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**MODEL CD-9485/CD-9490
CARBON MONOXIDE ALARM
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

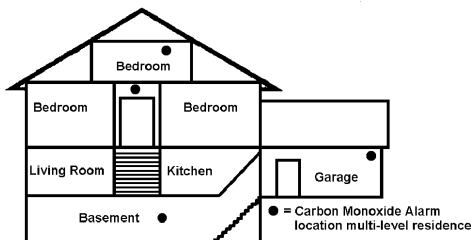
One of the most important considerations in any CO alarm system is the location of the alarms. Statistics of the National Fire Protection Association (NFPA) show that most of the fatal CO occurrences happen at night while people are sleeping.

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

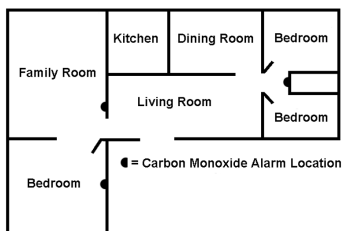
- Put a CO alarm inside each bedroom where the occupant closes the door while sleeping. Particulate smoke can be blocked by a closed door, but CO fumes are likely to get through.
- A CO alarm should be installed in any family living unit containing a fuel-burning appliance or fireplace or having an attached 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

MOUNTING LOCATION

This CO alarm can be mounted on the wall or ceiling.

WALL LOCATION: Locate the top of the alarm not more than 6 feet from the floor.

CEILING LOCATION: Alarm should be mounted as close as possible to the center of a hallway or room. If this is not possible, the edge of the alarm should be at least 4 inches from any wall.

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.
- Near an open window or door, because the fresh air entering the opening may delay CO from reaching the alarm.
- In damp or very humid areas or next to bathrooms with showers. Install alarms at least 10 feet (3m) away from bathrooms.
- 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).
- 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!

- A mounting plate is provided on the back of the alarm.
- Remove the mounting plate from the back of the alarm by holding the mounting plate and twisting the alarm in the direction indicated by the "TURN TO REMOVE" arrow on the side of the alarm base.
- **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.

▲WARNING!

Installation of this unit must conform to the electrical codes in your area; Article 760 of the National Electrical Code, NFPA 720/CO Alarms, NFPA 101; SBC (SBCCI); UBC (ICBO); NBC (BOCA): OTFDC (CABO), and any other local or building codes that may apply. Wiring and installation must be performed by a licensed electrician. Failure to follow these guidelines may result in injury or property damage.

This unit must be powered by a 24-hour, 120V AC 60Hz circuit. Be sure the circuit cannot be turned off by a switch, dimmer or ground fault circuit interrupter. Failure to connect this unit to a 24-hour circuit may prevent it from providing constant protection.

▲DANGER!

ELECTRICAL SHOCK HAZARD

Turn off power to the area where you will install this unit at the circuit breaker or fuse box before beginning installation. Failure to turn off the power before installation may result in serious electrical shock, injury or death.

TAMPER LOCKING PIN: To make your alarm somewhat tamper resistant, a locking pin has been provided. Using this pin will deter children and others from removing the alarm from the mounting plate. To use the pin, insert it into the hole in the side of the alarm after it has been installed on the mounting plate. Using long nose pliers, pull the pin out of the hole. It is now possible to remove the alarm from the mounting plate.

1. Turn the alarm counterclockwise in the direction indicated by the "TURN TO REMOVE" arrow on the side of the alarm base to remove it from the mounting plate. NOTE: The alarm is sealed and the cover is not removable.
2. Wiring Instructions:
 - a. The appropriate power supply is 120 Volt single phase power supplied from a non-switchable circuit NOT protected by a ground fault circuit interrupter.
 - b. Turn off main power to the circuit before wiring the alarm.
 - c. There are three pigtail leads (black, white and yellow) coming from the AC QUICK CONNECTOR. The proper wire connection is as follows:

WIRES FROM QUICK CONNECTOR

BLACK
WHITE
YELLOW

CONNECT TO

"HOT" side of AC line
"NEUTRAL" side of AC line
Interconnect wires of other units

▲CAUTION!

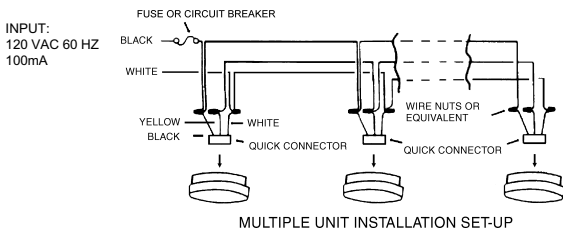
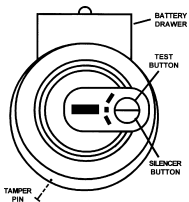
For units that are used as single alarms, do not connect the yellow wire to anything. Insulate this wire (tape it) in place to make certain the yellow wire cannot contact any metal parts.

Interconnected units can provide earlier warning than stand-alone units, especially if dangerous CO (carbon monoxide) levels start in a remote area of the dwelling. This unit will interconnect with ALL UNIVERSAL AC carbon monoxide alarms, smoke alarms, heat alarms and relay modules. A maximum of 18 units can be interconnected, but there can be no more than 12 interconnected smoke alarms.

Interconnected CO alarms will only respond if a CO alarm / event initiates the alarm. All other alarms remain silent.

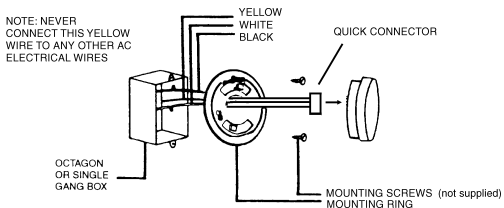
Interconnected smoke alarms, heat alarms and relay modules will only respond if a smoke alarm / event or heat alarm / event initiates the alarm. All CO alarms remain silent.

Note that units without battery backup will not respond during an AC power failure.



The yellow wire is used only for multiple station operation with UNIVERSAL Model alarms only. Connecting this yellow wire to any other circuits may result in damage. When alarms are interconnected, all units must be powered from a single AC branch circuit. If local codes do not permit be sure the neutral wire is common to both phases. The maximum wire run distance between the first and last alarm/device in an interconnected system is 1,000 feet. NOTE: Use standard household wire (18 gauge or larger, rated at least 300V, as required by local codes) available at all electrical supply/hardware stores.

3. Attach the mounting plate to the electrical junction box.
4. To activate the 9 Volt battery and alarm, hold the QUICK DRAW™ pull-out battery drawer closed, pull and remove the PULL-TAB. Discard PULL-TAB.
5. Plug the AC QUICK CONNECTOR onto the alarm base. Push and turn the alarm clockwise onto the mounting plate.
6. See "TAMPER LOCKING PIN."
7. Turn on AC power and press the TEST/RESET button and check the LED's for proper operation (see TESTING YOUR ALARM). After test sequence, the green LED lights to indicate AC power and blinks off approximately every 20 seconds to indicate proper operation.



OPERATION, TESTING & MAINTENANCE

OPERATION: The alarm is operating once the power is connected and turned on (for Model CD-9490, the battery must also be installed). 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.

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.

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.

LOCAL 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.

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.

REMOTE ALARM CONDITION: The red LED is off 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 at its location only.

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.

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 and flashes on approximately every 60 seconds.

⚠WARNING!

Disconnect AC power before changing battery. Shock hazard exists if AC power is miswired.

MAINTENANCE

BATTERY REPLACEMENT (Model CD-9490 only)

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.

CLEANING YOUR ALARM

To clean your alarm, remove it from the mounting plate as outlined in the beginning of this section.

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.**

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.

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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.

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