



## VEGA participates in chip start-up

Tiny, powerful and crucial for quality: ASICs (Application-Specific Integrated Circuits), i.e. integrated circuits developed to meet specific requirements, are the basis for the success of a radar sensor. The start-up milli IC in Karlsruhe specialises in the development of such high-frequency ASICs – and VEGA Grieshaber KG is on board with this venture.

### A wealth of expertise in millimetre wave and high-frequency technology

The two managing directors Esref Turkmen and Alexander Haag as well as KIT professor and advisor Ahmet Cagri Ulusoy, three top experts in the field of millimetre wave and high-frequency technology, have joined forces. All three are experienced circuit engineers and got to know each other through their academic work at the Institute of Radio Frequency Engineering and Electronics (IHE) at the Karlsruhe Institute of Technology (KIT). VEGA is the fourth partner involved and, as a successful manufacturer of measurement technology for level and pressure, not only contributes a great deal of expertise in this field, but also specific areas of application for the microchips.

### Helping to shape technological progress



As a world market leader, VEGA already has a specially designed chip in use for radar sensors operating at frequencies up to 80 GHz. Now, the goal is to operate with still higher frequencies. **“The chip is the heart of a radar instrument,” says Thomas Deck**, Head of Research and Development at VEGA, emphasising the importance of ASICs. Being able to help develop these right from the start is exciting and a great opportunity to further improve radar sensors and help shape technological progress. Radar frequencies higher than 100 GHz enable a narrower beam angle, along with improved focussing, better performance and smaller mechanical components. This makes it possible to build more compact sensors that require even less space than before and also reduce production costs.

### A lot of work goes into development

The experts at milli IC are now starting their work. However, a little patience is required before the first market-ready chips can be expected. “It will certainly take about two and a half years,” says Thomas Deck from experience. After all, the tiny chips have to meet very strict requirements and are intended to improve

the efficiency and performance of VEGA radar sensors for the long term.

### **More integration as a future goal**

“More integration of circuit technology into ASICs – that’s the big long-term goal for sensors in process instrumentation,” explains Thomas Deck. milli IC can make a decisive contribution to this effort. “Everyone involved is looking forward to this new chapter.”

### **The company**

milli IC GmbH is based in Karlsruhe. The start-up is a spin-off of the Institute for High Frequency Technology and Electronics (IHE) at KIT Karlsruhe. The company specialises in the design of RF and millimetre-wave ICs for sensors and communication systems and focusses especially on silicon-germanium based technologies.

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