

Plug & Play Light Solution for NOx measurement Monitoring Environmental Pollution

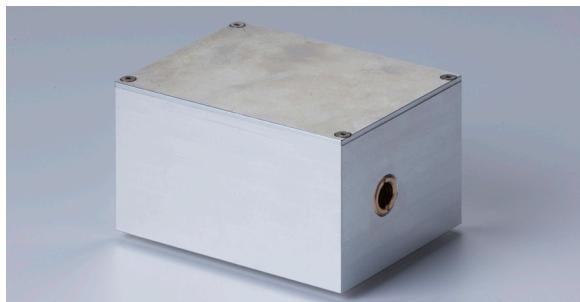
NOx is a generic term for the nitrogen oxides NO and NO₂. It reacts in our atmosphere to form a wide variety of toxic products, as well as supporting the formation of ground-level (tropospheric) ozone. Common methods for measuring NOx include sensor technologies based on chemiluminescence and electrochemical techniques. This requires conversion of NO₂ to NO for measurement or calculation of the NO₂ content based on an assumed NO : NO₂ ratio. In addition, NOx can be measured with IR and that can be affected by the content of H₂O and CO₂ in the sample. Direct UV absorption measurement of both NO and NO₂ is the more precise way to measure total NOx for continuous emissions monitoring, and measurement in the UV-region avoids the influence of H₂O and CO₂.

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 NOx EDL (electrodeless discharge lamp) is a lamp with N₂, O₂ 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 NO₂, H₂S, NH₃, SO₂ and others. Heraeus Noblelight has developed a plug & play light solution for NOx Measurement. This NOx 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 NOx measurement

The Heraeus NOx 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	NOx Module N01
Ident. No.	80143476
Spectral distribution	200 – 800 nm
Window material	fused quartz
Lifetime	> 8.000 h
Light Output (irradiance 200-400 nm)	0.1 mW/cm ² (typical)
Light Output Drift	< 1*10 ⁻³ /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 NOx Module

Sources of NOx 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.

Europe, Middle East, Africa, Rest of World

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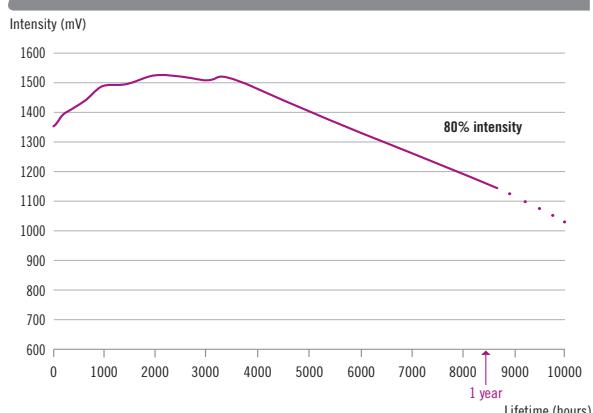
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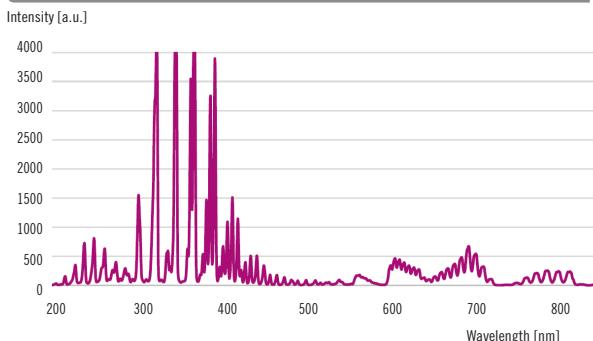
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Lifetime NOx Module



Spectrum NOx Module



Features and Benefits

- Plug & Play 12 V
- No frequency adjustment
- Simple integration and replacement
- Very accurate – direct analysis and measurement of NO and NO₂ possible
- No crossover of H₂O, CO and CO₂
- 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:

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| <ul style="list-style-type: none"> ■ Environmental monitoring ■ Smoke stack monitoring | <ul style="list-style-type: none"> ■ Emission control testing ■ Marine exhaust monitoring |
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