



# To Use This Product Safely

Please be sure to read this before use.

When designing equipment that uses electric actuators, you have an obligation to check that the safety of the system operated by the equipment's mechanical mechanism and the controlling electrical system can be ensured, and to manufacture safe equipment. To use our products safely, it is important to select and use them correctly, handle them properly, and perform appropriate maintenance. To ensure the safety of the equipment, be sure to observe the warnings and Precautions for Use. In addition, please check that safety can be ensured in the equipment and manufacture safe equipment.

## WARNING

- 1

This product is designed and manufactured as a component for general industrial machinery. Therefore, it should be handled by a person with sufficient knowledge and experience.
- 2

Use the product within its specification range.  
Use outside of the product's specific specifications is not possible. Also, never modify or perform additional machining on the product. This product is intended for use in general industrial machinery equipment and parts, so it is not applicable for outdoor use or for use under the conditions or in the environments shown below. (However, this applies if you consult with us before adoption and agree to our product specifications. In the unlikely event of a failure, please take safety measures to avoid danger.)  

1

Use in applications where safety is required, such as nuclear power, railways, aviation, marine vessels, vehicles, medical equipment, equipment that comes into direct contact with food and beverages, amusement equipment, emergency operation (shut-off, release, etc.) circuits, press machines, brake circuits, and safety measures.  

2

Use in applications where a significant impact on people or property is expected and where special safety is required.
- 3

Regarding safety related to equipment design, be sure to comply with organizational standards, regulations, etc.
- 4

Never remove the equipment until safety has been confirmed.  

1

Before inspecting or servicing machinery and equipment, confirm that safety has been ensured for all systems related to this product.  

2

Even when operation is stopped, there may be hot or electrically charged parts. Please proceed with caution.  

3

When inspecting or servicing equipment, turn off the power to the device and the relevant facilities, and be careful to avoid electric shock.
- 5

To prevent accidents, be sure to observe the instruction manual and Precautions for Use for each product.  

1

During teaching operations or trial runs, the actuator may move unexpectedly. Be very careful not to put your hands near the actuator. If operating from a position where the shaft body is not visible, always confirm that it is safe for the actuator to move before operating.
- 6

To prevent electric shock, be sure to observe the Precautions for Use.  

1

Do not touch the heat sink, cement resistors, or motor inside the controller.  
It is hot and can cause burns. Please allow sufficient time to pass before performing inspections or other work.  

2

Before maintenance or inspection, turn off the switch at the controller's power source before starting work.  
There is a risk of electric shock from high voltage.  

3

Do not attach or detach connectors while the power is on. There is a risk of malfunction, failure, or electric shock.
- 7

Install an overcurrent protection device.  
Wiring to the driver should be done in accordance with JIS B 9960-1:2019 (IEC 60204-1:2016) Safety of machinery - Electrical equipment of machines - Part 1: General requirements. Install overcurrent protection devices (molded case circuit breakers, circuit protectors, etc.) for the main power, control power, and I/O power supplies.  
(Reference: JIS B 9960-1 7.2.1 General description)  
If the circuit current may exceed the lesser of the rated value of the components or the allowable current of the conductor, overcurrent protection must be provided. Details on the selected rated value or set value are specified in 7.2.10.
- 8

To prevent accidents, be sure to observe the following Precautions for Use.

In the Precautions for Use shown here, the safety precaution ranks are distinguished as "DANGER," "WARNING," and "CAUTION."

- !

**DANGER:** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.  
(DANGER)
- !

**WARNING:** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.  
(WARNING)
- !

**CAUTION:** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury or property damage.  
(CAUTION)

Note that even items listed under "CAUTION" may lead to serious consequences depending on the situation. All of these are important, so please be sure to follow them.

## Warranty

- 1

Warranty Period  
The warranty period for this product is one year after delivery to your specified location.
- 2

Scope of Warranty  
If a failure clearly attributable to our company occurs during the above warranty period, we will provide a replacement for this product, necessary replacement parts free of charge, or repair it at our factory free of charge. However, cases corresponding to the following items are excluded from the scope of this warranty.  

1

Handling or use under conditions or in environments other than those described in the catalog, specifications, and instruction manual  

2

When durability (number of cycles, distance, time, etc.) is exceeded, and for reasons related to consumable parts  

3

When the cause of the failure is due to reasons other than the product itself  

4

Use for purposes other than the original use of the product  

5

When the cause is modification or repair not involving our company  

6

In cases arising from circumstances that could not be foreseen with the technology available at the time of delivery  

7

In cases due to causes for which our company is not responsible, such as natural disasters

Note that the warranty here pertains to the delivered product alone, and damages induced by a defect in the delivered product are excluded.  
\* For durability and consumable parts, please contact your nearest sales office.
- 3

Confirmation of Suitability  
Please confirm the suitability of our product for the system, machine, or device you will be using at your own responsibility.
- 4

Scope of Services  
The price of the delivered product does not include service fees for dispatching engineers. In the following cases, a separate fee will be charged.  

1

Guidance on installation and adjustment, and attendance at trial runs  

2

Maintenance inspections, adjustments, and repairs  

3

Technical guidance and training (operation, programming, wiring methods, safety education, etc.)

## Precautions for Export

About the products and related technologies published in this catalog  
For products or related technologies described in this catalog that are subject to the regulations of the U.S. Export Administration Regulations (EAR), an indication of EAR-subject items is provided on the product page. If you export or provide products or related technology subject to EAR regulations, please comply with the U.S. Export Administration Regulations (EAR).



# To ensure the safe use of this product

Please read carefully before use.

## Specific Precautions: Electric Actuator with Built-in Controller, LRX Series

### During Design and Selection

#### ⚠ DANGER

- Do not use in locations where hazardous materials such as ignitable, flammable, or explosive substances are present. Doing so may cause ignition, fire, or explosion.
- Ensure that the product is not exposed to water droplets, oil droplets, etc.  
This can cause fire or malfunction.

- When mounting the product, be sure to hold and secure it (including the workpiece) firmly.  
Tipping, dropping, or abnormal operation of the product can cause injury. As a general rule, secure the product using all mounting holes.

- Be sure to use a regulated DC power supply (24 VDC  $\pm 10\%$ ) for the motor and control power.  
Direct connection to an AC power supply will cause fire, bursting, or damage. If the cable length exceeds 5 m, please use 24 VDC  $\pm 5\%$ .

#### ⚠ WARNING

- Use the product within its specified range.
- Install a safety guard fence to prevent entry into the movable range of the electric actuator. Also, in preparation for emergencies, install an emergency stop push-button switch for the equipment in an easily accessible location. The emergency stop push-button must not reset automatically and should be structured and wired so that it cannot be reset inadvertently by a person.
- When an emergency stop is performed, it may take several seconds for the actuator to stop, depending on the speed of movement and the mounted load.
- Design a safety circuit or device to prevent equipment damage or personal injury in the event that the machine stops due to a system abnormality such as an emergency stop or power failure.
- Mount indoors in a location with low humidity.  
In locations exposed to rainwater or high humidity (over 80% humidity, or where condensation occurs), there is a risk of electrical leakage or fire. Exposure to oil droplets and oil mist is also strictly prohibited. Use in such environments will cause damage or malfunction.
- The product must be D-type grounded (ground resistance of 100  $\Omega$  or less).  
In the event of an electrical leakage, there is a risk of electric shock or malfunction.
- If using the actuator in an orientation other than horizontal or wall-mounted, select the model with a brake.  
Without a brake, when the servo is OFF (including during an emergency stop or alarm) or when the power is OFF, the movable part may fall, posing a risk of injury or damage to the workpiece.

- The brake cannot completely hold the actuator in all situations. When performing maintenance on applications that move an unbalanced load, or when stopping the machine for an extended period, always ensure a balanced state or install a mechanical locking mechanism to ensure safety.

- When the actuator is installed vertically, do not shut off the control power while the workpiece is being held by the servo ON state.  
Turn off the control power while the position is held by the brake. The workpiece may fall under its own weight, posing a risk of product damage.

- When using the actuator in a vertical orientation, position the motor on the upper side whenever possible.  
If the motor is positioned on the lower side, there is no issue during normal operation, but during long periods of stoppage, grease may separate and flow into the motor, which in rare cases can cause problems.

- Use and store the product within the specified temperature range and in a condensation-free state.  
Storage temp.: -10°C to 50°C, Storage humidity: 35% to 80%,  
Operating temp.: LRXE = 10 to 40°C, LRXG = 0 to 40°C,  
Operating humidity: 35% to 80% (This can cause abnormal product stoppage or reduced service life.) Ventilate if heat accumulates.

- Do not use in locations where condensation may occur due to sudden changes in ambient temperature.

- Install in a location free from direct sunlight, dust, nearby heat sources, corrosive gases, explosive gases, flammable gases, and combustible materials. Also, this product has not been designed with chemical resistance in mind.  
This can cause malfunction, explosion, or fire.

- Use and store in a location free from strong electromagnetic waves, ultraviolet rays, and radiation.  
This can cause malfunction or failure.

- Consider the possibility of a power source failure.  
Take measures to ensure that a failure of the power source does not cause harm to personnel or damage to the equipment.

- Consider the operational state when restarting after an emergency stop or abnormal stop.  
Design the system so that restarting does not cause harm to personnel or damage to the equipment. If it is necessary to reset the electric actuator to a starting position, design a safe control device. Consider the possibility of a failure of the installed motor. Take measures to ensure that a failure of the power source does not cause harm to personnel or damage to the equipment.

- Do not use in locations subject to impact or vibration.

- Do not apply a load to the product that exceeds the allowable values in the selection materials.

- When pushing a workpiece, etc., please use the pushing operation.

- In cases where there is a risk of danger to the human body, install a protective cover.

If the driving part of the actuator poses a risk of danger to the human body, install a protective cover. The structure must prevent entry into the actuator's range of motion and direct contact with that area by the human body.

- Take necessary measures in advance to ensure that if this product fails, it does not adversely affect people or property.

#### ⚠ CAUTION

- Use the product within a range where the moving table and rod do not collide with the stroke end.

- Clearly state the maintenance conditions in the equipment's instruction manual.

The function of this product can be significantly degraded, and safety may not be ensured, depending on the usage situation, operating environment, and maintenance. If maintenance is performed correctly, the product's functions can be fully utilized.

- The product is manufactured in accordance with various standards. Never disassemble or modify it.

- The suitability of our product for the system, machine, or equipment to be used by the customer should be confirmed by the customer at their own responsibility.

- Wire in a way that does not induce noise.  
Avoid locations where large currents or strong magnetic fields are generated. Do not route in the same wiring (e.g., in a multi-core cable) as the power lines for large motors other than this product. Do not route in the same wiring as the inverter power supply or wiring used for robots, etc. Apply a frame ground to the power supply and insert a filter at the output section.

- Do not use in an environment where strong magnetic fields are generated.  
This can cause malfunction.

- Separate the power supply for the output section of this product from the power supply for inductive loads that generate surges, such as solenoid valves and relays.  
If the power supply is shared, surge current can flow back into the output section, causing damage. If a separate power supply cannot be used, connect a surge suppressor directly in parallel with every inductive load.

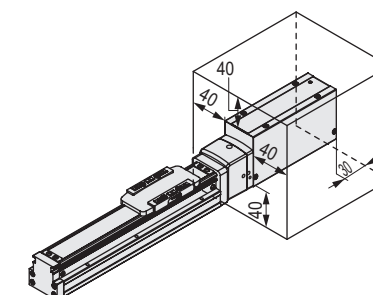
- During power-ON, the actuator performs an origin detection sequence. If an external stopper or holding mechanism (e.g., a brake) is present, the actuator may incorrectly recognize an unintended position as the origin. Please pay attention to the placement of external stoppers to ensure the origin can be reliably detected after power-ON.

- When using the LRXE/LRXG series, do not subject the surface of the motor section to a magnetic field with a magnetic flux density of 0.7 mT or greater.  
Doing so may cause product damage or malfunction.

## LRX Series

### Specific Precautions

- When installing multiple LRXE/LRXG series units, separate the motor sections by at least the distance shown in the diagram below.  
Failure to maintain this distance may cause malfunction.



- When transporting or installing, do not carry the product by its moving parts or cable.  
Doing so may cause injury or cable damage.



- When transporting and mounting the actuator, hold the main body and ensure that excessive force is not applied to the motor section.

- Ensure that the workpiece attached to the slider does not interfere with the motor section.  
On some models, the dimensions of the motor section are larger than the height of the slider mounting surface.

- Durability varies depending on factors such as the transport load and environment. Ensure that settings such as the transport load have a sufficient operating margin.

- Do not subject the moving parts to impact.

- Install the product so that it is not subjected to torsional or bending forces.

- Do not use in locations exposed to ultraviolet rays or in atmospheres containing corrosive gases, salt, etc.  
This may lead to performance degradation, abnormal operation, or reduced strength due to corrosion.

- For the LRXE-BS series (slider type), the flatness of the installation surface must be 0.05 mm / 200 mm or less.

- For the LRXE-BS series (slider type), the flatness of the workpiece mounting surface on the slider must be 0.02 mm or less, and do not subject the product to torsional or bending forces.  
Doing so may cause product damage or malfunction.

- When using the positioning holes, use pins dimensioned to prevent a press-fit. Using press-fit pins may damage the linear guide due to the press-fitting load or cause reduced accuracy due to distortion. The recommended tolerance for the pins is JIS tolerance m6 or less.

- For the LRXG series (guided type), avoid making dents or scratches on the main body (tube) mounting surface or the end plate surface that could impair flatness. As a guideline, the flatness of the mating surface that attaches to the end plate should be 0.03 mm or less.

For precautions regarding mounting, installation, adjustment, use, and maintenance, please see the Instruction Manual on the CKD Components website (<https://www.ckd.co.jp/kiki/en/>) → "Model No." → [Instruction Manual](#).