TOXIN SENSORS

User's Guide

CM-2010
Carbon Monoxide
Detector

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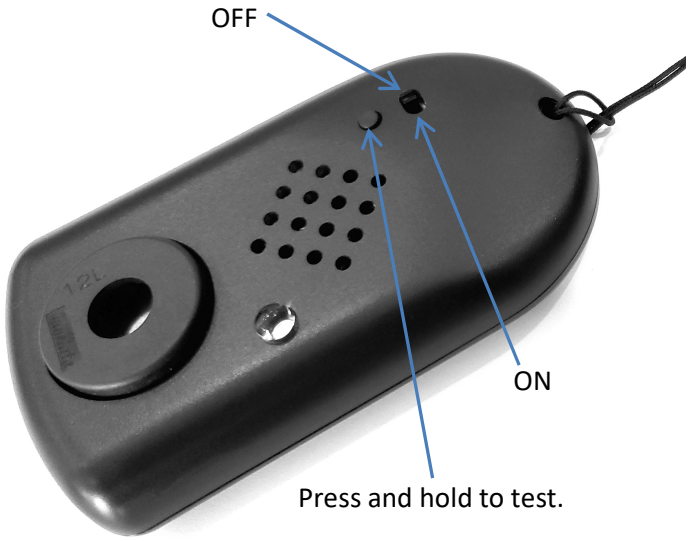
toxinsensors.com



We recommend the CM-2010 be left ON continuously. Under normal operating conditions the battery will last up to 5 years. When the battery needs replacing the alarm will give a quick chirp and flash every minute. You can also check the battery by **holding** the test button (up to 4 seconds may be necessary). The alarm will not flash and sound if the battery needs replacing.

When needed the CR2032 battery can be replaced by opening the enclosure. Gently pry it open on the side with your thumb nails (no need to remove the lanyard). If using a hard object wrap it with a piece of cloth to prevent cosmetic damage to the enclosure. Push the old battery out of its holder with a small object. Insert the new CR2032 battery with the + side upwards.

The CM-2010 shall be placed near you; mounted to a sun visor in a car, on the lanyard around your neck, on the nightstand near your bed, or similar location. If you purchased the lanyard version, attach as shown in the picture.

If the CM-2010 alarms take action to identify and eliminate the source of carbon monoxide. If necessary remove yourself from the area. Note the number of long beeps; the situation becomes more urgent with increased carbon monoxide levels. (See the back side of these instructions for exposure limits.)

Alarm levels:

- 25 to 99 ppm, industry standard T4 signal for carbon monoxide. 4 fast beeps/flashes followed by a 5 second pause. Repeats until the carbon monoxide levels are below 25 ppm.
- 100 to 199 ppm, T4 plus 1 long beep.
- 200 to 299 ppm, T4 plus 2 long beeps.
- 300 to 399 ppm, T4 plus 3 long beeps.
- ≥400 ppm, T4 plus 4 long beeps.

Functional testing may be performed but is not necessary. Place the CM-2010 approximately 2 feet from the exhaust of a cold started gasoline engine, depending on the carbon monoxide level it will alarm after several seconds, remove it from the exhaust immediately after it starts to alarm. Note: small engines like in lawn mowers, edges, and snow blowers are ideal for this testing. Modern cars have sophisticated emissions systems that are effective at reducing carbon monoxide once fully warmed up.

The sensor has a 10 year life span. **Discard the CM-2010 after 10 years.** The manufacturing date is indicated on the label.

Operating temperature range is 14 to 122°F (-10 to 50°C) continuous, -4 to 140°F (-20 to 60°C) intermittent.
Operating humidity range is 10 to 95% relative humidity (no condensation).

If there is any question as to the cause of an alarm it should be assumed that the alarm is due to dangerous levels of carbon monoxide and the area should be evacuated.

More information about the harmful effects of carbon monoxide can be found at:
https://www.osha.gov/OshDoc/data_General_Facts/carbonmonoxide-factsheet.pdf
https://www.epa.gov/indoor-air-quality-iaq/carbon-monoxides-impact-indoor-air-quality
https://www.cdc.gov/niosh/topics/co-comp/

Warning:
This device is not intended as a residential carbon monoxide detector. Residential carbon monoxide detectors in accordance with UL 2034 purposefully delay their response for hours at low carbon monoxide levels. The CM-2010 has a response time of less than 60 seconds and begins alerting at only 25ppm. Alerting faster and at lower levels allows individuals to know about their exposure and take appropriate actions sooner.

Warranty:
One year from the date of purchase to the original purchaser for defects in materials and workmanship. The product will be replaced or repaired at the discretion of Toxin Sensors. This warranty does not cover damage caused by abuse. For more information contact us at toxinsensors.com.

Carbon Monoxide Exposure Limits

Beeps & Flash	CO Level	
none	0-24 ppm	EPA.gov: Average levels in homes without gas stoves vary from 0.5 to 5 parts per million (ppm). Levels near properly adjusted gas stoves are often 5 to 15 ppm and those near poorly adjusted stoves may be 30 ppm or higher.
fast 4	25 - 99 ppm	The American Conference of Governmental Industrial Hygienists has assigned a threshold limit of 25 ppm for a normal 8-hour workday and a 40-hour workweek.
		The National Institute for Occupational Safety and Health recommends an exposure limit of 35 ppm for 8-hours.
		OSHA standards prohibit worker exposure to more than 50 ppm averaged during an 8-hour time period.
fast 4 + 1 long	100-199 ppm	Headache onset approximately 200 minutes at 100 ppm based on 15% COHb.
fast 4 + 2 long	200-299 ppm	The National Institute for Occupational Safety and Health recommends a ceiling limit of 200 ppm.
		Headache onset approximately 58 minutes at 200 ppm based on 15% COHb.
		Headache and nausea approximately 140 minutes at 200 ppm based on 25% COHb.
fast 4 + 3 long	300-399 ppm	Headache onset approximately 35 minutes at 300 ppm based on 15% COHb.
		Headache and nausea approximately 70 minutes at 300 ppm based on 25% COHb.
		Vomiting approximately 120 minutes at 300 ppm based on 35% COHb.
		Permanent brain damage approximately 240 minutes at 300 ppm based on 45% COHb.
fast 4 + 4 long	400+ ppm	Headache onset approximately 25 minutes at 400 ppm based on 15% COHb.
		Headache and nausea approximately 45 minutes at 400 ppm based on 25% COHb.
		Vomiting approximately 70 minutes at 400 ppm based on 35% COHb.
		Permanent brain damage approximately 110 minutes at 400 ppm based on 45% COHb.
		Death approximately 135 minutes at 400 ppm based on 50% COHb.