

# Carbon monoxide



## Where is it found?

Carbon monoxide (CO) is found in fumes produced any time fuel burns in cars or trucks, small engines, stoves, lanterns, grills, fireplaces, gas ranges, or furnaces.

Improperly ventilated appliances and engines, particularly in a tightly sealed or enclosed space, may allow carbon monoxide to accumulate until dangerous levels.

## Why is it harmful?

CO is an odourless and colorless pollutant. When CO is inhaled into the body, it mixes with the blood avoiding oxygen absorption.

The CO exposure of a person at high concentrations over a certain period of time can cause illness and even death.

## CO cartridge

The carbon monoxide cartridge has a built-in electrochemical sensor with very low electronic noise allowing the measurement from very low concentrations (ppb) up to several ppm. To cover different applications, there are two measurement ranges:

- **Type A:** measures most common concentration range up to 12,000 ppb.
- **Type B:** optimised for a higher range version that can measure up to 500 ppm, not so precise at low concentrations.

This cartridge is very stable over time and, in non- extreme environments, can last several months longer than specified.

Type	Electrochemical	Limit of Detection (LOD) <sup>(7)</sup>	10 ppb <sup>(A)</sup> 0.02 ppm <sup>(B)</sup>
Unit of measurement	$\mu\text{g}/\text{m}^3$ , ppb <sup>(A)</sup> $\text{mg}/\text{m}^3$ , ppm <sup>(B)</sup>	Repeatability <sup>(8)</sup>	20 ppb <sup>(A)</sup> 0.05 ppm <sup>(B)</sup>
Measurement range <sup>(1)</sup>	0 - 12,000 ppb <sup>(A)</sup> 0 - 500 ppm <sup>(B)</sup>	Response time <sup>(9)</sup>	< 30 sec <sup>(A)</sup> < 180 sec <sup>(B)</sup>
Resolution <sup>(2)</sup>	1 ppb <sup>(A)</sup> 0.01 ppm <sup>(B)</sup>	Typical accuracy <sup>(11) (12)</sup>	$\pm 80$ ppb <sup>(A)</sup> $\pm 0.1$ ppm <sup>(B)</sup>
Operating temp. range <sup>(3)</sup>	-30 to 50 °C	Typical precision R <sup>2</sup> <sup>(10)</sup>	> 0.85
Operating RH range <sup>(4)</sup>	0 to 99 %RH	Typical slope <sup>(10)</sup>	0.78 - 1.29
Recommended RH range <sup>(4)</sup>	15 to 90 %RH	Typical intercept (a) <sup>(10)</sup>	-50 ppb $\leq a \leq$ +50 ppb <sup>(A)</sup> -0.1 ppm $\leq a \leq$ +0.1 ppm <sup>(B)</sup>
Operating life <sup>(5)</sup>	> 24 months	DQO - Typical U (exp) <sup>(13)</sup>	< 20%
Guarantee range <sup>(6)</sup>	1,000 ppm	Typical Intra-model variability <sup>(14)</sup>	< 3 ppb <sup>(A)</sup> < 0.05 ppm <sup>(B)</sup>

\* See notes on page 24