

***FireAngel***<sup>®</sup>

**User Manual**

**CARBON MONOXIDE**  
**POISONOUS GAS ALARM**

CO-9B



EN 50291-1: 2010  
EN 50291-2: 2010  
KM 551504

CO-9B  
GN3475 / R1



A Sprue Brand

**Sprue Safety Products Ltd.**

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**Note:** This user manual is also available in large text and other formats. Please call **0800 141 2561** for further information.

## FEATURES

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- An advanced electrochemical sensor designed to accurately measure low levels of carbon monoxide (CO) providing an early warning of toxic CO levels in your home.
- Detects carbon monoxide continuously.
- Resistant to false alarms caused by normal household contaminants.
- Sounds a loud 85dB alarm (at 1metre (3 feet)) to alert you in case of an emergency.
- Test/Reset button.
- Regular self-check to ensure detector is operating correctly.
- Simple to mount, portable, ideal for travelling.
- Certified to the European Carbon Monoxide Alarm Standard EN 50291-1: 2010 and EN 50291-2: 2010.
- 7 year warranty.
- End of life indication.

## CARBON MONOXIDE AND HOW IT CAN AFFECT YOU AND YOUR FAMILY

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Carbon monoxide is a dangerous, poisonous gas that kills hundreds of people each year and injures many more. It is often referred to as the silent killer because it has no odour or taste and

cannot be seen. Like oxygen, CO enters the body through the lungs during the normal breathing process. It competes with oxygen by replacing it in the red blood cells, thereby reducing the flow of oxygen to the heart, brain and other vital organs. In high concentrations, CO can kill in minutes.

Many cases of reported carbon monoxide poisoning indicate that while victims are aware they are not feeling well, they become disorientated and unable to save themselves by either exiting the building or calling for assistance. Exposure during sleep is particularly dangerous because the victim usually does not wake up.

### Symptoms of CO poisoning

The following symptoms may be related to CO poisoning which all household members should be made aware of:

- 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.

Your CO detector monitors the level of CO as parts per million (ppm) in the atmosphere surrounding the detector.

35ppm    The maximum allowable concentration for continuous

exposure for healthy adults in any 8 hour period, as recommended by the Occupational Safety and Health Administration (OSHA).

- 200ppm Slight headache, fatigue, dizziness, nausea after 2 - 3 hours.
- 400ppm Frontal headaches within 1 - 2 hours, life threatening after 3 hours.
- 800ppm Dizziness, nausea and convulsions within 45 minutes. Unconsciousness within 2 hours. Death within 2 - 3 hours.

Should you suspect CO may be affecting you or your family, open the doors and windows of your property to ventilate, turn off your appliances and evacuate the premises. At this time the authorities should be contacted to locate the source of the carbon monoxide before re-entering the building. Medical attention should be sought for anyone suffering the effects of CO poisoning.

### **Common sources of CO**

- Oil and gas boilers
- Portable generators
- Oil or solid fuel cookers
- Gas or paraffin heaters
- Barbecues
- Clogged chimneys
- Wood or gas fireplaces
- Cigarette smoke

- Gas appliances
- Any fossil fuel-burning appliance

**WARNING:** This carbon monoxide detector is not a combustible gas detector, nor a smoke detector. Please install the proper detectors to detect combustible gases, or smoke.

This CO detector should not be seen as a substitute for the proper installation, use and maintenance of fuel-burning appliances (including appropriate ventilation and exhaust systems), nor the sweeping of chimneys.

**WARNING:** Variables relating to your fuel-burning appliances can change at any point eg. the flue or chimney could suddenly become blocked or damaged, appliances may stop running correctly or circumstances in neighbouring properties may change resulting in the presence of carbon monoxide. For this and other reasons do not use this carbon monoxide detector on an intermittent basis, or as a portable detector for trying to trace one source of the spillage of combustion products from fuel-burning appliances or from chimneys.

### **Do not:**

- **IGNORE ANY WARNING FROM YOUR CO DETECTOR!**
- Burn charcoal inside your home, caravan, tent or cabin.

- Install, convert or service fuel-burning appliances without proper knowledge, skill and expertise.
- Use a gas cooker for heating a room.
- Operate unvented gas burning appliances using paraffin or natural gas in closed rooms.
- Operate petrol-powered engines indoors or in confined areas.
- Barbecue indoors, or in an attached garage.
- Ignore a safety device when it shuts an appliance off.

### **Always:**

- Buy appliances accepted by a recognised testing laboratory.
- Install appliances according to the manufacturer's instructions.
- Have appliance installations carried out by professionals (for gas appliances engineers should be registered on the Gas Safe register).
- Have your appliances checked regularly by a qualified service engineer.
- Have your chimneys and flues cleaned professionally every year.
- Make regular visual inspections of all fuel-burning appliances.
- Open windows when a fireplace or oil/solid fuel cooker is in use.
- Only install CO detectors that meet the requirements of EN 50291-1: 2010 and EN 50291-2: 2010 in your home
- Be aware of CO poisoning symptoms.

- Educate yourself and your family on the sources and symptoms of CO poisoning and how to use your carbon monoxide detector.

## **WHERE TO INSTALL YOUR DETECTOR**



This CO alarm is suitable for use in domestic premises

(caravan holiday homes), caravans, motor caravans and boats.

The following advice is applicable to all intended applications, there are special instructions at the end of this section relating to positioning in caravan holiday homes, caravans, motor caravans and boats.

**WARNING:** This detector will only indicate the presence of carbon monoxide gas at the sensor. Carbon monoxide gas may be present in other areas.

### **In which room should the detector be installed?**

Ideally, an apparatus should be installed in every room containing a fuel-burning appliance. Additional apparatus may be installed to ensure that adequate warning is given for occupants in other rooms, by locating apparatus in:

- Remote rooms in which the occupant(s) spend considerable time whilst awake and from which they may not be able to hear an alarm from apparatus in

another part of the premises, and;

- Every sleeping room.

However, if there is a fuel-burning appliance in more than one room and the number of apparatus is limited, the following points should be considered when deciding where best to put the apparatus:

- Locate the apparatus in a room containing a flueless or open-flued appliance, and;
- Locate apparatus in a room where the occupant(s) spend most time.
- If the domestic premises is a bedsit (a single room serving as both sitting and bedroom) then the apparatus should be put as far from the cooking appliances as possible but near to where the person sleeps.
- If the appliance is in a room not normally used (for example a boiler room), the apparatus should be put just outside the room so that the alarm may be heard more easily. Alternatively, a remote alarm siren may be connected to a type A apparatus located in a room(s) containing a fuel-burning appliance.

### **Where in the room should I place the detector?**

Apparatus located in the same room as a fuel-burning appliance, for both wall and ceiling mounted apparatus the following applies:

- a. The apparatus should be at a horizontal distance of between 1m and 3m from the potential source.
- b. If there is a partition in a room, the apparatus should be located on the same side of the partition as the potential source.
- c. Carbon monoxide detectors in rooms with sloped ceilings should be located at the high side of the room.

In addition to the above the following must be observed if the apparatus is located on a wall:

- a. It should be located close to the ceiling;
- b. It should be located at a height greater than the height of any door or window;
- c. It should be at least 150mm from the ceiling.

If the apparatus is located on the ceiling it should be at least 300mm from any wall and any ceiling obstruction e.g. light fittings.

Apparatus located in sleeping rooms or located in rooms remote from the fuel-burning appliance should be located relatively close to the breathing zone of the occupants.

### **Caravans and boats**

Caravans and boats may have additional risks of carbon monoxide ingress through air vents due to the nearby presence of other vehicles, engines, generators or barbecues, however this does not change the basic guidance on location of the

alarm. Caravans and boats should be fitted with an alarm in the same room as any combustion appliance(s), located in accordance with previous advice in this section. If the caravan has a single living space which incorporates the sleeping accommodation, it can be considered to be equivalent to a bedsit, and a single alarm is sufficient. However, any sleeping accommodation which is in a separate room from the combustion appliance(s) should also contain an alarm, located in accordance with previous advice in this section.

It is not always possible to find an optimum location for an apparatus, for example, a small caravan may not have suitable vertical surfaces available. Nevertheless, when fitting an apparatus in such situations, the two most important considerations when selecting an appropriate location are:

- Not mounting the apparatus directly above a source of heat or steam; and
- Mounting the apparatus at a distance of 1 – 3 m from the nearest edge of the potential source.

## HOW TO INSTALL YOUR DETECTOR

**NOTE:** This apparatus should be installed by a competent person who feels able to install it according to the instructions.

Firstly write the installation date on your detector in the area provided. We recommend that your detector is installed on the wall.

### To mount on a wall or ceiling:

Please ensure that you use the screws provided, as they were chosen specifically for use with this product. Use the template provided for guidance on marking hole positions. Drill holes into the wall. Insert the plastic wall plugs. Screw in the screws. Ensure screws are protruding from the wall by 3mm to allow detector to slot onto screws.

### To place on a shelf:

The base of the detector has been designed to allow it to stand freely on a shelf.

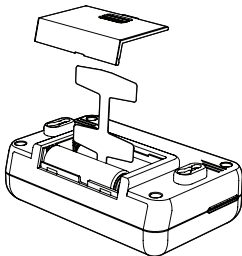
**WARNING:** When placing on a shelf, please adhere to the same positional recommendations as described above.



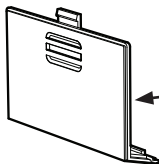
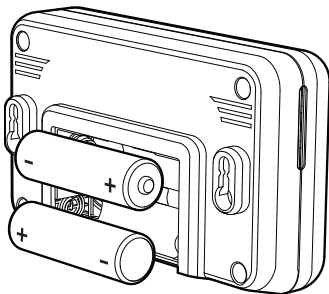


## BATTERY INSTALLATION/ REPLACEMENT

To activate your alarm you will need to remove the battery cover, and pull the disabling tab out of the product. If you need to deactivate your alarm reinsert the tab or remove the batteries.



- a** If the detector is already wall or ceiling mounted then unhook it from the mounting screws.
- b** Remove the battery cover located on the back of the detector.
- c** Replace the batteries with 2 x approved 1.5 volt AA size alkaline batteries (see page 16 for recommended batteries), making sure the batteries are the correct way round. Use of batteries other than those recommended by Sprue Safety Products Ltd may have a detrimental effect on the detector's operation. Replace the battery cover and return the detector to its original position.



Press ridged area in and slide door out to reveal battery compartment

- d** Your advanced detector requires a short 'warm-up' period before it is fully operational.  
If you have followed all of the above steps correctly, your unit will begin monitoring for CO in around 3 minutes. When the 3 minute warm-up period is complete, the Power LED will flash green once per minute to indicate that the alarm is receiving power from the batteries and is fully operational.
- e** Test the sounder, batteries and circuitry by pressing and holding the Test/Reset button for 1 second. The sounder should sound as soon as the button is pressed,

and the Alarm LED will illuminate red for a short time indicating that the sounder is working and the batteries are providing power to the unit. This test for the sounder, batteries and circuitry should be performed weekly.

**WARNING:** Prolonged exposure to the sounder in close proximity to your ears may damage your hearing.

Under normal operating conditions, the batteries should last for at least 12 months.

The detector will not protect against the risk of carbon monoxide poisoning when the batteries have drained.

**WARNING:** Prolonged exposure to extreme high or low temperatures may reduce the life of the batteries.

## **OPERATING FEATURES**

Your detector offers many features which set it apart from other CO detectors on the market today.

### **Test/Reset button feature**

- Test the sounder, batteries and circuitry.
- Allow you to test the sensor by introducing a source of CO into the detector (see 'Testing the sensor' below).
- Silence the loud 85dB sounder during an alarm (only possible when current CO level is less than 50ppm).

### **Testing the sounder, batteries and circuitry**

Test the sounder, batteries and circuitry by pressing and holding the Test/Reset button for 1 second to confirm that the detector is operating properly. The sounder should sound as soon as the button is pressed, and the Alarm LED will illuminate red, indicating that the sounder is working and the batteries are providing power to the unit. This test for the sounder, batteries and circuitry should be performed weekly.

### **Testing the sensor**

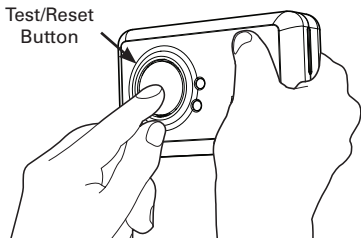
**CAUTION:** Sensor testing should only be performed by a responsible adult. This test should only be performed once a year. Excessive testing will cause the life of the alarm to be shortened.

**NOTE:** Aerosol CO may be used in order to avoid having to burn incense sticks.

Read all steps thoroughly before attempting to test your the sensor.

**Step 1** If the detector is wall or ceiling mounted unhook the detector from the screws.

**Step 2**



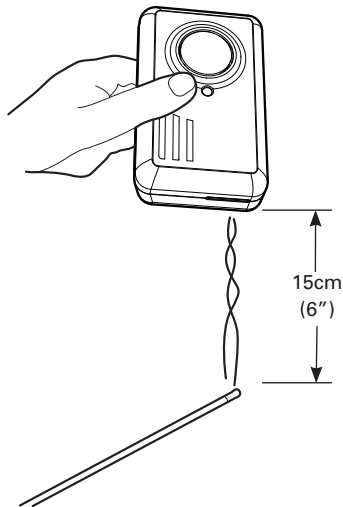
Cover the sounder vents with one hand. Press and hold the Test/Reset button down with your thumb/finger until the Power LED illuminates green and the sounder sounds for a second time (this should happen after around 5 seconds). Release the Test/Reset button. Upon releasing the Test/Reset button the Power LED will flash green once every second. This indicates that the sampling rate of the detector has increased and can be tested using a known source of CO.

**Step 3**

Light an incense stick using a match or lighter. Be sure to blow out the flame so that the incense stick is smouldering. Extinguish the lighter, or put

out the match and place it into a dish of water.

**Step 4**



Turn the detector on its side so that the vents on the right hand side of the detector are pointing downwards (see diagram opposite). Hold the burning incense stick around 15cm (6 inches) below the detector, so that the smoke enters the vents on the side of the detector. An increase in the localised carbon monoxide

# UNDERSTANDING THE PRODUCT'S INDICATORS

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level within the sensor to more than 50ppm will cause the sounder to sound for one cycle of four loud beeps and the Power LED to illuminate green for a short time. This is the end of the test. The Power LED will no longer flash green every second but will revert to flashing once every minute as the detector will go back to normal operating mode (It may take up to two minutes of exposure to the smoke for the localised level of carbon monoxide within the sensor to reach over 50ppm). Now move the source of CO away from the detector as the test is finished.

**Step 5** After step 4, put out the incense stick by placing it into a dish of water. Ensure that all flames have been extinguished.

**NOTE:** If the localised carbon monoxide level within the sensor does not reach 50ppm during the test, the sensor test will stop automatically after 3 minutes.

The higher the concentration of carbon monoxide detected by the detector, the quicker it will respond. When sufficient carbon monoxide is detected a loud audible signal (85 dB at 1m/3 feet) will be emitted and the Alarm LED will flash red once every second.

### **The alarm will sound:**

- Between 60 and 90 minutes when exposed to 50ppm of CO.
- Between 10 and 40 minutes when exposed to 100ppm of CO.
- Within 3 minutes when exposed to 300ppm or more of CO.

### **Fault / End of Life signal:**

The unit continuously checks the settings of its sensor and circuitry. If any of these settings are found to be incorrect or if the batteries become low then the detector will emit a single audible chirp once per minute for up to 30 days. **IMPORTANT:** This does NOT mean that the detector has detected carbon monoxide.

Replace batteries immediately. If the product continues to chirp despite having new batteries and the product is still within warranty then contact Technical Support for advice. If the product is no longer in warranty replace it immediately!

# MAINTAINING / TESTING YOUR DETECTOR

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Your detector will alert you to potentially hazardous CO concentrations in your home when maintained properly. To maintain your detector in proper working order, and to ensure that the sensor will last for the lifetime of the product, it is recommended that you:

- Test the sounder, batteries and circuitry of your detector once per week by pressing and holding the Test/Reset button for 1 second.
- Perform the sensor test annually.
- Keep the detector free of dust by gently vacuuming the case with a soft brush attachment every 3 months.

To prevent the possibility of contaminating the sensor in your detector and thus affecting its reliability:

- Never use cleaning solutions on your detector. Simply wipe with a slightly damp cloth.
- Do not paint the detector.
- Do not spray aerosols on or near the detector.
- Do not use any solvent based products near the detector.
- If installing in a caravan or boat there maybe other substances present, that may not normally be found in the home, that could affect the reliability of the CO

alarm. Avoid using the following in close proximity to the alarm; oils, cleaning fluids, polishes, paints and greases.

- Do not attempt to repair your CO detector. Do not remove any screws or open the main casing of your detector. Any attempt to do so may cause malfunction and will invalidate the warranty.

## WHAT TO DO IN THE EVENT OF AN ALARM

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**WARNING:** A loud alarm is a warning that unusually high and potentially lethal levels of carbon monoxide are present. Never ignore this alarm, further exposure can be fatal. Immediately check residents for symptoms of carbon monoxide poisoning, and contact the proper authorities to resolve all CO problems. **NEVER IGNORE ANY ALARM.**

### What to do during an alarm:

- Keep calm and open the doors and windows to ventilate the property.
- Stop using all fuel-burning appliances and ensure, if possible, that they are turned off.
- Evacuate the property leaving the doors and windows open.
- Ring your gas or other fuel supplier on their emergency number; keep the number in a prominent place.

Write your fuel supplier's emergency number here:

- Do not re-enter the property until the alarm has stopped. When exposed to fresh air it can take up to 10 minutes for the sensor to clear and the alarm to stop depending on the level of carbon monoxide detected.
- Get medical help immediately for anyone suffering the effects of carbon monoxide poisoning (headache, nausea), and advise that carbon monoxide poisoning is suspected.
- Do not use the appliance again until it has been checked by an expert. In the case of gas appliances the engineer must be registered on the Gas Safe register.

## TECHNICAL INFORMATION

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**Detector Specifications:** Model CO-9B

**Sensor Type:** Electrochemical

**Sensor Life:** 7 Years

**Alarm Sound Level:** 85dB at 1m/3 feet

**Recommended Batteries:** Size AA Alkaline, Duracell LR6, Energizer, LR6, Gold Peak 15A

**Battery Life:** Exceeds 1 year under normal operating conditions, replaceable

**Temperature Range:**-10°C (14°F) to 40°C (104°F)

**Operating Humidity Range:** 30 - 90% RH

**Weight (inc. batteries):** 125 grams (4.4oz)

**Certified to:** EN 50291-1,2: 2010

This carbon monoxide alarm is designed to continuously monitor for CO. Its response times meet the requirements of the European standard EN 50291-1: 2010 and EN 50291-2: 2010.

**WARNING:** Apparatus conforming to this standard may not protect people who are at special risk from carbon monoxide exposure by reason of age, pregnancy or medical condition. If in doubt, consult your doctor.

A carbon monoxide detector is not substitute for a smoke alarm or a combustible gas detector.

Replace unit after 7 years of operation.

## DISPOSAL

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Waste electrical products should not be disposed of with regular household waste. Please recycle where facilities exist. Check with your local authority, retailer or Technical Support for recycling/disposal advice as regional variations apply.

The batteries should be removed before disposal of the detector. Both the batteries and the detector should be disposed of in line with current regulations.

**WARNING:** DO NOT ATTEMPT TO OPEN - DO NOT BURN.

# WARRANTY

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## **Warranty coverage**

Sprue Safety Products Ltd warrants to the original purchaser that its enclosed sealed carbon monoxide detector be free from defects in materials and workmanship under normal residential use and service for a period of 7 (seven) years from the date of purchase.

Provided product is sent back to Sprue Safety products with proof and date of purchase, Sprue Safety Products Ltd hereby warrants that during the 7 (seven) year period commencing from the date of purchase Sprue Safety Products Ltd, at its discretion, agrees to replace the unit free of charge. The warranty on any replacement FireAngel CO-9B Carbon Monoxide Poisonous Gas Alarm will last for the remainder of the period of the original warranty in respect of the detector originally purchased – that is from the date of original purchase and not from the date of receipt of the replacement product. Sprue Safety Products Ltd reserves the right to offer an alternative product similar to that being replaced if the original model is no longer available or in stock. This warranty applies to the original retail purchaser from the date of original retail purchase and is not transferable. **Proof of purchase is required.**

## **Warranty disclaimers**

This warranty does not cover damage resulting from accident, misuse, disassembly, abuse or lack of reasonable care of the product, or applications not in accordance with the user manual. It does not cover events and conditions outside of Sprue Safety Products Ltd's control, such as Acts of God (fire, severe weather etc). It does not apply to retail stores, service centres or any distributors or agents. Sprue Safety Products Ltd will not recognise any changes to this warranty by third parties. Sprue Safety Products Ltd shall not be liable for any incidental or consequential damages caused by the breach of any expressed 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 7 (seven) years.

This warranty does not affect your statutory rights. Except for death or personal injury, Sprue Safety Products Ltd shall not be liable for any loss of use, damage, cost or expense relating to this product or for any indirect, or consequential loss, damages or costs incurred by you or any other user of this product.

The warranty does not cover the batteries which are considered user-replaceable parts.

