QANT

Compact Particle Sensor

for real-time detection and analysis

Welcome to the future **of particle metrology**

The Q.ANT Particle Sensor family enables particle sensing and analysis in real-time for direct control of your processes. The sensor can measure multiple parameters of particles simultaneously: velocity, size and trajectory. This is possible for particles in liquids and in gases. Two sensor versions are available: The Q.P2 sensor analyzes particles in a range from 2µm to 50µm, while the Q.P20 sensor measures particles from 20µm to 700µm. The intuitively designed, web-based software interface allows for real-time insights into your analyses and processes. This enables optimized and sustainable operations in various industries like biotechnology and chemistry.

The Q.ANT Particle Sensor family operates using specifically generated quantum effects of light in superposition states. When such light waves strike a particle, it is illuminated simultaneously in multiple dimensions. This enables the acquisition of extensive information in a single, real-time measurement. From this dataset, artificial intelligence will be able to determine the shape of the particle in the future. In biotechnology, shape classification could enable the discrimination of different microorganisms, for example for examining bacterial contamination or serve as an indicator for cell vitality.

Besides shape classification, the online process integration of the sensor is one of the next milestones on the product roadmap. In the future, the online integration of the sensor will allow process control in real-time and increase the productivity of the plant, as well as the quality of the processed media. The resulting avoidance of faulty production also makes the particle sensor interesting from a sustainability point of view. With the Q.ANT Particle Sensor family, continuous processes will achieve the flexibility of batch production.

Special features

- Suitable for particles in liquids and gases
- Simultaneous measurement of multiple parameters: particle size, velocity and trajectory
- Web-based software interface for real-time measurement insights
- Dedicated software APIs based on open standards (e. g. MQTT) for integration into lab systems or the cloud

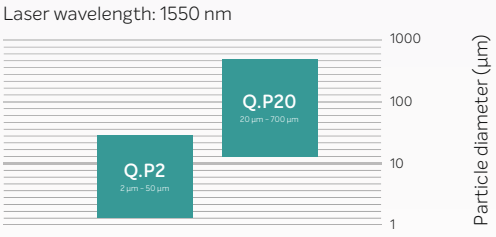
Under development

- AI-based particle shape classification
- Online integration for direct process control in real-time

Your competitive advantage

- Simultaneous measurement of particle size, velocity and trajectory
- Real-time control of product quality and process efficiency
- Less waste and process energy consumption
- Customizable to your applications and needs
- Fast setup and easy handling
- User-friendly and intuitive, web-based interface
- Compact system fitting into every lab and production line

Measurable particle diameters and sensor types



Flexible configuration options **for a wide scope of applications**

Suitable for lab applications and online integration in processes

The Q.ANT Particle Sensor can be configured for many different applications, be it in the lab or for online integration in processes. Simple, web-based software interfaces make it user-friendly.
For laboratory environments, repeatable analyses are possible, with data exported, stored and securely transferred via customizable APIs to laboratory systems or the cloud. A browser is all that is needed for operation. In the future, online analyses in a process environment can run automatically. Beyond defined threshold values, the sensor will generate automated notifications, e.g. via MQTT interface, for direct process control. A cloud connection will also be possible.

Evaluation Kit for use case adaptation

The Q.ANT Particle Sensor is available for direct purchase or as Evaluation Kit on a monthly rental basis to test it for your application and adapt it to your needs without risk and high investments. Training on the use of the sensor is included in both options.

> “Thanks to flexible configuration options the sensor is adaptable to applications that no one is thinking of today. This makes the sensor a promising investment for the future.

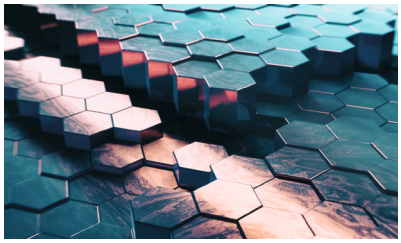
Possible fields of application

Biotechnology

In cultivating bacteria, fungi or algae, population vitality is crucial. The Q.ANT Particle Sensor enables the instant evaluation of growth phases and key cellular attributes like size, cell debris and contamination. This analysis provides insights into microorganisms’ well-being, enhancing the understanding of their state.

Chemistry

Whether generated by precipitation, polymerisation or carbonyl reactions, in the chemical industry the product’s performance is strongly influenced by particle size, surface and shape. The Q.ANT Particle Sensor allows the constant monitoring of particle parameters and simultaneously enables the detection of unwanted agglomerates.



Materials

High-quality products from the metal, plastics, ceramics and cement industries require detailed knowledge of the raw materials such as particle size and grain distribution. The Q.ANT Particle Sensor analyzes parameters of raw materials for example for 3D printing.

Test tomorrow's technology today

Evaluate the Q.ANT Particle Sensor in your field of application for your specific use case supported by our experts.

Q.ANT is a high-tech startup developing quantum sensors and quantum computing chips based on photonic quantum technology. Focusing on its four product lines of Particle Metrology, Atomic Gyroscopes, Magnetic Sensing and Photonic Computing, the company engages with a broad array of industries and applications ranging all the way from medical technology and autonomous vehicles to aerospace, machinery, and the process industry.

www.qant.com/particle-sensor

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