First Alert®

USER'S MANUAL

COMBINATION CARBON MONOXIDE & SMOKE ALARM

Features:

- Separate sensors to detect smoke and CO; the two alarm systems work independently
- Powered by two "AA" batteries
- Side access drawer for easy battery replacement

IMPORTANT! PLEASE READ CAREFULLY AND SAVE.
This user's manual contains important information about your Combination Carbon Monoxide & Smoke Alarm's operation. If you are installing this Alarm for use by others, you must leave this manual— or a copy of it—with the end user.

CONFORMS TO UL STD 217 AND UL STD 2034
Model ZCOMBO
Sku ZCOMBO-G

M08-0456-003 **Q** 08/13 Printed in Mexico

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Consumer Affairs: (800) 323-9005 • www.firstalert.com

All First Alert® Smoke Alarms conform to regulatory requirements, including UL217 and are designed to detect particles of combustion. Smoke particles of varying number and size are produced in all fires.

i Ionization technology is generally more sensitive than photoelectric technology at detecting small particles, which tend to be produced in greater amounts by flaming fires, which consume combustible materials rapidly and spread quickly. Sources of these fires may include paper burning in a wastebasket, or a grease fire in the kitchen.

p Photoelectric technology is generally more sensitive than ionization technology at detecting large particles, which tend to be produced in greater amounts by smoldering fires, which may smolder for hours before bursting into flame. Sources of these fires may include cigarettes burning in couches or bedding.

For maximum protection, use both types of Smoke Alarms on each level and in every bedroom of your home.

INTRODUCTION

FIRE SAFETY TIPS

Follow safety rules and 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- 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.

Keep alarms clean, and test them weekly. Replace alarms immediately if they are not working properly. Smoke Alarms that do not work cannot alert you to a fire. Keep at least one working fire extinguisher on every floor, and an additional one in the kitchen. Have fire escape ladders or other reliable means of escape from an upper floor in case stairs are blocked.

BASIC SAFETY INFORMATION

IMPORTANT!

- **Dangers, Warnings, and Cautions alert you to important operating instructions or to potentially hazardous situations. Pay special attention to these items.**
- **This Smoke/CO Alarm is approved for use in single-family residences. It is NOT designed for marine or RV use.**

⚠CAUTION!

- **This combination Smoke/Carbon Monoxide Alarm has two separate alarms. The CO 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 sense gas, heat or flames.**

⚠WARNING!

- **This Smoke/CO Alarm cannot operate without working batteries. Removing the batteries for any reason, or failing to replace the batteries at the end of their service life, prevents protection.**
- **NEVER ignore any alarm. See "If Your Smoke/CO Alarm Sounds" for more information on how to respond to an alarm. Failure to respond can result in injury or death.**
- **The Silence Features are for your convenience only and will not correct a problem. See "Using the Silence Features" for details. Always check your home for a potential problem after any alarm. Failure to do so can result in injury or death.**
- **Test this Smoke/CO Alarm once a week. If the Alarm ever fails to test correctly, have it replaced immediately! If the Alarm is not working properly, it cannot alert you to a problem.**
- **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.**

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that of the receiver.
- Consult the dealer or an experienced radio or TV technician for help.

Warning: Changes or modifications to the product, not expressly approved by First Alert / BRK Brands, Inc., could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

INSTALLATION

WHERE TO INSTALL THIS ALARM

Minimum coverage for Smoke Alarms, as recommended by the National Fire Protection Association (NFPA), is one Smoke Alarm on every floor, in every sleeping area, and in every bedroom (See "Regulatory Information For Smoke Alarms" for details on the NFPA recommendations).

For CO Alarms, the National Fire Protection Association (NFPA) recommends that a CO Alarm should be centrally located outside of each separate sleeping area in the immediate vicinity of the bedrooms. For added protection, install additional CO Alarms in each separate bedroom, and on every level of your home.

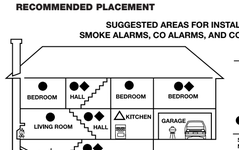
NOTE: For added protection, install an additional Smoke/CO Alarm at least 15 feet (4.6 meters) away from the furnace or fuel burning heat source where possible. In smaller homes or in manufactured homes where this distance cannot be maintained, install the Alarm as far away as possible from the furnace or other fuel burning source. Installing the Alarm closer than 15 feet (4.6 meters) will not harm the Alarm, but may increase the frequency of unwanted alarms.

In general, install combination Smoke and Carbon Monoxide Alarms:

- On every level of your home, including finished attics and basements.
- Inside every bedroom, especially if people sleep with the door partly or completely closed.
- In the hall near every sleeping area. If your home has multiple sleeping areas, install a unit in each. If a hall is more than 40 feet (12 meters) long, install a unit at each end.
- At the top of first-to-second floor stairs.
- At the bottom of the basement stairs.
- For additional coverage, install Alarms in all rooms, halls, and storage areas, where temperatures normally remain between 40˚F and 100˚F (4.4˚C and 37.8˚C).

RECOMMENDED PLACEMENT

SUGGESTED AREAS FOR INSTALLING SMOKE ALARMS, CO ALARMS, AND COMBO UNITS



Suggested locations are based on NFPA recommendations (NFPA 72 for Smoke Alarms and NFPA 720 for Carbon Monoxide Alarms). Always refer to national and local codes before beginning any installation.

In new construction AC and AC/DC smoke alarms MUST be interconnected to meet NFPA recommendations.

- When installing on the wall, the top edge of Smoke Alarms should be placed between 4 inches (102 mm) and 12 inches (305 mm) from the wall/ceiling line.
- When installing on the ceiling, place the alarm as close to the center as possible.
- In either case, install at least 4 inches (102 mm) from where the wall and ceiling meet. See "Avoiding Dead Air Spaces" for more information.

NOTE: For any location, make sure no door or other obstruction could keep carbon monoxide or smoke from reaching the Alarm.

Installing Smoke/CO Alarms in Mobile Homes

For minimum security install one Smoke/CO Alarm as close to each sleeping area as possible. For more security, put one unit in each room. Many older mobile homes (especially those built before 1978) have little or no insulation. If your mobile home is not well insulated, or if you are unsure of the amount of insulation, it is important to install units on inside walls only.

WHERE THIS ALARM SHOULD NOT BE INSTALLED

Do NOT locate this Smoke/CO Alarm:

- In garages, furnace rooms, crawl spaces and unfinished attics. Avoid extremely dusty, dirty or greasy areas.
- Where combustion particles are produced. Combustion particles form when something burns. Areas to avoid include poorly ventilated kitchens, garages, and furnace rooms. Keep units at least 20 feet (6 meters) from the sources of combustion particles (stove, furnace, water heater, space heater) if possible. In areas where a 20-foot (6 meter) distance is not possible – in modular, mobile, or smaller homes, for example – it is recommended the Smoke Alarm be placed as far from these fuel-burning sources as possible. The placement recommendations are intended to keep these Alarms at a reasonable distance from a fuel-burning source, and thus reduce "unwanted" alarms. Unwanted alarms can occur if a Smoke Alarm is placed directly next to a fuel-burning source. Ventilate these areas as much as possible.
- Within 5 feet (1.5 meters) of any cooking appliance. In air streams near kitchens. Air currents can draw cooking smoke into the smoke sensor and cause unwanted alarms.
- In extremely humid areas. This Alarm should be at least 10 feet (3 meters) from a shower, sauna, humidifier, vaporizer, dishwasher, laundry room, utility room, or other source of high humidity.
- In direct sunlight.
- In turbulent air, like near ceiling fans or open windows. Blowing air may prevent CO or smoke from reaching the sensors.
- In areas where temperature is colder than 40˚ F (4.4˚ C) or hotter than 100˚F (37.8˚ C). These areas include non-airconditioned crawl spaces, unfinished attics, uninsulated or poorly insulated ceilings, porches, and garages.
- In insect infested areas. Insects can clog the openings to the sensing chamber.
- Less than 12 inches (305 mm) away from fluorescent lights. Electrical "noise" can interfere with the sensor.
- In "dead air" spaces. See "Avoiding Dead Air Spaces".

AVOIDING DEAD AIR SPACES

"Dead air" spaces may prevent smoke from reaching the Smoke/CO Alarm. To avoid dead air spaces, follow installation recommendations below.

On ceilings, install Smoke/CO Alarms as close to the center of the ceiling as possible. If this is not possible, install the Smoke/CO Alarm at least 4 inches (102 mm) from the wall or corner.

For wall mounting (if allowed by building codes), the top edge of Smoke/CO Alarms should be placed between 4 inches (102 mm) and 12 inches (305 mm) from the wall/ceiling line, below typical "dead air" spaces.

On a peaked, gabled, or cathedral ceiling, install first Smoke/CO Alarm within 3 feet (0.9 meters) of the peak of the ceiling, measured horizontally. Additional Smoke/CO Alarms may be required depending on the length, angle, etc. of the ceiling's slope. Refer to NFPA 72 for details on requirements for sloped or peaked ceilings.

WEEKLY TESTING

⚠WARNING!

- **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. The built-in test switch accurately tests the unit's operation as required by Underwriters Laboratories, Inc. (UL). NEVER use vehicle exhaust! Exhaust may cause permanent damage and voids your warranty.**
- **DO NOT stand close to the Alarm when the horn is sounding. Exposure at close range may be harmful to your hearing. When testing, step away when horn starts sounding.**

⚠CAUTION!

It is important to test this unit every week to make sure it is working properly. Using the test button is the recommended way to test this Smoke/CO Alarm.

You can test this Smoke/CO Alarm: Press and hold the Test/Silence button 3-5 seconds until unit starts to alarm.

During testing, you will see and hear the following sequence:

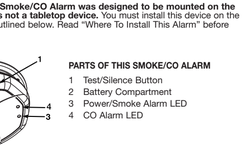
- The **Horn** will sound 3 beeps, pause, 3 beeps. The **Power/Smoke LED** flashes Red and the **CO LED** will be Off.
- Next the **Horn** will sound 4 beeps, pause, 4 beeps. The **Power/Smoke LED** will be Off and the **CO LED** flashes Red.

If the unit does not alarm, make sure the batteries are correctly installed, and test again. If the unit still does not alarm, replace it immediately.

HOW TO INSTALL THIS ALARM

IMPORTANT!

This combination Smoke/CO Alarm was designed to be mounted on the ceiling or wall. It is not a tabletop device. You must install this device on the ceiling or wall as outlined below. Read "Where To Install This Alarm" before starting.



PARTS OF THIS SMOKE/CO ALARM

1 Test/Silence Button
2 Battery Compartment
3 Power/Smoke Alarm LED
4 CO Alarm LED

Tools you will need: pencil, drill with 3/16" or 5mm drill bit, flathead screwdriver, hammer.

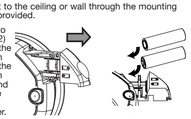
⚠CAUTION!

- **Do not connect this unit to any other alarm or auxiliary device. It is a single-station unit that cannot be linked to other devices. Connecting anything else to this unit may prevent it from working properly.**
- **Do not install this unit over an electrical junction box. Air currents around junction boxes can prevent smoke from reaching the sensing chamber and prevent the unit from alarming. Only AC powered units are intended for installation over junction boxes.**

IMPORTANT!

If you want to lock the battery compartment, or lock the Smoke/CO Alarm to the mounting bracket, please read the "Optional Locking Feature" section located at www.firstalert.com.

1. Hold base firmly and twist the mounting bracket counterclockwise (left) to separate it from the unit.
2. Hold the mounting bracket against the ceiling (or wall) so the vertical mounting slot is aligned in the 12 o'clock position and trace around the inside of the mounting slots (vertical and horizontal mounting).
3. Put the unit where it won't get covered with dust when you drill the mounting holes.
4. Using a 3/16" (5 mm) drill bit, drill a hole through the center of the oval outlines you traced.
5. Insert the plastic screw anchors (in the plastic bag with screws) into the holes. Tap the screw anchors gently with a hammer, if necessary, until they are flush with the ceiling or wall.
6. Line the mounting bracket up over the plastic screw anchors.
7. Screw the mounting bracket to the ceiling or wall through the mounting slots using the two screws provided.
8. Before attaching the Alarm to the bracket, insert the two (2) AA batteries (included) into the battery compartment. Match the terminals on the end of the battery with the terminals in the unit. Match "+" to "+" and "–" to "-." If the batteries are not fully inserted, the unit cannot receive battery power.



NOTE: The unit may beep briefly when you install the batteries. This is normal. The GREEN Light flashes about every 60 seconds when the unit is receiving battery power.

⚠WARNING!

The battery door will resist closing unless batteries are installed. This warns you the unit will not operate without batteries.

9. Attach the Smoke/CO Alarm to the mounting bracket. Line up the guides on the alarm's base with the guides on the mounting bracket. When guides are lined up, turn the base clockwise (right) until it snaps into place.

   NOTE: Once the Smoke/CO Alarm is snapped onto the mounting bracket, you can rotate the Smoke/CO Alarm to adjust the alignment.

10. Test the Smoke/CO Alarm. See "Weekly Testing" for details.

OTHER Z-WAVE SYSTEMS

- The alarm will operate with 3rd party, certified Z-Wave devices. Basic command class required by all Z-Wave devices. By the requirements of the Device Class spec, this command class does not have to be mapped to any particular functionality for this device.

INCLUSION

1. Slide battery door open.
2. Insert batteries checking the correct orientation.
3. Press and hold the test button. Keep it held down as you slide the battery drawer closed. You may then release the button.

EXCLUSION

1. Slide battery door open.
2. Remove and re-insert batteries checking the correct orientation.
3. Press and hold the test button. Keep it held down as you slide the battery drawer closed. You may then release the button.
- The alarm will remain awake for 30 seconds on inclusion.
- The alarm supports one association group with up to 1 node, and sends its alarms to that group.
- The alarm supports configuration parameter #1, which has a size of 1, a default value of 0, and when set to 1 causes the device to send double alarm messages.

RESET DEVICE

If the device is powered up with the test button held down for 10+ seconds, the device will reset all Z-Wave settings and leave the network. NOTE: The device will not remain awake after resetting and will go into standby mode.

REGULAR MAINTENANCE

This unit has been designed to be as maintenance-free as possible, but there are a few simple things you must do to keep it working properly.

- Test it at least once a week.
- Clean the Smoke/CO Alarm at least once a month; gently vacuum the outside of the Smoke/CO Alarm using your household vacuum's soft brush attachment. A can of clean compressed air (sold at computer or office supply stores) may also be used. Follow manufacturer instructions for use. Test the Smoke/CO Alarm. Never use water, cleaners or solvents since they may damage the unit.
- If the Smoke/CO Alarm becomes contaminated by excessive dirt, dust and/or grime, and cannot be cleaned to avoid unwanted alarms, replace the unit immediately.

Continued...

REGULAR MAINTENANCE, Continued

- Relocate the unit if it sounds frequent unwanted alarms. See "Where This Alarm Should Not Be Installed" for details.

Choosing a replacement battery:

Your Smoke/CO Alarm requires two standard AA batteries. The following batteries are acceptable as replacements: Energizer E91, Duracell MN1500. **These batteries are available at many local retail stores.**

⚠WARNING!

- **Always use the exact batteries specified by this User's Manual. DO NOT use rechargeable batteries. Clean the battery contacts and also those of the device prior to battery installation. Install batteries correctly with regard to polarity (+ and -).**
- **Please dispose of or recycle used batteries properly, following any local regulations. Consult your local waste management authority or recycling organization to find an electronics recycling facility in your area. DO NOT DISPOSE OF BATTERIES IN FIRE. BATTERIES MAY EXPLODE OR LEAK.**

⚠WARNING!

- **Keep battery out of reach of children. In the event a battery is swallowed, immediately contact your poison control center, your physician, or the National Battery Ingestion hotline at 202-625-3333 as serious injury may occur.**

IMPORTANT!

Actual battery service life depends on the Smoke/CO Alarm and the environment in which it is installed. All the batteries specified above are acceptable replacement batteries for this unit. Regardless of the manufacturer's suggested battery life, you MUST replace the battery immediately once the unit starts "chirping" (the "low battery warning").

To replace the batteries (without removing Alarm from the ceiling or wall):

1. Open the battery compartment.
2. Press tabs A and B as shown in the diagram and remove each battery.
3. Insert the new batteries, making sure they snap completely into the battery compartment. Match the terminals on the ends of the batteries with the terminals on the unit.
4. Close the battery compartment, and then test the unit by pressing the Test/Silence button.

IF YOUR SMOKE/CO ALARM SOUNDS

WHAT TO DO FIRST–IDENTIFY THE TYPE OF ALARM

Type of Alarm	What You See and Hear
Carbon Monoxide (CO)	**CO LED:** Flashes Red **Horn:** 4 beeps, pause, 4 beeps, pause **Power/Smoke LED**: Off
Smoke	**Power/Smoke LED**: Flashes Red **Horn:** 3 beeps, pause, 3 beeps, pause **CO LED:** Off

IF THE CO ALARM SOUNDS

"ALARM-MOVE TO FRESH AIR"
If you hear the CO alarm horn and the CO red light is flashing, move everyone to a source of fresh air. DO NOT remove the batteries!

⚠WARNING!

Actuation of your CO Alarm indicates the presence of carbon monoxide (CO) which can kill you. In other words, when your CO Alarm sounds, you must not ignore it!

IF THE CO ALARM SIGNAL SOUNDS:

1. Operate the Test/Silence button.
2. Call your emergency services, fire department or 911. Write down the number of your local emergency service here:

   _____

3. Immediately move to fresh air—outdoors or by an open door or window. Do a head count to check that all persons are accounted for. Do not re-enter the premises, or move away from the open door or window until the emergency services responder has arrived, the premises have been aired out, and your CO Alarm remains in its normal condition.
4. After following steps 1-3, if your CO Alarm reactivates within a 24-hour period, repeat steps 1-3 and call a 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 manufacturers' instructions, or contact the manufacturers 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. Write down the number of a qualified appliance technician here:

   _____

NOTE: A qualified appliance technician is defined as "a person, firm, corporation, or company that either in person or through a representative, is engaged in and responsible for the installation, testing, servicing, or replacement of heating, ventilation, air conditioning (HVAC) equipment, combustion appliances and equipment, and/or gas fireplaces or other decorative combustion equipment."

IF THE SMOKE ALARM SOUNDS

RESPONDING TO AN ALARM

⚠WARNING!

- **If the unit alarms and you are not testing the unit, it is warning you of a potentially dangerous situation that requires your immediate attention. NEVER ignore an alarm. Ignoring the alarm may result in injury or death.**
- **Never remove the batteries from a battery operated Smoke/CO Alarm to stop an unwanted alarm (caused by cooking smoke, etc.). Removing batteries disables the alarm so it cannot sense smoke, and removes your protection. Instead open a window or fan the smoke away from the unit. The alarm will reset automatically.**
- **If the unit alarms get everyone out of the house immediately.**

WHAT TO DO IN CASE OF FIRE

- Don't panic; stay calm. Follow your family escape plan.
- Get out of the house as quickly as possible. Don't stop to get dressed or collect anything.
- Feel doors with the back of your hand before opening them. 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.
- Cover your nose and mouth with a cloth (preferably damp). Take short, shallow breaths.
- Meet at your planned meeting place outside your home, and do a head count to make sure everybody got out safely.
- Call the Fire Department as soon as possible from outside. Give your address, then your name.
- Never go back inside a burning building for any reason.
- Contact your Fire Department for ideas on making your home safer.

⚠WARNING!

Alarms have various limitations. See "General Limitations of Smoke/CO Alarms" for details.

USING THE SILENCE FEATURES

⚠WARNING!

Never remove the batteries to quiet an unwanted alarm. Removing the batteries disables the alarm and removes your protection.

The Silence Feature is intended to temporarily silence the horn while you identify and correct the problem. Do not use the Silence Feature in emergency situations. It will not correct a CO problem or extinguish a fire.

The Silence Feature can temporarily quiet an unwanted alarm for several minutes. Press the Test/Silence button on the alarm cover for at least 3-5 seconds.

After the Test/Silence button is released, the Red LED blinks during the silence mode.

When the Smoke Alarm is Silenced	When the CO Alarm is Silenced
The Smoke Alarm will remain silent for up to 15 minutes, then return to normal operation.	The CO alarm will remain silent for up to 4 minutes.
If the smoke has not cleared–or continues to increase–the device will go back into alarm.	After 4 minutes, if CO levels remain potentially dangerous the horn will start sounding again.

SILENCING THE LOW BATTERY WARNING

This silence feature can temporarily quiet the low battery warning "chirp" for up to 8 hours. Press the Test/Silence button on the alarm cover.

Once the low battery warning "chirp" silence feature is activated, the unit continues to flash the GREEN light every 60 seconds for 8 hours. After 8 hours, the low battery "chirp" will resume. **Replace the batteries as soon as possible; this unit will not operate without battery power!**

To deactivate this feature: Press the Test/Silence button again. The unit will go into Test Mode and the low battery warning will resume (LED flashes and unit sounds "chirp" once a minute).

SILENCING THE END OF LIFE SIGNAL

This silence feature can temporarily quiet the End of Life warning "chirp" for up to 2 days. You can silence the End of Life warning "chirp" by pressing the Test/Silence button. The horn will chirp, acknowledging that the End of Life silence feature has been activated.

After approximately 2 days, the End of Life "chirp" will resume.

WHAT YOU NEED TO KNOW ABOUT CO

WHAT IS CO?

CO is an invisible, odorless, tasteless gas produced when fossil fuels do not burn completely, or are exposed to heat (usually fire). Electrical appliances typically do not produce CO.

These fuels include: Wood, coal, charcoal, oil, natural gas, gasoline, kerosene, and propane.

Common appliances are often sources of CO. If they are not properly maintained, are improperly ventilated, or malfunction, CO levels can rise quickly. CO is a real danger now that homes are more energy efficient. "Air-tight" homes with added insulation, sealed windows, and other weatherproofing can "trap" CO inside.

SYMPTOMS OF CO POISONING

These symptoms are related to CO POISONING and should be discussed with ALL household members.

Mild Exposure: Slight headache, nausea, vomiting, fatigue ("flu-like" symptoms).

Medium Exposure: Throbbing headache, drowsiness, confusion, fast heart rate.

Extreme Exposure: Convulsions, unconsciousness, heart and lung failure. Exposure to Carbon Monoxide can cause brain damage, death.

IMPORTANT!

This CO Alarm measures exposure to CO over time. It alarms if CO levels are extremely high in a short period of time, or if CO levels reach a certain minimum over a long period of time. The CO Alarm generally sounds an alarm before the onset of symptoms in average, healthy adults. Why is this important? Because you need to be warned of a potential CO problem while you can still react in time. In many cases of CO exposure, victims may be aware that they are not feeling well, but become disoriented and can no longer react well enough to exit the building or get help. Also, young children and pets may be the first affected. The average healthy adult might not feel any symptoms when the CO Alarm sounds. However, people with cardiac or respiratory problems, infants, unborn babies, pregnant mothers, or elderly people can be more quickly and severely affected by CO. If you experience even mild symptoms of CO poisoning, consult your doctor immediately!

FINDING THE SOURCE OF CO AFTER AN ALARM

Carbon monoxide is an odorless, invisible gas, which often makes it difficult to locate the source of CO after an alarm. These are a few of the factors that can make it difficult to locate sources of CO:

- House well ventilated before the investigator arrives.
- Problem caused by "backdrafting."
- Transient CO problem caused by special circumstances.

Because CO may dissipate by the time an investigator arrives, it may be difficult to locate the source of CO. **BRK Brands, Inc. shall not be obligated to pay for any carbon monoxide investigation or service call.**

POTENTIAL SOURCES OF CO IN THE HOME

Fuel-burning appliances like:
portable heater, gas or wood burning fireplace, gas kitchen range or cooktop, gas clothes dryer.

Damaged or insufficient venting:
corroded or disconnected water heater vent pipe, leaking chimney pipe or flue, or cracked heat exchanger, blocked or clogged chimney opening.

Improper use of appliance/device:
operating a barbecue grill or vehicle in an enclosed area (like a garage or screened porch).

Transient CO Problems: "transient" or on-again-off-again CO problems can be caused by outdoor conditions and other special circumstances.

The following conditions can result in transient CO situations:

1. Excessive spillage or reverse venting of fuel appliances caused by outdoor conditions such as:
   - Wind direction and/or velocity, including high, gusty winds. Heavy air in the vent pipes (cold/humid air with extended periods between cycles).
   - Negative pressure differential resulting from the use of exhaust fans.
   - Several appliances running at the same time competing for limited fresh 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.
2. Extended operation of unvented fuel burning devices (range, oven, fireplace).
3. Temperature inversions, which can trap exhaust close to the ground.
4. Car idling in an open or closed attached garage, or near a home.

These conditions are dangerous because they can trap exhaust in your home. Since these conditions can come and go, they are also hard to recreate during a CO investigation.

HOW CAN I PROTECT MY FAMILY FROM CO POISONING?

A CO Alarm is an excellent means of protection. It monitors the air and sounds a loud alarm before Carbon Monoxide levels become threatening for average, healthy adults.

A CO Alarm is not a substitute for proper maintenance of home appliances. To help prevent CO problems and reduce the risk of CO poisoning:

- Clean chimneys and flues yearly. Keep them free of debris, leaves, and nests for proper air flow. Also, have a professional check for rust and corrosion, cracks, or separations. These conditions can prevent proper air movement and cause backdrafting. Never "cap" or cover a chimney in any way that would block air flow.
- Test and maintain all fuel-burning equipment annually. Many local gas or oil companies and HVAC companies offer appliance inspections for a nominal fee.
- Make regular visual inspections of all fuel-burning appliances. Check appliances for excessive rust and scaling. Also check the flame on the burner and pilot lights. The flame should be blue. A yellow flame means fuel is not being burned completely and CO may be present. Keep the blower door on the furnace closed. Use vents or fans when they are available on all fuel-burning appliances. Make sure appliances are vented to the outside. Do not grill or barbecue indoors, or in garages or on screen porches.
- Check for exhaust backflow from CO sources. Check the draft hood on an operating furnace for a backdraft. Look for cracks on furnace heat exchangers.
- Check the house or garage on the other side of shared wall.
- Keep windows and doors open slightly. If you suspect that CO is escaping into your home, open a window or a door. Opening windows and doors can significantly decrease CO levels.

In addition, familiarize yourself with all enclosed materials. Read this manual in its entirety, and make sure you understand what to do if your CO Alarm sounds.

REGULATORY INFORMATION FOR SMOKE/CO ALARMS

REGULATORY INFORMATION FOR CO ALARMS

WHAT LEVELS OF CO CAUSE AN ALARM?

Underwriters Laboratories Inc. Standard UL2034 requires residential CO Alarms to sound when exposed to levels of CO and exposure times as described below. They are measured in parts per million (ppm) of CO over time (in minutes).

UL2034 Required Alarm Points*:

- If the alarm is exposed to 400 ppm of CO, IT MUST ALARM BETWEEN 4 and 15 MINUTES.
- If the alarm is exposed to 150 ppm of CO, IT MUST ALARM BETWEEN 10 and 50 MINUTES.
- If the alarm is exposed to 70 ppm if CO, IT MUST ALARM BETWEEN 60 and 240 MINUTES.

* Approximately 10% COHb exposure at levels of 10% to 95% Relative Humidity (RH).

The unit is designed not to alarm when exposed to a constant level of 30 ppm for 30 days.

IMPORTANT!

CO Alarms are designed to alarm before there is an immediate life threat. Since you cannot see or smell CO, never assume it's not present.

- An exposure to 100 ppm of CO for 20 minutes may not affect average, healthy adults, but after 4 hours the same level may cause headaches.
- An exposure to 400 ppm of CO may cause headaches in average, healthy adults after 35 minutes, but can cause death after 2 hours.

Standards: Underwriters Laboratories Inc. Single and Multiple Station carbon monoxide alarms UL2034.

According to Underwriters Laboratories Inc. UL2034, Section 1-1.2: "Carbon monoxide alarms covered by these requirements are intended to respond to the presence of carbon monoxide from sources such as, but not limited to, exhaust from internal-combustion engines, abnormal operation of fuel-fired appliances, and fireplaces. CO Alarms are intended to alarm at carbon monoxide levels below those that could cause a loss of ability to react to the dangers of Carbon Monoxide exposure." This CO Alarm monitors the air at the Alarm, and is designed to alarm before CO levels become life threatening. This allows you precious time to leave the house and correct the problem. This is only possible if Alarms are located, installed, and maintained as described in this manual.

Gas Detection at Typical Temperature and Humidity Ranges: The CO Alarm is not formulated to detect CO levels below 30 ppm typically. UL tested for false alarm resistance to Methane (500 ppm), Butane (300 ppm), Heptane (500 ppm), Ethyl Acetate (200 ppm), Isopropyl Alcohol (200 ppm) and Carbon Dioxide (5000 ppm). Values measure gas and vapor concentrations in parts per million.

Audible Alarm: 85 dB minimum at 10 feet (3 meters).

REGULATORY INFORMATION FOR SMOKE ALARMS

RECOMMENDED LOCATIONS FOR SMOKE ALARMS

Installing Smoke Alarms in Single-Family Residences

The National Fire Protection Association (NFPA), recommends one Smoke Alarm on every floor, in every sleeping area, and in every bedroom. In new construction, the Smoke Alarms must be AC powered and interconnected. See "Agency Placement Recommendations" for details.

Continued...

RECOMMENDED LOCATIONS FOR SMOKE ALARMS, Continued

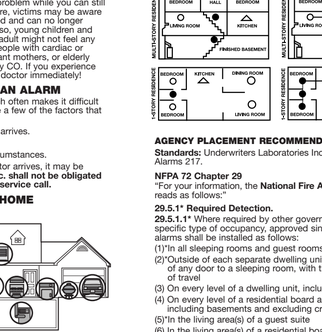
For additional coverage, it is recommended that you install a Smoke Alarm in all rooms, halls, storage areas, finished attics, and basements, where temperatures normally remain between 40˚ F (4.4˚ C) and 100˚ F (37.8˚ C). Make sure no door or other obstruction could keep smoke from reaching the Smoke Alarms.

More specifically, install Smoke Alarms:

- On every level of your home, including finished attics and basements.
- Inside every bedroom, especially if people sleep with the door partly or completely closed.
- In the hall near every sleeping area. If your home has multiple sleeping areas, install a unit in each. If a hall is more than 40 feet long (12 meters), install a unit at each end.
- At the top of the first-to-second floor stairway, and at the bottom of the basement stairway.

IMPORTANT!

Specific requirements for Smoke Alarm installation vary from state to state and from region to region. Check with your local Fire Department for current requirements in your area. **It is recommended AC or AC/DC units be interconnected for added protection.**



AGENCY PLACEMENT RECOMMENDATIONS

Standards: Underwriters Laboratories Inc. Single and Multiple Station Smoke Alarms 217.

NFPA 72 Chapter 29

"For your information, the **National Fire Alarm and Signaling Code**, NFPA 72, reads as follows:"

29.5.1* Required Detection.

29.5.1.1* Where required by other governing 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 21 ft (6.4 m) of any door to a sleeping room, with 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 (small facility)

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Continued...

AGENCY PLACEMENT RECOMMENDATIONS, Continued

California State Fire Marshal (CSFM)

Early warning 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 bedrooms), and Heat or Smoke Alarms in the living rooms, dining rooms, bedrooms, kitchens, hallways, finished attics, furnace rooms, closets, utility and storage rooms, basements, and attached garages.

ABOUT SMOKE ALARMS

Battery (DC) operated Smoke Alarms: Provide protection even when electricity fails, provided the batteries are fresh and correctly installed. Units are easy to install, and do not require professional installation.

AC powered Smoke Alarms: Can be interconnected so if one unit senses smoke, all units alarm. They do not operate if electricity fails.
AC with battery (DC) backup: Same as AC, but will operate if electricity fails, provided the batteries are fresh and correctly installed. AC and AC/DC units must be installed by a qualified electrician.

Smoke/CO Alarms for Solar or Wind Energy users and battery backup power systems: AC powered Smoke/CO Alarms should only be operated with true or pure sine wave inverters. Operating this Alarm with most battery-powered UPS (uninterruptible power supply) products or square wave or "quasi sine wave" inverters **will damage the Alarm.** If you are not sure about your inverter or UPS type, please consult with the manufacturer to verify.

Smoke Alarms for the hearing impaired: Special purpose Smoke Alarms should be installed for the hearing impaired. They include a visual alarm and an audible alarm horn, and meet the requirements of the Americans With Disabilities Act. Can be interconnected so if one unit senses smoke, all units alarm.

Smoke alarms are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

All these Smoke Alarms are designed to provide early warning of fires if located, installed and cared for as described in the user's manual, and if smoke reaches the Alarm.