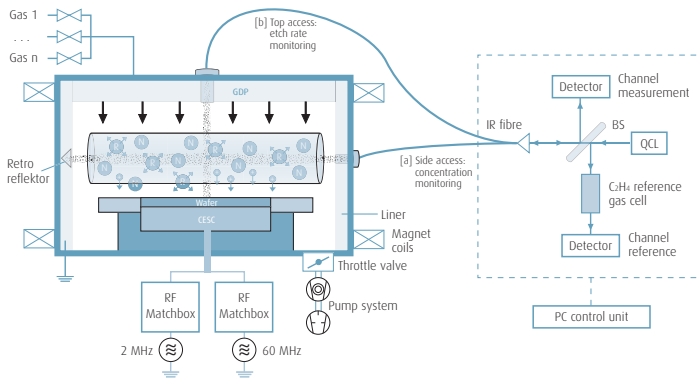


High-Precision Parts per billion in real-time-high precision gas analytics with quantum cascade laser systems

High-Precision Gas and Plasma Analysis in Real-Time

Concept

Until recently, the on-line control of plasma processes was not really feasible. The idea to design Q-MACS is based on the recent development and commercial availability of a new laser class, the Quantum Cascade Laser. This new option has made it possible to bring a system to the market that is compact and user friendly for measurement and control of industrial processes in particular for on-line process monitoring. The Q-MACS products need almost no maintenance and can be individually adapted to customer requirements inside industrial processes due to its modular design. The systems can be configured according to both in-situ and extractive measurement, depending on target gases and measurement range.



Q-MACS Process fibre concept drawing

Benefits

- Extreme high selectivity
- Very high detection sensitivity and dynamic range from percent level down to parts per trillion
- Response time down to nanoseconds with up to a million measurements in a second
- No consumables
- Easy handling at room temperature
- Extractive or in-situ measurements without interference with measured medium
- Self-calibrating devices with low maintenance level
- Simultaneous detection of up to eight gases
- Compact, modular, expandable and user-friendly

Applications

- Scientific research utilizing absorption spectrometry in the mid infrared (3 - 20 μm), (e. g. atmospheric chemistry, trace gas or radical analyses in plasma physics)
- Exhaust and emissions monitoring (chemical or power plants, engines, incinerators etc.)
- On-line process control of surface treatments and coatings in semiconductor, automotive, photovoltaics, glass industry (e.g. tetrafluorosilane, silane and silyl)
- On-line control of sintering processes (e. g. end point detection via carbon monoxide and methane)
- gas purity and concentration control (e. g. medical gases, petrochemistry, metallurgical production)
- Clean rooms and hazardous environments: leak detection and monitoring of toxic industrial chemicals (e.g. phosphine and boron trifluoride)
- In-situ leak testing in gas supplies (e.g. nitrous oxide and hydrogen sulfide)
- Improvement of utilisation rates in ALD-processes (e.g. water and ozone)
- Screening of objects and infrastructures for toxic agents, explosives, or narcotics

Q-MACS Basic MC



Q-MACS Process fibre



Q-MACS Process DC



neoplas control GmbH

Walther-Rathenau-Str. 49 a / 17489 Greifswald / Germany

Phone: +49 3834 515 400 / Fax: +49 3834 515 401

CEO Dr. Marko Häckel / marko.haackel@neoplas.eu

CEO Dipl.-Ing. Henrik Zimmermann / zimmermann@neoplas-control.de

