



Carbon Monoxide Alarm Owner's Manual

Sealed Lithium Battery Powered

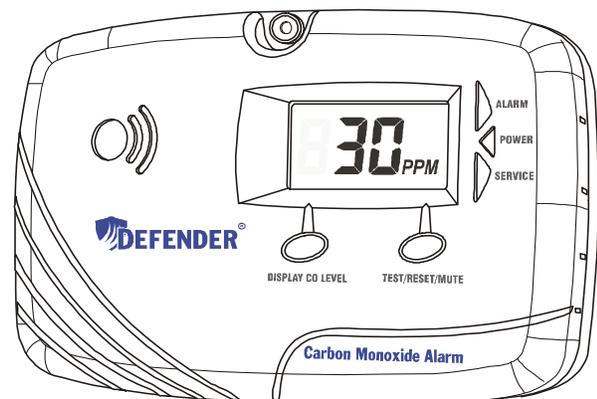
CA6100

Sealed Lithium Battery
Powered CO Alarm, Single
Station



CA6150

Sealed Lithium Battery
Powered CO Alarm with LCD
Digital Display and Peak Level
Memory, Single Station



IMPORTANT: Please read all instructions before installation and save this manual for future reference.

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CONTENTS OF THIS MANUAL

1. IMPORTANT MESSAGE AND INSTRUCTIONS
2. WARNING MESSAGES
3. FEATURES AND SPECIFICATIONS
4. INFORMATION ABOUT CARBON MONOXIDE
5. RECOMMENDED LOCATIONS OF ALARMS
6. LOCATIONS TO AVOID
7. INSTALLATION INSTRUCTIONS
8. FUNCTIONS AND OPERATION
9. TEST AND MUTE ALARM
10. WHAT TO DO WHEN THE ALARM SOUNDS
11. LIMITATIONS OF CARBON MONOXIDE ALARMS
12. GOOD SAFETY HABITS
13. ALARM END-OF-LIFE AND SERVICE
14. DESCRIPTION OF AUDIBLE AND VISUAL SIGNALS
15. TEN-YEAR LIMITED WARRANTY

1. IMPORTANT MESSAGE AND INSTRUCTIONS

 **CAUTION!** THIS ALARM WILL ONLY INDICATE THE PRESENCE OF CARBON MONOXIDE GAS AT THE SENSOR. CARBON MONOXIDE GAS MAY BE PRESENT IN OTHER AREAS. THIS CARBON MONOXIDE ALARM IS DESIGNED TO DETECT CARBON MONOXIDE GAS FROM ANY SOURCE OF COMBUSTION. IT IS NOT DESIGNED TO DETECT SMOKE, FIRE OR ANY OTHER GAS. THIS DEVICE IS DESIGNED TO HELP PROTECT INDIVIDUALS FROM THE ACUTE EFFECTS OF CARBON MONOXIDE EXPOSURE. IT WILL NOT FULLY SAFEGUARD INDIVIDUALS WITH SPECIFIC MEDICAL CONDITIONS. IF IN DOUBT, CONSULT A MEDICAL PRACTITIONER.

 **CAUTION!** CO detection is best achieved by the installation of CO alarms in all rooms and areas of the dwelling.

IMPORTANT! Alarm should be replaced after ten years from installation date. Write the replacement date onto the “REPLACE BY” label affixed to bottom of alarm.

IMPORTANT! *Do not try to repair this CO alarm yourself. Refer to the instructions in Section 13 for service.*

Add the telephone numbers of the local emergency service provider and a qualified technician to the self-adhesive labels provided. Place one label next to the alarm, and the other label near a source of fresh air where you plan to gather when the carbon monoxide alarm signals are activated.

After installation is completed, **TEST** the alarm by pressing the **TEST/RESET/MUTE** button for at least 2 seconds. Detailed testing instructions are outlined in Section 9.

DO NOT TRY TO TEST THIS ALARM IN ANY OTHER WAY: If no alarm sounds, or low or erratic sound emits from the alarm during a test, the unit may be defective and should be returned for service. (See Section 13)

CLEANING THE ALARM: You can clean the alarm by using a vacuum cleaner brush to vacuum around the openings on the alarm. The outside of the alarm may be wiped with a cloth slightly dampened with water. After cleaning, confirm that the green power LED flashes once every 60 seconds (see Operation in Section 8), and test the alarm by operating the **TEST/RESET/MUTE** button.

DO NOT PAINT THE ALARM: The paint will block the vents and affect alarm function.

DO NOT SPRAY AIR REFRESHENER, CLEANING SUPPLIES, OR INSECT KILLER ON OR NEAR THE ALARM: Certain kinds of aerosol chemicals will damage the sensor and cause improper operation. The dwelling must be well ventilated when using cleaning supplies or similar contaminants.

2. WARNING MESSAGES

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 signals for carbon monoxide concentrations under 30 ppm.

 **WARNING!** Actuation of this device indicates the presence of carbon monoxide (CO) which can KILL YOU

 **WARNING!** Test the CO alarm at least once a week

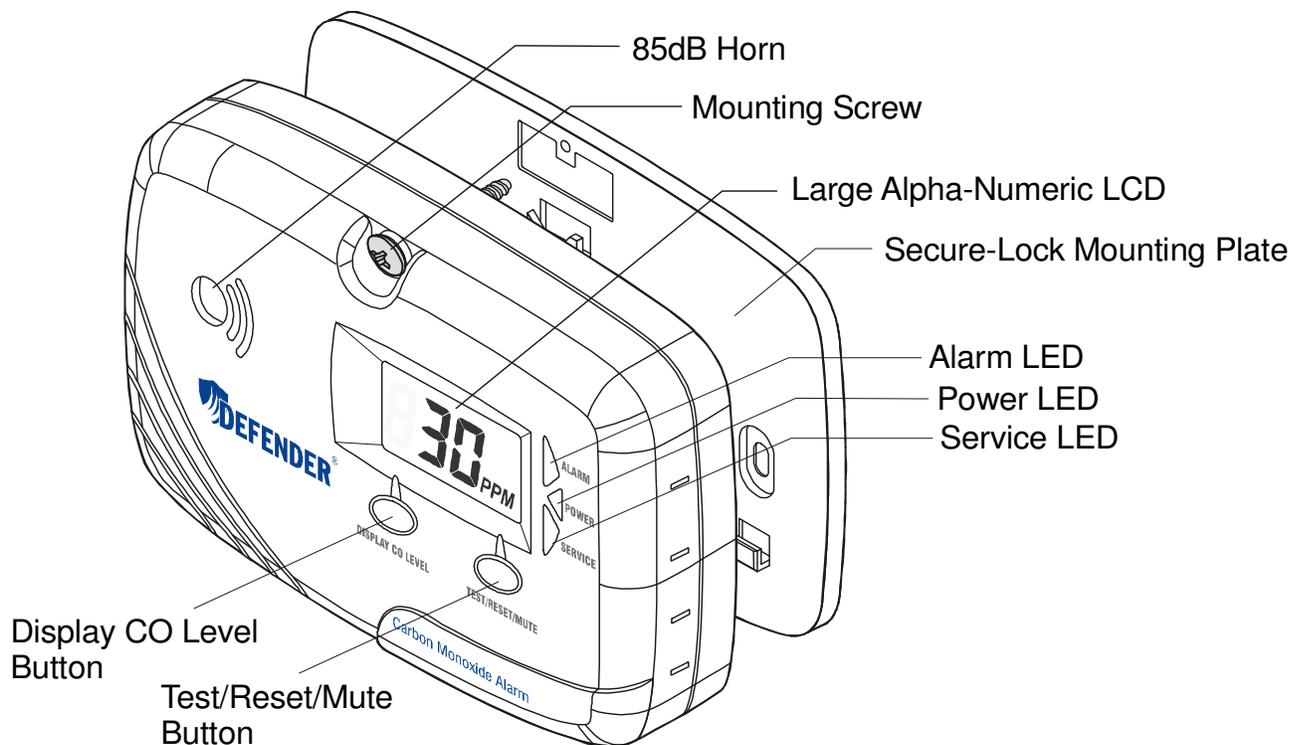
 **WARNING!** Test CO alarm immediately after dwelling has been vacant

 **WARNING!** The loudness of the alarm sound may cause you to feel uncomfortable. Cover the horn opening with the palm of your hand to reduce the volume while testing the alarm

 **WARNING!** Constant exposure to high or low temperature, or high humidity, may shorten battery life

3. FEATURES AND SPECIFICATIONS

- Factory Sealed Lithium Batteries with Soldered Connections
- Integrated Battery Activation/Deactivation Switch
- Accurate and Reliable Water-Based Electrochemical Sensor
- Integrated Filter for Removing Nuisance Gases
- Samples for Carbon Monoxide (CO) Every 10 Seconds
- Optional Alpha Numeric LCD Readout with Memory
- Separate Test and Optional Display Buttons
- Audible and Visual Alarm Signals
- Separate Alarm, Power and Service LED's
- Self Diagnostic Circuitry and Sensor Life Monitor
- Secure-Lock™ Mounting System
- UL Tested and Listed to Latest ANSI/UL 2034 Standard
- Ten Year Limited Warranty for Alarm and Batteries



SPECIFICATIONS

CO Response Times:

- 70 PPM: 60-240 minutes
- 150 PPM: 10-50 minutes
- 400 PPM: 4-15 minutes

Sensor Type:

Electrochemical

Operating Temperature and Humidity:

40°F to 100°F @ 10% to 95% RH

Audible Signal:

Buzzer Horn Sounds 85 dB at 10 feet

Visual Signal:

- Green LED Indicates Power On
- Alarm Red LED Indicates CO Alarm
- Service Red LED Indicates Service Required

Detection Frequency:

Samples for CO every 10 seconds

LCD Display: Model CA6150

- Automatic Digital Read-Out continuously displays current CO level detected from 30-999 ppm
- Current Low Level Readout manually displays the current CO level detected within last minute from 10-999 ppm
- Peak Level Memory manually displays highest CO level detected within last 30 days from 10-999 ppm
- Peak Level Time Record manually displays total time the highest CO level was detected, within 10% of the peak, from 1-999 minutes
- Display Tolerance $\pm 20\%$ from 30 to 400 PPM @ 50% RH, 72°F $\pm 5^\circ$

Sensor Life Monitor

Activates sensor expiration signal after ten years of operation

Factory Sealed Lithium Batteries

Two non-removable, non-replaceable lithium batteries for ten years of operation under normal conditions

Electrical Rating:

6VDC

4. INFORMATION ABOUT CARBON MONOXIDE

WHAT IS CARBON MONOXIDE?

Carbon monoxide (CO) is a highly toxic, invisible, odorless, tasteless gas.

HOW IS CO GENERATED?

Carbon monoxide is generated through incomplete combustion of fuel in various appliances. Faulty ventilation of furnaces, water heaters, fireplaces, wood burning stoves, and space heaters are the major cause of high CO levels in a building. Automobile and small engine exhaust are another source of CO.

HOW DOES CO POISON PEOPLE?

The human body depends on oxygen for the burning of fuel (food) to provide us with the energy that allows our cells to live and function. Oxygen makes up approximately 21% of the atmosphere and enters our lungs when we breathe. In our lungs the oxygen combines with the hemoglobin in the blood (oxyhemoglobin), and is carried in the blood stream throughout the body where it releases oxygen to the cells.

Carbon monoxide is dangerous because it bonds more tightly to the hemoglobin (carboxyhemoglobin, COHb) than oxygen does. When CO combines with hemoglobin, the hemoglobin's ability to combine with oxygen is lost. As the COHb concentration rises, people become nauseous, unconscious and ultimately die (see below).

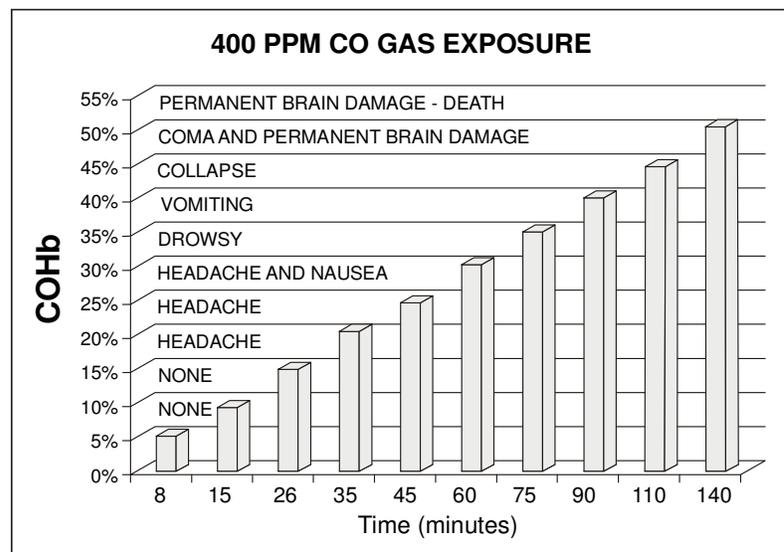
WHAT ARE THE SYMPTOMS OF CARBON MONOXIDE POISONING?

Many people often confuse carbon monoxide poisoning with the flu; the initial symptoms being very similar. Different concentrations of CO over various lengths of time cause different symptoms.

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

MILD EXPOSURE:	Slight headaches, nausea, vomiting, running nose, sore eyes, fatigue (often described as "Flu-like" symptoms).
MEDIUM EXPOSURE:	Severe throbbing headache, dizziness, drowsiness, confusion, fast heart rate.
EXTREME EXPOSURE:	Unconsciousness, convulsions, cardiorespiratory failure, brain damage, death

Many cases of CARBON MONOXIDE POISONING indicate that while victims are aware they are not well, 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 are typically the first affected



5. RECOMMENDED LOCATION OF ALARMS

The Consumer Products Safety Commission (CPSC) recommends the use of "at least one CO alarm per household located outside each sleeping area." (See diagrams "A" and "B").

CO poisoning can happen anywhere in the dwelling, but because most CO poisoning cases occur while people are sleeping, the best location for the CO alarm is near the sleeping area. If there is more than one sleeping area in the dwelling or on a different floor, or if bedroom doors are closed during the night, you may need more than one CO alarm.

Carbon monoxide at room temperature (68°F) is slightly lighter than air (density of CO 0.96716 compared to air). CO alarms should be mounted five feet off floor, or at eye level, for best operation and to easily test alarm and view any display.

1. Locate the first alarm in the immediate area of the bedrooms. If more than one sleeping area exists, locate additional alarms near or in each sleeping area.
2. Locate an alarm inside every room where someone sleeps with a door closed. The closed door may prevent the alarm from waking the sleeper.
3. Locate an alarm on every level of the dwelling. (See diagrams "A" and "B")

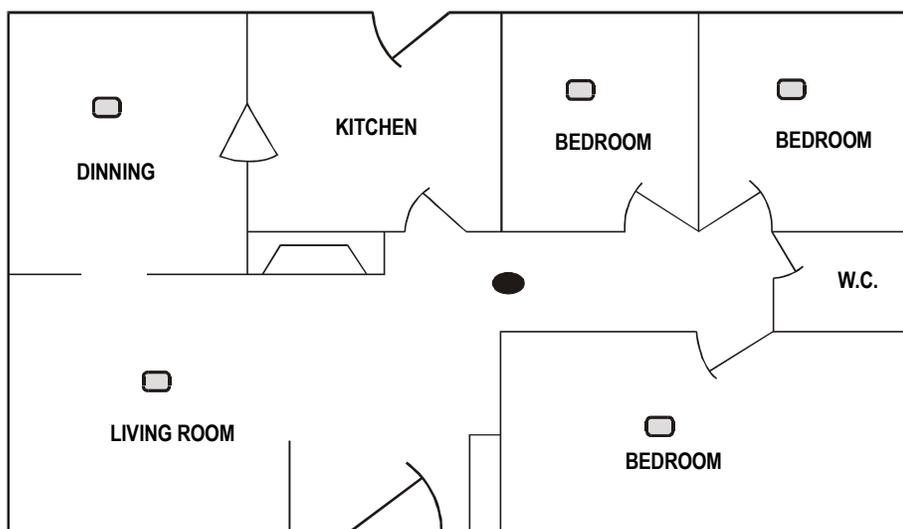
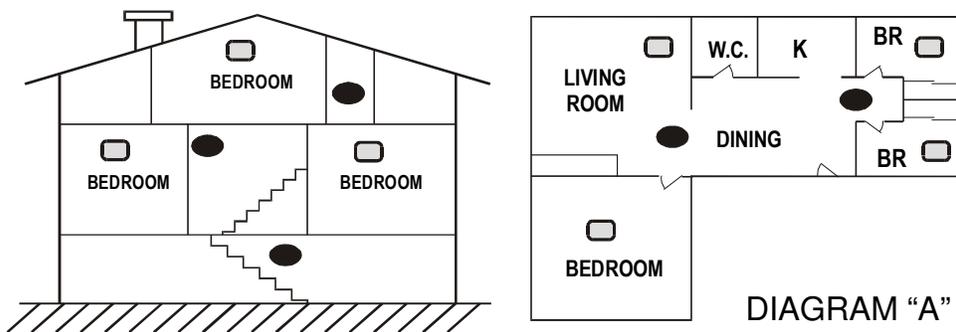


DIAGRAM "B"

- Recommended location for minimum protection.
- Additional CO alarm location for added protection.

6. LOCATIONS TO AVOID

NEAR THE COOKING AREA: Do not install the alarm within five feet of cooking appliances. CO may be generated in the cooking process and cause nuisance alarms. Also, cooking grease can build up on the alarm and cause alarm failure.

WITHIN FIVE FEET OF A FURNACE, WATER HEATER, OR SPACE HEATER: These devices often spill out small amounts of CO when they first turn on.

IN GARAGES: Automobile exhaust contains CO and will activate alarm.

IN DUSTY AREAS: Dust can build up on alarm and prevent it from working properly.

IN CLEANING SUPPLY ROOMS: Cleaning chemicals and painting supplies may cause nuisance alarms.

IN UTILITY OR BATH ROOMS: Do not install the alarm inside or within three feet of a room with a bathtub, shower, spa or washer/dryer. Excessive moisture may cause nuisance alarms.

IN VERY HOT OR COLD AREAS: Do not install unit on any exterior wall or in areas which are below 40°F or above 100°F.

IN DEAD AIR SPACE: Do not install alarm within one foot of where wall meets ceiling or floor.

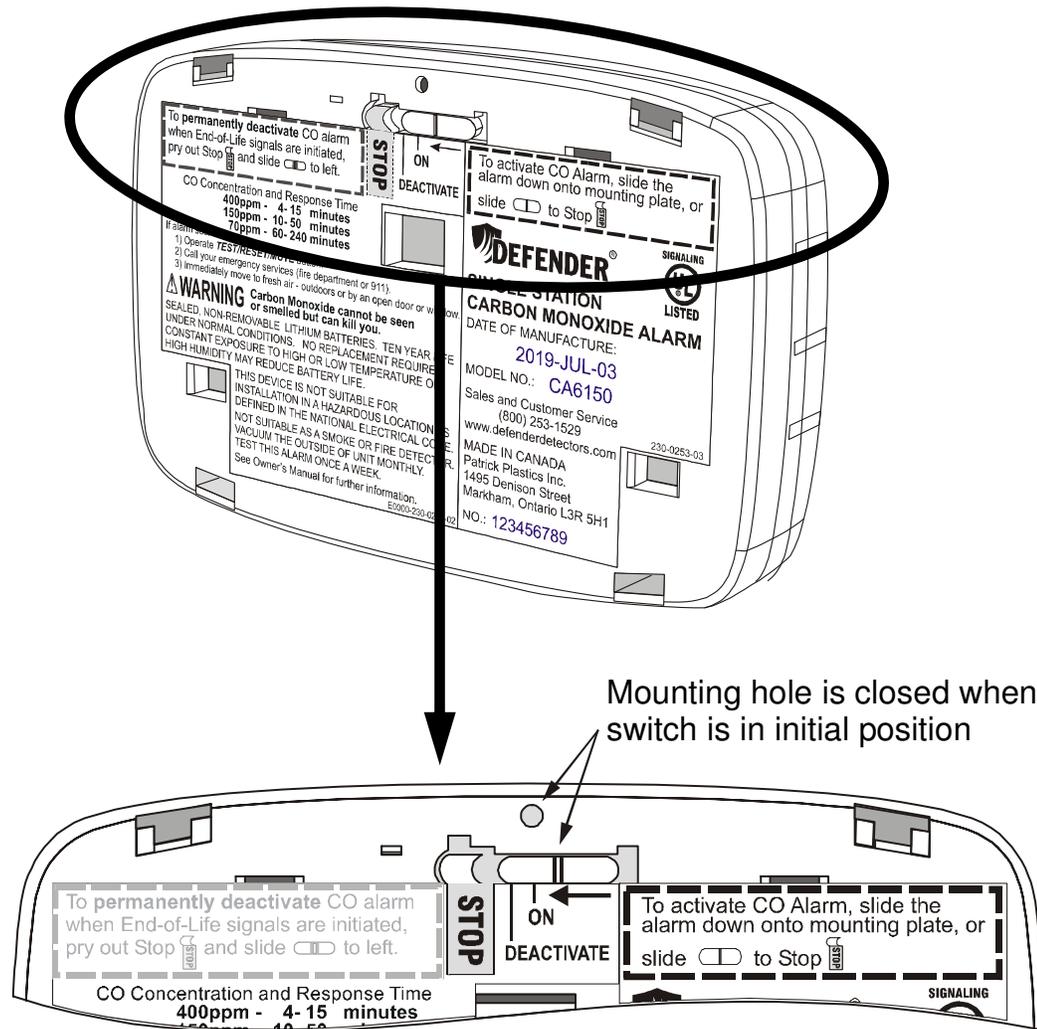
IN HAZARDOUS LOCATIONS: This alarm is not suitable for installation in a hazardous location, as defined in the National Electrical Code.

NEAR WIRELESS DEVICES: Do not install the alarm within one foot of wireless devices. Radio Frequencies (RF) may interfere with the CO alarm's proper operation.

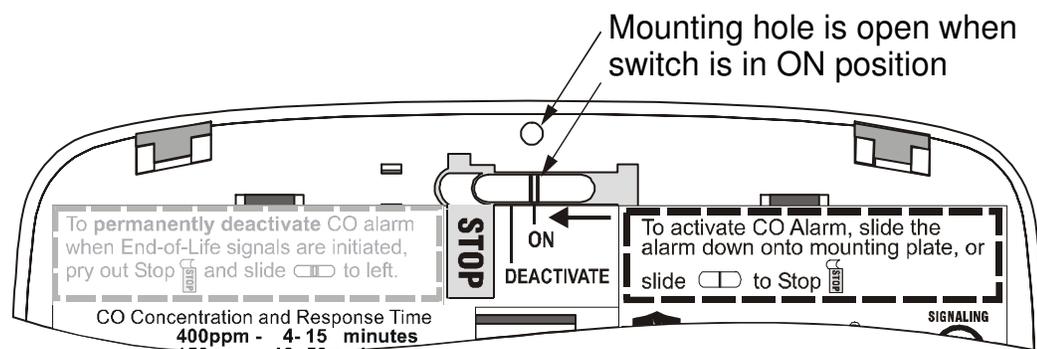
7. INSTALLATION INSTRUCTIONS

Follow these steps to install the alarm:

1. Review Section 5, **RECOMMENDED LOCATIONS OF ALARMS**
2. Review Section 6, **LOCATIONS TO AVOID**
3. Fasten the mounting plate to the wall at eye level. Slide alarm down onto mounting plate. The alarm will be automatically activated.
4. It is important that you use the mounting plate provided. If the mounting plate is not used, you must slide the activation switch at the back of alarm to the left until it meets the Stop, ON position, as in diagram (D).
5. Once activated, the CO alarm should operate for ten years without battery replacement.
6. Press and hold test button until alarm starts to beep, then release. The alarm should beep 4 times, pause, then beep 4 times again. Alarm red LED should flash at the same time.
7. Secure alarm to mounting plate, with Phillips head screw provided, through the mounting hole on top of alarm.
8. Be sure that the alarm is not obstructed by bedding, furniture, drapes, etc.



- (C) Activation switch is not initially in ON position, the mounting hole at top of alarm is blocked, and the CO alarm is not yet activated.



- (D) Alarm is activated when switch is in ON position, and mounting hole at top of alarm is open.

The models CA6100 and CA6150 are a sealed lithium battery powered wall mounted alarm. Two lithium battery cells are permanently sealed with soldered connections, and cannot be removed. No battery replacement is required, and the factory sealed batteries will power the alarm for ten years under normal operation.

8. FUNCTIONS AND OPERATION

OPERATION: The CO alarm is operational once the activation switch is slid to ON position. The green LED will flash once every 60 seconds. The model CA6150 LCD will also continuously display  to indicate that the CO alarm's power is active.

LOW BATTERY CONDITION: When the battery voltage drops below an acceptable level, the alarm will chirp once per minute and the green LED will blink 5 seconds every minute. The model CA6150 LCD will also display  symbol. The alarm will continue to sample for carbon monoxide, and model CA6150 automatically display CO levels detected of 30 ppm or more, until battery power drops below minimum voltage requirement. See Section 13 for information regarding service.

SERVICE CONDITION: An internal microcontroller continuously monitors the sensor function and other critical components. If an internal failure of any of these components should occur, the alarm will chirp twice (BEEP - BEEP) per minute and the **SERVICE** red LED will blink for 5 seconds every minute. The model CA6150 LCD will also continuously display . This malfunction condition indicates a problem with the unit. See Section 13 for information regarding service.

SENSOR END-OF-LIFE CONDITION: The electrochemical sensor has a ten year life expectancy. Once the batteries are activated, a microcontroller monitors the total time that the alarm is under power. After ten years of service, the "End-of-Life" signal will be activated; the alarm will chirp once per minute and the **SERVICE** red LED will glow for 3 seconds at the same time. The model CA6150 LCD will also continuously display  to indicate that the sensor life has expired and the alarm should be replaced. See Section 13 for handling an End-of-Life alarm.

ALARM CONDITION: When the batteries are active, and CO gas is detected at a level and duration specified in Section 3 **CO RESPONSE TIMES**, the horn will sound 4 short beeps every 6 seconds, and the **ALARM** red LED will flash in sync with the beeping sound. The model CA6150 LCD will also display the current CO level detected. After having alarmed for 5 minutes, the alarm signal will change to 4 short beeps every 60 seconds. The alarm signal is either manually or automatically reset. See Section 10 **WHAT TO DO WHEN THE ALARM SOUNDS**.

TEST/RESET/MUTE BUTTON: The **TEST/RESET/MUTE** button is used to check the alarm for proper operation, and to temporarily mute horn for 5 minutes when alarm is activated, for 24 hrs. during the first week of a "Low Battery Voltage" signal () activation, or for 60 hrs. during the first month of an "End-of-Life" signal () activation. The model CA6150 LCD will display the current CO level detected when alarm is being tested, or  when an alarm signal is muted. See Section 9 for detailed instructions to test the alarm and mute the audible horn.

LCD DISPLAY FUNCTION (FOR MODEL CA6150): When alarm is operating normally, the LCD will continuously display . If room temperature exceeds 120°F, the LCD will display  for 5 seconds every minute. If a CO level of 30 ppm or more is detected, or alarm is activated, the LCD will automatically display the current CO level detected. The LCD will display the  symbol if the batteries have low voltage.

DISPLAY CO LEVEL BUTTON (FOR MODEL CA6150): To manually display the current and highest CO level detected, press the **DISPLAY CO LEVEL** button once. The LCD will display the recorded data in the following order:

1. The current CO level detected within the last minute from 10 to 999 ppm.
2. The highest (peak) CO level detected within last 30 days from 10 to 999 ppm.
3. The total length of time the highest CO level was detected, within 10% of the peak, from 1 to 999 minutes.

Each reading will appear for five seconds. To erase the record in memory, press the **DISPLAY CO LEVEL** button, and, while the readings are being displayed, press **TEST/RESET/MUTE** button. The alarm will burst a long beep, and display .

9. TEST AND MUTE ALARM

To test the alarm, press the **TEST/RESET/MUTE** button on the cover and hold it down for a minimum of 2 seconds or until the alarm starts beeping and **ALARM** red LED flashes, then release. This test will simulate a CO concentration of approximately 300 ppm CO gas. The alarm will sound 4 short beeps and LED will flash red at the same time, followed by a 5 second pause, and then repeat 4 more short beeps with flashing red LED if all of the electronic circuitry and buzzer are working correctly. The current CO level detected from 10-999 ppm will also be displayed for model CA6150.

To mute the audible horn during an alarm signal, press the **TEST/RESET/MUTE** button. The **ALARM** red LED will flash 4 times, model CA6150 will display  for 5 seconds, and horn will be temporarily silenced. If a CO level of 70 ppm or more continues to be detected, the audible and visual alarm signals will be automatically reactivated within 5 minutes. See Section 10 **WHAT TO DO WHEN THE ALARM SOUNDS**.

To mute the audible horn during a low battery signal () condition, press the **TEST/RESET/MUTE** button. The green LED will blink for 5 seconds, the model CA6150 will display  at the same time, and the horn will be temporarily silenced for 24 hours. The low battery signal symbol  will be continuously shown in the CA6150 display. When the audible signal reactivates, you can continue to mute the horn for an additional 24 hour period by again pressing the **TEST/RESET/MUTE** button. The horn can only be turned off during the first 7 days of the low battery signal activation. After 7 days, the alarm will return to its normal low battery signal condition; 1 chirp per minute, green LED blinks for 5 seconds, and model CA6150 continuously displays . To test the alarm during a low battery signal condition, press and hold **TEST/RESET/MUTE** button for minimum 2 seconds when the audible signal is not sounding.

To mute the audible signal during an “End-of-Life” condition, press the **TEST/RESET/MUTE** button. The **SERVICE** red LED will glow for 5 seconds, the model CA6150 will display  at the same time, and the horn will be temporarily silenced for 60 hours. When the audible signal reactivates, you can continue to mute the horn for an additional 60 hour period by again pressing the **TEST/RESET/MUTE** button. The horn can only be turned off during the first 30 days of the “End-of-Life” signal activation. After 30 days, the alarm will return to its normal “End-of-Life” condition; 1 chirp per minute, **SERVICE** red LED glows for 5 seconds at the same time, and model CA6150 continuously displays “End”.

To test the alarm during an “End-of-Life” condition, press and hold **TEST/RESET/MUTE** button for minimum 2 seconds when audible signal is not sounding.

The audible signal cannot be muted when alarm is in **SERVICE** condition; chirps twice (BEEP - BEEP) per minute, **SERVICE** red LED blinks for 5 seconds, and model CA6150 continuously displays . The test and mute functions are disabled when alarm is in **SERVICE** condition. See Section 13 for information regarding service.

10. WHAT TO DO WHEN THE ALARM SOUNDS

If alarm signal sounds:

- 1) Operate test/reset/mute button;
- 2) Call your emergency services (tel. no. _____)
[fire department or 911];
- 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/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 the alarm reactivates within a 24 hour period, repeat steps 1-3 and call a qualified appliance technician (tel. 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 manufacturers directly, for more information about CO safety and this equipment. Make sure that motor vehicles are not, and have not been, operating in an attached garage or adjacent to the residence.

MANUAL RESET: You can temporarily silence an audible alarm signal by pressing the **TEST/RESET/MUTE** button. The **ALARM** red LED will flash 4 times, and the model CA6150 will display **OFF** for 5 seconds and then continue to display the current CO level detected from 30 to 999 ppm. If 70 ppm or more continues to be detected, the audible and visual alarm signals will be automatically reactivated within 5 minutes. Do not wait to see if the alarm is reactivated; follow above instructions immediately.

AUTOMATIC RESET: If a CO alarm activation is not manually reset, the horn will sound for at least 5 minutes. After 5 minutes, the alarm will automatically reset itself and return to normal operation if the CO level detected drops to 10 ppm or lower.

If the building has been temporarily vacant and you return to find the alarm(s) sounding, do not enter the building. Call the Fire Department from another location. Do not re-enter the building for any reason until you have been assured that it is safe to do so.

Conditions which can result in transient CO situations:

- 1) Excessive spillage or reverse venting of fuel burning appliances caused by outdoor ambient conditions, such as:
 - i) Wind direction and/or velocity, including high gusts of wind. Heavy air in the vent pipes (cold/humid air with extended periods between cycles).
 - ii) Negative pressure differential resulting from the use of exhaust fans.
 - iii) Simultaneous operation of several fuel burning appliances competing for limited internal air.

- iv) Vent pipe connections vibrating loose from clothes dryers, furnaces, or water heaters.
 - v) Obstructions in or unconventional vent pipe designs which can amplify the above situations.
 - vi) Poorly designed or maintained chimneys and/or vents.
- 2) Extended operation of unvented fuel burning devices (range, oven, etc.).
 - 3) Temperature inversions which can trap exhaust gases near the ground.
 - 4) Car idling in an open or closed attached garage, or near the building.

If SERVICE signal (chirps twice and SERVICE red LED blinks 5 seconds in every minute) or low battery signal (chirps once and green LED blinks 5 seconds in every minute) are activated, see Section 13 for service and return instructions.

11. LIMITATIONS OF CARBON MONOXIDE ALARMS

Carbon monoxide alarms respond to the presence of CO. They do not detect smoke. If the alarm does activate, follow instructions in Section 10 **WHAT TO DO WHEN THE ALARM SOUNDS**.

Carbon monoxide alarms are devices that can provide an early warning of the presence of CO gas at a reasonable cost. However, alarms have sensing limitations and may not always sound a warning in the presence of CO. The alarm will not operate if the battery power is low or dead. CO alarms must be tested regularly to ensure that they are receiving power and operating properly. Carbon monoxide alarms cannot sense CO that does not reach the alarm, and therefore CO alarms may not detect CO which is in another area of the dwelling. Furthermore, if the alarm is located on a different level of the building, or on the other side of a closed door, it may not waken a sound sleeper. The use of drugs and alcohol may impair one's ability to hear the alarm. If it is a multi-level home, apartment, dormitory or hotel/motel, install CO alarms on each level of the building. If the alarm is installed in a hallway and the bedroom doors are kept closed at night, install a CO alarm within each bedroom.

Although CO alarms can help save lives by providing an early warning to the presence of carbon monoxide, they are not a substitute for an insurance policy. Property owners, leaseholders, and renters should have adequate insurance to protect everyone's health, lives and property.

12. GOOD SAFETY HABITS

DEVELOP AND PRACTICE A PLAN OF ESCAPE:

Make a floor plan indicating all doors and windows and at least two escape routes from each room. Second story windows may need a rope or chain ladder.

Have a meeting with everyone to discuss your escape plan, and show everyone what to do in case an alarm sounds.

Determine a place outside the building where you can all meet if an alarm sounds.

Familiarize everyone with the sound of the alarm and train them to leave the building when they hear it.

Practice a CO fire drill at least once every six months. Practice allows you to test your plan before an emergency. You may not be able to reach everyone, especially any children. *It is important that they all know what to do.*

Discuss the symptoms related to CARBON MONOXIDE POISONING with everyone. (See Section 4 **WHAT ARE THE SYMPTOMS OF CARBON MONOXIDE POISONING?**)

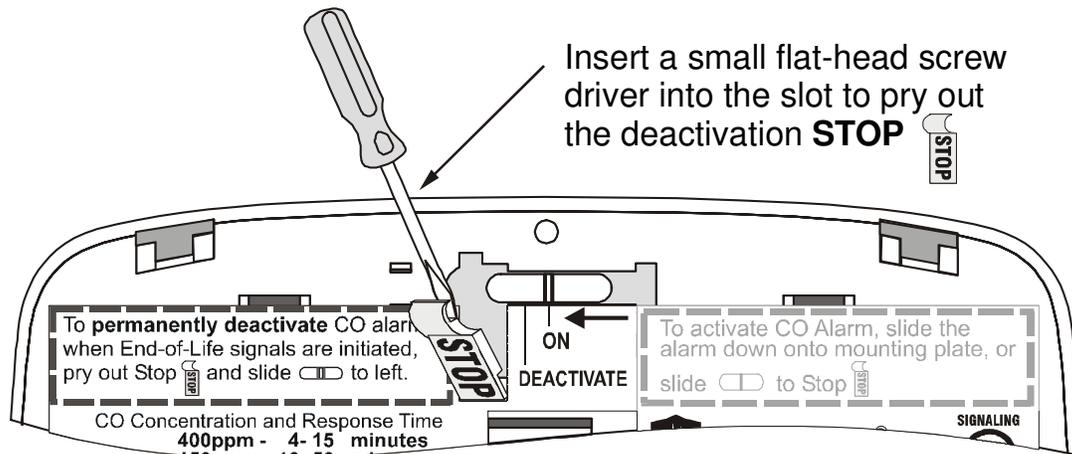
13. ALARM END-OF-LIFE AND SERVICE

After the alarm has been activated for ten years, the alarm reaches the end of its life and emits the End-of-Life signal. Alarm will chirp once per minute, **SERVICE** red LED will glow for 3 seconds at same time, and model CA6150 will continuously display **End**. The alarm must be replaced once the End-of-Life signal has been activated. See below procedures to remove and deactivate the alarm, and discharge the batteries. The alarm can be disposed of using the same method for disposing of discharged batteries.

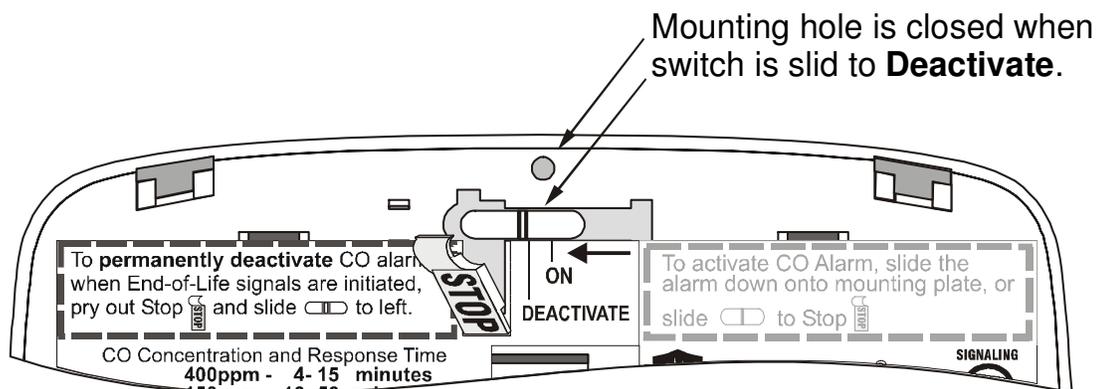
Should the low battery voltage signal occur in less than ten years after initial activation, the battery power capacity may be low because of long-term storage prior to installation, exposure to low or high temperatures or high humidity during storage or operation, or abnormal usage. If the low battery voltage signal is activated in less than ten years under normal conditions, press the **TEST/RESET/MUTE** button to mute the audible low battery voltage signal, and place the CO alarm in an environment at 68°F or warmer. If the low battery voltage signal resumes within 24 hours, follow the steps below to deactivate the alarm, and the instructions listed on the last page of this Owner's Manual to return the unit for warranty service.

In the event of any malfunction of the unit, the alarm will chirp twice per minute, the **SERVICE** red LED will blink for 5 seconds every minute, and the model CA6150 will continuously display **Err**. Do not attempt to repair the alarm. This product should be serviced by a qualified service technician. Follow the steps below to deactivate the alarm, and the instructions listed on the last page of this Owner's Manual to return the unit for warranty service.

- To remove the alarm for service or disposal, unscrew the mounting screw from the top center of the alarm, and slide the alarm up and off the mounting plate.
- Insert a small flat-head screwdriver into the slot, and pry out the deactivation Stop.



- Slide the switch to the farthest left end to deactivate the alarm. The switch moves in one direction only, and cannot be moved back. Once the alarm is deactivated, the sealed lithium batteries will be fully discharged and the alarm will no longer work.



- Alarm is permanently deactivated when switch is moved to left past **STOP** and mounting hole is closed

14. DESCRIPTION OF AUDIBLE AND VISUAL SIGNALS

Condition	LCD Readout	LEDs	Horn
CO alarm is operational	Displays  continuously	Green LED flashes once every 60 seconds	Silent
CO gas alarm	Displays current CO reading in PPM	ALARM red LED flashes 4 times in synchronous with horn	Beeps 4 times, pauses for 5 seconds. Repeats this pattern for first 5 minutes. Then pause time increases to 60 seconds.
Mute CO alarm audible signal	Displays  for 5 seconds	ALARM red LED flashes 4 times	Silent
CO gas alarm in Silent mode	Displays current CO level in PPM	Green LED flashes once every 60 seconds	Silent for 5 minutes
Testing alarm	Displays current CO level detected	ALARM signals are same as CO gas alarm condition, and Green LED blinks once when testing complete	Beeps 4 times, pauses for 5 seconds, then beeps 4 times again
Display CO Level	Displays current and highest CO levels detected, and duration of peak CO level. Each readout lasts 5 seconds	Green LED blinks once when CO level display is completed	Silent
Clear Peak Memory	Displays 	Green LED blinks once when clear peak memory is completed	Bursts a long beep
Low battery voltage	Displays  symbol	Green LED blinks for 5 seconds every minute	Chirps once per minute
Mute "low battery voltage" audible signal	Displays  for 5 seconds	Green LED blinks for 5 seconds	Silent
Low battery in Silent mode	Displays  symbol	Green LED blinks for 5 seconds every minute	Silent for 24 hrs during the first week
"End-of-Life"	Displays  continuously	SERVICE red LED glows for 3 seconds every minute	Chirps once per minute
Mute "End-of-Life" audible signal	Displays  for 5 seconds	SERVICE red LED glows for 5 seconds, then Green LED blinks once	Silent
"End-of-Life" in Silent mode	Displays  continuously	SERVICE red LED glows for 3 seconds every minute	Silent for 60 hrs during the first month
Service required	Displays  continuously	SERVICE red LED blinks for 5 seconds every minute	Chirps twice (BEEP-BEEP) per minute

15. TEN-YEAR LIMITED WARRANTY

The Defender carbon monoxide alarms are manufactured in Canada under stringent ISO 9001 quality management practices. The manufacturer warrants that, for a period of ten years from the date of purchase, this carbon monoxide alarm will be free from defects in material and workmanship, and the factory sealed lithium batteries will power the CO alarm for ten years. The manufacturer, at its option, will repair or replace this product or any component of the product found to be defective during warranty period. Replacement will be made with a new or re-manufactured product or component.

If the product is no longer available, replacement may be made with a similar product of equal or greater value. This warranty is valid for the original retail or end-user purchaser from the date of initial purchase from an authorized distributor, dealer or contractor, and is not transferable. Keep the original sales receipt. Proof of purchase is required to obtain warranty service. Distributors, dealers or contractors selling Defender products do not have the right to alter, modify or in any way change the terms and conditions of this warranty.

This warranty does not cover normal wear of parts or damage resulting from any of the following: improper storage, negligent use or misuse of the product, use contrary to the operating instructions, operation in unconditioned space (below 40°F or above 100°F), disassembly, or repair or alteration by anyone other than the manufacturer or an authorized service center. Further, the warranty does not cover acts of God, such as fire, flood, earthquakes, hurricanes and tornadoes.

The manufacturer shall not be liable for any incidental or consequential damages caused by the breach of any express or implied warranty. Except to the extent prohibited by applicable law, any implied warranty of merchantability or fitness for a particular purpose is limited in duration to the duration of the above warranty. Some states or jurisdictions do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above limitations or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

Warranty Service:

If service is required, do not return the product to your supplier. Contact our U.S. manufacturer's representative, Don Smith & Associates, Inc. at (800) 253-1529, Monday through Thursday, from 8 AM to 4 PM MST to obtain a Return Authorization (RA) number. To assist in serving you, please have the model number, date of purchase, and manufacturing date available when calling.

Prior to returning, deactivate the alarm per the instructions in Section 13, pack carefully in a padded box, and ship freight prepaid with your original sales receipt, an explanation of the problem, and your return address.



Sales and Customer Service
(800) 253-1529

www.defenderdetectors.com

MADE IN CANADA
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1495 Denison St.
Markham, ON L3R 5H1