



Press Release

TRUMPF invests in start-up Tunable and the development of gas sensors

The start-up's sensors can analyze different gases simultaneously and identify odors // Sensors can contribute to climate protection // Investment round of 6.4 million euros to deep-tech start-up Tunable

Ditzingen/Oslo, September 14, 2022 – TRUMPF Venture, together with the French technology group GTT, is leading a €6.4 million financing round in the deep-tech start-up Tunable AS. Tunable develops and manufactures compact sensors based on MEMS technology. The small sensors identify and analyze multiple gases simultaneously and in real time. "Tunable enables the electronic nose – one of the last sensory organs to be digitalized. We are pleased to accompany the Tunable team and to implement the functionality of laboratory devices in a compact design with the innovative MEMS technology," says Dieter Kraft, Managing Director at TRUMPF Venture. The company, which is headquartered in Oslo, Norway, currently employs 23 people and plans to use the investment to expand its sales and marketing worldwide and drive the development of even smaller sensors.

Contribution to climate protection

The start-up's first products are already in use in the shipping industry. There, they measure emissions from large ship engines and analyze fuel gas for ships. Tunable is currently testing the sensors in other areas, such as analyzing industrial exhaust and monitoring gas distribution networks. "With our sensors, companies record their emissions. This creates transparency and is a first step when it comes to reducing harmful gases and protecting the climate," says Kristian Hovet, CEO of Tunable. The deep-tech start-up was founded in 2015 as a spin-off from the Norwegian research laboratory SINTEF. In addition to TRUMPF and GTT, existing investors such as Skagerak Maturo, a Norwegian venture capital investment firm, are participating in the current investment round. In a second closing at the end of this year, additional investors will be given the opportunity to participate in the financing round.



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A lab in mini format

The technology behind the sensors is based on infrared spectroscopy. It takes advantage of the fact that gases react differently to light depending on their wavelength. In the Tunable Sensors, gas flows through a chamber. A beam of light at a defined wavelength shines through the gas. This light beam is generated by an infrared lamp and an optical filter. The optical filter is adjustable so that it can generate a broad spectrum of wavelengths. For gas analysis, the filter continuously varies the wavelength of the light beam, comparable to the station sweep of a radio. Depending on the respective light wavelength, the different gas molecules begin to oscillate. An optical microphone measures these minimal oscillations with the aid of a laser. Software then evaluates the measurement data to identify the gas and its concentration. Thanks to MEMS technology, Tunable reproduces this physical process in a minimum of space.

Digital odor control

Tunable's technology has already established itself in exhaust gas measurement and fuel gas analysis on ships. The start-up is currently developing new fields of application, for example condition monitoring of transformers, monitoring of methane and GHG (greenhouse gas) or of ammonia and other gases in animal husbandry. In addition to analyzing defined gas mixtures, the sensors can also be used to identify previously unknown gases and odors. This opens up further possible fields of application, such as the quality control of food.

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Tunable's technology has already established itself in exhaust gas measurement and fuel gas analysis on ships. With the new scaled-down product range (in blue), Tunable is opening up new fields of application. (Source: Tunable AS)



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The MEMS design of the optical filter enables the compact design of the Tunable sensor. (Source: Tunable AS)



About TRUMPF Venture

TRUMPF Venture extends the TRUMPF Group's comprehensive activities to promote innovation and to detect disruptive technologies and business models early on. The corporate venture capital unit invests globally in early-stage start-ups whose activities are complementary or adjacent to the TRUMPF core business, such as advanced photonics and smart-factory solutions. Funded start-ups benefit from an extensive network, deep domain know-how, proven skills in scalability and support gained from access to the TRUMPF Group and its ecosystem. The requirements for a potential investment are a strategic fit, a high innovation leverage, a differentiation in business model or technology, an experienced management team and risk-adequate financial returns.

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About TRUMPF

TRUMPF is a high-tech company offering manufacturing solutions in the fields of machine tools and laser technology. The Company drives digital connectivity in the manufacturing through consulting, platform products and software. TRUMPF is a technology and market leader in highly versatile machine tools for sheet metal processing and in the field of industrial lasers.

In 2021/22, the company employed some 16,500 people and generated sales of about 4.2 billion euros (preliminary figures). With over 70 subsidiaries, the TRUMPF Group is represented in nearly every European country as well as in North America, South America and Asia. The company has production facilities in Germany, France, the United Kingdom, Italy, Austria, Switzerland, Poland, the Czech Republic, the United States, Mexico and China.

Find out more about TRUMPF at www.trumpf.com



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