

Visit Us on the Web! [www.universalsecurity.com](http://www.universalsecurity.com)



**MODEL CD-9590 120V PLUG-IN  
CARBON MONOXIDE ALARM  
MODEL CD-9690  
(WITH DISPLAY)**

**OWNER'S MANUAL**  
PLEASE READ AND SAVE!



**WHAT YOU SHOULD KNOW ABOUT CO**

Carbon monoxide (CO) is an insidious poison. It is a colorless, odorless, tasteless gas. It is a cumulative poison. Even low levels of CO have been shown to cause brain and other vital organ damage in unborn infants with no effect on the mother.

The following symptoms are related to CARBON MONOXIDE POISONING and should be discussed with ALL members of the household:

**MILD EXPOSURE**

Slight headache, nausea, vomiting, fatigue (often described as "flu-like" symptoms).

**MEDIUM EXPOSURE**

Severe throbbing headache, drowsiness, confusion, fast heart rate.

**EXTREME EXPOSURE**

Unconsciousness, convulsions, cardiorespiratory failure, death.

Many cases of reported CARBON MONOXIDE POISONING indicate that victims are aware they are not well, but they become so disoriented that they are unable to save themselves by either exiting the building or calling for assistance. Young children and household pets may be the first affected.

Your CO alarm is designed to detect the toxic CO fumes that result from incomplete combustion, such as those emitted from appliances, furnaces, fireplaces and auto exhaust.

A CO alarm is NOT A SUBSTITUTE for other combustible gas, fire or smoke alarms. This carbon monoxide alarm is designed to detect carbon monoxide gas from ANY source of combustion.

**CAUTION!**

This alarm will only indicate the presence of carbon monoxide gas surrounding its sensor. Carbon monoxide gas may be present in other areas.

**WARNING!**

This product is intended for use in ordinary indoor locations of family living units. It is not designed to measure compliance with Occupational Safety and Health Administration (OSHA) commercial or industrial standards. Individuals with medical problems may consider using warning devices which provide audible and visual warnings for carbon monoxide concentrations under 30 PPM.

**WHAT YOU SHOULD DO IF THE ALARM SOUNDS**

Never disconnect a CO alarm to silence an alarm. The alarm will automatically sense when the level of CO in the air falls below the danger level. You should stay outside the residence in fresh air until the alarm is silenced. When the alarm sounds, do not stand too close to the alarm. The sound produced by the alarm is loud because it is designed to awaken a person in an emergency. Prolonged exposure to the alarm at a close distance may be harmful to your hearing.

Two self-adhesive labels have been provided with instructions indicating what to do if the alarm sounds. Add the phone numbers of your emergency services provider and a qualified technician to each label. Place one of the labels in a visible area next to the alarm and place the other label near a source of fresh air which will be used as a gathering place if the alarm sounds.

**IMPORTANT CONSIDERATIONS**

**YOUR CARBON MONOXIDE ALARM HAS BEEN DESIGNED AND IS WARRANTED TO OPERATE FOR FIVE YEARS.**

**NOTE: MANUFACTURER RECOMMENDS REPLACEMENT OF ALARM FIVE YEARS AFTER DATE OF PURCHASE.**



Activation of this device indicates the presence of carbon monoxide (CO) which can kill you. If alarm sounds:

1. Operate test/reset button;
2. Call your emergency services, fire department or 911; (Phone No. \_\_\_\_\_)
3. Immediately move to fresh air - outdoors or by an open door/window. Do a head count to check that all persons are accounted for. Do not reenter the premises nor move away from the open door/window until the emergency services responders have arrived, the premises have been aired out, and your alarm remains in its normal condition.
4. After following steps 1-3, if your alarm reactivates within a 24 hour period, repeat steps 1-3 and call a qualified appliance technician; (Phone No. \_\_\_\_\_) 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 manufacturer(s) 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.

### **INSTALLING THE ALARM FOR RESIDENTIAL USE**

#### **LOCATION**

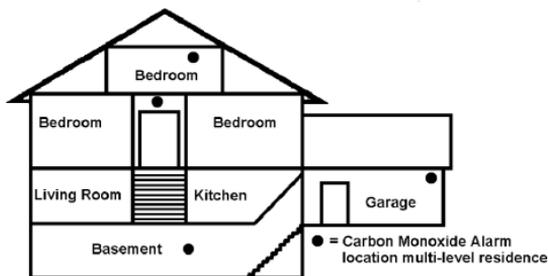
One of the most important considerations in any CO alarm system is the location of the alarms. Statistics of the National Fire Protection Association (NFPA) show that most of the fatal CO occurrences happen at night while people are sleeping.

Early warning of CO is best achieved by the installation of CO alarms on all floors and areas of the household including attached garages. Placement of a alarm in a garage may cause an alarm due to CO from automotive exhaust.

#### **RECOMMENDATIONS**

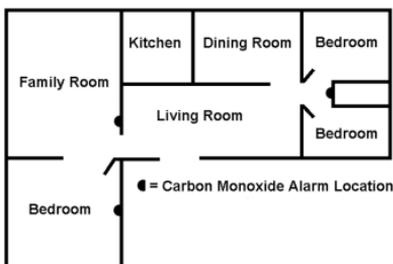
- Put a CO alarm inside each bedroom where the occupant closes the door while sleeping. Particulate smoke can be blocked by a closed door, but CO fumes are likely to get through.
- A CO alarm should be installed in any family living unit containing a fuel-burning appliance or fireplace or having an attached garage.
- A CO alarm should be centrally located outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where bedrooms are separated and audibility of the alarm to occupants within the bedroom area could be seriously impaired, more than one unit could be needed.

**FIGURE 1**



Recommended CO Alarm Protection for a Multi-Level Residence

**FIGURE 2**



Recommended CO Alarm Protection for a Single Floor Residence

## LOCATIONS TO AVOID

Nuisance alarms are caused by placing alarms where they will not operate properly. To avoid nuisance alarms, do not place alarms:

- Within 1 foot (.3m) from fluorescent lights. Electronic noise may cause false alarms.
- Within 5 feet (1.5m) of any cooking appliance.
- Closer than 20 feet (6m) away from a furnace or other fuel burning heat source or fuel burning appliances such as a water heater.
- Near an open window or door, because the fresh air entering the opening may delay CO from reaching the alarm.
- In extremely humid areas. This alarm should be at least 10 feet (3m) from a bath or shower, sauna, humidifier, vaporizer, dishwasher, laundry room, utility room or other source of high humidity.
- In very cold or very hot environments or in unheated buildings or outdoor rooms where the temperature can go below or above the operating range of the alarm. Temperature limits for proper operation are 40° to 100°F (4.4° to 37.8°C).
- In turbulent air, such as near ceiling fans, heat vents, air conditioners, fresh air returns or open windows. Blowing air may prevent CO from reaching the sensors.
- Good ventilation is recommended when household cleaning supplies or similar contaminants are used.
- Excessive spillage or reverse venting of fuel burning appliances caused by outdoor ambient conditions, such as:
  - Wind direction and/or velocity, including high gusts of wind. Heavy air in the vent pipes (cold/humid air with extended periods between cycles).
  - Negative pressure differential resulting from the use of exhaust fans.
  - Simultaneous operation of several fuel burning appliances competing for limited internal air.
  - Vent pipe connections vibrating loose from clothes dryers, furnaces, or water heaters.
  - Obstructions in or unconventional vent pipe designs which can amplify the above situations.
- Extended operation of unvented fuel burning devices (range, oven, fireplace, etc.)
- Temperature inversions which can trap exhaust gasses near the ground.
- Car idling in an open or closed attached garage, or near a home.

### **What Levels of CO Cause an Alarm?**

Underwriters Laboratories Inc. UL2034 defines three specific alarm points by which all residential CO alarms must alarm. 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** of CO, IT MUST ALARM BETWEEN 60 and 240 MINUTES.

## DEVELOPING YOUR OWN CO SAFETY PLAN

This CO alarm can quickly alert you to the presence of CO - it cannot prevent toxic CO emissions. Please note that there are hazards against which CO detection may not be effective, such as gas leaks or explosions. The ultimate responsibility for protection against toxic CO fumes rests solely on you.

Installing CO alarms is just the first step in protecting your family from toxic CO poisoning. We also suggest that you create an effective, comprehensive safety program as outlined below.

1. Install CO alarms properly following the instructions in this manual. Keep your CO alarms clean - do not wash. Wipe with a clean towel. Test your alarms weekly and repair or replace them when they no longer function. As with any electronic product, alarms have a limited life and alarms that do not work cannot protect you.
2. Develop a family escape plan and practice it with your entire family, especially small children.
  - Draw a floor plan of your home and find two ways to exit from each room. There should be one way to get out of each bedroom without opening the door.
  - Teach children what the CO alarm signal means and how they must be prepared to leave the residence by themselves if necessary.
  - Decide on a meeting place a safe distance from your house and make sure all children understand where they should go and wait if there is a dangerous CO condition.
  - Conduct CO safety drills at least every 6 months to make sure that everyone, even small children, knows what to do in order to escape safely.
  - Know where to go to call the Fire Department from outside your residence.

This unit is designed to detect carbon monoxide (CO) entering its sensing chamber. It does not sense combustible gas (such as natural gas, propane or butane), heat, smoke or flames.

**NOTE:** This CO alarm is designed for use within a single residential living unit only. In a multi-family building, the alarm may not provide early warning for residents if it is placed outside of the residential units, such as on outside porches, in corridors, lobbies, basements, or in other apartments. In multi-family buildings, each residential unit should have detectors installed as previously indicated.

When properly located, installed, and maintained, this CO alarm is designed to provide early warning of developing poisonous CO conditions at a reasonable cost. This alarm monitors the air, and when it senses CO, it activates its built-in alarm. It can provide precious time for you and your family to escape from your residence before CO can seriously injure or kill. However, such an early warning is possible only if the alarm is located, installed, and maintained as specified in the Owners Manual.

### ***IMPORTANT: WHAT YOUR CO ALARM CAN AND CANNOT DO***

If the bedroom doors are usually closed at night, alarms should be placed in each bedroom as well as in the common hallway between them.

CO alarms also may not sense CO on a different level of a residence or building. For example, a second floor alarm may not sense a CO leak on the first floor or in the basement. Therefore, alarms should be placed on every level of a residence or building.

If the alarm is located outside of a bedroom, it may not wake up a sound sleeper, especially if the bedroom door is closed or only partly open. If the alarm is located on a different level of the residence than the bedrooms, it is even less likely to wake up people sleeping in the bedroom.

Installing CO alarms may qualify you for lower homeowner's insurance rates, but CO alarms are not a substitute for insurance. Homeowners and renters should continue to insure their lives and property.

## INSTALLATION AND OPERATION

**INSTALLATION INSTRUCTIONS: CAUTION!! READ CAREFULLY.**

**CAUTION: THIS UNIT IS SEALED. THE COVER IS NOT REMOVABLE!**

### **CAUTION!**

Leave your CO alarm plugged in year-round. CO problems can occur any time during the year and this alarm can only alert you if it is plugged in and receiving power.

This CO alarm is intended for use in a standard, unswitched 120VAC wall outlet. It is not intended for use in extension cords, power strips or outlets controlled by a switch or dimmer. These may not provide continuous power to the unit. When fully powered, it samples the air continuously. A microchip inside the unit stores each reading and remembers the levels of CO it has been exposed to over time. The unit goes into alarm mode when it has been exposed to a "critical" level of CO (measured in parts per million or "ppm") within a specified time (measured in minutes).

### **PLUG THE ALARM INTO AN OUTLET 120 VAC, 60 Hz, 100 mA**

### **WARNING!**

This unit should receive continuous electrical power. (The battery is meant for emergency backup only.) Choose an outlet where it can't be accidentally unplugged or switched off by children. Keep small children away from the unit. Teach them not to play with it or unplug it. Explain what the alarms mean.

**Do not plug this alarm into an outlet controlled by a dimmer or switch or ground fault circuit interrupter.**

1. Plug the unit into a standard UNSWITCHED 120VAC outlet. The unit should be located where it can wake you if it alarms at night.
2. Make sure the green power "ON" LED is on continuously when you plug it in. The horn will "chirp" during power up or when power is restored after an outage.

**Test alarm immediately following installation** and weekly for proper operation by pushing the test button. The alarm will then test itself for proper operation and the red LED indicator will flash on two 4-pulse patterns and the alarm will simultaneously sound two 4-pulse patterns. The alarm then resumes normal operation. The Display will show the highest reading in memory and then three dashes (Model CD-9690).

## **OPERATION, TESTING & MAINTENANCE**

**OPERATION:** The alarm is operating once the power is connected. When CO gas is sensed at a high level or at a low level for a lengthy period of time, the unit sounds a loud alarm which continues until the air is cleared, or the alarm is reset.

If the local alarm is self-cleared, i.e. the carbon monoxide level returns to normal, the green LED flashes off and on until manually reset.

**TESTING YOUR ALARM:** Test alarm monthly for proper operation by pushing the test button. Release the button. The green LED will go off and the yellow LED will come on. The alarm will then test itself for proper operation and the red LED will flash on two 4-pulse patterns and the alarm will simultaneously sound two 4-pulse patterns. The alarm then resumes normal operation. The Display will show the highest reading in memory and then three dashes (Model CD-9690).

**STANDBY CONDITION:** The green LED is on and blinks off approximately every 20 seconds whenever AC power is turned on. The Display will only indicate CO readings higher than 30ppm (Model CD-9690).

**ALARM CONDITION:** The red LED flashes on and the unit emits a loud, pulsating alarm (4 short beeps, pause/4 short beeps, pause, until reset). The Display will show the current CO reading (Model CD-9690).

## NORMAL OPERATION

In normal operation, the alarm will blink the green LED off once approximately every 20 seconds. The display will indicate the current CO readings (if higher than 30ppm) or three dashes (Model CD-9690).

## SERVICE/TROUBLE CONDITION

Periodically, the alarm's measurement circuit is tested. If an error is detected, the alarm will sound a double "beep" and the yellow LED will flash on twice approximately every 40 seconds. This is an indication of circuit malfunction and that the alarm required immediate servicing.

When AC power is lost, the green LED is off.

## IF THE ALARM SOUNDS:

1. Operate the Test/Reset button to silence the alarm.
2. Call your emergency services, fire department or 911; (Phone No. \_\_\_\_\_ )
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 the Display Shows	It Means
30 (or higher)	Developing CO problem. The display will only show levels or carbon monoxide 30 ppm or higher.
70 (or higher)	The unit is calibrated to sound an alarm before 240 minutes have passed when exposed to this level.
150 (or higher)	The unit is calibrated to sound an alarm before 50 minutes have passed when exposed to this level. At this level, an average healthy adult may feel headache within 90 minutes.
400 (or higher)	The unit is calibrated to sound an alarm before 15 minutes have passed when exposed to this level. This level may be life threatening to a normal healthy adult within three hours.
A number higher than 450	Over 450 ppm of CO has been detected. Evacuate immediately!

## CLEANING YOUR ALARM

You can clean the interior of your alarm by using your vacuum cleaner hose and vacuuming through the openings around the perimeter of the alarm.

## **⚠️WARNING!**

The outside can be wiped with a damp cloth. **Do not** use any household cleaning agents, ammonia based cleaners, paints, varnishes or any other chemical on or near your alarm. **AFTER CLEANING, REINSTALL YOUR ALARM. TEST YOUR ALARM BY USING THE TEST BUTTON.**

## **MAINTENANCE**

### **BATTERY REPLACEMENT**

The CO alarm is powered (backup) by a 9V battery. A fresh battery should last for one year under normal operating conditions. This alarm has a low battery monitor circuit which will cause the alarm to sound a short "beep" approximately every 40 seconds, for a minimum of 7 days, when the battery gets low. Replace the battery when this condition occurs, by using the QUICK DRAW™ pull-out battery drawer for easy replacement.

Slide the QUICK DRAW™ pull-out battery drawer out. While observing polarity, push the replacement battery into the battery drawer until it is held securely in place. Carefully close and latch the QUICK DRAW™ pull-out battery drawer.

### **USE ONLY THE FOLLOWING 9 VOLT BATTERIES FOR CO ALARM REPLACEMENT**

Alkaline type: EVEREADY 522; DURACELL MN1604

Lithium type: ULTRALIFE U9VL-J

**NOTE: REGULAR TESTING IS RECOMMENDED.**

### **WARNING!**

**USE ONLY THE BATTERIES SPECIFIED. USE OF DIFFERENT BATTERIES MAY HAVE A DETRIMENTAL EFFECT ON THE CO ALARM. THE CONSTANT EXPOSURES TO HIGH OR LOW TEMPERATURES OR HIGH HUMIDITY MAY REDUCE BATTERY LIFE.**

### **IMPORTANT!**

The battery backup is designed to provide short-term emergency power to the CO alarm. Actual backup time depends on the strength (freshness) of the battery. The battery backup will not work unless a good battery is properly installed.

## UNIVERSAL FIVE YEAR LIMITED WARRANTY

**Universal Security Instruments, Inc. ("Universal") warrants your Universal product to be free from defects in material and workmanship for a period of five (5) years from the date of purchase.** This warranty applies only to the original consumer purchaser and only to products used in normal residential use and service. If this product is found to be defective, Universal's only obligation, and your exclusive remedy, is the repair or replacement of the product, at Universal's discretion, provided that the product has not been damaged through misuse, abuse, accident, modifications, alteration, neglect or mishandling. This Warranty shall not apply to any product which is found to have been improperly installed, set-up, or used in any way not in accordance with the instructions supplied with the product. This warranty shall not apply to any batteries used in the product or to any damage which may be caused by such batteries. For repair or replacement, send the defective product to Universal Security Instruments, Inc. at 7-A Gwynns Mill Court, Owings Mills, Maryland 21117, postage prepaid with a payment of \$8.00 to cover the costs of return postage and handling. You must include a proof of purchase (receipt) along with the returned product.

**UNIVERSAL DOES NOT WARRANT AND SPECIFICALLY DISCLAIMS ANY WARRANTY, WHETHER EXPRESS OR IMPLIED, OF FITNESS FOR A PARTICULAR PURPOSE, OTHER THAN THE WARRANTY CONTAINED HEREIN. NO IMPLIED WARRANTY ON THIS PRODUCT, CREATED BY STATE LAW, SHALL EXTEND BEYOND THE TERM OF THIS WARRANTY UNLESS SUCH LAW OTHERWISE PROVIDES. UNIVERSAL SPECIFICALLY DISCLAIMS ANY LIABILITY AND SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL LOSS OR DAMAGE, INCLUDING, BUT NOT LIMITED TO, DAMAGES TO ANY EQUIPMENT WITH WHICH THIS PRODUCT IS USED.**

Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitations or exclusions may not apply to you.

No agent, representative, dealer, or employee of the company has the authority to increase or alter the obligations or terms of this Warranty.

This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

This Warranty is only valid for merchandise purchased from outlets in the United States and Canada.

Visit Us on the Web! [www.smokealarms.com](http://www.smokealarms.com)

**UNIVERSAL®**

OWINGS MILLS, MARYLAND 21117 USA

