



CO & Propane Gas Alarm for RVs

RVCOLP-2 and RVCOLP-3

Propane Gas Alarm for RVs

RVLP-2 and RVLP-3

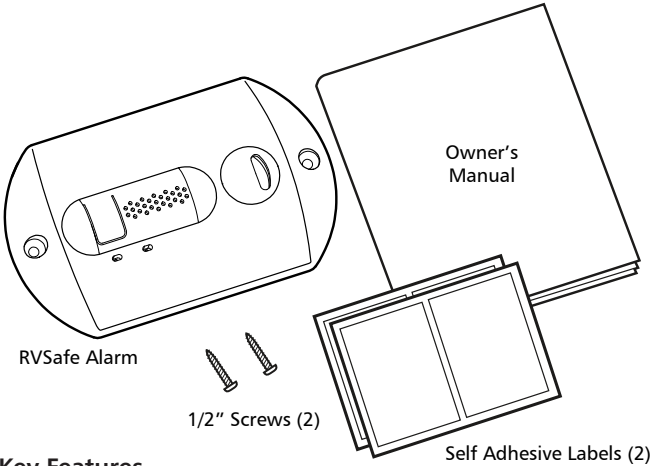


Owner’s Manual

Please Read this Entire Manual Before Using the RV Safe Alarm



Contents of Your Kit
Please make sure the following is included with your RV Safe Alarm:



Key Features

- The latest electro-chemical CO sensing technology
- Fast response to CO and propane gas exposure
- Bright LEDs to easily demonstrate the alarm’s status
- Multi-function button to allow for testing and silencing of unwanted triggering
- 85dB horn to notify occupants of CO and propane gas
- Low power draw (17mA typical)
- Low profile design
- Contoured shape to deflect accidental bumps
- Sleek and modern design

General Warnings

Carbon monoxide (CO) gases and propane, or liquefied petroleum (LP) can be dangerous. Propane is commonly used in recreational vehicles, and early detection of propane leaks can help prevent dangerous conditions. Carbon monoxide can also accumulate with improper ventilation or with malfunctioning appliances.

⚠ CAUTION Do not cover or obstruct RV Safe with anything that could prevent gas from entering the alarm.

RV Safe will only detect CO and propane gas present at the sensor. Gases may be present in other areas.

⚠ WARNING This alarm has not been designed to detect smoke, fire, or gases other than carbon monoxide and propane.

This product is intended for use in recreational vehicles (RVs) only. It is not designed to measure compliance with Occupational Safety and Health Administration (OSHA) commercial or industrial standards.

⚠ WARNING Test alarm operation after vehicle has been in storage, before each trip, and at least once per week during use.

Warnings About Carbon Monoxide Gas

This carbon monoxide alarm is designed to detect carbon monoxide and propane gas from ANY source of combustion. It is NOT designed to detect smoke or any other gases.

Understanding the Dangers of CO Gas Poisoning

The following are the symptoms of carbon monoxide poisoning and need to be discussed with all occupants of the vehicle:

- 1) **Mild Exposure:** Slight headache, nausea, vomiting, fatigue (“flu-like” symptoms).
- 2) **Medium Exposure:** Severe throbbing headache, drowsiness, confusion, fast heart rate.
- 3) **Extreme Exposure:** Unconsciousness, convulsions, cardiorespiratory failure, brain damage, and 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. Young children and household pets are typically the first affected.

If you experience ANY symptoms of CO poisoning, consult your physician.

Potential Problem Sources of CO Gas

The sources of carbon monoxide gas can be very difficult to locate due to the odorless, colorless nature of the gas, especially after the RV has been aired-out prior to the investigator’s arrival. Look closely at the following:

- 1) Car idling nearby.
- 2) Motorhome or generator exhaust entering RV.
- 3) Excessive spillage or reverse venting of fuel-burning appliances.
 - 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 connection vibrating loose from clothes dryer, furnace, or water heater.
 - Obstructions or unconventional vent pipe designs which amplify the above situations.
- 4) Extended operation of unvented fuel-burning devices (range, oven, fireplace, etc.).
- 5) Temperature inversions which can trap exhaust gases near the ground.
- 6) Poorly designed or maintained vents.

Understanding the Dangers of Propane Gas

Liquefied petroleum (LP) gas is commonly called propane and is used as fuel for heating and cooking appliances, especially for RVs.

Propane gas is explosive at the lower-explosive-limit (LEL), which is 21,000 parts per million (ppm). RV Safe will alarm at 10% LEL, or 2,100 ppm.

Propane gas is denser than air, and will usually accumulate close to the floor. Therefore, RV Safe should be placed near the floor in order to quickly detect propane gas leaks.

Alarm Features and Functions

RV Safe includes an 85dB audible horn, two LEDs, and a Silence/Test button. The chart below summarizes the alarm outputs in each state.

State	Green LED	Red LED	Audible Horn
Normal Operation	ON	OFF	OFF
Power Off	OFF	OFF	OFF
Self Test	OFF	ON/Flashing	4 chirps constant beeps
CO Alarm (RVCOLP models only)	OFF	Flashing	4 chirps
Propane Alarm	OFF	ON	Constant beeps
Alarm Silenced (5 Minutes Max.)	OFF	Flash each second	OFF
Low Battery	Flash each minute	Flash each minute	Chirp each minute
End-of-Life or Other Failure	OFF	Double flash each minute	Chirp each minute

Normal Operation State

The green power LED is ON when the alarm is functioning normally and no CO or propane gas is present. Press the Silence/Test button to perform a self test and enter the Test State.

Note: Supply current will remain higher for 30 seconds after power-up. Alarm will not detect CO or Propane for the first 30 seconds and will draw extra current.

Power Off State

If no LEDs are on, then the alarm is powered off. Apply power to the alarm to resume normal operation.

Self Test State

If the Silence/Test button is pressed while in normal operation, the alarm will perform a self test of the CO sensor, propane sensor and battery voltage. It is recommended to perform a self test weekly, after power up from storage, and before each trip. If the self test passes, the alarm will perform 2 cycles of the CO horn pattern (4 rapid chirps followed by a 4 second pause), followed by 2 cycles of the propane horn pattern (constantly beeping). Refer to the Troubleshooting Guide for possible Self Test failures on page 7.

CO Alarm State (RVCOLP models only)

If CO gas reaches unsafe levels, the alarm will enter CO alarm state. The horn will sound with 4 rapid chirps followed by a 4 second pause and the red LED will flash rapidly. Open windows and doors and turn off appliances. Move to fresh air and call 911. The alarm may be silenced for 5 minutes by pressing the Silence/Test button. Contact a qualified RV technician to diagnose possible causes of CO.

Propane Alarm State

If propane gas exceeds 10% of the lower-explosive-limit for more than 30 seconds, the alarm will enter propane alarm state. The horn will sound with constant beeps and the red LED will be on. Immediately turn off all propane appliances and gas valve at the propane tanks. Open doors and windows to properly ventilate the RV. Check for any gas leaks and contact a qualified RV technician to diagnose possible propane leaks. The alarm may be silenced for 5 minutes by pressing the Silence/Test button.

Alarm Silenced State

A CO alarm or propane alarm can be silenced for up to 5 minutes by pressing the Silence/Test button. The red LED will flash each second while the alarm is silenced. The original alarm state will resume after 5 minutes if the CO or propane levels still exceed safe levels.

Low Battery State

If the supply voltage drops below 8VDC, the alarm will enter Low Battery State. The horn will chirp every minute and both LEDs will flash every minute. Alarm performance cannot be guaranteed as the supply voltage drops below the low battery threshold. Charge or replace the RV battery immediately. **DO NOT DISCONNECT THE ALARM.**

End-of-Life or other Failure State

If the CO or propane alarm fails a self test, or if the End-of-Life is reached (after 5 years of operation), the alarm will enter the Failure State. The horn will chirp every minute and both LEDs will do a double flash every minute. Replace the alarm immediately.

Specifications

Supply Voltage Thresholds	8 to 15 VDC (13.5V nominal)
Supply Current (Max)	70 mA at 13.5V / 95mA at 8V
Supply Current (Typical)	17 mA at 13.5V
Operating Temperature	-40°F to 150°F (-40°C to 66°C)
Humidity	15% to 90%
CO Detection Thresholds (RVCOLP models only)	70 ppm for 60 to 120 minutes 150 ppm for 10 to 30 minutes 400 ppm for 4 to 15 minutes
LP Detection Threshold	4200 ppm (<20% LEL)
Audible Indicator	85 dB at 10 feet (Minimum)
Alarm Lifetime	5 years (powered operation)
Standards (All models) (RVCOLP models only)	Conforms to RV Standards for: UL1484 UL2034 and complies with CSA 6.19.01
Warranty	1 Year
Weight	1.3 oz
Dimensions	4.21”x 2.61”x 0.57” (10.7 cm x 6.6 cm x 1.4 cm)

Note: Supply current will remain higher for 30 seconds after power-up. Alarm will not detect CO or Propane for the first 30 seconds.

⚠ WARNING Activation of your CO alarm indicates the presence of carbon monoxide (CO) which can KILL YOU.

If alarm horn sounds with a 4-chirp pattern (Model RVCOLP-2 and RVCOLP-3 only):

- 1) Press the Silence/Test button.
- 2) Call your Local Emergency Services number or 911.

Fill in your local Fire Department number here.

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 or move away from the open door/window until the emergency services responders arrive, the premises have been aired out, and your alarm returns to its normal state.

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 at () _____ to investigate for sources of CO and LP from fuel burning equipment and appliances, and inspect for proper operation of this equipment. If problems are identified during this inspection, have 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 and LP safety and this equipment. Make sure that motor vehicles are not and have not been operating in an enclosed area near the RV.

Note: This alarm was shipped with two (2) self-adhesive warning labels. Add the telephone numbers of your emergency service provider and that of a qualified technician in spaces provided. Place one label next to the alarm, and the other label near a source of fresh air where your family plans to gather if the alarm indicates the presence of carbon monoxide or propane gas.

⚠ WARNING Activation of this device indicates the presence of propane gas, which can cause an explosion and/or fire. This normally indicates a leak in the propane gas pipes or a propane gas appliance.

If alarm horn sounds with constant beeps:

- 1) Evacuate everyone from the RV.
- 2) Shut off propane gas supply at propane tanks or supply.
- 3) Do not touch any electrical switch in or near the RV.
- 4) Do not start vehicle’s engine or generator.
- 5) Contact a qualified RV or gas technician for repairs.
- 6) If you cannot reach a gas supplier or qualified Service Technician, contact the local fire department.
- 7) Do not turn on gas supply until the leak has been repaired.

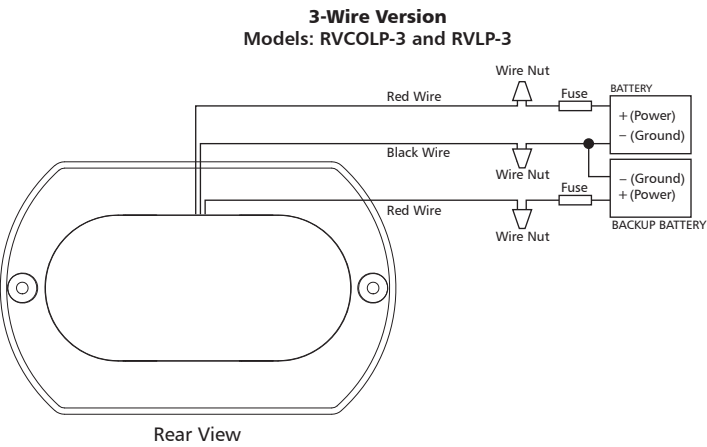
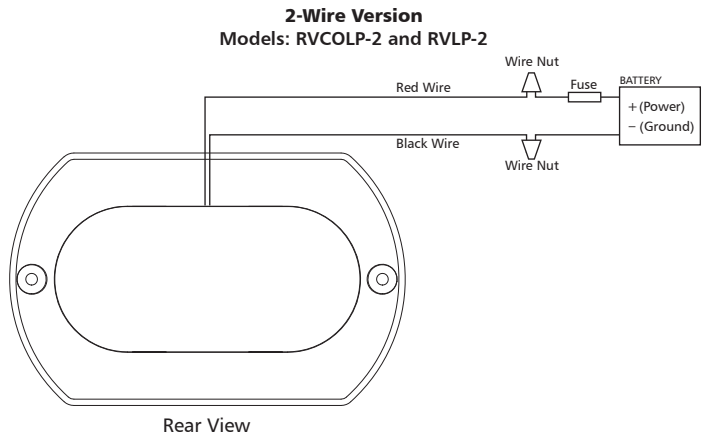
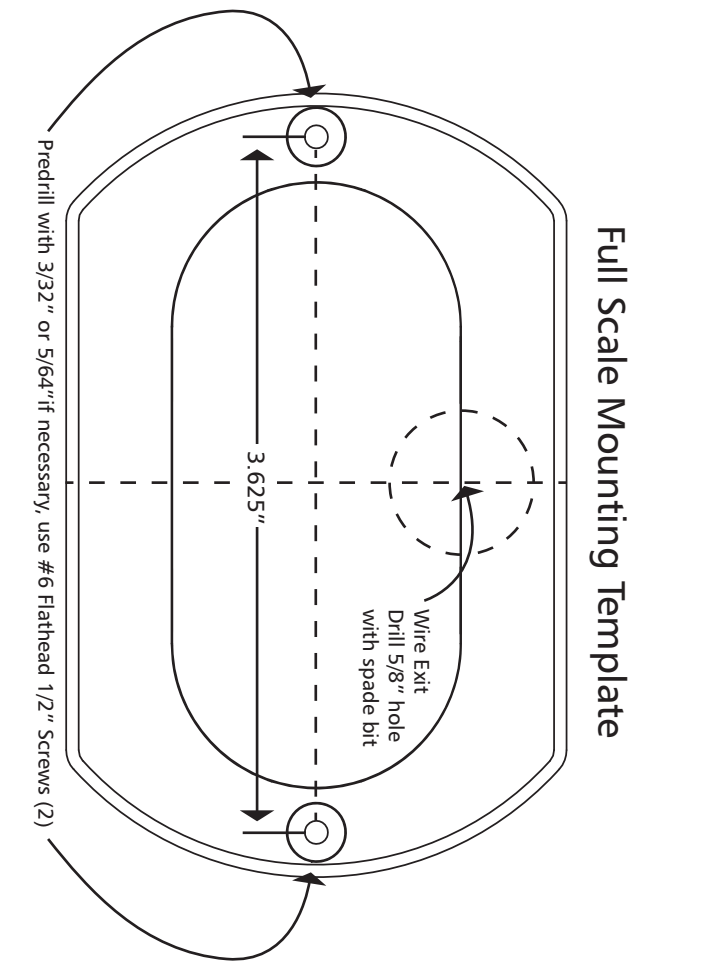
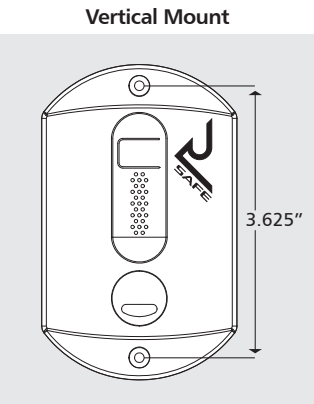
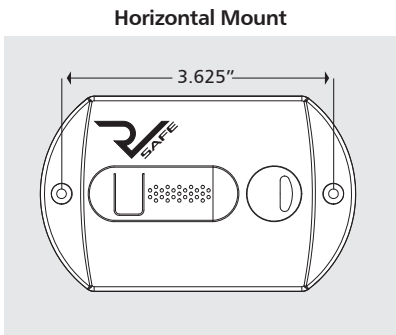
Installing Your RV Safe Alarm

**WARNING** Do not install in a power line controlled by a wall switch or GFI circuit.

Connecting Power
Disconnect power until installation is completed to avoid shorting. RV Safe should be powered from the RV’s 12VDC system connected to a properly fused circuit. Connect the red and black wires to the RV battery using an appropriate fuse (recommend using a 1A Min., 15A Max. fuse). 3-wire models of RV Safe should connect the second red wire to an auxiliary 12VDC battery (such as the engine battery).

- Location — DO INSTALL**
- In the kitchen area near potential gas leaks such as a stove, oven, refrigerator, or furnace.
 - Within 4”-18” (10cm-46cm) of the floor. Propane is heavier than air and will settle near the floor. CO gas is approximately the same density as air, and will mix evenly.
 - Where alarm vents are unobstructed to airflow; away from furniture, curtains, and out of closets.
- Location — DO NOT INSTALL**
- Within 12” (30cm) of opening windows, exterior doors, fans, vents, or areas with a draft.
 - On an exterior wall.
 - Within 24” (61cm) of any cooking appliance.
 - Behind furniture, drapes, in closets or areas that will block gas flow to alarm.
 - On a wall switch controlled by a power line, ground fault circuit or to a circuit breaker.

- Mounting**
RV Safe should be mounted on a wall or panel of the RV.
1. Ensure there is clearance for the wires and mounting screws behind the wall or panel.
 2. Drill a 5/8” (16mm) hole for the wires and wire nuts to exit the alarm through the wall. Note that this hole is NOT the center of the alarm.
 3. Disconnect power from the 12VDC system being connected.
 4. Connect the wires of the alarm to the corresponding wires of the 12VDC system using wire nuts. The black wire of the alarm should be connected to ground, and the red wire connected to 12VDC power. 3-wire models should connect the second red wire to 12VDC power of an auxiliary battery (such as the engine battery).
 5. Route the power wires and wire nuts of the alarm through the hole.
 6. Screw alarm to wall.



Conditions That Could Adversely Affect Your Alarm

- Water or splashes
- Excessive dust or grease
- Cleaning supplies, chemical sprays, and perfume products
- Do not paint the alarm. Paint can block air flow to the sensor
- Silicone adhesives including hair sprays
- Corrosive liquids such as acids
- Alkaline base metals, like salt spray
- Exposure to water (spray or condensation)
- High concentrations of Hydrogen
- Closed interior doors or other obstructions blocking gasses from reaching the alarm

**WARNING** Failure to follow these instructions may result in failure of the alarm and will void the warranty

- Maintaining Your Alarm**
- Verify proper alarm function by pressing the Silence/Test button after storage, before every use and once per week during extended use.
 - Vacuum the alarm with a soft brush attachment to remove dust monthly.

Troubleshooting Guide
Please refer to the alarm states chart and description on page 3 for most common issues. Use the chart below to diagnose any self test failure:

Result	Alarm Output	Action
CO or Propane Failure or End-of-Life	Long beep with red LED blinking	Replace alarm
Low Battery	Long beep with red and green LED on solid	Charge or replace RV battery

WARNING! Limitations of CO and Propane Gas Alarms
CO and propane alarms have been proven to be both effective and reliable, but they may not be effective under all conditions. No alarm/sensor design can offer total protection of life and property. A CO and/or propane alarm is not a substitute for an adequate homeowner's property insurance or life insurance policy.

WARNING - This product is intended for use in ordinary indoor locations of recreational vehicles (RVs). It is not designed to measure compliance with Occupational Safety and Health Administration (OSHA) commercial or industrial standards.

CO and propane alarms will not work without a source of power. The alarm will not operate nor sound if the power source is low or disconnected.

CAUTION - This CO alarm will only indicate the presence of carbon monoxide gas near the sensor. Carbon monoxide gas may be present in other areas of the RV.

Alarm warning signals may not be heard. A deep sleeper, hearing-impaired person, young child or someone impaired by drugs or alcohol may not awaken in response to a alarm activation. This can occur even when an alarm is located inside the individual's bedroom. Make sure emergency exit drills are practiced that take this possibility into account.

CO sensors may not always activate and provide early enough warning. A CO sensor will only activate when it is maintained in working order and sufficient amounts of CO gas reaches the unit.

If the RV will be used in areas where external CO sources such as portable generators or idling vehicles might be present, it is recommend that the RV's owner install additional CO alarms in the RV.

Individuals with medical problems may consider using warning devices which provide audible and visual signals for carbon monoxide concentrations under 30 ppm.

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. If in doubt, consult a medical practitioner.

WARNING - The installation of CO alarms should not be used as a substitute for proper installation, use, and maintenance of fuel-burning appliances, including appropriate ventilation and exhaust systems.

CO ALARMS CANNOT GUARANTEE THAT YOU WILL NEVER SUFFER ANY ILLNESS OR INJURY FROM EXPOSURE TO CARBON MONOXIDE GAS.

Limited Warranty

For a period of 12 months from the date of purchase, RV Safe LLC warrants to you, the original purchaser, that your RV Safe alarm will be free from defects in workmanship, materials, and construction under normal use and service. If a defect in workmanship, materials, or construction should cause your RV Safe alarm to become inoperable within the warranty period, RV Safe LLC will furnish you with a new or rebuilt replacement alarm without charge to you except for your costs of shipping the alarm to RV Safe LLC for warranty coverage. Your repaired or replacement RV Safe alarm will be returned to you without charge and will be covered under this warranty for the balance of the warranty period.

This warranty will not apply if inspection of your RV Safe alarm shows that the damage or failure was caused by abuse, misuse, abnormal usage, faulty installation, improper maintenance, or work other than that performed by authorized service personnel.

Any warranties implied under any State law, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to the period of this limited warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. RV Safe LLC will not be liable for any loss, damage, incidental or consequential damages of any kind arising in connection with the sale, use, operation, inoperability, malfunction, or repair of your RV Safe alarm. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

- Replacement**
Replace 5 years after install.
- Do not disconnect until new alarm is ready to install.
- Date of Installation: _____
- Replacement Date: _____
- Note:** The replacement date that appears on the device is the date beyond which the device may no longer detect carbon monoxide accurately and should be immediately replaced.

Alarm Returns
For replacement under terms of this Warranty, contact customer service at: **CustomerService@RVSafeAlarm.com** or at **www.RVSafeAlarm.com/CustomerService**

If a defect in workmanship, materials, or construction should cause your RV Safe alarm to become inoperable within the warranty period, to obtain warranty coverage you must ship the alarm to RV Safe LLC, with shipping costs prepaid by you. You must also pack the RV Safe alarm to minimize the risk of it being damaged in transit. You must also enclose a return address. RV Safe alarms returned for warranty service should be sent to: RV Safe LLC - Returns Dept, 11441 Markon Dr., Garden Grove, CA 92841, accompanied by proof of purchase.

If RV Safe LLC receives an alarm in a damaged condition as the result of shipping, you will be notified and you may need to file a claim with the shipper.

This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This is your copy of the Limited Warranty on your RV Safe alarm. Please retain it, along with proof of purchase showing the date of purchase and the identity of the purchaser, in a safe place.