



OWNER'S MANUAL

Model 12RV-DB

Carbon Monoxide Alarm

ATTENTION: PLEASE READ, FOLLOW, AND SAVE

Dear New COSTAR® 12RV-DB Owner,

Congratulations as you have taken steps to help insure the health and life safety of you and your family. We are proud to offer you our unique, patented CO Sensor technology that detects CO in a manner similar to the human body's response. The COSTAR® 12RV-DB is an ideal and low-cost way of warning you of both the acute and chronic effects of CO poisoning.

Please read this owner's manual carefully so you will have a better understanding of the effects of CO poisoning and the COSTAR® 12RV-DB Alarm, as we work together pursuing a safer, healthier indoor air quality for us all.

To your good health and safety,

Mark Goldstein, Ph.D.
President
Quantum Group Inc.



WARNING: Failure to replace this product by the "REPLACE BY DATE" printed on the alarm cover may result in death by Carbon Monoxide poisoning. Replace By Date is six (6) years from date of manufacture.

1.0 GENERAL DESCRIPTION

The model 12RV-DB is designed for installation in Recreational Vehicles. Its dual source power input allows for connection to both the house battery and to the engine battery. The design is such that the alarm selects the battery with the highest voltage to draw its power from. The alarm also includes a replaceable 9 volt alkaline backup battery which will power the alarm when the coach batteries are disconnected.

2.0 PRODUCT DATA

- 2.1 Sensitivity Setting: Unit will alarm at 150 ppm CO within 50 minutes
- 2.2 Power: dual source 12 VDC nominal, operating voltage range 10-18 volts,
- 2.3 Backup battery: 9 volt Alkaline DURACELL MN1604
- 2.4 Current Draw Standby 20 µa, alarm 50ma.
- 2.5 Wiring: 18AWG
- 2.6 Operating Temperature: -40 F to 100 F (-40C to 37.8 C)
- 2.7 Operating Humidity: 15-95% RH
- 2.8 Horn (Sounder) Loudness: 85 db @ 10 ft (3.3 meters)



3.0 APPROVALS

Listed by Underwriters Laboratories to UL standard 2034 and CSA 6.19-01

4.0 WHAT YOU SHOULD KNOW ABOUT CO

Carbon monoxide (CO) is an insidious poison. It is a colorless, odorless and 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 may be related to CARBON MONOXIDE POISONING and should be discussed with ALL members of the household:

MILD EXPOSURE:

Headaches, running nose, sore eyes, nausea, vomiting, fatigue (often described as "flu"-like symptoms)

MEDIUM EXPOSURE:

Severe throbbing headache, dizziness, drowsiness, confusion, fast heart rate;

EXTREME EXPOSURE:

Unconsciousness, convulsions, brain damage, cardio respiratory failure, death.

Many cases of reported CARBON MONOXIDE 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 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 fuel burning appliances (e.g. space heater, furnace, water heater, range, oven, clothes dryer), or other sources of combustion (e.g. kerosene-burning stove or heater or gas log fireplace) or internal combustion engines (e.g. automobile exhaust). Furthermore, installation of this device is not a substitute for proper installation, use, and maintenance of fuel-burning appliances, including appropriate ventilation and exhaust systems. This carbon monoxide alarming device is designed to detect carbon monoxide gas from ANY source of combustion. It is NOT designed to detect smoke, fire, or any other gases.

CAUTION: This alarm will only indicate the presence of carbon monoxide gas at the 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 commercial or industrial standards, such as Occupational Safety and Health Administration (OSHA). This device is designed to protect individuals from the acute effects of carbon monoxide exposure. It will not fully safeguard individuals with specific medical conditions. Individuals with medical problems may consider using warning devices which provide audible and visual signals for carbon monoxide concentrations under 30 ppm. If in doubt, consult a medical practitioner.

5.0 WHAT YOU SHOULD DO IF THE ALARM SOUNDS



WARNING: Actuation of your CO alarm indicates the presence of carbon monoxide (CO), which can KILL YOU. If alarm signal sounds (flashing red light and pulsating horn):

* For users in the United States, follow the protocol in steps 1 through 4 below:

1. Operate reset/silence button;
2. Call your emergency services (____ - _____) [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 reenter the premises nor move away from the open door/window until 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 repair technician (____ - _____) to investigate the 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 manufacturer's instructions, or contact the manufacturers directly, for more information about CO safety and this equipment. Make sure motor vehicles are not, and have not been, operating in an attached garage or adjacent to the residence.

* For users in Canada, follow the protocol in steps 1 and 2 below:

1. Immediately move to fresh air – outdoors or by an open door or window. 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;
2. Call your emergency services (____ - _____) [fire department or 911]; If "service" signal sounds (red light flashes and horn beeps every 30 seconds); contact the manufacturer Quantum Group, Inc. Customer Service: 1-800-432-5599 for troubleshooting and/or instructions to return the unit:

5.1 Important Considerations

The alarm will automatically sense when the level of CO in the air falls below the danger level. You should stay outside the vehicle 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.



WARNING: TEST DEVICE OPERATION AFTER VEHICLE HAS BEEN IN STORAGE, BEFORE EACH TRIP, AND AT LEAST ONCE PER WEEK DURING USE

6.0 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 natural gas leaks or explosions. The ultimate responsibility for protection against toxic CO gas 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.

6.1 Install CO alarms properly following the instructions in this manual

6.2 Develop a family escape plan and practice it with your entire family, especially small children.

- Draw a floor plan of your RV and find two ways to exit. There should be one way to get out of your RV without opening the door.
- Make sure that all occupants know what the CO alarm signal means and how they must be prepared to leave the RV by themselves if necessary.
- Decide on a meeting place a safe distance from your RV and make sure all occupants 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, know what to do in order to escape safely.
- Know where to go to call the Fire Department from outside your RV.

7.0 IMPORTANT: WHAT YOUR CO ALARM CAN AND CANNOT DO

- 7.1 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.
- 7.2 NOTE: This CO alarm is designed for use within a single recreational vehicle. The alarm may not provide early warning for occupants if it is placed outside of the recreational vehicle, such as on outside porches.
- 7.3 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 RV 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 Owner's Manual.



WARNING: The COSTAR® Model 12RV-DB CO Alarm is not designed for marine use.

8.0 INSTALLING THE COSTAR® 12RV-DB ALARM FOR RECREATIONAL VEHICLE USE



Figure 1: Suggested Mounting Locations for RVs ●

- 8.1 Recommend mounting locations. 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 correct installation of CO alarms.
- 8.2 Put a CO alarm in a central location inside the vehicle, near sleeping areas. A closed door can block particulate smoke but CO gas is likely to get through.
- 8.3 This CO alarm may be mounted on the wall or ceiling.
- 8.4 WALL LOCATION: Mount alarm at least 3 feet (usually 5-6 feet) from the floor.
- 8.5 CEILING LOCATION: Alarm should be mounted as close as possible to the center of a hallway or room. If this is not the edge of the alarm should be at least 4 inches from any wall.
- 8.6 LOCATIONS TO AVOID
 - 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 detectors at least 5 feet (1.5 meters) away from bathrooms
 - Locations where normal ambient temperatures are not met. Normal ambient temperature limits are 40°F to 100°F (4.4°C to 37.8°C)
 - Accommodation spaces should be well ventilated when household cleaning supplies or similar contaminant's are stored or used.
- 8.7 CONDITIONS WHICH CAN RESULT IN TEMPORARY CO SITUATIONS:
 - 8.7.1 Excessive spillage or reverse venting of fuel burning appliances caused by:
 - i) Outdoor ambient conditions, such as wind direction and/or velocity, including high gusts of wind, and insufficient draft 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) Loose vent pipe connections from fuel-fired appliances such as clothes dryers, furnaces, or water heaters;
 - v) Obstructions, or unconventional vent pipe designs that can amplify the above situations;
 - vi) Poorly designed or maintained chimneys and/or vents;
 - 8.7.2 Extended operation of unvented fuel-burning devices (range, oven, fireplace, etc.);
 - 8.7.3 Temperature inversions that can trap exhaust gasses near the ground; and
 - 8.7.4 RV, truck or car idling in an open or closed attached garage, or near a home.

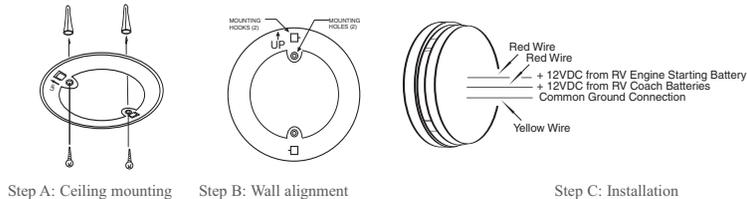
9.0 INSTALLATION INSTRUCTIONS: CAUTION!! READ CAREFULLY

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

9.1 Select proper location

9.2 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 "OFF" arrow on the alarm cover.

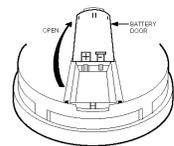
9.3 To insure aesthetic alignment of the alarm with the hallway or wall, the UP ARROW on the mounting plate must be: A) Parallel with the hallway walls when ceiling mounting B) Pointed upward when wall mounting. C) (See steps A & B in figure 2)



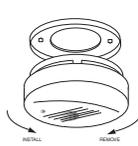
Step A: Ceiling mounting

Step B: Wall alignment

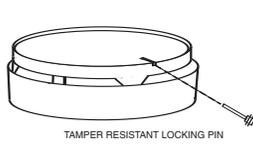
Step C: Installation



Step D Battery Installation



Step E Installation/Removal



Step F. Locking Pin installation

Figure 2: Installation Instructions

9.4 As described in Figures 1-2, attach the mounting plate on the wall or ceiling. Be sure the "UP FOR WALL MOUNTING" text and arrow are facing up. Use the screws and anchors provided to secure the mounting plate. Follow applicable codes and regulations for wiring. Disconnect power before installation or service. Connect Red Wires to 12 Volt DC power sources. Connect Yellow Wire to Ground

9.5 The battery is INSTALLED REVERSED FOR SHIPPING. Remove and reinstall the battery in the correct orientation as noted on the inside of the battery door. When installing the battery, align the "+" and "-" terminals on the correct contacts. The alarm will beep once indicating proper battery installation.

WARNING: BATTERY IS REQUIRED FOR ALARM OPERATION AND DETECTION OF CARBON MONOXIDE. IF NO BATTERY IS INSTALLED, THE BATTERY DOOR WILL NOT CLOSE EASILY AND THE UNIT WILL NOT ATTACH TO THE MOUNTING BRACKET.

9.6 Attach the alarm to the mounting plate. Twist the alarm in the direction indicated by the "ON" arrow on the alarm cover (see step E) until it locks in place.

9.7 To make your carbon monoxide alarm tamper resistant, a locking pin has been provided in the bag with the screws and anchors. 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 the alarm has been installed on the mounting plate (see Step F). Using long nose pliers pull the pin out of the hole; it is now possible to remove the alarm from the mounting plate. Test alarm immediately following installation and weekly thereafter for proper operation by pushing the test button until a short beep is heard (approximately three seconds). Release the button. The alarm will then test itself for proper operation and the RED L.E.D. will flash 5 times. At completion of the self-test, the alarm will sound 2 patterns. The alarm then resumes normal operation.

9.8 This box contains two self-adhesive labels. You should write the telephone numbers of the emergency service provider and a qualified technician in the space provided in the labels. Place one label next to the alarm, and the other label near a source of fresh air where you plan to gather after the alarm indicates the presence of carbon monoxide.

10.0 ALARM SIGNALS

10.1 NORMAL OPERATION RED LED flashes once every 30 seconds, indicating that the alarm is powered and active.

10.2 ALARM CONDITION RED LED turns "on" for 2 seconds and "off" for 4 seconds with a repetitive sound pattern of 4 short beeps for 1 second and 5 seconds of silence. Pushing and holding the test/reset button for 3 seconds will silence the alarm for about 4 minutes. After 4 minutes, the alarm will once again sound until the unsafe CO concentration is reduced.

10.3 TROUBLE/SERVICE CONDITION The detector self-tests every 10 minutes. The detector will beep and the Indicator/Test button will flash once every 30 seconds if a fault is detected. This is an indication of a malfunction and that the detector requires immediate servicing.

10.4 LOW BATTERY One chirp every 30 seconds for a minimum of (7) days. Replace battery when this signal occurs

11.0 MAINTENANCE CLEANING YOUR ALARM:

11.1 To clean your alarm remove it from the mounting bracket as outlined in Section 9.2, 9.7 and 9.8.

11.2 Disconnect power before cleaning your alarm

11.3 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: Do not use any household cleaning agents, paints, varnishes or any other chemical on your 12RV-DB alarm

11.4 The outside can be wiped with a clean towel

11.5 After cleaning, reconnect power, reinstall your alarm and test your alarm by using the TEST button. Test your alarms weekly and replace them when they no longer function. As with any electronic product, it has a limited life. Alarms that do not work cannot warn you. **NOTE: REGULAR TESTING IS RECOMMENDED**

12.0 BATTERY REPLACEMENT

IF TAMPER RESISTANT PIN HAS BEEN USED, REFER TO STEP 9.8 UNDER INSTALLATION INSTRUCTIONS FOR REMOVAL INSTRUCTIONS. (See Step F)

12.1 To replace the battery remove the alarm from the mounting plate by rotating the alarm in the direction of the "OFF" arrow on the cover. (See Figure 2, Step E).

12.2 Open battery door as shown in Figure 2 Step F Battery replacement, remove old battery and replace with new one. Close battery door and re-attached alarm as shown in Figure 2 Step D: Installation/Removal.

WARNING BATTERY IS REQUIRED FOR ALARM OPERATION AND DETECTION OF CARBON MONOXIDE. IF NO BATTERY IS INSTALLED, THE BATTERY DOOR WILL NOT CLOSE EASILY AND THE UNIT WILL NOT ATTACH TO THE MOUNTING BRACKET.

12.3 The COSTAR[®] Model 12RV-DB CO Alarm uses one (1) 9 volt alkaline battery. A fresh battery should last for one year under normal operating conditions. They can be purchased anywhere batteries are sold, such as your local hardware store.

12.4 USE ONLY THE FOLLOWING 9 VOLT BATTERY FOR CO ALARM REPLACEMENT.
9 volt alkaline DURACELL MN1604



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

MANUFACTURERS SPECIFICATIONS FOR PROPER OPERATING CONDITIONS. Note: Most batteries are not rated below -20°C or above 54°C

13.0 PERIODIC ALARM TESTING Test the alarm weekly for proper operation by pushing the test button until a short beep is heard (approximately threeseconds). Release the button. The alarm will then test itself for proper operation and the RED L.E.D. light will flash 4-6 times. At completion of the self-test, the alarm will sound 2 patterns. The alarm then resumes normal operation.

14.0 SERVICE AND WARRANTY If after reviewing this manual you feel that your CO Alarm is defective in any way, do not tamper with the unit. Before returning your device, call Quantum Group's customer service line at 1-800-432-5599 to receive a return merchandise authorization (RMA) number. Once an RMA number has been issued, return product along with a note describing the problem and send it to:



QUANTUM GROUP INC.

7737 Kenamar Court, San Diego, CA 92121-2425

Or call us toll free 1-800-432-5599 E-mail address: CustomerService@QGinc.com

**LIMITED WARRANTYCOSTAR[®]
Model 12RV-DB**

Quantum Group Inc. offers you this limited warranty on your new carbon monoxide alarm, including all of its component parts. This limited warranty extends solely to the original end-user purchaser of this product, provided your purchase was made from an authorized vendor. Transfer or resale of this product will automatically terminate warranty coverage.

Quantum Group Inc. warrants the enclosed carbon monoxide alarm to be free from defects in materials and workmanship under authorized use and service, as specified in the owner's manual, for a period of six (6) years from the date of manufacture. During the initial two (2) year period commencing with the date of manufacture, any repair or replacement shall be made without charge. During the latter four (4) years of the warranty period, any repair or replacement shall be made at a charge to the purchaser not to exceed the manufacturer's cost of repair or replacement. All replaced items become the property of Quantum Group Inc.

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This limited warranty does not cover: (1) 9 volt alkaline battery; (2) products which have been improperly installed, repaired, maintained, modified, or which have been subjected to misuse, abuse, accident, neglect, exposure to fire, water, or excessive changes in climate or temperature, or combined with non-Quantum Group Inc.-approved accessories; (3) physical damage caused from use other than normal and proper operation or handling, as specified in the owner's manual; (4) cosmetic damage; (5) products on which warranty stickers or product serial numbers have been removed, altered, or rendered illegible; (6) the cost of installation, removal or reinstallation.

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