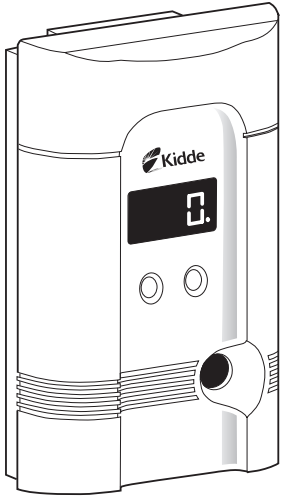
120 V AC and Self-recharging Battery Backup

CARBON MONOXIDE ALARM

with Digital Display, Test, and Peak Level Memory

Alarm Manual



CSA 6.19-01

SINGLE STATION
CARBON MONOXIDE
ALARM

ATTENTION: Please take a few minutes to thoroughly read this manual, which should be saved for future reference and passed on to any subsequent owner. If you have any questions about the operation or installation of your alarm, please call our toll-free hotline at 1-800-880-6788.

P/N 820-1028 Rev. A

Model KN-COPP-3
900-0099

Contents

IMPORTANT: THIS CARBON MONOXIDE ALARM IS DESIGNED TO DETECT CARBON MONOXIDE FROM ANY SOURCE OF IMPROPER OR MALFUNCTIONING APPLIANCES. IT IS NOT DESIGNED TO DETECT SMOKE, FIRE, OR ANY OTHER GAS.

WARNING: THIS CARBON MONOXIDE ALARM IS NOT A SUBSTITUTE FOR INSTALLING AND MAINTAINING AN APPROPRIATE NUMBER OF SMOKE ALARMS IN YOUR HOME.

WARNING: THIS CARBON MONOXIDE ALARM WILL NOT SENSE SMOKE, FIRE, OR ANY POISONOUS GAS OTHER THAN CARBON MONOXIDE. 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. NOT SUITABLE FOR INSTALLATION IN HAZARDOUS LOCATIONS.

DURING A POWER OUTAGE, UNIT WILL OPERATE FOR A PERIOD OF AT LEAST TWENTY HOURS ON A FULLY CHARGED KIDDE RECHARGEABLE BATTERY PACK.

WARNING: THIS PRODUCT IS INTENDED FOR USE IN ORDINARY INDOOR RESIDENTIAL AREAS. IT IS NOT DESIGNED TO MEASURE COMPLIANCE WITH COMMERCIAL AND INDUSTRIAL STANDARDS.

THE INSTALLATION OF THIS DEVICE SHOULD NOT BE USED AS A SUBSTITUTE FOR PROPER INSTALLATION, USE AND MAINTENANCE OF FUEL-BURNING APPLIANCES, INCLUDING APPROPRIATE VENTILATION AND EXHAUST SYSTEMS.

Introduction

This Kidde carbon monoxide (CO) alarm is an important part of your family's home safety plan. Because CO alarms for the home haven't been available until recently, most people haven't had much experience using them. As a new owner of a CO alarm, there are some basic facts you should know for your protection and convenience.

Many people think that CO alarms operate like smoke alarms. And in some basic ways, this is true. Like smoke alarms, CO alarms monitor the air in your home and sound a loud alarm to warn you of trouble.

But, the similarities end here. The way you respond to a CO alarm is quite different than that of a smoke alarm. That's because a house fire and a carbon monoxide problem are two distinctly different situations. If your smoke alarm were to alarm, you would quickly be able to judge the level of danger you were in (if any) with your five senses: you could see and smell the smoke, you could feel the heat, you could see and even hear the fire burning. You could also readily see if your smoke alarm were alarming in a non-emergency situation, say if someone smoked up the kitchen with some seriously burnt toast. Because your sense of sight, smell, hearing and touch give you so much information, you could almost instantly judge what action to take if you heard your smoke alarm.

Carbon monoxide (CO) is invisible, odorless, tasteless and non-irritating–completely undetectable to your five senses. That's why it's so important to your safety that you have a carbon monoxide alarm. But, how do you know what to do if your unit alarms?

You have to learn what to do, because your five senses won't tell you. That's why this user's guide is so important. Please take the time to read this guide from cover to cover, to familiarize yourself with the facts about carbon monoxide, how your new unit works, and what to do if it alarms. Then, find a handy place to keep the guide so it will be readily available in the future when you have a question. For more information on this product call our toll-free customer service hotline at 1-800-880-6788.

Thank you for making Kidde a part of your complete home safety program. With proper installation and use, your new Kidde CO alarm should provide you with years of dependable service.

Quick Set-Up

We urge you to read this entire manual in the sequence it is presented. But, if you only read one part of this guide initially, read this page! Listed below are seven easy steps for setting up your unit. Please read the entire guide for complete information.

Step 1
Determine the best location for your CO alarm(s). Refer to Page 7 for complete information.

Step 2
Your CO alarm is equipped to be mounted as a corded unit, a direct plug unit, or a tabletop unit. In the "as shipped" configuration, the unit can be plugged directly into a wall socket (if your outlets are mounted horizontally, please refer to page 10). If the transformer / adaptor is taken out of the unit, the alarm can be mounted on the wall at eye level, while the transformer is plugged into a wall socket. The unit can also be set on a table if the support at the bottom of the unit is pulled out (see "rear view" illustration on page 4). Refer to page 11 for further information on installing your alarm.

Step 3
A rechargeable battery pack is provided for backup in the event of a power outage. To install the battery pack, open the back door and align the connector with the slot in the battery. Insure the orientation of the two alignment ribs align with the slot in the battery. Press the connector in until it is fully seated. Depending on the charge state of the battery pack (the battery packs can have different amounts of energy stored in them due to storage time), you may hear the alarm sound briefly to indicate the alarm is receiving power. Place battery pack into battery compartment and replace back door.

Note: Battery backup will be limited until the battery has fully charged. It may take up to 24 hours for the battery back up to fully charge.

Quick Set-Up

Step 4
Plug the alarm into a standard, unswitched 120 volt AC electric outlet in one of the configurations listed in step 2.

Step 5
If the battery pack has a full charge when first powered up, you will see three eights  in the digital display indicating the alarm is warming up. After approximately 20 seconds, the first reading will be displayed. The number on the display should be "0". If the battery pack is partially charged,"Lb"(Low battery) will flash every second alternating with a "0" until the battery is charged.

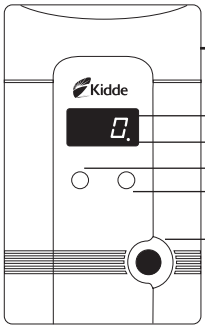
Step 6
Make sure the red dot in the digital display is blinking. Then test the unit's operation by pressing and releasing the Test / Reset button. Within 15 seconds you will hear 4 quick "chirps"–followed by 5 seconds of silence–followed by 4 quick "chirps".

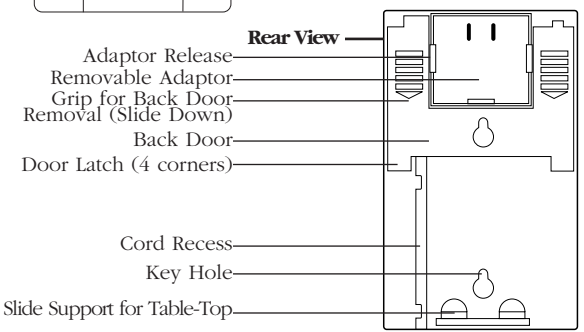
Step 7
While testing the alarm, have someone else check that the alarm can be heard easily from the sleeping areas. The alarm should be located where it can wake you if it alarms at night. See page 7 for complete information on the best locations for your alarm.

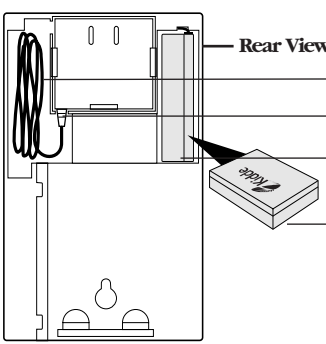
Caution: Continuous exposure to the loud 85 decibel (db) alarm at close range over an extended period of time may cause hearing loss.

Your Kidde CO alarm is now monitoring for the presence of carbon monoxide.

Illustration







Features

Digital Display

The continuous digital display shows you the level of carbon monoxide (if any) the unit is sensing. The unit updates this reading every 15 seconds so you can watch levels rise or fall.

Test/Reset Button

This button has three functions. First, this is the button you press when you test the unit weekly. Secondly, you press this button if the unit alarms and you want to silence the alarm. This will reset the unit and it will then again start monitoring for CO. Finally the Test / Reset button is used to reset the peak level memory.

Peak Level Button

By pressing this button, you can see the peak CO level recorded by the alarm since it was last cleared or unplugged.

Sensor

The CO sensor is a highly sensitive, electrochemical sensor that is CO-specific to help avoid false alarms.

Sounder Alarm

The sounder alarm is the loud 85 decibel (db) pulsing alarm that will sound to alert you to a potential problem.

Keyholes

The keyholes located on the back of the alarm slide onto the screws located in the wall.

Pull-Out Transformer/Adaptor

This unique feature enables the alarm to be used as a direct plug unit, a wall-mounted unit or a tabletop unit.

Rechargeable Backup Battery

The rechargeable battery pack is to supply a short-term backup during a power outage. In the event of a power outage, the rechargeable battery pack will continue operating the alarm for at least 20 hours.

What This Alarm Can and Cannot Do

CO alarms designed to sense unacceptable levels of CO from malfunctioning furnaces, appliances, gasoline engines or other sources.

CO alarms provide early warning of the presence of carbon monoxide, usually before a healthy adult would experience symptoms.

This early warning is possible, however, only if your alarm is located, installed and maintained as described in this alarm manual.

When on AC power, this unit 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. 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 alarm weekly, because it could fail to operate at any time. If your alarm fails to test properly, or if its self-diagnostic test reveals a malfunction, immediately have the unit replaced.

CO alarms can only sense CO that reaches the unit's sensor. CO may be present in other areas without reaching the alarm. The rate at which CO reaches the unit may be affected by doors or other obstructions. In addition, fresh air from a vent or open window or any other source may prevent CO from reaching the sensor.

CO could be present on one level of the home and not reach the alarm installed on a different level. For example, CO in the basement may not reach an alarm on the second level, near the bedrooms. For this reason, we recommend you provide complete coverage by placing a CO alarm on every level of the home.

CO alarms should not be used to detect the presence of natural gas (methane), propane, butane, or other combustible fuels.

CO alarms are not a substitute for property, disability, life or other insurance of any kind. Appropriate insurance coverage is your responsibility. Consult your insurance agent.

Installation

Recommended Installation Locations

Your Kidde CO alarm should be mounted in or near bedrooms and living areas. It is recommended that you install a Kidde CO alarm on each level of a multi-level home. You may use the number and location of smoke alarms installed in your home according to current building code requirements as a guide to the location of your Kidde CO alarm(s).

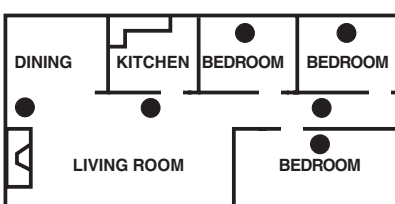
When choosing your installation locations or the number of alarms that may be required, make sure that you can hear the alarm from all sleeping areas. If you install only one carbon monoxide alarm in your home, install the alarm near bedrooms, not in the basement or furnace room.

Two labels have been provided with important information on what to do in case of an alarm. Add the phone number of your emergency service provider in the space provided. Place one label next to the alarm after it is mounted, and one label near a fresh air source such as a door or window.

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

IMPORTANT: Improper location can affect the sensitive electronic components in this alarm. Please see the next section describing where NOT to install this alarm.

Recommended Locations



Installation

Locations To Avoid

To avoid causing damage to the unit, to provide optimum protection, and to prevent unnecessary alarms, follow the directions below where NOT to install this alarm:

It is recommended that you DO NOT install this CO alarm in garages, kitchens or furnace rooms. Installation in these areas could lead to nuisance alarms, may expose the sensor to substances that could damage or contaminate it, or the alarm may not be heard by persons in other areas of the home, especially if they are sleeping.

In the garage, vehicle exhaust can contain some carbon monoxide. These levels are higher when the engine is first started. Within hours of starting a vehicle and backing it out of the garage, the levels present over time can activate the alarm and become a nuisance.

In the kitchen and furnace room, some gas appliances can emit a short burst of carbon monoxide upon start-up. This is normal. If your CO alarm is mounted too close to these appliances, it may alarm often and become a nuisance.

If you must install the unit near a cooking or heating appliance, install AT LEAST 1.5 m (5') away from the appliance.

Do not install in excessively dusty, dirty or greasy areas such as kitchens, garages and furnace rooms. Dust grease or household chemicals can contaminate or coat the alarm's sensors, causing the alarm not to operate properly.

Do not obstruct the vents located at the top and bottom of the alarm. Place the alarm where drapes, furniture or other objects do not block the flow of air to the vents.

Do not install in dead air spaces, such as peaks of vaulted ceilings or gabled roofs, where carbon monoxide may not reach the sensor in time to provide early warning.

Installation

Do not install in turbulent air from ceiling fans. Do not install near doors and windows that open to the outside, near fresh air vents, or anywhere that is drafty. Rapid air circulation from fans or fresh air from outside may cause the sensors to display an inaccurate reading in the presence of CO.

Do not install this alarm in a switch or dimmer-controlled outlet.

Do not install in areas where the temperature is colder than 4.4˚C (40˚F) or hotter than 37.8˚C (100˚F). These areas include unconditioned crawl spaces, attics, porches and garages. Extreme temperatures will affect the sensitivity of the alarm.

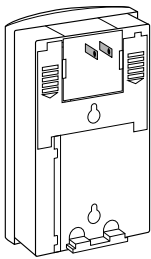
Do not install this unit near deep cell large batteries. Large batteries have emissions that can cause the alarm to perform at less than optimum performance.

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:

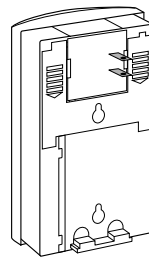
1) Wind direction and/or velocity, including high gusts of wind, heavy air in the vent pipes (cold/humid air with extended periods between cycles).
2) Negative pressure resulting from the use of exhaust fans.
3) Simultaneous operation of several fuel-burning appliances competing for limited internal air.
4) Vent pipe connections vibrating loose from clothes dryers, furnaces, or water heaters.
5) Obstructions in, or unconventional, vent pipe designs which can amplify the above situations.
6) Extended operation of unvented fuel-burning devices (range, oven, fireplace, etc.).
7) Temperature inversions which can trap exhaust gasses near the ground.
8) Car idling in an open or closed attached garage, or near a home.

Installation

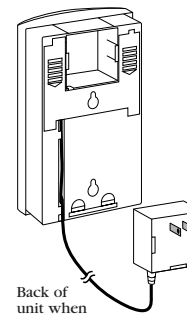
This alarm has an adaptor that allows you to install the alarm as a wall mounted unit, as a direct plug unit, or as a tabletop unit.



Back of unit when used as direct plug.



Back of unit when used as direct plug for sideways outlet.



Back of unit when used as a wall mount.

Direct Plug

In its "as shipped" configuration, the unit is ready to be plugged directly into a wall socket.

To install:

- Choose a standard, unswitched 120 V outlet to plug alarm into.
- Pull the slide support out approximately 6 mm (1/4") until slide snaps in place (this will help support unit in wall outlet).
- Plug the alarm into an electrical outlet.

Mounted horizontally (sideways):

If you are going to use your alarm as a direct plug and you are going to plug in to an outlet that is mounted horizontally (sideways), you will need to rotate the adaptor 90˚. To rotate the adaptor:

- With back of unit facing you (adaptor at the top), place your thumbs on the thumb grips.
- With your thumbs, push down in the direction of the arrows on the thumb grips and slide back door off.

Installation

- Place your index finger into the small opening along the bottom of the adaptor. Catch the edge of the door with your finger or finger nail and lift the door out.
- Next, place your thumbs on the adaptor thumb releases.
- Spread adaptor thumb releases out and carefully turn alarm over. This will allow adaptor to slide out.
- Rotate the adaptor 90˚ to the right (clockwise), and snap firmly back into place.
- Carefully replace the door. Make sure the “latches” on all four corners of door are lined up, then firmly press the door into place.
- Plug the alarm into an electrical outlet.

Wall Mounted

Installation tips for power cord models:

The power cord option provides more flexibility in mounting locations.

Note: If you mount the alarm high on a wall, make sure it is at least 15 cm (6") from the ceiling. Any higher than this, it will be in “dead air space” and carbon monoxide may not reach the sensors.

For a wall-mount, you will need to pull out the removable adaptor and power cord.

- Follow the steps outlined previously in the Mounted horizontally section to remove the adaptor.
- With the adaptor removed, pull the power cord out of the cord recess, remove the twist tie and extend the power cord.
- With the cord extended, press last few centimetres into of the power cord back into the cord recess. Gently pull the cord at the bottom of the cord recess until cord becomes taught and lies flat in the cord recess.
- Carefully replace the door by making sure the “latches” on all four corners of the door are lined up, then firmly press the door into place.
- Mark the location for the two mounting holes on the wall spaced vertically 67 mm (2 5/8") apart.

Installation

- If you are mounting the alarm in plaster board or drywall, drill a 5 mm (3/16") hole into the wall and insert the plastic anchors provided into the wall or wall anchors until the screw head is approximately 3 mm (1/8") from the wall.
- Hook the unit over the screw head and into the keyhole in back of the unit.
- Plug the cord into an electrical outlet.

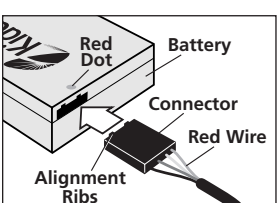
Tabletop

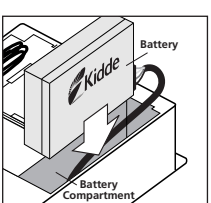
You can also use your alarm as a tabletop unit. Simply follow the above steps for removing adaptor, then instead of mounting to a wall, simply pull out slide support and stand on table, bedside stand, chest of drawers, etc. (refer to diagram on Page 4).

Battery Installation

Install the battery by first removing the battery door and the battery pack. Align the connector with the slot in the battery. Insure the orientation of the two alignment ribs align with the slot in the battery. (Red dot on battery will align with red wire). Press the connector in until it is fully seated. See drawing below. Be sure to correctly insert battery into the battery compartment, as shown in drawing below. After inserting battery, replace back door.

Warning: Do not use any other type of rechargeable battery in your alarm or attempt to recharge the battery pack yourself. Improper charging may even cause the battery pack to overheat or leak, thus posing possible injury to the user.





Upon initial power up or after the alarm has operated on battery backup and depending on the charge state of the battery, it could take up to 20 hours to FULLY charge the battery.

During the first 10-hour initial charge period or, until the battery has charged, "Lb" will be displayed along with the CO level (usually "0") and without an audible "chirp". When the initial charge is complete, the "Lb" will disappear. If however, after 10 hours the battery is not charging properly, "Lb" may continue to flash AND there will be an audible "chirp" once every 15 seconds indicating the battery is not charging. If this occurs, make sure the connection between the battery and the alarm is correctly oriented and fully seated. If not, disconnect the battery and reconnect insuring the alignment ribs match the slot in the battery. If it is properly connected and fully seated and "Lb" is still displayed along with an audible "chirp", contact customer service.

Battery Backup Operation

When the alarm is unplugged or loses AC power and the battery pack is fully charged, the alarm will automatically switch to battery backup operation and you will notice the following:

- For the first five minutes of operation on battery, the alarm will operate as if on AC power.
- However, after five minutes of operation, to conserve battery capacity, the display will flash the CO level (usually "0") once every 60 seconds.

Caution: If the unit detects CO and enters an alarm state while in battery back-up condition, the CO level will be displayed and the audible alarm pattern of four quick beeps will sound once every 60 seconds.

Battery Back-up Operation in Low Battery "Lb" Condition: When the battery pack is not fully charged, the unit will begin displaying "Lb" and "chirp" once every 15 seconds. This will last approximately 7 hours to warn you the battery is losing capacity. Apply AC power to charge battery as soon as possible.

NOTE: While in the low battery "Lb" warning mode, the unit is sensing for and will alarm if CO is detected.

Battery Back-up Operation in Trouble Alarm Condition: When the battery pack capacity has been discharged to a state where it can no longer provide enough power to detect CO and operate the alarm, it will enter a trouble alarm condition. The display will go blank and the alarm will give an audible trouble "chirp" once every 60 seconds. This will continue for approximately 7 hours after which time the alarm will no longer "chirp" to warn of a trouble condition.

WARNING: The unit will not detect CO while in the trouble alarm condition, blank display, and one audible trouble alarm "chirp" every 60 seconds. Apply AC power to charge the battery as soon as possible.

When AC power is restored, the alarm will automatically switch back to normal operating mode and begin charging the battery pack to full capacity. After continued operation on battery backup, "Lb" may flash while the battery is recharging and will continue until fully charged.

Constant exposures to high temperatures or high or low humidity may reduce battery life.

WARNING: Replace the battery pack only with a Kidde rechargeable battery pack. Replacement battery packs can be purchased from Kidde customer service. See page 32 for additional precautions regarding the rechargeable battery pack.

Operation

Normal Operating Characteristics

When you first power up the unit, the alarm will sound briefly to let you know the unit is receiving power and that the alarm circuit is functioning.

You should see three eights 888. on the digital display, indicating the alarm is in the start-up mode. The three eights will remain for approximately 20 seconds. You should see a blinking red dot to the lower right of the digital display. The blinking dot shows that the alarm is operating.

Blinking Dot

Within 20 seconds, your CO alarm will start monitoring for CO. The number indicates a measurement of carbon monoxide in parts per million (PPM). Note: The number will probably be zero (0). This is a normal condition for most households and shows that no measurable amount of CO has been detected. The alarm has begun monitoring the air for carbon monoxide and will continue to do so as long as it receives power.

Testing

Testing the Electronics

Caution: Continuous exposure to the loud 85 decibel (db) alarm at close range over an extended period of time may cause hearing loss. We recommend that you cover the sound holes while testing the alarm.

You should test the alarm once a week, following the directions listed below. If at any time you test the alarm and it does not perform as described below, have it replaced immediately. Turn to Page 17 “How to know if your alarm is malfunctioning” for a description of the characteristics of a malfunctioning alarm and what you should do if a malfunction occurs.

Operation

Observe the alarm weekly to make sure the red dot is blinking, indicating normal operation. If the dot is not blinking, unplug the alarm, then plug in again. This will clear the alarm for restart. If the dot does not resume blinking, your alarm may be malfunctioning.

Blinking Dot

To test the alarm, press and release the Test / Reset button. If the unit is operating properly, you should notice the following:

The display shows three eights **888**, then shows a number (usually around 200). You should then hear 4 quick beeps–followed by 5 seconds of silence–followed by 4 quick beeps repeating until reset stops. The unit will then show the three eights for several seconds. It will then return to monitoring for carbon monoxide.

Familiarize yourself and household members with the alarm pattern described above. In the event of a CO incident, this pattern will continue to repeat as long as CO is present.

NOTE: Pressing the Test/Reset button tests the functions of the alarm's internal components, circuitry and micro-computer. YOU DO NOT NEED TO PRESS THE TEST BUTTON TO TAKE A CO READING. CO readings are automatically shown on the alarm's digital display. If the alarm shows zero (0), then 30 PPM of CO or less has been sensed by the alarm within the last 15 seconds.

How to Know If Your Alarm is Malfunctioning

Your alarm performs an internal self-diagnosis every 15 seconds to make sure that it is functioning properly. The alarm is designed to alert you in the unusual event of a malfunction.

If the alarm malfunctions

In the rare event that your alarm malfunctions, it will alert you with one of these signal groups (depending upon the type of malfunction that occurs):

Malfunction Signal Group 1—Component Failure

- An intermittent "chirping" alarm will sound every 30 seconds, and an "Err" message will appear on the digital display

OR,

Malfunction Signal Group 2—Microprocessor Failure

- The alarm will sound continuously, and
- The digital display will be blank, and
- The alarm cannot be shut off by pushing "Test / Reset" button

Unplug the alarm immediately and return it for warranty exchange.

What to do if you're not sure:

PLEASE familiarize yourself with the malfunction alert, and do not confuse these signals with an alarm. After reading the information above, if you are still unsure whether your alarm is operating properly, call the Kidde toll-free consumer hotline at 1-800-880-6788.

Never ignore an alarm. A true alarm is an indication of potentially dangerous levels of carbon monoxide. CO alarms are designed to alert you to the presence of carbon monoxide before an emergency, before most people would experience symptoms of carbon monoxide poisoning, giving you time to resolve the problem calmly.

Peak Level Memory

Although the peak level feature will display levels below 30 PPM, these levels will not result in an alarm no matter how long the device is exposed to these levels.

The peak level feature is helpful in identifying low level CO occurrences below 30 PPM. Although the unit will not automatically display levels below 30 PPM, it will detect and store these readings in memory. By pressing the peak level button, concentration levels as low as 11 and up to 999 PPM will be displayed.

Concentrations of CO between 0 and 30 PPM can often occur in normal, everyday conditions. Concentrations of CO below 30 PPM may be an indication of a transient condition that may appear today and never reappear. Just a few examples of conditions and/or sources that may cause low level readings are heavy automobile traffic, a running vehicle in an attached garage, an appliance that emits CO when starting up, a fire in a fireplace or charcoal in a nearby barbecue. A temperature inversion can trap CO generated by traffic and other fuel burning appliances causing low level readings of CO.

Normally, the digital display will read “0” and under certain conditions you may notice levels of 30 or more for short periods of time, by using the Peak level memory feature on the Kidde CO alarm you can view concentrations of CO between 11 and 30 PPM. Use the low-level concentrations shown in memory as a tool in identifying the source of the CO. It may be helpful to purchase additional Kidde CO Alarms to place in different locations throughout your house to isolate the CO source. Monitor the CO concentrations shown in the peak level memory to see if readings occur in certain areas at certain times of the day, or near a particular appliance.

Once the source is located, correcting the problem may be as easy as opening a window, venting an appliance, backing a car out of the garage a safe distance from living quarters, closing the garage door, and letting the car warm up outside. It could be possible that a weather condition caused the low-level reading and the condition may or may not happen again.

Some CO conditions may start out as low level leaks but could develop into CO concentrations that could become harmful. If this happens, the CO alarm will detect the dangerous level and alarm, notifying you and others of the conditions. DO NOT ignore high concentration readings above 30 PPM or a CO alarming device that is in alarm. Refer to page 12 for more details.

CO concentrations displayed below 30 PPM in "Peak Level" memory are for reference only and the accuracy of the concentration shown may not be as accurate as noted on page 28.

To Reset the Peak Level Memory

- Press the peak level button.
- With the peak level button still pressed, press the test/reset button for two seconds and release.

The number on the display will turn to "0". The memory has now been cleared and the alarm will begin monitoring for CO within a few minutes.

Maintenance

To keep your alarm in good working order, you must follow these simple steps:

- Test the alarm once a week by pressing the Test / Reset button (see page 4).
- Vacuum the alarm cover once a month to remove accumulated dust. Use the soft brush attachment of your vacuum cleaner, and unplug the alarm from the electrical outlet before vacuuming.
- Instruct children never to touch, unplug or otherwise interfere with the alarm. Warn children of the dangers of CO poisoning.
- Never use detergents or solvents to clean the alarm. Chemicals can permanently damage or temporarily contaminate the sensor.
- Avoid spraying air fresheners, hair spray, paint or other aerosols near the alarm.
- Do not paint the alarm. Paint will seal the vents and interfere with proper sensor operation.
- Do not mount the alarm directly above or near a diaper pail, as high amounts of methane gas can cause temporary readings on the digital display.

Note: If you will be staining or stripping wood floors or furniture, painting, wall-papering, or using aerosols or adhesives for a do-it-yourself project or hobby, before you begin: Remove the alarm to a remote location to prevent possible damage to or contamination of the sensor. You may wish to unplug the alarm and store in a plastic bag during the project.

The following is a list of substances that at high levels can affect the sensor and cause an alarm:

Methane, propane, iso-butane, ethylene, ethanol, alcohol, iso-propanol, benzene, toluene, ethyl acetate, hydrogen, hydrogen sulfide, sulfur dioxides.

Also most aerosol sprays, alcohol based products, paints, thinners, solvents, adhesives, hair sprays, aftershaves, perfumes, auto exhaust (cold start) and some cleaning agents.

Carbon Monoxide Safety

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless, poisonous gas created when any fuel is burned – gasoline, propane, natural gas, oil, wood, coal, and even tobacco. When combustion air is limited, more CO is produced. Serious problems can develop when combustion by-products are not properly vented outside the house.

You've probably heard about carbon monoxide poisoning in the news recently. It's a problem receiving more attention because groups like the American Lung Association and the Consumer Product Safety Commission have made it a priority to warn the public about the dangers of this deadly household poison.

The Effects of CO Exposure

When you breathe carbon monoxide, it enters your bloodstream through your lungs and attaches to red blood cells. These red blood cells, called hemoglobin, carry oxygen throughout your body. Carbon monoxide molecules attach to the red blood cells 200 times faster than oxygen, preventing the flow of oxygen to your heart, brain and vital organs. As carbon monoxide accumulates in your bloodstream, your body becomes starved for oxygen. The amount of carbon monoxide in a person's body can be measured by a simple blood test, called a "carboxyhemoglobin level" test .

The early symptoms of carbon monoxide poisoning are often mistaken for the flu – headache, dizziness, weakness, nausea, vomiting, sleepiness, and confusion.

Your Family May Be at Risk from CO Poisoning

While anyone is susceptible, experts agree that unborn babies, small children, senior citizens and people with heart or respiratory problems are especially vulnerable to CO and are at the greatest risk for death or serious injury.

Carbon Monoxide Safety

Sources of Carbon Monoxide

Inside your home malfunctioning and improperly vented appliances used for heating and cooking are the most likely sources of carbon monoxide. Vehicles running in attached garages can also produce dangerous levels of carbon monoxide.

A by-product of combustion, carbon monoxide can be a potential problem from a number of common sources –automobiles, furnaces, water heaters, fireplaces, wood stoves, charcoal grills, gas ranges, space heaters and portable generators.

When these appliances are in good working condition with proper ventilation, lethal carbon monoxide gas is vented outdoors where it quickly disperses. But even the slightest malfunction or misuse of any of these sources can lead to a build-up of carbon monoxide in your home that can become deadly before you'd even know it's there.

And you don't have to have ancient appliances to have a problem. Today's more energy-efficient, airtight home designs can trap CO-polluted air inside where it can quickly build to lethal levels.

What You Can do to Protect Your Family

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 carbon monoxide poisoning, move outside to fresh air and get emergency help. A blood test can confirm that CO caused the problem.

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.

But remember, problems can begin after an inspection is over, like a crack in a furnace heat exchanger, or a leak in a water heater vent, a bird's nest blocking a flue or other sources that are nearly impossible to detect: That's why you need the 24-hour protection provided by a CO alarm.

Carbon Monoxide Safety

Home Safety Tips

What You Can Do:

- Buy only appliances approved by a nationally recognized testing laboratory.
- Choose fuel-burning appliances that can be vented to the outdoors, whenever possible.
- Make sure appliances are installed according to manufacturer's instructions and local building codes. Most appliances should be installed by professionals and should be inspected by the proper authority after installation.
- Have the heating system, vents, chimney and flue inspected and cleaned by a qualified technician every year.
- Follow manufacturer's directions for safe operation of all fuel-burning appliances.
- Examine vents and chimneys regularly for improper connections, visible rust or stains.
- Open a window when a fireplace or wood-burning stove is in use, and provide adequate outdoor air for furnace and water heater.
- Notice problems that could indicate improper appliance operation:
  - Decreasing hot water supply
  - Furnace unable to heat house or runs constantly
  - Sooting, especially on appliances
  - Unfamiliar or burning odor
  - Yellow or orange flame
- Be aware of the symptoms of carbon monoxide poisoning:
  - headaches, dizziness, weakness, sleepiness, nausea, vomiting, confusion and disorientation.
- Recognize that CO poisoning may be the cause when family members suffer from flu-like symptoms that don't disappear but improve when they leave home for extended periods of time.

Carbon Monoxide Safety

What You Should Not Do:

- Never burn charcoal inside a home, garage, cabin, RV or camper.
- Never install, service, or convert fuel-burning appliances from one type to another without proper knowledge, skills and tools.
- Never use a gas range, oven, or clothes dryer for heating.
- Never operate unvented gas-burning appliances, such as kerosene or natural gas space heaters, in a closed room.
- Never operate gasoline-powered engines (like vehicles, motorcycles, lawn mowers, yard equipment or power tools) in confined areas such as garages or basements, even if an outside door or window is open.
- Never ignore a safety device when it shuts off an appliance.
- Never ignore a CO alarm.

Be Aware of the Warning Signs of Carbon Monoxide: Clues You Can See:

- Streaks of carbon or soot around the service door of your fuel-burning appliances.
- A yellow or orange flame may indicate a problem with natural gas appliances.
- Excessive rusting on flue pipes or appliance jackets.
- Loose or missing furnace panel.
- Moisture collecting on the windows and walls of furnace rooms.
- Loose or disconnected vent/chimney, fireplace or appliance.
- Small amounts of water leaking from the base of the chimney, vent or flue pipe.
- Rust on the portion of the vent pipe visible from outside your home.

- The absence of a draft in your chimney (indicating blockage).
- Fallen soot from the fireplace chimney.
- Loose, damaged or discolored bricks on your chimney.

Clues You Cannot See:

- Internal appliance damage or malfunctioning components.
- Improper burner adjustment.
- Hidden blockage or damage in chimneys.

Understand the Effects of Carbon Monoxide Exposure:

Concentration of CO in Air	Approximate Inhalation Time and Symptoms Developed
50 ppm (parts/million)	The maximum allowable concentration for continuous exposure for healthy adults in any 8-hour period, according to OSHA.
200 ppm	Slight headache, fatigue, dizziness, nausea after 2–3 hours.
400 ppm	Frontal headaches within 1–2 hours, life threatening after 3 hours.
800 ppm	Dizziness, nausea and convulsions within 45 minutes. Unconsciousness within 2 hours. Death within 2–3 hours.
1,600 ppm	Headache, dizziness and nausea within 20 minutes. Death within 1 hour.
3,200 ppm	Headache, dizziness and nausea within 5–10 minutes. Death within 25–30 minutes.
6,400 ppm	Headache, dizziness and nausea within 1–2 minutes. Death within 10–15 minutes.
12,800 ppm	Death within 1–3 minutes.

Reminder: This chart relates to the exposure of carbon monoxide to healthy adults.

Carbon Monoxide Safety

What To Do If The Alarm Sounds

Determine if anyone in the household is experiencing symptoms of CO poisoning. Many cases of reported CO 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, older family members, and household pets may be the first affected.

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

Common Mild Exposure Symptoms:
Headaches, running nose, sore eyes, often described as "flu-like" symptoms.

Common Medium Exposure Symptoms:
Dizziness, drowsiness, vomiting.

Common Extreme Exposure Symptoms:
Unconsciousness, brain damage, death.

If you experience even mild symptoms of CO poisoning, consult your doctor immediately!

Carbon Monoxide Safety

When the CO alarm senses a dangerous level of CO, the unit will emit a loud alarm pattern. The alarm pattern is 4 short "chirps" – followed by 5 seconds of silence – followed by 4 short "chirps". (Note: When the unit is disconnected from the 120 V power supply and is on battery backup, the alarm pattern will continue for the first 5 minutes after detecting CO and then the cycle will repeat every one minute). Know how to respond to a CO emergency. Periodically review this user's guide and discuss it with all members of your family.

WARNING:
Activation of the CO alarm indicates the presence of carbon monoxide (CO) which can kill you.

If alarm signal sounds 4 quick "chirps", 5 seconds off:

1) Immediately move to fresh air—outdoors. Check that all persons are accounted for. Do not re-enter the premises until emergency services responders have arrived, the premises have been aired out, and your alarm remains in its normal operating condition.

2) Call your local emergency service (fire department or 911).

PHONE NUMBER

Specifications

Power:
120 V AC units: 60 Hz, Current 60 mA max.

Sensor:
Sensor calibrated at 150 ppm (±25 ppm).

Temperature:
Operating range: 4.4˚C (40˚F) to 37.8˚C (100˚F).

Humidity:
Operating range: 5–95% non-condensing.

Mounting:
Accessories supplied for wall mount, direct plug and tabletop applications.

Alarm:
85+ dB at 3 m (10') @ 3.4 ± 0.5 KHz pulsing alarm.

CO Alarm Time:
At 70 PPM, the unit must alarm within 60–240 minutes.
At 150 PPM, the unit must alarm within 10–50 minutes.
At 400 PPM, the unit must alarm within 4–15 minutes.

Digital Display Accuracy:
Each Kidde CO Alarm is calibrated at a CO concentration of 150 ppm in air, at 80˚ F (+/- 10˚ F). Depending on the ambient condition (temperature, humidity) and the condition of the sensor, the alarm readings may vary.

The digital reading tolerances are:
Ambient: 80˚ F (+/- 10˚ F), atmospheric pressure +/- 10%, 40% +/- 3% relative humidity.

Reading	Tolerance (of displayed reading)
0-999 ppm	+/-20% +15 ppm

Depending on the ambient condition (temperature, humidity) and the condition of the sensor, the alarm readings may vary.

Specifications

How the Unit Determines When to Alarm

Your Kidde CO alarm uses advanced technology to monitor the environment in your home and warn you of unacceptable levels of carbon monoxide. An internal microcomputer works together with the sensor inside the alarm to determine the levels of carbon monoxide in the air and to calculate the rate that CO would be absorbed into the human body. The microcomputer is calibrated to trigger the unit's alarm before most people would experience any symptoms of carbon monoxide poisoning. Because carbon monoxide is a cumulative poison, long-term exposures to low levels can cause symptoms, as well as short-term exposures to high levels. Your unit has a time weighted alarm, so the higher the level of carbon monoxide present, the sooner the alarm will be triggered.

WARNING: This device is designed to protect individuals from acute effects of carbon monoxide exposure. It will not fully safeguard individuals with specific medical conditions. If in doubt, consult a medical practitioner. Individuals with medical problems may consider using warning devices which provide audible and visual signals for carbon monoxide concentrations under 30 ppm.

Replacement of Alarm

Eight years after initial power-up, this unit will "chirp" every 30 seconds to indicate that it is time to replace the alarm. A label has been provided that has "Replace by" printed on it. Write the replace by date on the label and affix it to the front of the alarm so that it is visible after mounting. The date written on the label should be after eight (8) years of cumulative power.

REMPLACE IMMEDIATELY! UNIT WILL NOT DETECT CO IN THIS CONDITION.

Display Readings

Your new Kidde carbon monoxide alarm is a sophisticated electronic device – yet very simple to understand. Basically, the unit will display a "0" if it senses 30 PPM of CO or less and if you have a good backup battery pack installed.

If it senses carbon monoxide, it will display a reading so you can see if you have a non-threatening or emergency situation.

However, if the backup battery pack is low or missing, or if the unit malfunctions, it will display other readings (and alarm differently) to alert you that something is wrong with the alarm.

Please familiarize yourself and other family members to the difference between a CO reading and a reading signifying a problem with the alarm itself.

AC and DC Start Up, Alarm and Error Operation

LED	Display Shows	Alarm Sound	Unit Status	Unit Condition	Recommended Action
	Brief "888" and flashing dot.	One short "chirp".	Self testing on start-up.	Normal operation at start-up or reset.	None–unit will quickly display a zero.
	Steady display of number between 30 and 999.	4 quick beeps, 5 seconds off, repeating.	Carbon monoxide detected.	Unit in alarm condition.	Refer to page 26, What to do if alarm sounds.
	Steady "Err" and flashing dot.	"Chirp" every 30 seconds.	Unit is not operational–will not detect CO.	Unit malfunction.	Contact Kidde customer service at 1-800-880-6788.
	No display.	Constant alarm.	Unit is not operational–will not detect CO.	Unit malfunction.	Contact Kidde customer service at 1-800-880-6788.

AC Powered in Normal Stand-by Operation

LED	Display Shows	Alarm Sound	Unit Status	Unit Condition	Recommended Action
	"0" with flashing dot.	None.	Normal operation sensing for CO.	Battery is fully charged.	None.

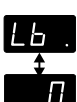
Display Readings

AC Powered in Normal Stand-by Operation

LED	Display Shows	Alarm Sound	Unit Status	Unit Condition	Recommended Action
Flashes alternately 	"0" alternating with "Lb" and a flashing dot.	None.	Charging battery pack. Initial power-up or power was reset.	Battery discharged less than 10 hours on AC. Battery is in charge state.	Keep unit on AC to fully charge battery. "Lb" will disappear once battery is charged depending on initial charge.
	"0" alternating with "Lb" and a flashing dot.	1 beep every 15 seconds.	Battery disconnected or not charging.	Battery discharged or disconnected longer than 10 hours.	Connect battery pack. "Lb" will disappear once battery is charged depending on initial charge.

If at any time you test the alarm and it does not perform as described, have it replaced immediately.

DC Powered in Battery Backup Operation

LED	Display Shows	Alarm Sound	Unit Status	Unit Condition	Recommended Action
	"0".	None.	Operation on battery backup, sensing for CO.	Battery is fully charged. First 5 minutes on battery backup	Connect to AC power.
	"0" or CO concentration displayed once every 60 seconds; flashing dot.	None.	Battery conserve mode, sensing for CO.	Battery is fully charged and after 5 minutes of operation on battery backup.	Normal battery-only operation. To recharge battery connect to AC power.
	"0" or CO concentration alternating with "Lb".	None.	Battery conserve mode, sensing for CO.	Battery is partially discharged, first 5 minutes of operation on battery backup.	Connect to AC power to fully recharge battery.

Display Readings

DC Powered in Battery Backup Operation

LED	Display Shows	Alarm Sound	Unit Status	Unit Condition	Recommended Action
	"0" or CO concentration and "Lb" displayed once every 60 seconds, flashing dot every second.	1 "chirp" every 15 seconds	Battery conserve mode, sensing for CO.	Battery is partially discharged, after 5 minutes of operation on battery backup.	Confirm battery connection is fully seated & oriented properly. Connect to AC power to fully charge battery. Contact Kidde customer service if condition continues.
	Flashing dot once every 60 seconds.	1 "chirp" every 60 seconds	Unit in trouble alarm. Mode will continue for approximately 7 hours. **WILL NOT DETECT CO**.	Operation on battery backup and battery is fully discharged.	Confirm battery connection is fully seated & oriented properly. Connect to AC power to fully charge battery. Contact Kidde customer service if condition continues.
	None.	None.	Unit is not operational. **WILL NOT DETECT CO**.	Battery disconnected or missing.	Confirm battery connection is fully seated & oriented properly. Connect to AC power to fully charge battery. Contact Kidde customer service if condition continues.

If at any time you test the alarm and it does not perform as described, have it replaced immediately.

Li-Ion Battery Handling Precautions

Handling

- Do not use the battery for a purpose other than for the alarm it is specified.
- Do not recharge the battery using any charging circuit other than the one provided in the alarm. A recharging operation under non-conforming recharging conditions can cause electrolyte leakage, overheating, smoke emission, bulging/bursting and/or ignition.
- Do not discard the battery into fire or heat it under any circumstances. Otherwise, it may cause the battery to explode. Do not connect the battery to an electrical outlet.

Li-Ion Battery Handling Precautions

- Do not connect the positive and negative terminals of the battery with any conductor such as metal wires. Do not store the battery or transport it together with any metal objects.

- Do not disassemble or modify the battery pack under any circumstances. Disassembling the battery can cause internal shorts, resulting in bulging/bursting due to excess gas generation, overheat, ignition, explosion or other problems.

- Do not pierce the battery with sharp objects or subject to any other mechanical forces. Do not use an apparently damaged or deformed battery.

- Do not use or leave the battery near a heat source such as a fire or heater. Do not place the battery in microwave oven or on induction heaters.

- Do not use or subject the battery to intense sunlight or hot temperatures. Otherwise, electrolyte leakage, overheating and/or smoke emission can occur. Also, its guaranteed performance will be lost and/or its service life will be shortened.

- Do not subject the battery to static electricity. Otherwise, the built-in safety/protection circuits can be damaged by static voltages, possibly leading to leakage, overheating, smoke emission, bursting and/or ignition.

- Do not immerse the battery in liquids such as fresh or salt water, beverages (fruit juices and coffee, etc.)

- If the battery leaks, and the electrolyte gets into the eyes, the skin or other part of the body, rinse the body part with clean running water and immediately seek medical attention.

- Li-Ion batteries may be disposed of in normal household waste. Contact local landfill for disposal or recycling practices in your area.

Battery Storage (When Detached From the Alarm)

- Store the battery in a location where children cannot reach it. Store the battery in a cool and dry storage area. Storing the battery in temperatures above 40°C will lead to permanent battery damage. If a refrigerator is used for storage, the battery should be placed in a plastic bag for protection against condensation.

- The proper operating/recharging temperature range is from 0 to 40°C. An operating/recharging condition outside this range can lead to battery damage, overheating or other problems.

Warranty

If after reviewing this manual you feel that your carbon monoxide alarm is defective in any way, do not tamper with the unit. In many cases, the quickest way to exchange your alarm is to return it to the original place of purchase. Alternatively, you may return it for servicing to Kidde. If you have questions, call Kidde Customer Service at 1-800-880-6788.

7 Year Limited Warranty

Kidde warrants to the original purchaser that the enclosed carbon monoxide alarm (but not the battery) will be free from defects in material and workmanship or design under normal use and service for a period of seven years from the date of purchase. The obligation of Kidde under this warranty is limited to repairing or replacing the carbon monoxide alarm or any part which we find to be defective in material, workmanship or design, free of charge to the customer, upon sending the carbon monoxide alarm with proof of date of purchase, postage and return postage prepaid, to Kidde, Customer Service Department, 130 Esna Park Drive, Markham, ON L3R 1E3. 1-800-880-6788.

This warranty shall not apply to the carbon monoxide alarm if it has been damaged, modified, abused or altered after the date of purchase or if it fails to operate due to improper maintenance or inadequate AC or DC electrical power.

The liability of Kidde or any of its parent or subsidiary corporations arising from the sale of this carbon monoxide alarm or under the terms of this limited warranty shall not in any case exceed the cost of replacement of this carbon monoxide alarm and, in no case, shall Kidde or any of its parent or subsidiary corporations be liable for consequential loss or damages resulting from the failure of this carbon monoxide alarm or for breach of this or any other warranty, express or implied, even if the loss or damage is caused by the company's negligence or fault.

Since some provinces do not allow limitations on the duration of an implied warranty or do not allow the exclusion or limitation of incidental or consequential damages, the above limitations or exclusions may not apply to you. While this warranty gives you specific legal rights, you may also have other rights which vary from province to province.

Also, Kidde 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.