Safety Precautions

Be sure to read this section before use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.
It is important to select, use, handle and maintain the product appropriately to ensure that the CKD product is used safely.
Observe warnings and precautions to ensure device safety.
Check that device safety is ensured, and manufacture a safe device.

WARNING

1 This product is designed and manufactured as a general industrial machine part.
It must be handled by an operator having sufficient knowledge and experience.

2 Use this product in accordance with specifications.

This product must be used within its stated specifications. In addition, never modify or additionally machine this product.
This product is intended for use in general industrial machinery equipment or parts. It is not intended for use outdoors (except for products with outdoor specifications) or for use under the following conditions or environments.
(Note that this product can be used when CKD is consulted prior to its usage and the customer consents to CKD product specifications. The customer should provide safety measures to avoid danger in the event of problems.)

❶ Use for applications requiring safety, including nuclear energy, railways, aircraft, marine vessels, vehicles, medical devices, devices or applications in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
❷ Use for applications where life or assets could be significantly affected, and special safety measures are required.

3 Observe organization standards and regulations, etc., related to the safety of device design and control, etc.

ISO4414, JIS B 8370 (Pneumatics fluid power - General rules and safety requirements for systems and their components)
JFPS2008 (Principles for pneumatic cylinder selection and use)
Including the High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, organization standards and regulations, etc.

4 Do not handle, pipe, or remove devices before confirming safety.

❶ Inspect and service the machine and devices after confirming safety of all systems related to this product.
❷ Note that there may be hot or charged sections even after operation is stopped.
❸ When inspecting or servicing the device, turn OFF the energy source (air supply or water supply), and turn OFF power to the facility.Discharge any compressed air from the system, and pay attention to possible water leakage and leakage of electricity.
❹ When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.

5 Observe warnings and cautions in the following pages to prevent accidents.

■ The precautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

DANGER: When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, and when there is a high degree of emergency to a warning.

WARNING: If handled incorrectly, a dangerous situation may occur, resulting in death or serious injury.

CAUTION: When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as "CAUTION" may lead to serious results depending on the situation.
Every item provides important information and must be observed.

Warranty

1 Warranty period

The product specified herein is warranted for one (1) year from the date of delivery to the location specified by the customer.

2 Warranty coverage

If the product specified herein fails for reasons attributable to CKD within the warranty period specified above, CKD will promptly provide a replacement for the faulty product or a part thereof or repair the faulty product at one of CKD's facilities free of charge.
However, following failures are excluded from this warranty:

1) Failure caused by handling or use of the product under conditions and in environments not conforming to those stated in the catalog, the Specifications, or the Instruction Manual.
2) Failure caused by use of the product exceeding its durability (cycles, distance, time, etc.) or caused by consumable parts.
3) Failure not caused by the product.
4) Failure caused by use not intended for the product.
5) Failure caused by modifications/alterations or repairs not carried out by CKD.
6) Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
7) Failure caused by acts of nature and disasters beyond control of CKD.

The warranty stated herein covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.
Note: For details on the durability and consumable parts, contact your nearest CKD sales office.

3 Compatibility check

The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

Safety Precautions

Be sure to read this section before use.
For general precautions for Fine System equipment, refer to the “Wet Fine Equipment General Catalog” (Catalog No. CB-031AA).

CAUTION

- Install the product at a position higher than the upper limit of the liquid tank to be detected to prevent reverse flow of the detection liquid.
- Install this product in a location that is not exposed to chemical liquid atmospheres.
- Detection in sealed liquid tanks and similar liquid tanks is not possible.
- For the supply gas, use gas that has been filtered for dust and oil by passing it through a submicron filter and micro-coalescer.
- Use a low-pressure regulator with oil-free processing.
- Use a detection tube with an inner diameter of ø4 mm.
- Do not install anything that will create resistance, such as a throttle, in the middle of the piping.
- Do not stop the supply pressure. The chemical liquid atmosphere may flow back from the detection tube to the sensor and cause adverse effects.
- Do not block the P.I. port, EXT port or its piping. Working pressure is directly applied to the diaphragm for the KML502 Series and to the sensor chip for the KML60/KML703 Series, which may cause damage.

KML502 Series

- Install with the micro switch and reed switch facing up.

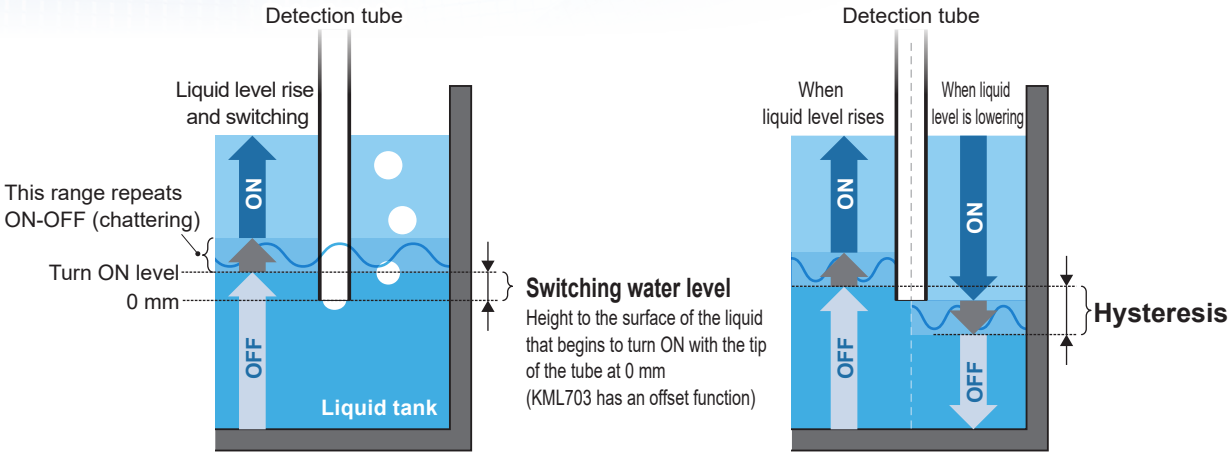
KML60 Series

- When using a mix manifold MXKML2 with the KML502 Series, refer to the Safety Precautions for the KML502 Series.

KML703 Series

- When using the differential pressure method, install the cylinder at a position where the ambient pressure is higher than the upper limit of the liquid tank. (0.1 m per 1 kPa environmental pressure is a guideline)

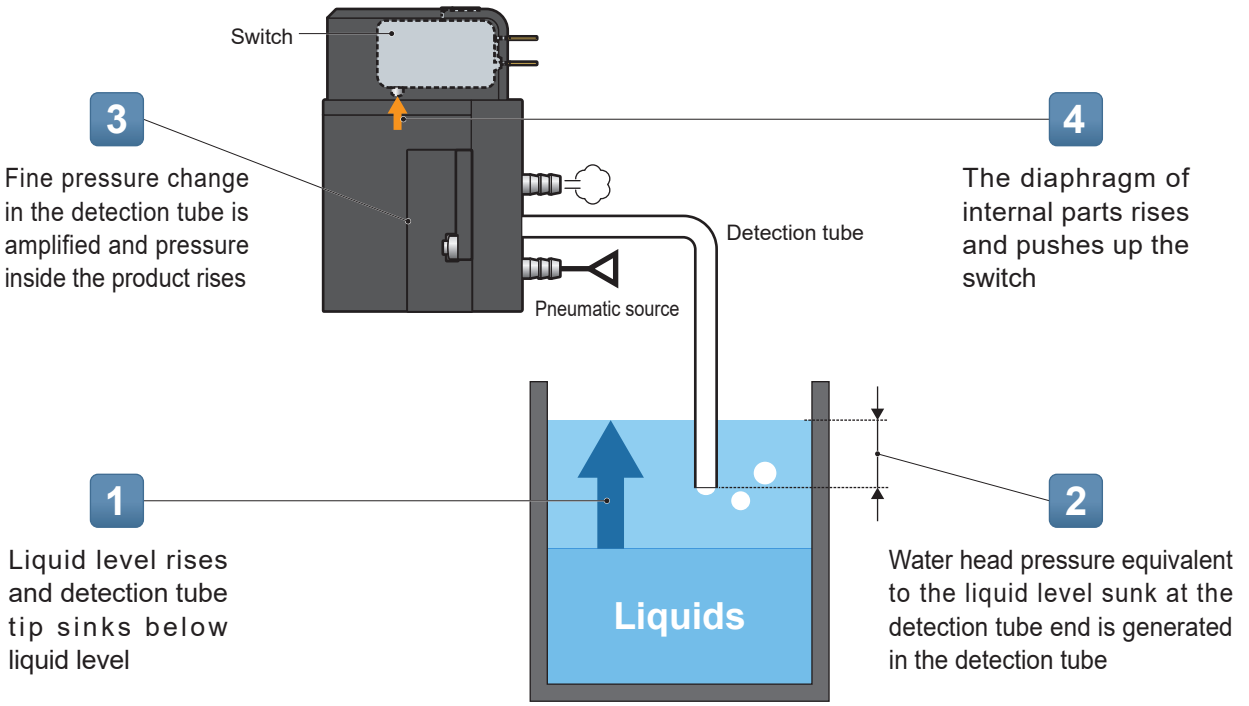
Glossary



Repeatability
Variation of switching water level when detected continuously under the same conditions

* The detection tube end is 0 mm.
* The state before switching (contact point switching) is shown as OFF, and the state after switching is shown as ON.
* The switching water level is fixed at 1 point for KML502, arbitrarily set at 4 points for KML60, and arbitrarily set at 8 points for KML703.

Operational principle (example: KML502)



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