Safety Precautions

Always 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 in handling.

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 use and the customer consents to CKD product specifications. The customer must provide safety measures to avoid risks 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 (General rules for pneumatic systems)
JFPS2008 (Principles for pneumatic cylinder selection and use)
Including High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, body 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.

Limited warranty and disclaimer

1 Warranty period

This warranty shall be valid for one year after delivery to the customer's designated site.

2 Scope of warranty

If any faults, found to be the responsibility of CKD, occur during the above warranty term, the product shall be replaced, the required replacement parts provided free of charge, or shall be repaired at the CKD factory free of charge.
This Limited Warranty will not apply to:
(1) Failures due to use outside the conditions and environments set forth in the catalog or these specifications.
(2) Failures resulting from factors other than this product.
(3) Failures caused by improper use of the product.
(4) Failures resulting from modifications or repairs made without CKD consent.
(5) Failures caused by matters that could not be predicted with the technologies in practice when the product was delivered.
(6) Failures resulting from natural disasters or accidents for which CKD is not liable.
The warranty covers the actually delivered product, and does not cover any damage resulting from losses induced by faults in the delivered product.

3 Compatibility check

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

Safety Precautions

Always read this section before use.
Refer to "Pneumatic, Vacuum and Auxiliary Components (No. CB-024SA)" for pneumatic components general precautions.
The above catalogs indicate that the products cannot be used for components or applications involving direct contact with beverages or foodstuffs. However, the FP2 Series can be used for such applications, as long as product use remains within specification ranges.

Inline Oxygen Monitor PNA Series

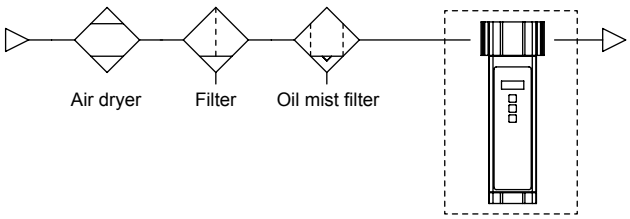
Design/selection

■ Working environment
- Avoid installing this product where it will be subject to direct sunlight or rain.
- Using the inline oxygen monitor in the following atmospheres may cause measurement errors and lower performance of components and the detection element.
- Use outside the 0 to 50°C temperature range or with elements other than air causes significant measurement errors. Avoid using in such conditions.
- Air containing freon gas, silicon-based gas, SOx (sulfur oxide), H_2S (hydrogen sulfide) or other corrosive gases, Cl_2 (chlorine), F_2 (fluorine), Br_2 (bromine) or other halogen gases, or air that separates into these gases at high temperatures of approx. 500°C cannot be used.
- Use with air that contains combustible gas causes the gas to burn, lowering indications.
- Use with air containing large amounts of dust or oil mist leads to element deterioration.
- Coming into contact with water drops, solutions, or other liquids leads to element damage.
- Use in locations subject to strong impacts or vibration leads to element damage.
- Location with a strong magnetic field and strong electrical noise.
- Indications are not stabilized in environments in which pressure pulses (continuously changes) on a short cycle. Static pressure must be used to ensure stable measurements.

■ "Food Sanitation Act compliant" refers to products with materials conforming to the Food Sanitation Act.

■ Use after confirming the structure and material, valve structure, working fluids, and working atmospheres of each component carefully yourself.

■ Check the working circuit and working fluid.
To prevent drop in inline oxygen monitor performance, install the dryer, air filter and oil mist filter on the primary side, and remove water or oil.



Mounting, installation and adjustment

■ When piping, remove cutting oil, rust preventing agents, contaminants, etc.

■ Install an oil removing filter (M type) in front of the inline oxygen monitor to remove all water drops and oil.

During Use & maintenance

■ This product does not have explosion-proof specifications.The detection element is heated by the heater. Using it in an explosive atmosphere may lead to explosion.

■ Do not disassemble or modify this product. Doing so could result in faults.

■ This product is not an oxygen detector. Do not use this product as an oxygen sensor as described in the Occupational Safety and Health Act.

■ The sensor may deteriorate depending on the usage. Calibration once a year is recommended for maintaining long-term performance.