

INNOVATION IS THE SAFEST WAY TO COMMUNICATE

Quantum-safe communication

Problem

With the rise of quantum computing, today's state of the art **encryption** methods will **no longer be secure**. Commercially available quantum secure solutions are large and prone to error.

Challenge

Develop a quantum secure encryption component to enable **simplified** customer product design and **easy integration**.

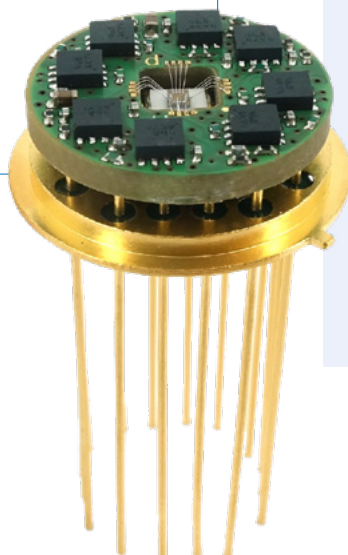
The solution

The **duotec QKD sensor** brings necessary equipment from the size of a suitcase to the size of a coin.

Highlights

- 4 sensors including polarizing filter in one component
- Patented circuit concept
- Stable digital output signal for real-time processing
- Easy system integration

SCAN QR-CODE
FOR FURTHER INFORMATION



Fields of application



Protected
data access



Tap-proof
communication



Encrypted
data transmission



Confidential
satellite
communication



Secure vehicle
communication



Encrypted
communication
in aviation

Context

Future-proof encryption in the quantum age: Due to the rapid progress in quantum technology, conventional encryption methods will become insecure in the foreseeable future.

Need for action in the public sector: Government authorities in the USA (since 2022) and Europe (since 2024) have decided that quantum-safe encryption should become the standard in the public sector by 2035.

Tap-proof communication with Quantum Key Distribution (QKD): QKD enables tap-proof data transmissions and lays the foundation for secure communication in the quantum age.

From research to practice: QKD systems are currently being tested primarily in research projects. Existing demonstrators are often very large, complex and vulnerable. Industrial scaling and simple integration into end devices are crucial for the intended use.

Our technological breakthrough: With the [duotec QKD sensor](#), we offer the world's first commercially available QKD sensor that has specifically been developed for industrial use – for business, politics and other areas where communication with highest security grade is required requirements.

How does QKD work?

QKD uses individual light particles (photons) to securely exchange encryption keys between two communication parties. As a photon can **only be measured once**, an **surveillance attempt is detected** immediately. In such a case, the already generated key is discarded and the exchange is continued **with a new key**.

Overcoming technological hurdles

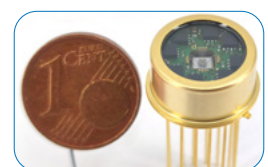
Technological expertise: The precise generation, distribution and measurement of single photons over long distances is technologically extremely demanding. For many manufacturers, the development and implementation of QKD systems entails considerable risks and requires expertise that has been built up over many years.

Innovative solution: The [duotec QKD sensor](#) overcomes these challenges. Through many years of research and the development of quantum technology expertise, we have made something big very tiny: all four single-photon detectors and an on-chip polarization filter analysis and analogue-digital front-end integrated in the housing as small as a 1 Cent coin.

Versatile use for industry: Technology companies can use the [duotec QKD sensor](#) to efficiently design and produce solutions for quantum-safe communication.

Securing European innovation leadership: As a key component for the development of a quantum-secure communication infrastructure, the [duotec QKD sensor](#) makes an important contribution to Europe's pioneering role in quantum-secure communication.

Strengthening European independence: all components of the sensor are sourced and manufactured in Europe.. As a result, independence from global supply chains is guaranteed.



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