

# Nitrogen dioxide



## Where is it found?

The major source of nitrogen dioxide (NO<sub>2</sub>) is combustion of fossil fuels: coal, oil and gas. Most of the NO<sub>2</sub> in cities is derived from motor vehicle's exhausts.

Other sources of NO<sub>2</sub> are petrol and metal refining, electricity generation from coal-fired power stations, other manufacturing industries and food processing.

## Why is it harmful?

NO<sub>2</sub> is a pollutant criterion that contributes to the formation of photochemical smog, which has significant impact on human health and the environment.

Inhalation of NO<sub>2</sub> can cause respiratory tract irritation, exacerbation of chronic respiratory diseases such as asthma and bronchitis, and increased risk of respiratory infections. The result is wheezing, coughing, colds, flu and bronchitis, as well as more frequent and intense asthma attacks.

## NO<sub>2</sub> cartridge

The NO<sub>2</sub> cartridge contains an electrochemical sensor with an embedded O<sub>3</sub> filter, which eliminates the interferences produced by ozone, making the cartridge ideal for measuring the concentrations found in the atmosphere that may vary from very low levels in clean environments to high concentrations in polluted areas of cities or industries.

The new Kunak algorithm corrects the effects of temperature and humidity in this cartridge, significantly mitigating the effect that these sensors suffer from fast humidity transients.

Type	Electrochemical	Limit of Detection (LOD) <sup>(7)</sup>	2 ppb
Unit of measurement	µg/m <sup>3</sup> , ppb	Repeatability <sup>(8)</sup>	4 ppb
Measurement range <sup>(1)</sup>	0 - 5,000 ppb	Response time <sup>(9)</sup>	< 60 sec
Resolution <sup>(2)</sup>	1 ppb	Typical accuracy <sup>(11) (12)</sup>	± 5 ppb
Operating temp. range <sup>(3)</sup>	-30 to 45°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 85 %RH	Typical intercept (a) <sup>(10)</sup>	-4 ppb ≤ a ≤ +4 ppb
Operating life <sup>(5)</sup>	> 24 months	DQO - Typical U(exp) <sup>(13)</sup>	< 25%
Guarantee range <sup>(6)</sup>	20 ppm	Typical Intra-model variability <sup>(14)</sup>	< 1 ppb

\* See notes on page 24