



## **Combination Smoke and Carbon Monoxide Alarm** **Alarma Combinada de Humo y Monóxido de Carbono**

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10-Year Sealed Battery Operated  
Operada por una batería sellada de 10 años

User Manual  
Manual de usuario

Model: SC01/SC02/SC07/SC08



Conforms with UL 217 & UL 2034 standards

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This user manual contains important information about your combination smoke & carbon monoxide alarm's operation. To ensure proper use and trouble-free operation, please read this manual carefully and store it in a safe place for future reference.

## Package Contents

- 1 × Alarm Unit
- 1 × Mounting Bracket
- 3 × Screws
- 3 × Anchor Plugs
- 1 × User Manual
- 1 × Warranty Card
- 2 × Carbon Monoxide Safety Stickers

## Introduction

All X-Sense combination smoke & carbon monoxide alarms conform with regulatory requirements, including UL 217 & UL 2034 standards and are designed to detect both smoke and carbon monoxide.

This unit adopts photoelectric technology to detect smoke which is generally more sensitive than ionization technology. It is effective at detecting large particles, which tend to be produced in greater amounts by smoldering fires and may smolder for hours before bursting into flame. Sources of these fires may include cigarettes burning in couches or bedding.

Carbon monoxide (CO) is odorless, tasteless and invisible – it's a silent killer. Using electrochemical sensing technology, this unit can detect increased levels of carbon monoxide early, protecting your family from the dangers of carbon monoxide.

**Note: For maximum protection, use smoke & CO alarms on each level and in every bedroom of your home.**

**THIS EQUIPMENT SHOULD BE INSTALLED IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION'S STANDARD 72**  
(National Fire Protection Association, Batterymarch Park, Quincy, MA02269).

## NEVER IGNORE THE SOUND OF THE ALARM!

Determining what type of alarm has sounded is easy with your X-Sense combination smoke & carbon monoxide alarms. The alarm sounder will inform you of the type of situation occurring.

## When the Smoke Alarm Sounds:

Smoke alarms are designed to minimize false alarms. Cigarette smoke will not normally set off the alarm, unless the smoke is blown directly into the alarm. This unit contains nuisance alarm protection, which will reduce the impact of cooking particles. However, large quantities of combustible particles from spills or broiling could still cause the unit to alarm. Careful location of the unit away from the kitchen area will give the maximum nuisance alarm protection. Combustion particles from cooking may set off the alarm if located too close to the cooking area. Large quantities of combustible particles are generated from spills or when broiling. Using the fan on a range hood which vents to the outside (non-recirculating type) will also help remove these combustible products from the kitchen. If the alarm sounds, check for fires first. If a fire is discovered, follow these steps. Become thoroughly familiar with these items, and review with all family members!

\*Alert small children in the home. Children sleep very sound and may not be awakened by the sound of the smoke alarms.

\*Leave immediately using one of your planned escape routes. Every second counts, so don't stop to get dressed or pick up valuables.

\*Before opening inside doors, look for smoke seeping in around the edges, and feel with the back of your hand. If the door is hot, use your second exit. If you feel it's safe, open the door very slowly and be prepared to close immediately if smoke and heat rush in.

\*If the escape route requires you to go through smoke, crawl low under the smoke where the air is clearer.

\*Go to your predetermined meeting place. When two people have arrived, one should leave to call 911 from a neighbor's home, and the other should stay to perform a head count.

\*Do not reenter under any circumstance until fire officials give the go-ahead.

\*There are situations where a smoke alarm may not be effective to protect against fire as noted by the NFPA and UL Std. 217. For instance:

- Smoking in bed.
- Leaving children unsupervised.
- Cleaning with flammable liquids, such as gasoline.
- Fires where the victim is intimate with a flaming initiated fire; for example, when a person's clothes catch fire while cooking.
- Fires where the smoke is prevented from reaching the detector due to a closed door or other obstruction.
- Incendiary fires where the fire grows so rapidly that an occupant's egress is blocked even with properly located detectors.



## WARNING:

Actuation of your CO Alarm indicates the presence of Carbon Monoxide (CO) which can kill you.

### When the Carbon Monoxide Alarm Sounds:

(1) Operate the test/reset button.

(2) Call your emergency services (Fire Dept. or 911).

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 has been aired out, and your alarm remains in its normal condition.

(4) After following steps 1-3, if your alarm reactivates within a 24-hour period, repeat steps 1-3 and call a

PHONE NUMBER

qualified appliance technician to investigate for sources of CO from fuel-burning equipment and appliances, and inspect for proper operation of this equipment. If problems are identified during this inspection, have the equipment serviced immediately. Note any combustion equipment not inspected by the technician and consult the manufacturer's instructions, or contact the manufacturer directly, for more information about CO safety and this equipment. Make sure that motor vehicles are not, and have not been, operating in an attached garage or adjacent to the residence.

## Technical Specifications

Power supply	10-year sealed lithium battery
Sensor type	Smoke: Photoelectric
	CO: Electrochemical
Product life	About 10 years
Safety standards	Conforms with UL 217 & UL 2034 standards
Smoke sensitivity	0.97-1.79%/ft OBS
CO sensitivity	70 ppm: 60-240 minutes
	150 ppm: 10-50 minutes
	400 ppm: 4-15 minutes
Standby current	< 6 $\mu$ A (avg.)
Alarm current	< 60 mA (avg.)
Best operating ambient temperature	40-100 °F (4.4-37.8 °C)
Operating relative humidity	≤ 85% RH (non-condensing)
Alarm loudness	≥ 85 dB at 9.84 ft (3 m) @ 3.2 ± 0.3 kHz pulsing alarm
Silence duration	Smoke: ≤ 9 minutes; CO: ≤ 6 minutes

## Product Overview



### CAUTION!

THIS SMOKE AND CO ALARM IS DESIGNED FOR INDOOR USE ONLY. DO NOT EXPOSE TO RAIN OR MOISTURE. DO NOT KNOCK OR DROP THE ALARM. DO NOT OPEN OR TAMPER WITH THE ALARM AS THIS COULD CAUSE MALFUNCTION.

### Test & Silence Button

The Test & Silence button is used to test the unit's electronics and to silence the unit during an alarm. When testing the alarm weekly, you should first wake up your alarm by pressing the test button; once the alarm has woken up, the LCD display will activate, then press the test button again until you hear a short beep, indicating that the alarm has entered the test mode. To save power, the alarm is designed to automatically turn off the LCD display if there has been no operation for 5 minutes.

**Note: After a test has begun, the alarm will sound and the red LED will flash. This does not indicate that smoke/CO is present.**

If you press the test button during an alarm state, the unit will enter the silence mode.

**CO silence mode:** press the test button during an alarm state, the unit will enter the silence mode. If the CO density still exceeds the alarm threshold within 6 minutes, the unit will enter another alarm state. Otherwise, the unit will exit from silence mode after 9 minutes.

**Note: If the smoke or CO concentration has reached an alarm level, silence mode cannot be enabled. This unit will continue to alarm until the smoke or CO concentration has decreased to a low level.**

**Alarm Sounder**

The alarm will sound when there is smoke or CO present, when testing the alarm, and when there is a fault.

**LED Indicator**

The LED indicator will flash in conjunction with the alarm sounder. Therefore, it will flash during the following states: when powering on, in standby mode, during smoke or CO alarm states, when exiting an alarm state, during test mode, when there is low battery, in silence mode, when there is a fault and when the unit is at the end of its life.

**Low Battery**

The LED indicator will flash yellow together with one beep every 60 seconds.

**THE UNIT MUST BE DEACTIVATED (see "Deactivation of the Alarm" section) AND REPLACED AS SOON AS POSSIBLE.**

(If you press the test button when there is low battery, the low battery signal will temporarily cease for 10 hours; if you press the test button again, the unit will enter the test mode and then the standby mode.)

**End of Life**

Once the maximum lifetime (10 years) is reached, the alarm delivers 2 beeps and the LED indicator will flash yellow twice every 30 seconds. This end-of-life signal can be temporarily silenced for 3 days by pressing the test button.

The end-of-life silence feature can only be used for a total of 30 days. After 30 days, the end-of-life signal cannot be silenced.


**Different working modes and states are shown in the below table:**



Mode	LED Indicator	Audible Alarm	Remarks
Powering on	Blinks 8 cycles (yellow/green/red) in sequence.	None.	
Standby mode	Flashes green once every 60 seconds.	None.	
Alarm mode	Flashes red 3 times every 1.5 seconds.	3 long beeps every 1.5 seconds.	Smoke alarm.
	First 4 minutes: flashes red 4 times every 5.8 seconds. After 4 minutes: flashes red 4 times every 60 seconds.	First 4 minutes: 4 quick beeps every 5.8 seconds. After 4 minutes: 4 quick beeps every 60 seconds.	CO alarm.
	Flashes green once every second for 5 seconds.	None.	Exiting an alarm: When the smoke or CO concentration drops below the alarm threshold, the alarm signal stops.
Test mode	2 sets of 3 red flashes followed by 2 sets of 4 red flashes.	2 sets of 3 long beeps followed by 2 sets of 4 quick beeps.	
Silence mode	Flashes red once every 5 seconds.	None.	After 9 minutes, the unit will exit silence mode.
	Flashes green 3 times.	None.	Exiting silence mode.





Low battery	Flashes yellow once every 60 seconds.	One beep every 60 seconds.	
Fault	Flashes yellow 1 or 2 times every 40 seconds.	2 beeps every 40 seconds.	Smoke malfunction mode.
	Flashes yellow 3 or 4 times every 40 seconds.		CO malfunction mode.
End of life	Flashes yellow 2 times every 30 seconds.	2 beeps every 30 seconds.	

## LCD Display

While detecting CO, the LCD will display different indications to help you understand what to do, as shown below:

LCD Display	LED Status	Alarm Sound	Unit Status	Solutions
	If a CO concentration of 30-999 ppm exists for a certain time period, the screen will be backlit blue, and the LED indicator will flash red 4 times every 5.8 seconds. After 4 minutes, it will flash red 4 times per minute.	The alarm delivers beeps and the LED indicator will flash with the same frequency.	Dangerous CO concentration has been detected.	Refer to "If the Smoke/CO Alarm Sounds".

	If a CO concentration of 30-999 ppm exists for a very short time, the LED indicator will flash green once every 60 seconds.	No sound.	CO has been detected, but has not reached alarm status. Potential dangerous conditions exist.	Check if there are any sources of CO gas, such as from burning, cooking, etc. If such gas sources exist, please cut them off as soon as possible. Open the doors and windows to ventilate the room and immediately move to fresh air.
	The LED indicator flashes red 3 times for 2 cycles and then 4 times for 2 cycles, finally flashing once.	The alarm delivers beeps and the LED indicator will flash with the same frequency.	The unit is self-checking (the test button has been pressed).	None.
	The LED indicator flashes yellow, green and red in sequence.	One short beep.	The unit has been powered on.	None.
	The LED indicator flashes green once every 60 seconds.	None.	The unit is working normally with good battery life.	None.

 	The LCD display alternates between "Lb" and current CO level. The LED indicator flashes yellow once every 60 seconds.	One quick beep every 60 seconds.	Low battery warning.	As the battery is not replaceable, you will need to replace the unit.
	The LED indicator flashes yellow 1 time every 40 seconds.	Two quick beeps every 40 seconds.	Smoke malfunction.	If "Err" continues to display, the unit has malfunctioned and must be replaced immediately.
	The LED indicator flashes yellow 2 times every 40 seconds.		Smoke malfunction.	
	The LED indicator flashes yellow 3 times every 40 seconds.		CO malfunction.	
	The LED indicator flashes yellow 4 times every 40 seconds.		CO malfunction.	
	The LED indicator flashes yellow twice every 30 seconds.	Two quick beeps every 30 seconds.	End of life.	Replace the unit immediately.

## Fire Safety Tips

Follow these safety rules to prevent hazardous situations:

1. Use smoking materials properly. Never smoke in bed.
2. Keep matches or lighters away from children.
3. Store flammable materials in proper containers.
4. Keep electrical appliances in good condition and don't overload electrical circuits.
5. Keep stoves, barbecue grills, fireplaces and chimneys grease-free and debris-free.
6. Never leave anything cooking on the stove unattended.
7. Keep portable heaters and open flames, like candles, away from flammable materials.
8. Don't let rubbish accumulate.
9. Keep alarms clean, and test them weekly.
10. Replace alarms immediately if they are not working properly. Smoke alarm that do not work cannot alert you to a fire.
11. Keep at least one working fire extinguisher on every floor, and an additional one in the kitchen.
12. Have fire escape ladders or other reliable means of escape from an upper floor in case stairs are blocked.



## Basic Safety Information

### **IMPORTANT!**

1. DANGERS, WARNINGS, AND CAUTIONS ALERT YOU TO IMPORTANT OPERATING INSTRUCTIONS OR TO POTENTIALLY HAZARDOUS SITUATIONS. PAY SPECIAL ATTENTION TO THESE SITUATIONS.
2. THIS COMBINATION SMOKE & CARBON MONOXIDE ALARM IS ONLY APPROVED FOR HOME USE.
3. THIS CARBON MONOXIDE ALARM IS DESIGNED TO DETECT CARBON MONOXIDE FROM ANY SOURCE OF COMBUSTION.
4. CONSTANT EXPOSURES TO HIGH OR LOW HUMIDITY MAY REDUCE BATTERY LIFE.
5. SMOKE ALARMS ARE NOT TO BE USED WITH DETECTOR GUARDS UNLESS THE COMBINATION HAS BEEN EVALUATED AND FOUND SUITABLE FOR THAT PURPOSE.

### **CAUTION!**

THIS SMOKE & CARBON MONOXIDE ALARM HAS TWO SEPARATE ALARMS WHICH WORK INDEPENDENTLY. THE CARBON MONOXIDE ALARM IS NOT DESIGNED TO DETECT FIRE OR ANY OTHER GAS. IT WILL ONLY INDICATE THE PRESENCE OF CARBON MONOXIDE GAS AT THE SENSOR. CARBON MONOXIDE GAS MAY BE PRESENT IN OTHER AREAS. THE SMOKE ALARM WILL ONLY INDICATE THE PRESENCE OF SMOKE THAT REACHES THE SENSOR. THE SMOKE ALARM IS NOT DESIGNED TO DETECT GAS, HEAT OR FLAMES.

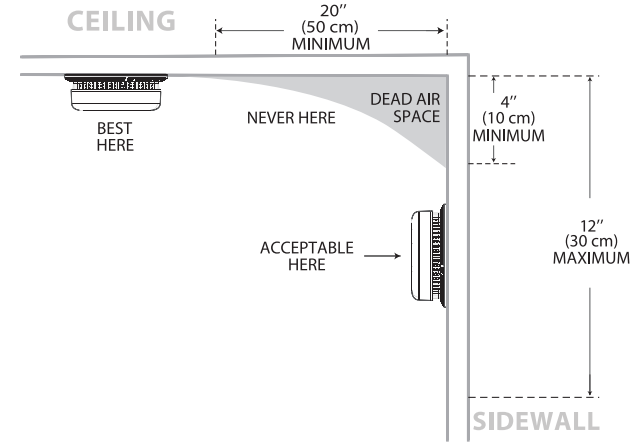
### **WARNING!**

1. NEVER IGNORE ANY ALARM. FAILURE TO RESPOND CAN RESULT IN SERIOUS INJURY OR DEATH.
2. THE SILENCE FEATURE IS ONLY FOR YOUR CONVENIENCE AND WILL NOT CORRECT A PROBLEM. ALWAYS CHECK YOUR HOME FOR A POTENTIAL PROBLEM AFTER ANY ALARM. FAILURE TO DO SO CAN RESULT IN INJURY OR DEATH.
3. TEST THIS SMOKE/CO ALARM ONCE A WEEK. IF THE ALARM EVER FAILS TO TEST CORRECTLY, REPLACE IT IMMEDIATELY! IF THE ALARM CANNOT WORK PROPERLY, IT WILL NOT ALERT YOU TO A PROBLEM.
4. THIS PRODUCT IS INTENDED FOR USE IN ORDINARY INDOOR LOCATIONS OF FAMILY LIVING UNITS. IT IS NOT DESIGNED TO MEASURE CO LEVELS IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) COMMERCIAL OR INDUSTRIAL STANDARDS. INDIVIDUALS WITH MEDICAL CONDITIONS THAT MAY MAKE THEM MORE SENSITIVE TO CARBON MONOXIDE MAY CONSIDER USING WARNING DEVICES WHICH PROVIDE AUDIBLE AND VISUAL SIGNALS FOR CARBON MONOXIDE CONCENTRATIONS UNDER 30 PPM. FOR ADDITIONAL INFORMATION ON CARBON MONOXIDE AND YOUR MEDICAL CONDITION CONTACT YOUR PHYSICIAN.

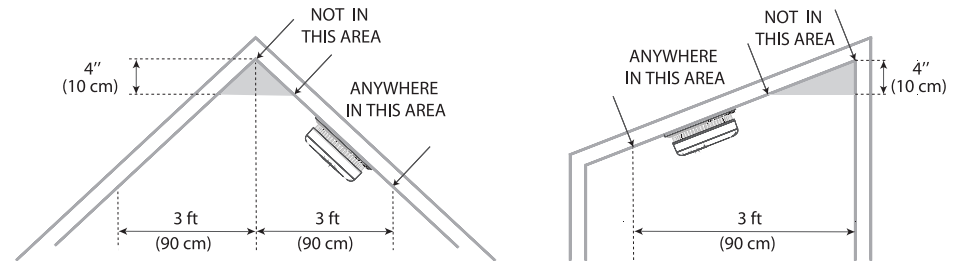
5. THE REPLACEMENT DATE THAT APPEARS ON THE DEVICE IS THE DATE BEYOND WHICH THE DEVICE MAY NO LONGER DETECT CARBON MONOXIDE ACCURATELY AND SHOULD BE IMMEDIATELY REPLACED.
6. THIS DEVICE IS DESIGNED TO PROTECT INDIVIDUALS FROM THE ACUTE EFFECTS OF CARBON MONOXIDE EXPOSURE. IT MAY NOT FULLY SAFEGUARD INDIVIDUALS WITH SPECIFIC MEDICAL CONDITIONS. IF IN DOUBT, CONSULT A MEDICAL PRACTITIONER.

## Installation Instructions

1. Prioritize the installation of an alarm in the bedroom and walkways, and make sure you can hear the alarm from all sleeping areas. In a home with several bedrooms, install an alarm in every bedroom. If you install only one smoke alarm in your home, install the alarm near to all bedrooms where possible, and not in a basement or furnace room.
2. Install an alarm above the stairway and on every floor of the house.
3. Smoke, heat and anything burning will spread horizontally after rising to the ceiling, so install the alarm in the middle of the ceiling where possible. Ensure the alarm is within working distance of all corners of the room.
4. If an alarm cannot be installed in the middle of a ceiling, install at a distance of 20 inches (50 cm) away from the corners of the room.
5. If an alarm is installed on a wall, it should be at a distance of 4-12 inches (10-30 cm) below the ceiling.
6. If the length of a room or hall is beyond 30 feet (900 cm), you will need to install several alarms in the same space.



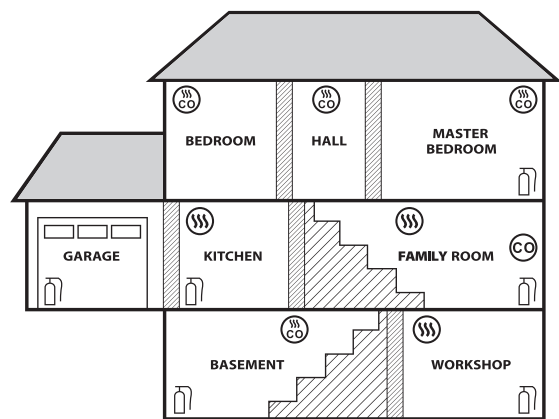
7. When the wall or ceiling is angled, the alarm needs to be installed within 3 feet (90 cm) of the highest wall or ceiling point (measured horizontally) in the room.



## Recommended Placement

### **WARNING!**

1. THIS ALARM SHOULD BE INSTALLED BY A COMPETENT PERSON.
2. INSTALLATION OF THE ALARM SHOULD NOT BE USED AS A SUBSTITUTE FOR PROPER INSTALLATION, USE AND MAINTENANCE OF FUEL BURNING APPLIANCES INCLUDING APPROPRIATE VENTILATION AND EXHAUST SYSTEMS.



**Note:** Kitchens should be installed with smoke alarms which have the silence mode.

## How to Install This Alarm

### **IMPORTANT!**

THIS COMBINATION SMOKE/CO ALARM IS DESIGNED TO BE MOUNTED ON THE CEILING OR WALL.

### **WARNING!**

FAILURE TO PROPERLY INSTALL AND ACTIVATE THIS ALARM WILL PREVENT PROPER OPERATION OF THE ALARM AND WILL PREVENT ITS RESPONSE TO FIRE HAZARDS OR CO.

## Locations to Avoid

**WARNING** - This product is intended for use in ordinary indoor locations of family living units. It is not designed to measure compliance with the Occupational Safety and Health Administration (OSHA) commercial or industrial standards.

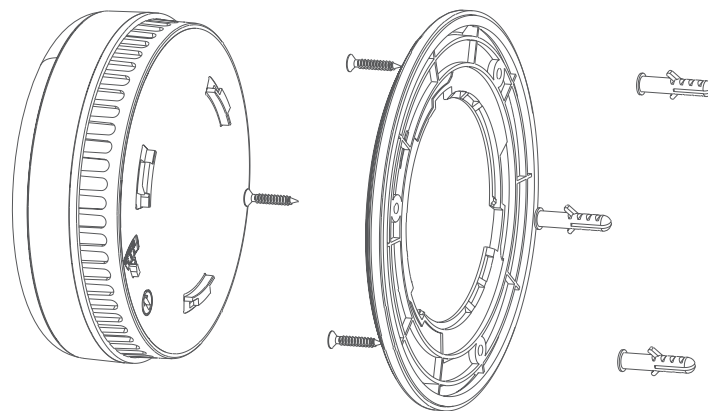
1. Do not install in garages, kitchens, furnace rooms or bathrooms! Do not install within 5 ft or 1.5 m of cooking appliances.
2. Do not install within 3 ft (0.9 m) of the following: The door to a kitchen, or a bathroom that contains a tub or shower, forced air supply ducts used for heating or cooling, ceiling or whole house ventilating fans, or other high air flow areas. Avoid excessively dusty, dirty or greasy areas. Dust, grease or household chemicals can contaminate the alarm's sensors, causing the alarm to not operate properly.

3. Place the alarm where drapes or other objects will not block the sensors. Smoke and CO must be able to reach the sensors to accurately detect these conditions. Do not install in peaks of vaulted ceilings, "A" frame ceilings or gabled roofs. Keep out of damp and humid areas.
4. Install at least one (1) foot away from fluorescent lights, as electronic noise may cause nuisance alarms. Do not place in direct sunlight and keep out of insect-infested areas. Extreme temperatures will affect the sensitivity of the smoke/CO alarm. Do not install in areas where the temperature is colder than 40 °F (4.4 °C) or hotter than 100 °F (37.8 °C), such as garages and unfinished attics. Do not install in areas where the relative humidity (RH) is above 85%. Place away from doors and windows that open to the outside.
5. Smoke alarms are not to be used with detector guards unless the combination (alarm and guard) has been evaluated and found suitable for that purpose.

## Mounting Steps

1. Drill three Ø 6.0 mm holes in the wall or ceiling, then insert three plastic anchor plugs into the holes with a hammer.
2. Attach the mounting bracket to the surface of the wall or ceiling with three screws and mount the alarm into the bracket by pushing them together and twisting the unit clockwise.
3. Test the unit by using the Test/Silence button. Ensure the unit sounds in an alarm pattern.

**Note: This model is equipped with a feature that automatically activates the alarm when the alarm is attached to the mounting bracket for the first time.**



## Deactivation of the Alarm

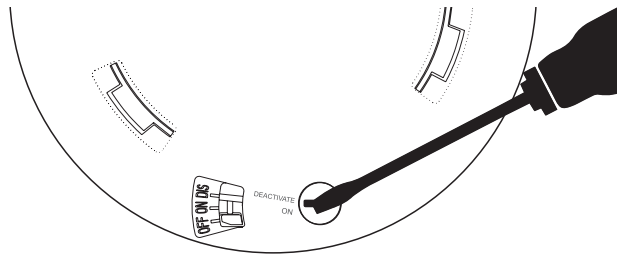
### **WARNING!**

1. DO NOT DEACTIVATE THE ALARM UNIT UNTIL THE END-OF-LIFE SIGNAL HAS BEEN HEARD.
2. ONCE THE MAXIMUM LIFETIME (10 YEARS) IS REACHED, THE ALARM DELIVERS 2 BEEPS EVERY 30 SECONDS.
3. ONCE THE ALARM IS DEACTIVATED, IT WILL NO LONGER FUNCTION. IT CANNOT BE REACTIVATED AND MUST BE REPLACED.

## To Deactivate the Alarm

Pressing the Test/Silence button can silence the end-of-life signal for up to 3 days.

1. Peel back the shaded label obstructing the "DIS" setting, and break the thin plastic guard, as below.
2. Twist the plastic pin upwards to the "DIS" position or insert a screwdriver into the slot and turn the dial clockwise to the "DIS" position.
3. Dispose of the alarm.
4. Replace the alarm.



## Weekly Test

### **WARNING!**

1. NEVER USE AN OPEN FLAME OF ANY KIND TO TEST THIS UNIT. YOU MIGHT ACCIDENTALLY DAMAGE OR SET FIRE TO THE UNIT OR TO YOUR HOME.
2. NEVER USE A VEHICLE EXHAUST TO TEST THIS UNIT. EXHAUST FUMES MAY CAUSE PERMANENT DAMAGE AND VOID YOUR WARRANTY.
3. DO NOT STAND CLOSE TO THE ALARM WHEN THE ALARM IS SOUNDING. EXPOSURE AT CLOSE RANGE MAY BE HARMFUL TO YOUR HEARING. WHEN TESTING, STEP AWAY WHEN THE ALARM BEGINS TO SOUND.

## Maintenance

To keep your smoke/CO alarm in good working order, follow these simple steps:

1. Verify the unit's alarm sound and indicators are working properly by testing the unit once a week.
2. Remove the unit from the ceiling/wall and clean the alarm cover and vents with a soft brush attachment once a month to remove dust and dirt.
3. Never use detergents or other solvents to clean the unit.
4. Avoid spraying air fresheners, hair spray or other aerosols near the alarm.
5. Do not paint the unit. Paint will seal the vents and interfere with the sensor's ability to detect smoke or CO. Never attempt to disassemble the unit or clean inside. Doing so will void your warranty.
6. When removed, place the smoke/CO alarm back in its proper location as soon as possible, to assure continuous protection from fire or carbon monoxide poisoning.
7. When household cleaning supplies or similar contaminants are used, the area should be ventilated.

## If the Smoke Alarm Sounds

1. Don't panic; stay calm. Follow your family's escape plan.
2. Get out of the house as quickly as possible. Don't stop to get dressed or collect anything.

3. Feel doors with the back of your hand before opening them.
4. If a door is cool, open it slowly. Don't open a hot door. Keep doors and windows closed, unless you must escape through them.
5. Cover your nose and mouth with a cloth (preferably damp).
6. Take short, shallow breaths.
7. Meet at your planned meeting place outside your home, and do a head count to make sure everybody got out safely.
8. Call the Fire Department as soon as possible from outside. Give your address, then your name.
9. Never go back inside a burning building for any reason.
10. Contact your Fire Department for ideas on making your home safer.

## If the CO Alarm Sounds

1. Keep calm and immediately move to fresh air. Open all doors and windows to increase the rate of ventilation. Stop using all fuel-burning appliances and ensure, if possible, that they are turned off, e.g. for gas appliances, isolate the emergency control valve.
2. If the alarm continues to be activated, then evacuate the premises. Leave the doors and windows open, and only re-enter the building when the alarm has stopped. In multi-occupancy and multi-storey premises, ensure that all the occupants are alerted to the risk.
3. Get medical help for anyone suffering the effects of carbon monoxide poisoning, and advise that carbon monoxide inhalation is suspected.
4. Telephone the appropriate appliance servicing and/or maintenance agency or, when necessary, the relevant fuel supplier on their emergency number or the national Gas Emergency Service Provider, if appropriate, so that the source of carbon monoxide emissions can be identified and corrected. Unless the reason for the alarm is obviously spurious, do not use the fuel-burning appliances again, until they have been checked and cleared for use by a competent person according to national regulations.

## What You Need to Know About CO

CO cannot be seen, smelled or tasted and can be fatal. The build-up of CO in the blood is called the carboxyhemoglobin (COHb) level and interferes with the body's ability to supply itself with oxygen. Depending on the concentration, CO can kill in minutes. The most common sources of CO are malfunctioning gas appliance used for heating and cooking, vehicles running in an attached garage, blocked chimneys or flues, portable fuel burning heaters, fireplaces, fuel powered tools and operating a grill in an enclosed space.

Indications of carbon monoxide poisoning include symptoms similar to the flu, but with no fever. Other symptoms include dizziness, fatigue, weakness, headache, nausea, vomiting, sleepiness and confusion. Everyone is susceptible to the danger of CO, but experts agree that unborn babies, small children, pregnant women, senior citizens and people with heart or respiratory problems are at the highest risk for serious injury or death. Every year a qualified technician should inspect and clean your heating system, vents, chimney, and flues.

The following symptoms are related to carbon monoxide 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, fast heart rate.

**Extreme exposure:** Unconsciousness, cardiorespiratory failure, death.

The above levels of exposure relate to healthy adults. Levels differ for those at high risk. Exposure to high levels of carbon monoxide can be fatal or cause permanent damage and disabilities. Many cases of reported carbon monoxide poisoning indicate that while victims are aware they are not well, they become so disoriented 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 affected. Familiarization with the effects of each level is important.

## Fire Safety Information

Poisoning indicates that while victims are aware they are not well, they become so disoriented 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 affected. Familiarization with the effects of each level is important.

## Escape Plan

Prepare and practice a home escape plan twice a year, including drills at night. Know two ways out of every room (door & window) and identify a meeting place outside the home where everyone will gather once they have exited the residence. When two people have reached the meeting place, one should leave to call 911 while the second person stays to account for additional family members. Establish a rule that once you're out, you never reenter under any circumstance!

## Fire Prevention

Never smoke in bed, or leave cooking food unattended. Teach children never to play with matches or lighters! Train everyone in the home to recognize the alarm pattern, voice message warning and to leave the home using their escape plan when it's heard. Know how to do "Stop, Drop and Roll" if clothes catch on fire, and how to crawl low under smoke. Install and maintain fire extinguishers on every level of the home and in the kitchen, basement and garage. Know how to use a fire extinguisher prior to an emergency. Second level and higher occupied rooms with windows should have an escape ladder.

Current studies have shown smoke alarms may not awaken all sleeping

individuals, and that it is the responsibility of individuals in the household that are capable of assisting others to provide assistance to those who may not be awakened by the alarm sound, or to those who may be incapable of safely evacuating the area unassisted.

## 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.
- A car idling in an open or closed attached garage, or near a home.



## Industry Safety Standards

### NFPA (National Fire Protection Association)

For your information, the National Fire Alarm Code, NFPA 72, reads as follows:

#### 11.5.1 Required Detection.

Where required by applicable laws, codes, or standards for a specific type of occupancy, approved single- and multiple-station smoke alarms shall be installed as follows:

- (1) In all sleeping rooms and guest rooms
- (2) Outside of each separate dwelling unit sleeping area, within 6.4 m (21 ft) of any door to a sleeping room, the distance measured along a path of travel
- (3) On every level of a dwelling unit, including basements
- (4) On every level of a residential board and care occupancy (small facility), including basements and excluding crawl spaces and unfinished attics
- (5) In the living area(s) of a guest suite

(6) In the living area(s) of a residential board and care occupancy  
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### Smoke Detection—Are More Smoke Alarms Desirable?

The required number of smoke alarms might not provide reliable early warning protection for those areas separated by a door from the areas protected by the required smoke alarms. For this reason, it is recommended that the householder consider the use of additional smoke alarms for those areas for increased protection. The additional areas include the basement, bedrooms, dining room, furnace room, utility room, and hallways not protected by the required smoke alarms. The installation of smoke alarms in kitchens, attics (finished or unfinished), or garages is not normally recommended, as these locations occasionally experience conditions that can result in improper operation.

### California State Fire Marshall

Early warning fire detection is best achieved by the installation of fire detection equipment in all rooms and areas of the household as follows: A smoke alarm installed in each separate sleeping area (in the vicinity, but outside the bedrooms), heat or smoke detectors in the living rooms, dining rooms, bedrooms, kitchens, hallways, attics, furnace rooms, closets, utility and storage rooms, basements and attached garages.

### Consumer Product Safety Commission

The Consumer Product Safety Commission (CPSC) recommends the use of at least one CO Alarm per household, located near the sleeping area.

## Manufacturer and Service Information

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