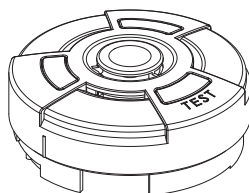


Carbon Monoxide Detector Manual

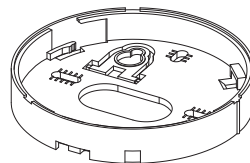
Model: NDKA1(Standalone) NDKB1(System)

HORING LIH INDUSTRIAL CO., LTD.

1.Introduction



Detector



Base

Model	NDKA1	NDKB1
Power Source	3V DC	12~24V
Standby Current	24uA	800uA
Alarm Current	under 65mA	under 40mA
Alarm Sound	85dB/3M and above	
Relay Output	a set of contacts	
Ambient Temperature	-10~50°C	
Dimensions	102mm(Dia.) × 45mm(H.)	
Weight	about 150g	
Material	fire-proof plastic	

2.Source of CO

- 1.Home:** The heating installation, such as hot-water heaters with gas and gas stoves, is easy to combust incompletely and then produce CO.
- 2.Parking lots & garage:** The scooters/cars or general machine tools can exhaust fumes with high concentration.
- 3.Fire:** Smolder is a kind of incomplete combustion. It often occurs before & after the fire as a disaster and produce a large amount of CO.

3.Symptoms of CO poisoning

CO enters the body through breathing. CO poisoning can be confused with flu symptoms, food poisoning and other illnesses. Some symptoms include shortness of breath, nausea, dizziness, light headedness or headaches. High levels of CO can be fatal, causing death within minutes.

The concentration of CO, measured in parts per million (ppm) is a determining factor in the symptoms for an average, healthy adult.

Carbon monoxide concentration	The underlying symptom
50 ppm	No adverse effects with 8 hours of exposure.
200 ppm	Mild headache after 2-3 hours of exposure.
400 ppm	Headache and nausea after 1-2 hours of exposure.
800 ppm	Headache, nausea, and dizziness after 45 minutes; collapse and unconsciousness after 1 hour of exposure.
1,000 ppm	Loss of consciousness after 1 hour of exposure.
1,600 ppm	Headache, nausea, and dizziness after 20 minutes of exposure.
3,200 ppm	Headache, nausea, and dizziness after 5-10 minutes; collapse and unconsciousness after 30 minutes of exposure.
6,400 ppm	Headache and dizziness after 1-2 minutes; unconsciousness and danger of death after 10-15 minutes of exposure.
12,800 ppm	Immediate physiological effects, unconsciousness and danger of death after 1-3 minutes of exposure.

Source: NFPA's Fire Protection Handbook, 20th Edition.

4.Recommended mounted location

Mounting detector in the house with heating installations, furnaces or garages, such as living room, corridor, kitchen, boiler room, parking lot, basement and so on.

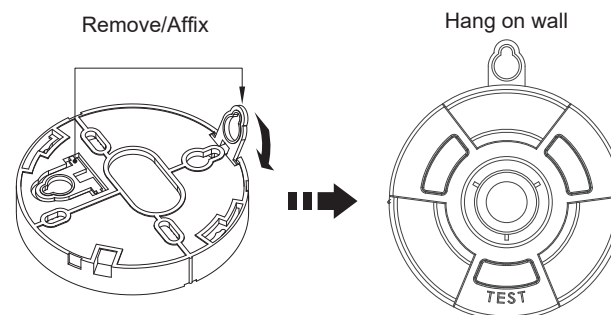
Installed quantity should correspond to the room size to make sure the best warning effect.

5.Not recommended mounted location

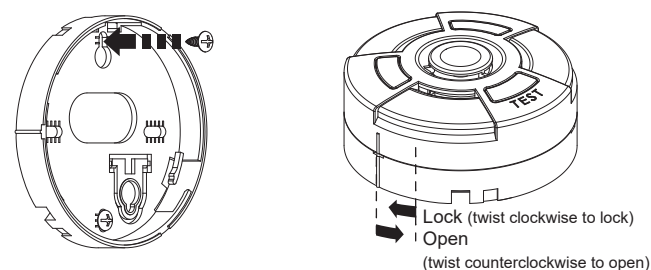
1. Keep a distance of above 1.5m from any heating installations or avoid mounting right above.
2. Avoid mounting in the house with full of dust, pollution, dirt, grease and high humidity.
3. Avoid mounting around air vent, conditioner vent and the ceiling fan.
4. If there are any volatile chemicals in the mounting place, they should be sealed well in case that volatile gas will bring about detector malfunction. If the house is being refurbished and painted, please dismantle the detector and store away. After all is done, please install it back.

6.Mounting Detector

A. Hang on wall

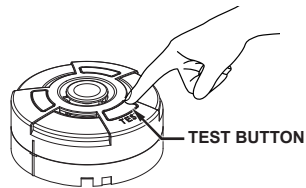


B. Screw (Screw to ceiling/wall)



7. Testing

There is a test button on the surface to test if it is normal or not.
And it also can delete detection data.



8. Operation

1. The product acts in accordance with CO concentration of EN standard inspection procedure as follows:

CO concentration	Won't release alarm before the time	Release alarm before the time
30 ppm	120 minutes	—
50 ppm	60 minutes	90 minutes
100 ppm	10 minutes	40 minutes
300 ppm	—	3 minutes

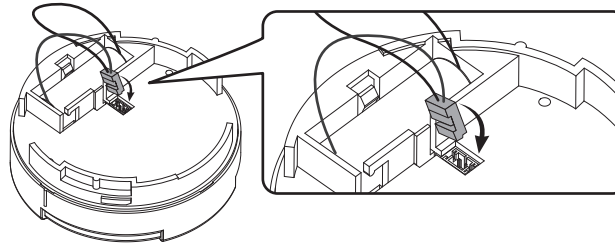
*Prior to determining the action will enter the early warning mode multiple judgments, confirmed after entering the action mode.

2. Power indicator: the LED flashes green once every 30 seconds after normally supplying the power.
3. Warm-up time: about 1 minute.
4. Indicator mode:
 - A. Warm-up: flash for 1 second and then go off for 1 second.
 - B. Standby: flash green once every 30 seconds.
 - C. Early warning: flash red once every 10 seconds and 1 beep sound.
 - D. Alarm: flash red 5 times every 5 seconds and 5 beep sounds.
 - E. Fault:
 1. Low Power: flash yellow one times every 30 seconds and 1 beep sounds.
 2. Expected useful life expire (5 years): flash yellow two times every 30 seconds and 2 beep sounds.
 3. Sensor malfunction: yellow light ON continuously and 2 beep sounds.
5. Reset: when the CO concentration is below 30ppm, detector will reset automatically.
6. Test button function:
 - A. General operation: Pressing it for alarm test, it will flash green and red and yellow twice every second and 2 beep sounds.
 - B. Early warning operation: Pressing it can remove the early warning status. But if it detects the CO concentration which meets the requirement of early warning, it will still enter early warning status.
 - C. Alarm operation: Pressing it can remove the alarm status. But if it detects the CO concentration which meets the requirement of alarm, it will still enter the alarm status.

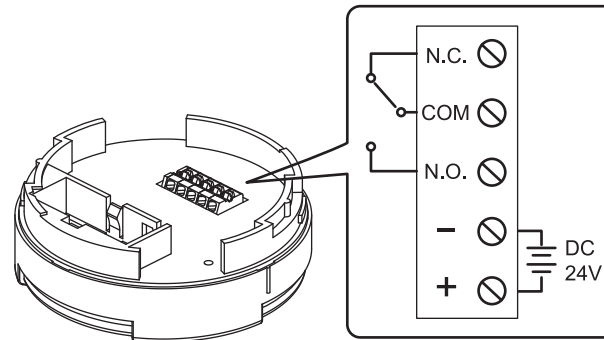
9. Battery installation/Wiring Diagram

■ NDKA1(Standalone)-Battery installation

Black line (POSITIVE) Red line (NEGATIVE)



■ NDKB1(System)-Wiring Diagram



10. Maintenance

There is no need to clean & maintain, please just keep the surface of detectors clean. In normal times, you can press the test button to make sure it is under normal condition.

11. Warning

1. Avoid using detergent or solvent to wipe. Please don't use water or detergent to wash, either.
2. Keep a certain distance from home appliances with electronic interference.
3. Prohibit from taking down the product to overhaul or make a change to it.