SafeHome

Carbon Monoxide Alarm

User's Guide

MODEL: CM100-B

KM 576898
EN 50291-1:2018

ATTENTION: Please take a few minutes to thoroughly read this user's guide which should be saved for future reference and passed on to any subsequent owner.

What to Do When the Alarm Sounds!

Carbon Monoxide Alarm Procedure

WARNING : Activation of the CO Alarm indicates the presence of Carbon Monaxide (CO) which can kill you.

1) Keep calm;
2) Call your emergency services (Fire Department or 125);

PHONE NUMBER:

3) Immediately move to fresh air - outdoors or by an open door/window. Do a head count to check that all persons are accounted for. Do not reenter the premises nor move away from the open door/window until the emergency services responders have arrived, the premises have been aired out, and your alarm remains in its normal condition.
4) After following steps 1-3, if the alarm reactivates within a 24 -hour period, repeat steps 1-3 and call a qualified appliance technician to investigate sources of CO from fuel burning equipment and appliances, and to inspect for proper operation of equipment. If equipment problems are found by inspector, repair or replace the equipment immediately. Make sure that motor vehicles are not, or have not been, operating in a garage attached or adjacent to the residence.
Never restart the source of a CO problem until it has been corrected. Never ignore the sound of the alarm! If alarm is triggered by the unit, user can press button to eliminate the alarm.
If the CO condition that caused the alert in the first place continues, the alarm will reactivate. If the unit alarms again within six minutes, that means it is sensing high levels of CO which can quickly become a dangerous situation. User should quickly move away.

Welcome

Note: Many times throughout this User's Guide, we will refer to Carbon Monoxide as "CO".
CM100-B carbon monoxide (CO) alarm is an important part of your family's home safety plan. This alarm has been designed and tested to detect CO level in a residential environment. This alarm is specifically for home use. As an owner of a CO alarm, there are some basic facts you should know about for your protection.
Many people think that CO alarms operate like smoke alarms. Like smoke alarms, CO alarms monitor the air in your home and sound a loud alarm to

warn you of trouble. The way you respond to a CO alarm is quite different than a smoke alarm. That's because a house fire and a CO problem are two distinctly different situations. If your smoke alarm were triggered, you would quickly be able to judge the level of danger you were in with your senses. You can see and smell the smoke, feel the heat, see, and possibly hear the fire burning. You can also readily see if your smoke alarm is alarming in a non-emergency situation. Because your sense of sight, smell, hearing and touch give you information, you can almost instantly judge what action to take if you hear your smoke alarm.
CO is an invisible, odorless, tasteless and non-irritating gas - completely undetectable to your senses. That's why it is important to your safety that you have a CO alarm.

Important Warning Statements

IMPORTANT: This carbon monoxide alarm is designed to detect carbon monoxide from ANY source of combustion. It is NOT designed to detect smoke, fire, or any other gas.

WARNING: Carbon monoxide alarms are not smoke alarms. This carbon monoxide alarm is not a substitute for installing and maintaining an appropriate number of smoke alarms in your home.

This carbon monoxide alarm will not sense smoke, fire, or any poisonous gas other than carbon monoxide even though carbon monoxide can be generated by fire. For this reason, you must install smoke alarms to provide early warning of fire and to protect you and your family from fire and its related hazards.

CAUTION: This alarm will only indicate the presence of carbon monoxide at the sensor. Carbon monoxide may be present in other areas.

WARNING: This product is intended for use in ordinary indoor locations of family living units. It is not designed to measure compliance with Occupational Safety and Health Administration (OSHA), commercial or industrial standards. It is not suitable for installation in hazardous locations as defined in the National Electric Code.

WARNING: This device is designed to protect individuals from acute effects of carbon monoxide exposure. It may not fully safeguard individuals with specific medical conditions. If in doubt, consult a medical practitioner.

Individuals who have medical problems may consider of using warning devices that may provide audible and visual signals for carbon monoxide concentrations under 30 PPM.

This carbon monoxide alarm requires a continuous supply of electrical power - it will not work without power.

This alarm has not been investigated for carbon monoxide detection below 25 PPM.

WARNING: If the apparatus is tampered with, then there is possible hazards of electric shock or malfunction.

1. INTRODUCTION

CM100-B carbon monoxide detector which adopting high quality electrochemical gas sensor and advanced technology, has the advantages of good stability and long life span. The installation method can be ceiling hung and wall mounted. Easy to install and operate. When the CO concentration in the air reaches the presetting alarming level, the detector will give audio and video alarming promptly, which informs the user to adopt measures to avoid the fire, explosion etc. dangerous accidents happening.

General Carbon Monoxide Information:
Carbon monoxide is a colorless, odorless and tasteless poison gas that can be fatal when inhaled. CO inhibits the blood's capacity to carry oxygen. Periodically review this alarm manual and discuss with all the members of your family about your CO alarm emergency procedure. Never ignore a CO alarm. A true alarm is an indication of potentially dangerous levels of CO. CO alarms are designed to alert you to the presence of CO before an emergency - before most people would experience symptoms of CO poisoning, giving you time to resolve the problem calmly.
Check if anyone in the household is experiencing symptoms of CO poisoning. Many cases of reported CO poisoning indicate that when victims are aware they are not well, they become so disoriented that they are unable to save themselves by either exiting the building or calling for assistance. Also, young children and household pets may be the first one to be affected. You should take extra precautions to protect high- risk persons from CO exposure because they may experience ill effects from CO at levels that would not ordinarily affect a healthy adult.

Symptoms of CO Poisoning:
The following common symptoms are related to CO poisoning and should be discussed with ALL members of the household.

Mild Exposure:
Slight headache, nausea, vomiting, fatigue (often described as “flu-like” symptoms)

Medium Exposure:
Severe throbbing headache, drowsiness, confusion, fast heart rate.

Extreme Exposure:
Unconsciousness, convulsions, cardio-respiratory failure, death.
If you experience even mild symptoms of CO poisoning, consult your doctor immediately!

Carbon Monoxide PPM Levels:

Model CM100-B is equipped with a digital display that shows levels of CO (displayed in PPM - parts per million). Learn the difference between dangerous, high, mid and low levels.

Dangerous Levels:
When someone is experiencing symptoms of CO poisoning and CO readings are generally above 100 PPM. Whenever someone is experiencing the symptoms of CO poisoning, this should be treated as an emergency. See "What to do When the Alarm Sounds" (inside front cover).

High Levels:
Generally above 100 PPM. This should be treated as an urgent situation. See "What to do When the Alarm Sounds" (inside front cover).

Mid Levels:
Generally between 50 PPM to 100 PPM. This should be cause for concern and should not be ignored or dismissed. See "What to do When the Alarm Sounds" (inside front cover).

Low Levels:
Generally below 50 PPM. Hanwei recommends you take action to eliminate the source of CO. See "What to do When the Alarm Sounds" (inside front cover)

Possible Sources of Carbon Monoxide
Inside your home, appliances used for heating and cooking are the most likely sources of CO. Vehicles running in attached garages can also produce dangerous levels of CO.
CO can be produced when burning any fossil fuel, such as gasoline, propane, natural gas, oil and wood. It can be produced by any fuel burning appliance that is malfunctioning, improperly installed, or not ventilated correctly, such as:

- Automobiles, furnaces, gas ranges/stoves, gas clothes dryers, water heaters, portable fuel burning space heaters and generators, fireplaces, wood-burning stoves and certain swimming pool heaters.
- Blocked chimneys or flues, back drafts and changes in air pressure, corroded or disconnected vent pipes, loose or cracked furnace exchangers.
- Vehicles and other combustion engines running in an open or closed garage, attached or near a home.
- Burning charcoal or fuel in grills and hibachis in an enclosed area.

Conditions That Can Produce Carbon Monoxide

The following conditions can result in transient CO situations:

- Excessive spillage or reverse venting of fuel-burning appliances caused by outdoor ambient conditions, such as, wind direction and/or velocity, including high gusts of wind, heavy air in the vent pipes (cold/humid air with extended periods between cycles).
- Negative pressure resulting from the use of exhaust fans.

● Simultaneous operation of several fuel-burning appliances competing for limited internal air.
● Vent pipe connections vibrating loose from clothes dryers, furnaces, or water heaters.
● Obstructions in, or unconventional, vent pipe designs which can amplify the above situations.
● Extended operation of unvented fuel-burning devices (range, oven, fireplace, etc.).
● Temperature inversions which can trap exhaust gases near the ground.
● Vehicle idling in an open or closed garage, or near a home.

To be safe, know the possible sources of CO in your home. Keep fuel burning appliances and their chimneys and vents in good working condition. Learn the early symptoms of exposure, and if you suspect CO poisoning, move outside to fresh air and get emergency help. Your first line of defense is an annual inspection and regular maintenance of your appliances. Contact a licensed contractor or call your local utility company for assistance.

What They Can and Cannot Do:

CO alarms provide early warning of the presence of CO, usually before a healthy adult would experience symptoms. This early warning is possible, however, only if your CO alarm is located, installed and maintained as described in this guide.

Because carbon monoxide is a cumulative poison, long-term exposures to low levels may cause symptoms, as well as short-term exposures to high levels. This Hanwei unit has a time-weighted alarm -the higher the level of CO present, the sooner the alarm will be triggered.

This CO alarm can only warn you of the presence of CO. It does not prevent CO from occurring, nor can it solve an existing CO problem. If your unit has alarmed and you've provided ventilation by leaving your windows and doors open, the CO level may have dissipated by the time. Although your problem may appear to be temporarily solved, it's crucial that the source of the CO is determined and that the appropriate repairs are made. This CO alarm is designed to act as a monitor; it is not designed for use as a short-term testing device to perform a quick check for the presence of CO.

CO alarms have limitations. Like any other electronic device, CO alarms are not fool-proof. CO alarms have a limited operational life. You must test your CO alarm weekly, because it could fail to operate at any time.

If your CO alarm fails to test properly, or if its self-diagnostic test reveals a malfunction, should immediately replace the unit. This alarm will not monitor CO levels under an error condition.

CO alarms can only sense CO which reaches the unit's sensor. It's possible that CO may be present in other areas without reaching the alarm. The following situation may affect the CO reaches the alarm:

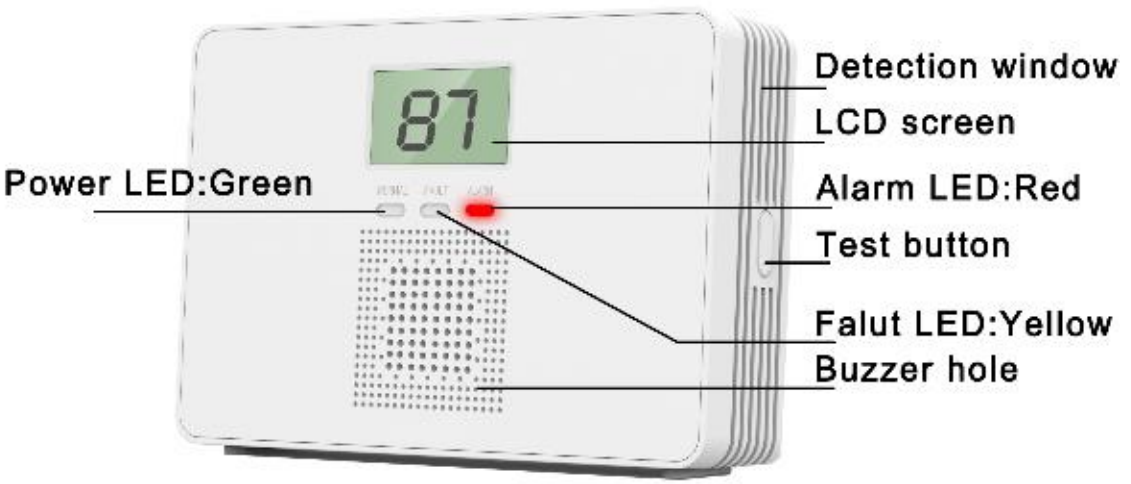
- Doors or other obstructions.
- Fresh air from a vent, an open window or other source.
- CO being present on one level of the home and will not reach to the CO alarm that installed on a different level. (For example, CO in the basement may not reach an alarm on the second level, near the bedrooms).

For these reasons, we recommend you provide complete coverage by placing a CO alarm on every level of the home. Please carefully read all information before properly installing this CO alarm.
CO alarms should not be used to detect the presence of natural gas (methane), propane, butane, or other combustible fuels.
Tell children never to touch, unplug or otherwise interfere with the alarm.
Warn children of CO poisoning dangers.

2. SPECIFICATIONS

Model	CM100-B
Working voltage	DC9V
Working current	≤17uA
Alarming current	<55mA
Accuracy	Follow EN50291-1:2018
Detecting gas	Carbon Monoxide
Detecting range	(25-500) ppm
Working Environment	Temperature: -10℃ ~ 50℃; Humidity: 10-95%RH(non-condensing)
Storage Environment	Temperature: -20℃ ~ 50℃; Humidity: 5-95%RH(non-condensing)
Gas Sampling	Natural diffusion
Alarm method	Visual and audible
Alarm sound	≥85dB at 3m
Sensor type	Electrochemical carbon monoxide sensor
Sensor life	>7 years
Weight	200g
Dimension	120mm x 82mm x 33mm

3. FUNCTION AND INDICATION



4. INSTALLATION

WARNING: The apparatus should be installed by a competent person.

4.1 Installation position

The detector and the fuel using device should be installed inside the same room.

If the detector is wall mounted, its height should be higher than any door or window, and at least 150mm to the ceiling. If the detector is ceiling hung, the distance between it and any wall should be more than 300mm.

- The detector should be horizontally 1-3 meters to the gas source.
- If there is obstacle inside the room, then the detector and the potential gas source should be in the same side of the obstacle.
- If the room has slant ceiling, the detector should be installed in the higher side of the room.
- The detector should be installed nearby the place where user always are.

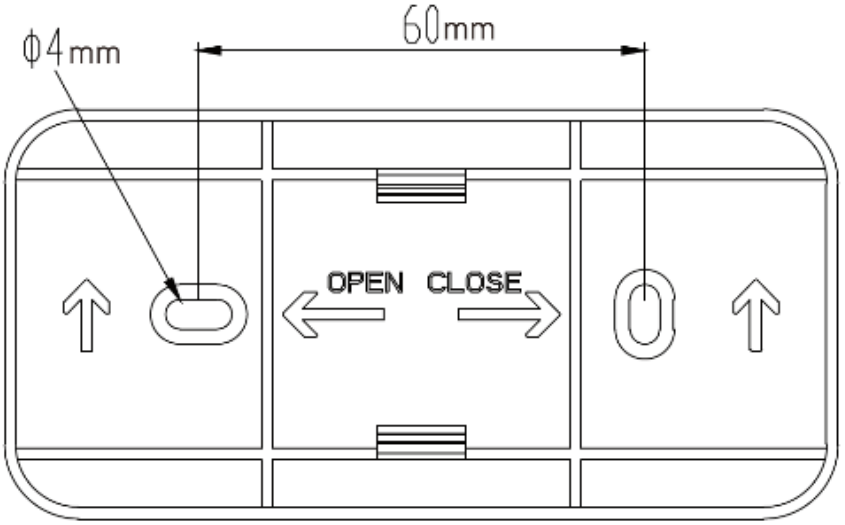
4.2 Avoid to install device to the following places:

- Outside of the building
- Inside or below the Fresh cabinet
- Right upper of the water pool or cooking utensils
- Near the window or easily influenced by the air flow, like exhaust fans or holes.
- The place where the air flow through the detector is easily blocked by the curtain or furnace.
- The place where the gas sensor is easily blocked by the dust.
- The place where the temperature is out of the range of -10℃ to 50℃.
- The place where the detector is easily touched, broken or moved.
- The place where it's moist.

4.3 Installation rooms

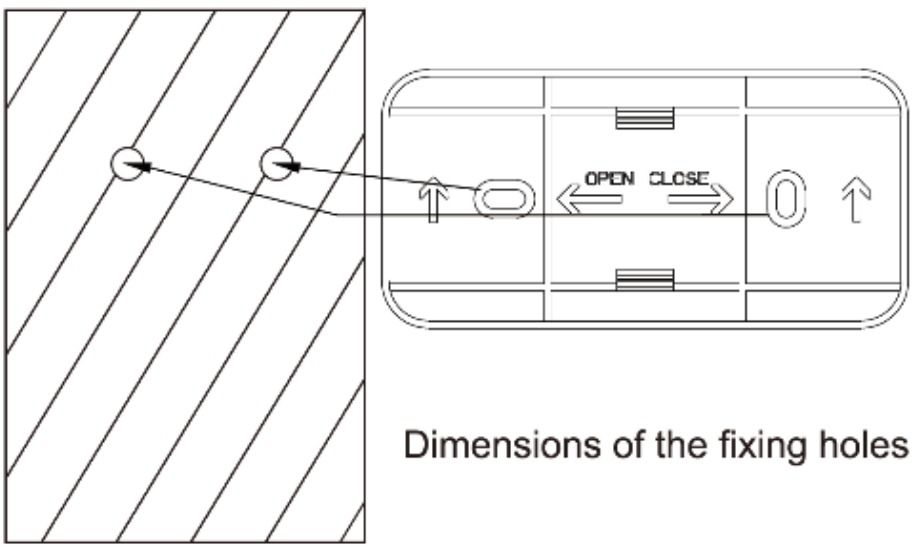
Ideally, install one detector in each room where there is fuel using device. If there are more fuel using devices while the detector quantity is limited, please consider the followings to decide the installation position:
Please install one detector inside the bedroom which has fuel using device.
Please install one detector inside the room where there is a non-chimney or normal chimney fuel using device.
Please install one detector inside the room where there is electric machine.
Inside the bedroom and sitting room, the detector should be far away from the cooker and be near to the sleeping place.
The detector should be installed outside the room if the fuel using device is installed inside the room where the device is not used frequently (such as the boiler room). So that the alarm sound can be heard easily.

4.4 Installation configuration



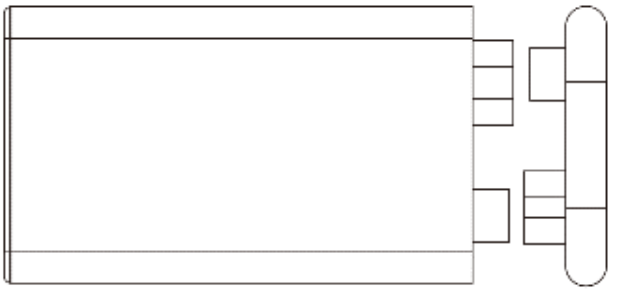
4.5 Installation method

4.5.1 Wall mounted:



Dimensions of the fixing holes

Please choose the suitable wall firstly. Fix M5 screw on the wall with distance of 60mm.
The screws should be 3.5mm higher than the wall. Then hang the detector on the wall as the above drawing.
4.5.2 Battery installation



First, please tum off the battery cover according to the orient on the above drawing. And then, install the batteries inside according to the indication. When replacing the batteries, please use this type of battery:
Alkaline 6LR61-9V
Note: Please replace the expired batteries according to the specified model. Different type or low quality battery will reduce the detector life.
IMPORTANT: Seven (7) years after the Initial power up, this alarm will "beep" every 16 seconds to indicate that it is time to replace the alarm. Replace the alarm immediately! It will not detect CO in this condition.
IMPORTANT: Constant exposures to high or low humidity may reduce battery life. To guarantee good monitor please replace the battery at least once a year.
After replacing the battery, it is recommended to perform a self-check function operation.

5. OPERATION INSTRUCTION

5.1 Indication

5.1.1 Green LED
Also called Power LED, used for indicating normal operation of power supply and program. When the device program is running normally, it will be lit up every 50 seconds for 0.3 seconds.
5.1.2 Red LED
Also called Alarm LED, Alarm indication for equipment. When the device detects that the alarm condition occurs, it will be lit up every 4 seconds. Please refer to the alarm mode instruction in Chapter 5.2.3 for details.
5.1.3 Yellow LED
Also called Fault LED, used for equipment failure indication or special status indication. See corresponding content in Chapter 5.2 for details.
5.1.4 LCD screen
LCD screen is mainly used to indicate the current gas concentration value

with the detecting range of 25~ 500ppm. On the screen, there are gas type "CO" and also unit "PPM". The LCD screen can also be used to display special characters. When the battery voltage is too low, the "L" character is displayed to indicate the current under power state.
“F” to indicate failure state, “E” to indicate end of sensor life.

5.2 Working mode

There are 7 different models as below.

5.2.1 Warm-up mode

In the power off status, load batteries into the equipment, it will enter into warm-up mode. The equipment displays the version number first, followed by the "8888" character, unit, gas type and other symbols. At the same time, the green, red and yellow LED flashes for 0.3 seconds and sound occurs for 0.3 seconds as well. After that, the "0" value flashes once every 1 second on the LCD screen. After 120 seconds, the preheating mode is finished and the unit enter the normal detection mode.

5.2.2 Normal detection mode

After warm-up, if no fault was detected and no alarm condition occurs, the equipment enters into normal detection mode. In this mode, the equipment monitors the real-time CO concentration in the air and displays the CO value on the screen within the range of 25-500ppm. There are also "unit" symbol and "gas type" symbol on the LCD screen. In this mode, only the green LED flashing every 50 seconds, other LED are not lit and no sound output.

5.2.3 Alarming mode

When the CO concentration reached the preset alarm condition, the equipment enters into alarming mode. Alarm conditions are set as below:

- At 30 PPM, the equipment makes no alarm in less than 120 minutes
- At 50 PPM, the equipment makes alarm within 60-90 minutes
- At 100 PPM, the equipment makes alarm within 10-40 minutes
- At 300 PPM, the equipment makes alarm within 3 minutes

In alarm mode, the red LED lights flash three times every four seconds, with each flash lit for about 0.3 seconds. At the same time, the buzzer is accompanied by a sound reminder when the LED lights up, and each sound is about 0.3 seconds. When the CO concentration detected no longer meets the alarm condition, it will automatically return to the normal monitoring mode.

When the machine alarms at a concentration below 200ppm, press the button and the machine enters a 5-minute silence period, during which the buzzer is muted, and the alarm light still flashes. After 5 minutes, the silence period is exited, and the machine continues to detect and run. When the machine alarms at a concentration of more than 200ppm, the detector won't enter the silencing state even by pressing the button. Because the CO concentration is too high and very harmful for user.

5.2.4 Button function

When the detector is in monitoring status, press this button, the user can test the equipment functions. All LED flash at the same time and the buzzer gives sound simultaneously. If no light flash or the buzzer does not work, please repair it so as to avoid abnormal alarming. In alarming status, when the concentration is below 200ppm, press this button. The machine enters a 5-minute silencing period and the buzzer stops beeping. After 5 minutes, it exits the mute cycle and the buzzer continues to operate.

5.2.5 Low voltage mode

When the battery is working normally, the equipment doesn't display the battery voltage. If the battery voltage is detected lower than 7.5V, the equipment will automatically enter the low voltage alert mode. In this mode, the low voltage information is indicated in two steps.

Step 1: "L" character will be displayed on the LCD screen, and the yellow LED will be lit for 0.3 seconds and buzzer gives sound for 0.3 seconds. The "L" character will be displayed for about 16 seconds.

Step 2: The screen displays the current gas concentration value for 32 seconds.

The above 2 steps will be repeated continuously.

The battery should be replaced when low voltage mode occurs. After replacing the battery, the equipment will first enter the warm-up mode and then self-test. After warm-up, the equipment will automatically enter the normal monitoring mode. Moreover, after battery replacement, the user is suggested press the button to test the equipment functions.

5.2.6 Life expiring mode

When the working time of the equipment has reached 7 years, the device will automatically enter this mode. In this mode, only one "E" character will be displayed on the LCD. Every 16 seconds, the fault LED is lit Three Times, each time about 0.3 seconds, and the buzzer sound lasts for 0.3 seconds.

Note: In the life expiring mode, it’s no longer guarantee the accuracy of the product. To protect your safety, please replace the equipment with a new one.

5.2.7 Fault alert mode

This mode includes life expiry, equipment not calibrated, memory error, sensor failure etc. If the fault alert is caused by sensor life expiry or internal fault in the equipment, fault LED will be lit twice every 16 seconds for 0.3 seconds and buzzer will give sound for 0.3 seconds at the same time.

To distinguish the cause of the fault, when the fault is caused by internal parameters, only one "F" character will be displayed on the LCD. Fault alert will continuously exist.

For this kind of fault alert, the user is advised to contact a professional for trouble shooting.

Note: When the gas concentration detected is lower than 25, the equipment still displays "0" on the screen. When the concentration is higher than 500, the screen still displays "500" on the screen. In above 2 situations, yellow LED flashes once every 16 seconds with the flashing time of 0.3 seconds, and buzzer gives sound for 0.3 seconds at the same time. This is a special fault mode. When the CO concentration is back to normal, the equipment will automatically reset.

6. Maintenance of the detector

The detector was well-calibrated at the factory. During using it, please always clean the housing of the detector and keep the gas windows not being covered by dust. Please use soft cloth or brush to clean the housing. Cleanser, bleaching powder and polish are forbidden to be used for cleaning.

To keep your alarm in good working order:

- Perform a CO alarm test once a week
- Vacuum the alarm cover once a month to remove accumulated dust.
- Never use detergents or other solvents to clean the unit.
- Never use water or cleaners - they may damage the unit.
- Avoid spraying air fresheners, hair spray, paint, or other aerosols near the alarm.
- Do not paint the unit Paint will seal the vents and interfere with proper sensor operation.

Move the CO Alarm and place in another location prior to perform any of the following:

- Staining or stripping wood floors or furniture
- Painting
- Wallpapering
- Using adhesives

Storing the unit in a plastic bag during any of the above projects will protect the sensors from damage.

Do not place near a nappy bucket.

Termination of the detector life:

In detecting status, the detector makes self test once every minute. Under normally working condition, the detector can work 7 years. When the detector life is terminated, please dispose it according to the local regulation.

Warning: This detector is designed for domestic use. Please avoid it from rain, moisture, dropping, beating, opening and modifying.

Otherwise, the operation will cause problem to the detector.

Note: click the "test" button on the device once a week to check whether the sound-light alarm information is normal.

7. TROUBLE SHOOTING

Phenomenon	Possible reason	Solution
Green power LED off	Battery fault connected or power supply problem	Change battery installation position or make the connection in a correct way
	LED broken	Contact the distributor
No alarm after pressing test button	Circuit fault	Contact the distributor
Can not detect CO	Warm-up doesn't finish	Wait until warm-up finishes
	Circuit fault	Contact the distributor
Keep alarming after warm-up	Too much smoke, alcohol or perfume or other volatile gas in the air.	Move it into clean air and test it again
	Stored for long time	Electrify it for more than 2 hours
	Circuit fault	Contact the distributor

8. USING NOTICE

8.1 It's possible that the detector makes alarm in the environment with much smoke, alcohol, perfume, gasoline, paint and other volatile gases.

8.2 Please do not use unknown-concentration gas to test the detectors. If the gas concentration is too high, it will damage the detector. Also it is harmful for the health of the user.

8.3 Please contact the dealer/distributor/manufacturer for annual periodical maintenance with the standard gas.

8.4 Please do not use or store the detectors in the corrosive gases (such as CI2) environment.

8.5 Clean the dust or dirt on the detector frequently to keep air vent unblocked and the indicators clear.

8.6 In order to assure the best sensitivity, please electrify it for at least 24 hours when you use it the first time after long time shipment or storage.

8.7 Lifetime of the detector is 7 years in normal detection. In order to get accurate detecting result of CO and protect your life and belongings safety, we strongly suggest you change a new detector when its lifetime over.

9. PACKING LIST

CM100-B CO alarm	1 pcs	DC 9V Alkaline Battery	1 pcs
M5 bolt	2 pcs	Operation manual	1 pcs

TWO YEARS LIMITED WARRANTY

Warranty Coverage: The manufacturer warranties to the original consumer purchaser, that this product (except battery) will be free of defects in material and workmanship for a period of seven (2) years from date of purchase. The manufacturer's liability hereunder is limited to replacement of the product, repair of the product or replacement of the product with repaired product at the discretion of the manufacturer. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material or workmanship. This warranty extends to the original consumer purchaser of the product only.

Warranty Disclaimers: Any implied warranties arising out of this sale, including but not limited to the implied warranties of description, merchantability and fitness for a particular purpose, are limited in duration to the above warranty period. In no event shall the Manufacturer be liable for loss of use of this product or for any indirect, special, incidental or consequential damages, or costs, or expenses incurred by the consumer or any other user of this product, whether due to a breach of contract, negligence, strict liability in tort or otherwise. The Manufacturer shall have no liability for any personal injury, property damage or any special, incidental, contingent or consequential damage of any kind resulting from gas leakage, fire or explosion. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of consequential or incidental damages, so the above limitations or exclusions may not apply to you.

Legal Remedies: This warranty gives you specific legal rights and you may also have other rights that vary from state to state.

Warranty Performance: During the above warranty period, your product will be replaced with a comparable product if the defective product is returned in a postage paid package to the following address: Hanwei, After-sales Service Department, No.169 Xuesong Road, National Hi-Tech Zone, Zhengzhou 450001, China together with proof of purchase date. Please include a note describing the problem when you return the unit. The replacement product will be in warranty for the remainder of the original warranty period or for six months, whichever is longer. Other than the cost of postage, no charge will be made for replacement of the defective product. In many cases the quickest way to exchange your alarm is to return it to the original place of purchase. If you have questions, call Hanwei at 0086-371-67169070/67169080.

IMPORTANT: Do not remove unit back cover. Back cover removal will void warranty.

Your Hanwei Carbon Monoxide Alarm is not a substitute for property, disability, life or other insurance of any kind. Appropriate insurance coverage is your responsibility. Consult your insurance agent. Also, Hanwei makes no warranty, express or implied, written or oral, including that of merchantability or fitness for any particular purpose, with respect to the battery.
The above warranty may not be altered except in writing signed by both parties hereto.

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