



Oscillatory production of CO (dark) and CO<sub>2</sub> (light) during methane oxidation reaction

## **climate** gas analyzer

### In Situ Gas & Heating solution

The quality of a catalysts is defined by its ability to convert reactants into products; therefore, key to any researcher dealing with catalysis, both in academia and industry, is the capability to measure the concentration of products generated during the reaction: DENSsolutions Gas Analyzer has been carefully engineered to work seamlessly with the Climate Gas&Heating solution. Making use of the advanced design of the Climate Nano-reactor it offers speed, sensitivity and high temporal resolution and transforms the Climate into a total solution for the deep understanding of processes happening in gas and high temperature.



# climate gas analyzer

In situ Gas & Heating solution



Gas Analyzer

## Features and benefits

### Ultra high vacuum chamber :

Thanks to the ultra low vacuum levels, DENSSolutions Gas Analyzer features extremely low noise values and therefore enables the highest sensitivity to reaction products created during any chemical reactions.

### Built-in Needle valve :

The needle valve, directly placed in the flowpath of the gas system, allows very small amount of gasses to be sampled for gas analysis. Thus, measurement is fully independent of the main flow through the reactor: this allows to accurately tune the measurement sensitivity and pressure in the gas analyzer, without affecting the response speed or the reaction kinetics.

### Short time delay :

The short time delay between chemical reaction and products' detection (<15 seconds) allows to monitor the in-situ reactivity while the experiment is on-going, enabling real-time feedback to experimental parameters.

### High temporal resolution :

Reaction kinetics can be quick: the gas analyzer set-up features a response time shorter than 1 s, enabling the user to capture relevant reaction kinetics.

## Specifications

Mass range	1-100 AMU
Detector type	Faraday Cup (FC) & Electron Multiplier (EM)
Minimum detectable partial pressure	5 E-11 mbar (FC) or 5 E-14 mbar (EM)
Operating range	UHV to 1 E-4 mbar (FC) or 1 E-6 mbar (EM)
Bake-out temperature	120 °C
Delay time	< 15 s
Practical gas sensitivity	< 5 ppm (CO <sub>2</sub> )