



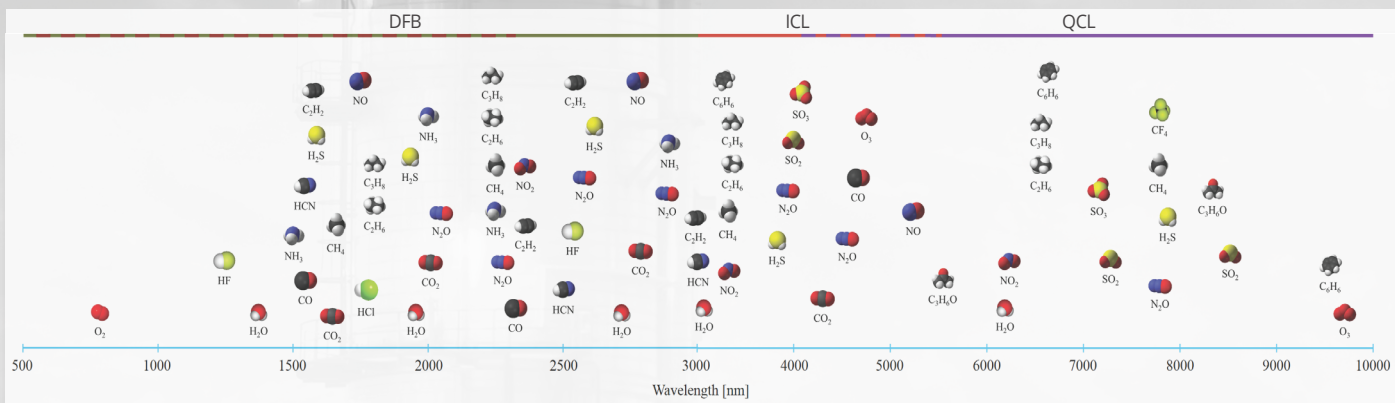
neoMONITORS



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NEO Monitors AS • Part of the Nederman Group

www.neomonitors.com



Measurement principle

NEO Monitors is the leading supplier of Gas and Dust Analyzers based on Tuneable Diode Laser Absorption Spectroscopy (TDLAS).

The measurement principle is based on the fact that each gas absorbs light at very specific wavelengths (so-called fingerprint).

By tuning a diode laser to match a wavelength of the desired gas, the concentration of the gas can be selectively measured with a high sensitivity, i.e. a very good detection limit.

Our great knowledge and experience in spectroscopy also allows us to tailor each analyzer to the customer's process by choosing an absorption line that matches the given application.

NEO Monitors has specialized in TDLAS in the near-infrared (NIR) spectral region, and we are also pushing the expansion of our portfolio into the mid-infrared (MIR).

This enables us to constantly extend the list of gases we can measure and to improve the sensitivities even further.

Our product lines

LaserGas™ II product line

LaserGas™ II SP
 LaserGas™ II SP Compact
 LaserGas™ II MP
 LaserGas™ II OP
 LaserGas™ R2P Monitor

LaserGas™ III product line

LaserGas™ III SP
 LaserGas™ III OP
 LaserGas™ III Portable

LaserGas™ Q product line

LaserGas™ Q ICL
 LaserGas™ Q QCL

LaserGas™ iQ² product line

LaserGas™ iQ²
 LaserGas™ iQ² Vulcan

LaserDust™ product line

LaserDust™



Featured in-situ applications

Regenerator flue gas (FCCU)

New wavelengths for CO% and CO2%, improving existing applications.

Industry: Refineries
Process Conditions: T = 700-800°C P = 2.5-3.8 barA H2O = 5-15 %
Measurements: CO: 0-10 % CO2: 0-20 % O2: 0-10 %
CO to CO2 ratio is used for optimization of catalyst regeneration process
NEO Monitors solution: LaserGas™ II CO, CO2, and (optional) O2 analyzers right on top of the FCC regenerator. In-situ LDL CO / CO2 / O2 < 0.05%

Decoking of HC cracking furnace by steam/air mixture

New CO2 wavelength for new challenging application.

Industry: Refineries, Petrochemicals
Process Conditions: T = 150-400°C H2O = 70-90 %
Measurements: CO2: ppm to 10-15 %
CO2 level in effluent gas is used for optimization of the decoking process and minimization of decoking time.
NEO Monitors solution: LaserGas™ II CO2. In-situ LDL < 100 ppm

Coke oven gas (COG)

New wavelengths for NH3 and H2S for better measurements in HC mixtures.

Industry: Steel production, by-product plants
Process Conditions: T ≤ 100°C, H2 = 50-60 %, H2O = 3-10 %, CH4 = 20-30 %, C2H4 = 1-3 %
Measurements: NH3 (ppm - %) before and (low ppm) after scrubber
H2S (ppm - %) before and (ppm) after scrubber
NEO Monitors solution: LaserGas™ II NH3 and H2S
In-situ LDL NH3 / H2S = 2 / 10 ppm

Flue Gas from EDC (dichlorethane) heating fence

Interesting but “unknown” safety application.

Industry: Petrochemicals
Process Conditions: T = 300-400°C, combustion gas
Measurements: HCl ppm : EDC leak produces HCl
CH4 % : furnace start-up safety
NEO Monitors solution: LaserGas™ II HCl ppm + CH4 % combined
In-situ LDL HCl / CH4 = 0.5 ppm / 0.01 %

Combustion

Multicomponent gas measurements to optimize combustion processes.

Industry: Refineries, Petroleum, Steel production
Process Conditions: T < 1600 °C, P = Amb
Measurements: O2 (%), CO (ppm), CH4 (ppm), H2O (%)
NEO Monitors solution: LaserGas™ II, LaserGas™ III, LaserGas™ iQ2



LaserGas™ iQ² Vulcan



NEO Monitors' LaserGas™ iQ² Vulcan is the first in-situ single-flange solution to measure up to four gases (O₂, CO, CH₄, H₂O) as well as the process temperature in a single unit. Based on the well-proven and trusted tunable diode laser absorption spectroscopy (TDLAS) technology, the solution combines cutting-edge design and ground-breaking functionality. It is a complete combustion solution eliminating the need for multiple units. Advanced TDLAS technology enables unmatched reliability and durability. Installation costs of this all-in-one solution are significantly reduced since only one flange is needed. In addition, operational and maintenance costs are kept at a minimum.

Features

- No interference from background gases
- Factory calibrated
- No zero drift
- Transceiver configuration
- Automatic gain
- In-situ measurement
- Span check/validation option for O₂, CO, and CH₄
- New signal-processing (IROSS)

Customer benefits

- Measuring up to 5 components O₂, CO, CH₄, H₂O and temperature
- Can handle a typical combustion process up to 1562 °F/850°C
- Reduced installation cost
- Low maintenance costs
- Easy to install transceiver, one unit ensures easy alignment
- Double path length increases absorption signal for low concentration
- Well-proven technology

Applications

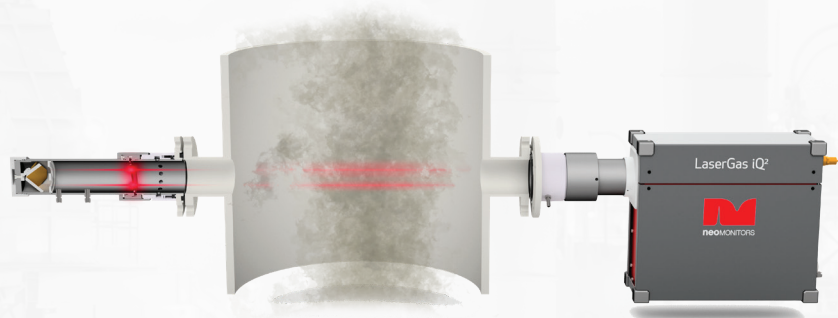
- Combustion analysis
- Package boilers
- Process heaters
- Electrostatic precipitators
- VCM waste gas recovery
- Reformer gas

Component

Max

LDL

CO	10000 ppm	3 ppm
O ₂	25 %	0.05 %
CH ₄ add-on	5 %	0.01 %
Process temperature	850 °C	
Process pressure	1.5 BarA	



For more information, please scan the QR code

The LaserGas™ iQ² is also available in cross stack and open path configurations for longer optical paths and increased accuracy.

neomonitors Guide gas measurement

	LaserGas™ IQ2 **	LaserGas™ Q	LaserGas™ III SP	LaserGas™ III OP	LaserGas™ III Portable	LaserGas™ II SP	LaserGas™ II Compact	LaserGas™ II MP	LaserGas™ II OP	LaserGas™ II R2P	LaserDust™
CH4						•	•	•	•	•	
CO %						•	•				
CO2 %						•	•				
CO % + CO2 %						•	•			•	
CO ppm	•		•	•		•	•	•	•	•	
CO ppm + CH4	•		•	•		•	•	•		•	
CO ppm + H2O %	•		•			•	•				
CO2 ppm						•	•	•		•	
H2O %						•	•				
H2O ppm							•				
H2S						•	•	•	•	•	
H2S + CO2						•	•	•	•		
HCl						•	•	•	•	•	
HCl + H2O %*						•	•			•	
HCl + CH4						•	•	•	•		
HCl in VCM						•	•	•			
HCN						•	•	•		•	
HCN + NH3						•	•	•		•	
HF*				•	•	•	•		•		
HF + H2O					•	•					
N2O %						•	•				
N2O ppm						•	•	•			
NH3			•	•		•	•	•	•	•	
NH3 + H2O %*			•			•	•			•	
NO		•				•	•	•			
NO2		•				•	•	•			
O2	•		•	•		•	•	•		•	
O2 + Temperature	•		•			•	•				
Particles											•
SO2		•									
C2H2 (Acetylene)						•	•	•			
C2H4 (Ethylene)						•	•				
C2H3Cl (VCM)						•					
C2H4O (Ethyleneoxide)						•					
C3H6 (Propylene)						•					
CF4 (Tetrafluoromethane)		•									
CH2O (Formaldehyde)						•	***	***			
CH3I (Methyl Iodid)						•	***	***			
COS (Carbonyl sulfide)						•	***	***			
C3H3N (Acrylonitrile)						•	***	***			
CH2Cl2 (DCM)						•	***	***			
H2						•		•			

List of gases and gas combinations NEO Monitors can measure with the LaserGas™ and LaserDust™ product lineup. New gases and combinations are constantly being investigated and added to this list.

About us

NEO Monitors AS was founded in 2003 as a commercial part of Norsk Elektro Optikk AS (NEO).

Today, NEO Monitors is a leading manufacturer and supplier of TDLAS gas and dust analyzers, based on over 30 years of high-risk research and development in electro-optics and laser technology.

NEO Monitors develops and supplies tailored solutions (LaserGas™ and LaserDust™) for measuring gas and dust in all types of industries worldwide.

The solutions have three main missions:

1. Optimize production processes.
2. Control and improve safety.
3. Measure emissions.

The analyzers can measure over 40 gases and combinations and are used in numerous kinds of applications in all kinds of industries, such as cement, chemical/petro-chemical, oil and gas, power, pulp and paper, environmental, fertilizer and many more.

NEO Monitors has more than 40 distributors spread across all continents. It is the fastest growing European company in this niche, with over 14000 analyzers installed (2018).

The analyzers accommodate different needs in the industry, from monitoring gas in stacks, pipes, ducts and process chambers to monitoring the safety of workers and environmental functions.

NEO Monitors AS was acquired by the Nederman Group in 2017 and we are proud to represent the same values:

“We protect people, planet and production from harmful effects of industrial processes, contributing to sustainable production, environmental benefits and a safe workplace.”

Our Distributors

NEO Monitors' solutions and expertise are available from a global distributor network.

Our partners ensure that resellers and customers all around the world have access to our solutions, help them with the implementation and offer service, training and support.



To view all of our Global Distributors, please scan the QR code

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