FORENSICS DETECTORS

CAR, VEHICLE & AIRCRAFT CO DETECTOR

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MODEL: FD-CAR002

WARNING

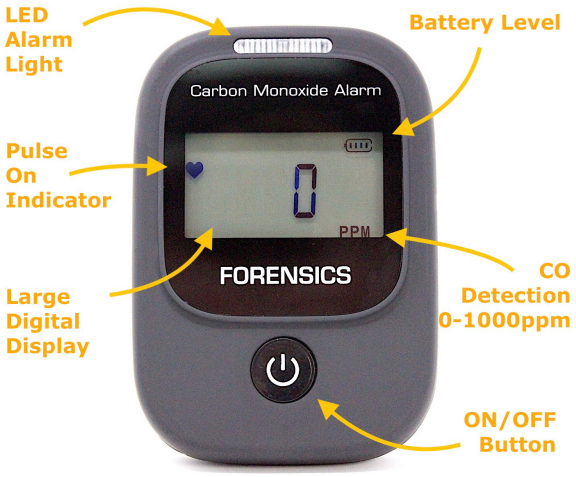
- PRODUCT **DOES NOT** COMPLY WITH UL2034
- **REPLACE** THIS PRODUCT ONCE DATE HAS EXCEEDED **END OF LIFE** DATE (see detector back)
- KEEP DETECTOR **AWAY** FROM ELECTROMAGNETC & MAGNETIC INTERFERENCES
- **DO NOT** EXPOSE PRODUCT TO HARSH ENVIRONMENTS nor CLEANING AGENTS
- PLACE **AWAY** FROM DIRECT SUNLIGHT
- ENSURE SENSOR HOLE IS **NEVER BLOCKED**
- CO ALARMING INDICATES PRESENCE OF CARBON MONOXIDE WHICH MAY KILL YOU
- IF UNIT ALARMS **TAKE PRECAUTIONS** AND SEEK CLEAN AIR. IF UNWELL, SEEK MEDICAL ATTENTION.
- IF UNIT ALARMS, REMEDY CO LEAKAGE ISSUES
- **DO NOT** ATTEMPT TO OPEN THE ALARM UNIT
- ENSURE DETECTOR IN **LINE OF SIGHT** FOR VISUAL ALARM IN CASE BUZZER ALARM CANNOT BE HEARD
- **DO NOT LEAVE** DETECTOR IN HOT ENVIRONMENT FOR PROLONG PERIODS (>2days)
- **AVOID DIRECT EXHAUST EXPOSURE:** **Visit our YouTube Channel for the proper test procedure.**

INTRODUCTION

You have purchased the original **"FORENSICS"** low level Vehicle & Aircraft CO Gas Alarm, Model: CAR002 (Version 2.0). This product detects carbon monoxide and alarms at low levels. Such alarming is crucial for vehicle and aircraft operators/occupants that may impair hand-eye coordination, create fatigue, dizziness and disorientation. The first LED alarm triggers at 9ppm which aligns with WHO, EPA and ASHRAE, the second alarm (buzzer) triggers at 25ppm which aligns with Cal/OSHA and the third alarm triggers at 50ppm which aligns with OSHA; eight hour recommended CO exposure limits.

OPERATION

ON: Press **POWER** button for 3 seconds. Warm up period will take about 3 minutes with countdown display. Ensure this takes place at room temperature & in fresh air. This process ensures accuracy of the detector.
OFF: Press **POWER** button for 3 seconds.
MAX: Quick press **POWER** button. The **BLUE LED** will turn ON and the display will show the MAX value from period of power-on to present time (memory clears when device off). This is a useful feature just in case you missed the alarm or instantaneous CO digital reading.
DIASABLE: When the detector exceeds 122F, the detector will disable alarm functionality to prevent false readings and will display "- - -". When the temperature falls below 122F, the detector will resume normal operation.



DETECTOR PLACEMENT

Ensure **NOT** in direct sunlight. Ensure display is **VISIBLE**. **DO NOT** mount on air vents. Careful where detector stick-on is mounted to avoid damage when removing (i.e. leather, synthetic leathers and other fragile surfaces).

ALARM SEQUENCE

CO Level	Display	Alarm
0 to **8ppm**	ZERO	NO ALARM
9 to **24ppm**	ppm Level	after 60 seconds LED flash+buzzer
25 to **49ppm**	ppm Level	after 60 seconds fast LED flash+buzzer
> 50ppm	ppm Level	Immediate rapid LED flash+buzzer

SPECIFICATIONS

Size: 71 x 49 x 18 mm (2.8 x 1.9 x 0.7 inches)
Weight: 50g (1.8oz)
Sensor: electrochemical sensor, Made in Japan
Battery: 2 x CR2032
Battery life: 6-8 months on standby, shorter if alarms
BLUE/RED LED: max level indicator/CO alarm indicator
Buzzer: sound alarm, 70dB at 1meter
Working temperature: -10°C to 50°C (14°F to 122°F)
Working humidity: 15%—90%RH
CO Detection Range: 9ppm to 999ppm
Resolution: 1ppm with 0.5 secs averaging & refresh rate
CO Accuracy: ±10% of CO reading
Lifetime: see detector back for END OF LIFE Date Sticker

Support Contact

WEB: www.forensicsdetectors.com
Email: sarah@forensicsdetectors.com

Please visit www.forensicsdetectors.com to order additional supplies.
Product Designed in California, USA.Product Tested, QA/QC in California, USA. Product Packaged in California, USA. Product Made in China

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FREQUENTLY ASKED QUESTIONS

Why Carbon Monoxide Detectors for Vehicles?

Carbon monoxide (CO) gas can pose a serious risk if it enters or leaks into your vehicle. CO can enter your vehicle through various leakage pathways, and it's typically produced by the combustion engine of your vehicle. That's why we suggest using a portable CO detector designed for vehicles that can sound an alarm at 9 ppm.

Why Carbon Monoxide Detectors for Aircraft?

Carbon monoxide can infiltrate confined aircraft spaces due to exhaust system failures or heat exchanger cracks. A Carbon Monoxide Detector for Airplane is the only way to alert the pilot to take corrective action. Aircraft occupants aren't aware of its presence until major symptoms have developed. CO can impede a pilot's flying ability and even have fatal consequences. The problem will creep up slowly as CO accumulates within the cabin where the pilot has no way of perceiving it.

Are There Any FAA Requirements for Carbon Monoxide Detector for Airplanes?

The FAA standard for CO in an aircraft cabin is no more than 1 part in 20,000 parts (or 50 ppm) as mentioned in 14 CFR Part 23, Airworthiness Standards, Section 831, Ventilation, 1999.
However, there are currently no requirements to monitor CO in the cabin or have a CO detector in the cabin.
The NTSB does recommend ***"installing electrochemical CO detectors with aural and visual alerts in the cockpit".***

Can I take my Gas Detector on the Plane?

Yes. All gas detectors we sell can be taken on a plane and OK with the FAA.

How do I Store My Gas Detector?

The optimal storage conditions for gas detectors are at a temperature between 50F to 72F and a relative humidity between 40 - 60%. This means that it should not be subjected to excessively cold or hot temperatures. Store it away from any chemicals, avoid volatiles and particularly acids or bases, and in a clean dust free environment.

What Are Dangerous Levels of Carbon Monoxide in My Vehicle?

No standards for CO have been decided for the air within your vehicle. It can get confusing since various agencies and organizations have different recommended exposure levels. There are some guidelines that can be extrapolated for personal safety. Below is a table that summarizes the carbon monoxide exposure:

WORLD HEALTH ORGANIZATION (WHO)
9 ppm average over 8 hours
ENVIRONMENTAL PROTECTION AGENCY (EPA)
9 ppm average over 8 hours
THE AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)
9 ppm average over 8 hours
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)
35 ppm average over 10 hours
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
50 ppm average over 8 hours
AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)
25 ppm average over 8 hours
CO DETECTOR ALARMING PROTOCOL (Home CO Alarms) UL2034 (USA)
> 70 ppm (60 to 240 minutes)
> 200 ppm (10 to 50 minutes)
> 400 ppm (4 to 15 minutes)
FORENSICS LOW LEVEL CO DETECTOR ALARM ALGORITHM
> 25 ppm (60 secs)

Can you Test a Carbon Monoxide Detector with Car Exhaust?

No. Using vehicle exhaust gas as a source of gas for testing your gas detector is not recommended. Firstly, the concentration of carbon monoxide and other gases in exhaust gas is not constant and can vary depending on several factors such as engine tuning, engine temperature, exhaust volume, engine load, catalyst age, and more. This makes it an unreliable source for testing your gas detector's functionality. Secondly, exhaust gas contains a large amount of humidity and is expelled at high temperatures, which can damage the gas sensor and give a false reading. The high temperature and humidity can also cause moisture to condense on the sensor, further affecting its accuracy. Lastly, exhaust gas contains acidic gas components such as NO2, which can cancel out the real CO sensor output. **Visit our YouTube Channel for the proper test procedure.**

Can I Breathe on my Gas Detector?

No. If you happen to exhale onto a gas detector, you may observe a reaction from the device. We frequently receive calls from customers who are perplexed by this occurrence. The reason for this is that the sensor is being exposed to high humidity and temperature, which can cause it to read erroneous data. While breathing on the sensor will not damage it, it will produce inaccurate readings due to the excessive humidity in our breath, which exceeds the acceptable limits of the gas detector. Therefore, it is recommended that you avoid breathing on the gas sensor to prevent receiving false data.