-S-400 (400g)
Please contact us for the Maintenance Manual.

3. It is recommended that apply the appropriate covering to the electric actuator in the environment of splashing the liquid other than water.
In particular, it can not be used environments where splashing the oil like a cutting oil or a cutting fluid.
4. Connect the electric actuator to all actuator cables before use.
Enclosure rating is only effective when all actuator cables are connected.
As the enclosure rating is not applied to the controller and the controller side connectors of the actuator cables, please locate them in an environment where they are not exposed to water or dust particles.

Revision history

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