



## Plug & Play Light Solution for NO<sub>x</sub> measurement Monitoring Environmental Pollution

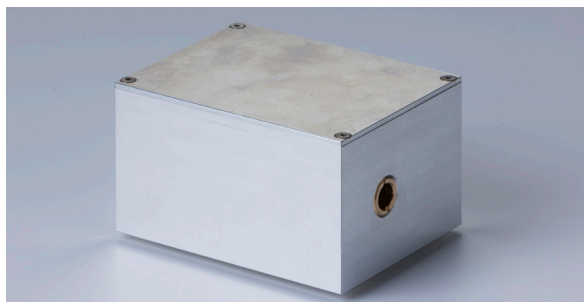
NO<sub>x</sub> is a generic term for the nitrogen oxides NO and NO<sub>2</sub>. It reacts in our atmosphere to form a wide variety of toxic products, as well as supporting the formation of ground-level (tropospheric) ozone. Common methods for measuring NO<sub>x</sub> include sensor technologies based on chemiluminescence and electrochemical techniques. This requires conversion of NO<sub>2</sub> to NO for measurement or calculation of the NO<sub>2</sub> content based on an assumed NO : NO<sub>2</sub> ratio. In addition, NO<sub>x</sub> can be measured with IR and that can be affected by the content of H<sub>2</sub>O and CO<sub>2</sub> in the sample. Direct UV absorption measurement of both NO and NO<sub>2</sub> is the more precise way to measure total NO<sub>x</sub> for continuous emissions monitoring, and measurement in the UV-region avoids the influence of H<sub>2</sub>O and CO<sub>2</sub>.

However, system development based on UV Resonance Absorption Spectroscopy (UV-RAS) has been difficult in the past due to challenges in tuning the UV-lamp operation within its environment to optimize lifetime and intensity.

A NO<sub>x</sub> EDL (electrodeless discharge lamp) is a lamp with N<sub>2</sub>, O<sub>2</sub> gas fill that emits a spectrum in the wavelength range between 200 nm to 600 nm. Spectral lines in the 200 nm region can be used for the detection of NO and NO<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub> and others. Heraeus Noblelight has developed a plug & play light solution for NO<sub>x</sub> Measurement. This NO<sub>x</sub> lamp module offers a pre-tuned UV-light source in a stable environment, for easy integration into OEM UV-RAS systems.

## Plug & Play Light Solution for NO<sub>x</sub> measurement

The Heraeus NO<sub>x</sub> lamp module has an integrated EDL and comes with the corresponding power supply combined in a box. The Nox-Module is designed for direct illumination of the measurement cell, so there is no additional optical connection needed.



### Technical Specifications

Product name	NO <sub>x</sub> Module N01
Ident. No.	80143476
Spectral distribution	200 – 800nm
Window material	fused quartz
Lifetime	> 8.000h
Light Output (irradiance 200-400 nm)	0.1 mW/cm <sup>2</sup> (typical)
Light Output Drift	< 1*10 <sup>-3</sup> /h (typical)
UV risk group	2
Light Output (diameter)	8 mm
Size (L x W x H)	105 x 80 x 57 mm
Power supply Voltage	12 ± 0,05 V
Power consumption (operation)	2 W
Power consumption (ignition)	4 W
Lamp ignition	automatically
Ignition time	< 5 min
Weight	550 g
Operating temperature	0 - 60°C
Relative Humidity	< 90%, non-condensing
Cooling	not required
Electrical connector	Phoenix Buchse MVSTBU 2,5/2-GB-1,08

Information supplied without guarantee

## Applications for NO<sub>x</sub> Module

Sources of NO<sub>x</sub> are predominantly man-made: burning fossil fuels for energy generation, such as coal-,oil- and gas-fired power stations, refuse incineration, some chemical processes and vehicle fuels, like modern diesel cars, used for land, water and air transportation.

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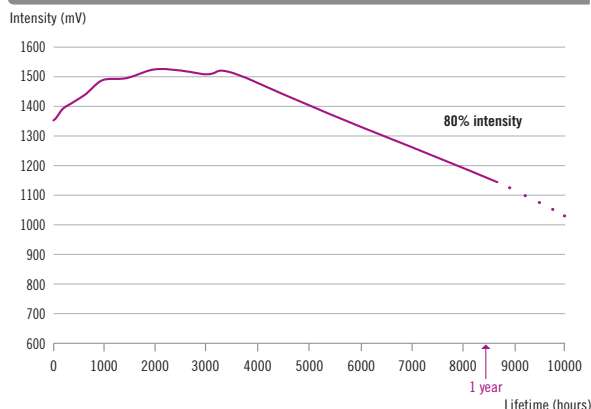
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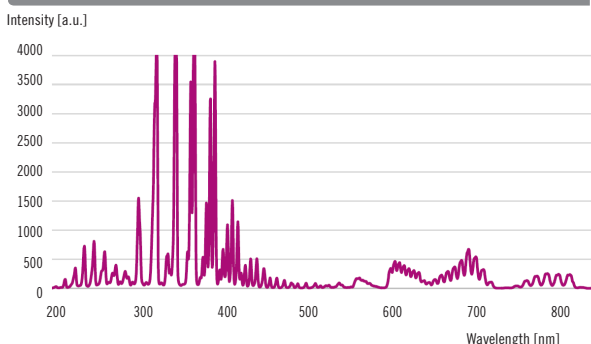
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### Lifetime NO<sub>x</sub> Module



### Spectrum NO<sub>x</sub> Module



## Features and Benefits

- Plug & Play 12 V
- No frequency adjustment
- Simple integration and replacement
- Very accurate – direct analysis and measurement of NO and NO<sub>2</sub> possible
- No crossover of H<sub>2</sub>O, CO and CO<sub>2</sub>
- Long life time of the lamp (1 year plus) for continuous measurement
- Reduced design-in costs – complete plug & play-module for simple system integration
- No consumable costs per measurement

### Application fields:

- Environmental monitoring
- Emission control testing
- Smoke stack monitoring
- Marine exhaust monitoring