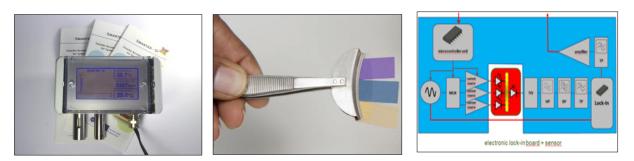
Show-Case "Carbon Dioxide Measurement System"

Healthy climate by an innovative sensor system



CO₂ system (left), CO₂ sensitive layer (middle), evaluation kit (right)

The market for gas sensors, especially CO₂, is constantly growing. CO₂ concentrations affect the performances of humans, and can lead to fatigue and headaches. In order to offer competitive solutions for this market, SMEs must look for high-performance technologies. The presented operating sensor principle is that upon CO₂ exposure, the encapsulated sensitive dye changes the colour, which can be reliably measured by a unique optical-electrical sensor.

Within the SMARTER-SI project a new technology platform for gas measuring systems was created. Beside CO₂ an evaluation kit allows to test and manufacture further gas sensitive layers in a faster way.

The main advantages are:

- An encapsulated sensitive dye changes the colour after CO₂ exposure, which will be measured by a unique optical-electrical sensor.
- The technology platform MORES is characterized by a high TRL and its openess for customer specific solution.
- Wave length depended absorption behaviour of the sensitive layer can be used for error signalization and compensation.
- An evaluation kit offers possibilities for application test and also for diversification.

The project partners of SMARTER SI provided all necessary technologies and building blocks to realise this innovative sensor system with the corresponding TRL: Sensor system based on highly-sensitive optical-electrical transducer MORES (platform by *CiS*), signal-preprocessing module (building block by *CiS*), CO₂ sensitive sol-gel film nanotechnologies (building block by *CSEM*), hermetic casing (building block by *IL Metronic*).

The German SME **ConSens GmbH** contributes e.g. signal processing, calibration and device and tools for production and for realization of customer specific solutions in context with the evaluation kit. The company is a specialist in electronic hardware and software, in calibration and adjustment regarding national and international standards, and commercialises final products.