

News release

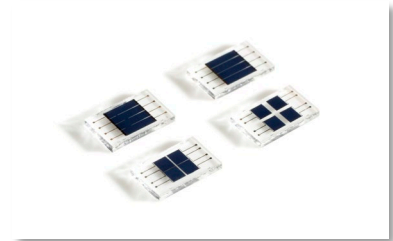
## trinamiX Enables the Miniaturization of CO<sub>2</sub> Measurement Systems for Mobile Air Quality Monitoring and Capnography

May 26, 2020 – Ludwigshafen, Germany – trinamiX GmbH, a leader in 3D imaging and infrared sensing technologies, today announced the company's proprietary lead selenide (PbSe) near-infrared detectors can be effectively integrated into challenging applications for carbon dioxide (CO<sub>2</sub>) measurement. Those include medical breath gas analysis (capnography) and mobile air quality monitoring. Thanks to their fast response time and high detectivity, the detectors enable extremely accurate yet miniaturized CO<sub>2</sub> measurements.

### CO<sub>2</sub> sensors in smartphones and wearables for on-the-spot control of environmental conditions

CO<sub>2</sub> concentration is an important indicator of indoor air quality because high CO<sub>2</sub> concentrations affect both health and productivity. Air conditioning and ventilation systems typically use pyroelectric detectors or thermopiles in CO<sub>2</sub> sensors to monitor indoor air quality. Due to their large size and high energy consumption, those detectors cannot be integrated into consumer devices.

By employing trinamiX PbSe detectors, CO<sub>2</sub> concentration measurement systems can become 8 times smaller than currently available systems – without compromising on accuracy and even reducing power consumption by a factor of 16. Thus, smartphones and wearables can now be equipped with real time CO<sub>2</sub> monitoring to track air quality at home, in the office or while travelling.



*trinamiX PbSe bare chip detectors*

### CO<sub>2</sub> measurement in capnography

Capnography is the monitoring of the respiratory pattern via the concentration measurement of CO<sub>2</sub> in breath gases. It is used as a vital monitoring tool in intensive care units. For exact and timely measurements, both a fast measurement rate and a high sensitivity of the infrared detector in the system are must-have requirements.

PbSe detectors can quickly sense even slight fluctuations in CO<sub>2</sub> concentration using Non-Dispersive Infrared (NDIR) spectroscopy. trinamiX PbSe detectors have a high detectivity and a unique encapsulation for chip-size integration. This allows capnography systems to be designed significantly smaller, faster and more reliable.

“Capnography systems are decisive instruments in the current COVID-19 pandemic. Our PbSe detectors are perfectly suited to this application thanks to our large-scale manufacturing capabilities combined with excellent quality standards at our production site in Germany,” said

Dr. Sebastian Valouch, Head of Sales and Product Development IR Sensor Solutions at trinamiX GmbH.

## Design-in support and white paper

CO<sub>2</sub> measurement systems use Non-Dispersive Infrared (NDIR) spectroscopy to non-invasively detect gas concentrations. trinamiX provides design-in support for the manufacturers of such systems.

A detailed technical white paper on the use of trinamiX PbSe detectors in NDIR spectroscopy may be downloaded [here](#).

## About trinamiX:

trinamiX [www.trinamixsensing.com](http://www.trinamixsensing.com) is a wholly-owned subsidiary of BASF SE, the world's largest chemical company. Founded in 2015, the company has developed a wide-ranging portfolio of technologies and products around both Infrared detection as well as 3D imaging and distance measurement employing a team of more than 100 experts across a wide range of scientific disciplines.

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