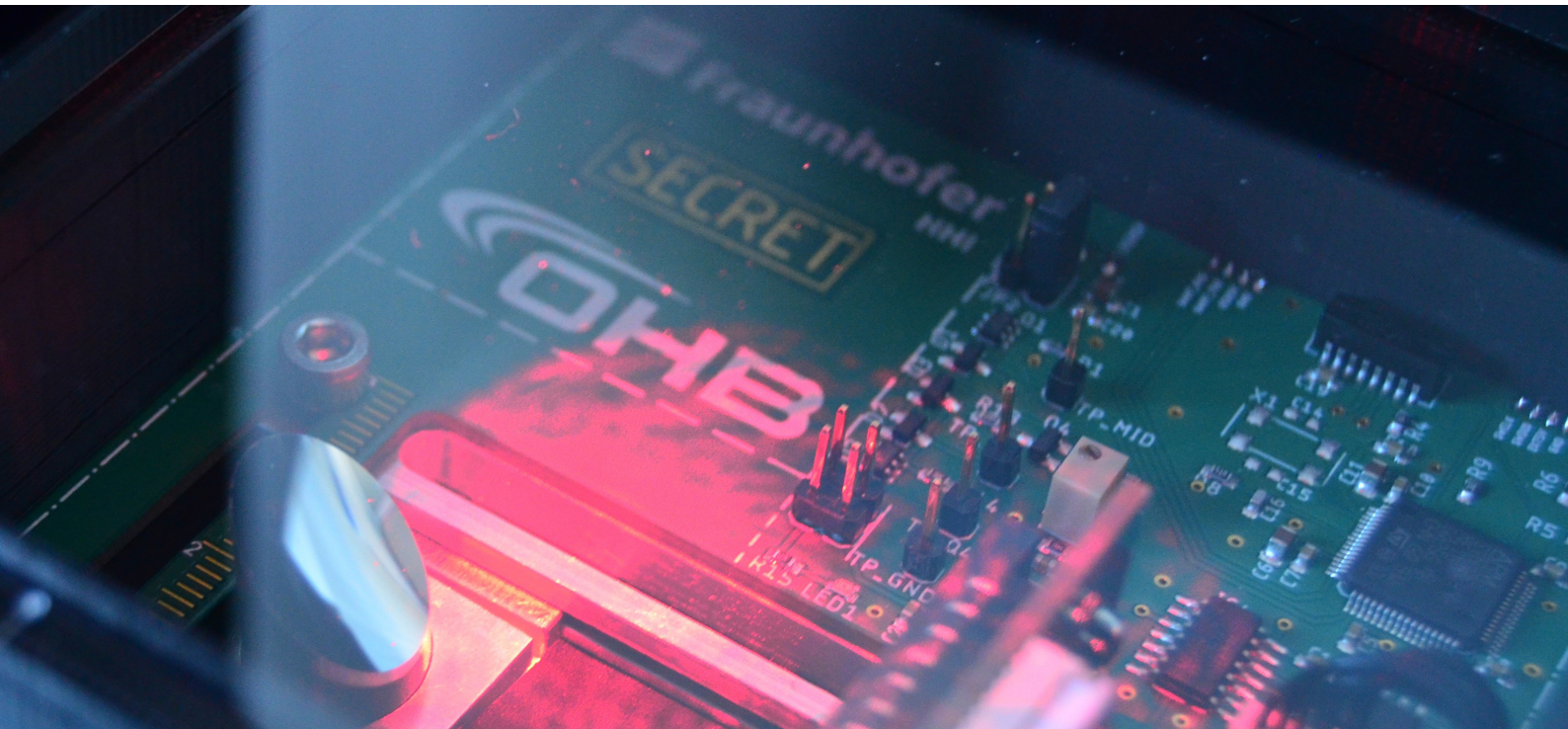


OPTICAL SEALS FOR TAMPER PROTECTION OF SECURITY RELEVANT HARDWARE COMPONENTS



AT A GLANCE

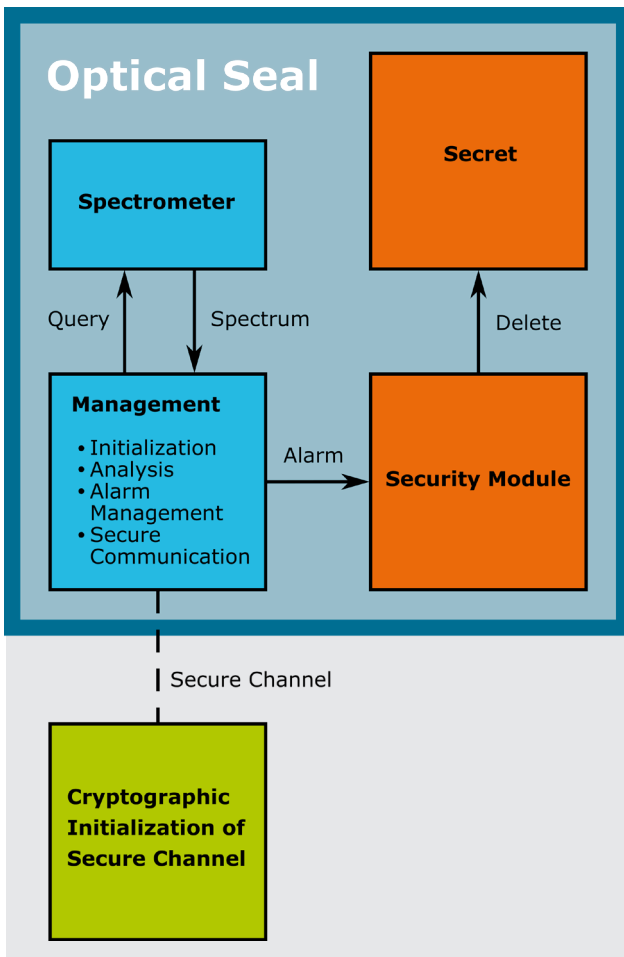
- Security for communication technology or autonomous controlled industrial production processes
- Tamper protection and autonomous alarm management

Features

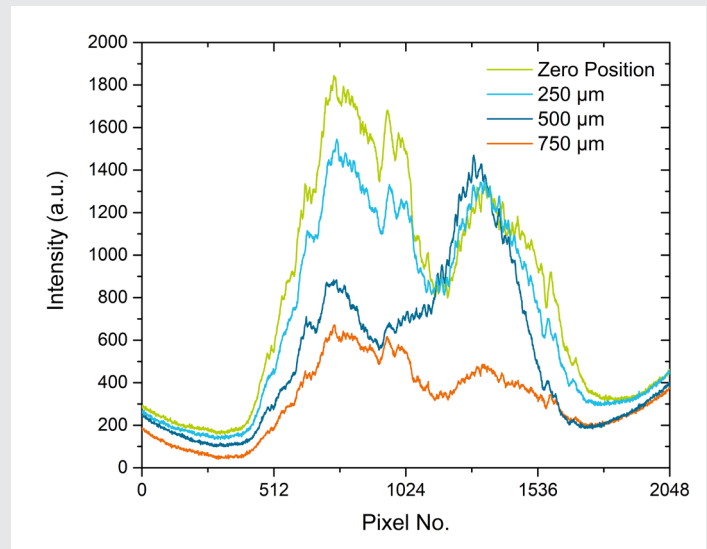
- Monolithic integration of optical sensors in ultra-thin glass seals
- High sensitivity across the whole area of seal for detection of smallest changes in surface deformations (μm) or formation of holes by drilling
- Inscription of Individual signatures of optical seals with femtosecond laser technology
- Real-time evaluation of signature inside the protected area under the seal
- Autonomous alarm management enables fast automatic reaction routines for protection
- Initialization of alarm system via cryptographically verified wireless channel

Applications

- Security and data protection for satellite-based mobile cryptographic communication units
- Tamper protection against non-authorized access of hardware control units for industrial production processes
- Protection of cryptophones, data storage media, cash systems, locking systems, ...



System configuration for optical tamper protection



Depending on induced deformations applied by local pressure the optical spectral signature of the seal is significantly and specifically changing. Deformations depths of less than 50 μm are detected.

Left: Initialization of system, real-time detection of the state of seal and autonomic alarm management for tamper protection.

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Optical seals with individual spectral signature for tamper protection of electronic controls or cryptographic communication units: The seal is fixed in a bent state, covering the electronic chip (secret). The state of seal can be detected and analyzed in real-time by a miniaturized autonomic read-out system, located together with the secret in the protected area under the seal. In case of any manipulation attempt, the individual signature of the seal will change or the seal will be destroyed. For manipulation of the protected unit, the seal would have to be removed unaltered and replaced in its original bent state within a short timeframe. Drilling through the seal or the side wall is recognized by signal change or loss immediately. The reactions on recognized tamper attacks are defined by autonomic alarm management; for example the deletion of the secret.

The technology for tamper protection was developed in cooperation with OHB System AG supported by the German Federal Ministry of Transport and Digital Infrastructure (BMVI)

Our Partner: OHB System AG