

## Glass break alarm detector

### Development status

#### Phase 4

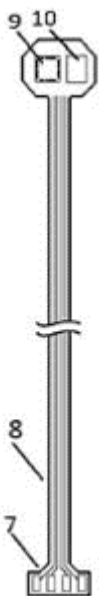
**The transition from the prototype to the final and fully functional form.** At this stage, the prototype is already fully tested, or the technology is certified and ready for mass deployment.

### IP protection status

Patent in the Czech Republic number 309021

### Partnering strategy

*Collaboration, licensing*



### Institution

 Univerzita Tomáše Bati ve Zlíně  
Tomas Bata University in Zlín

### Challenge

Glass-break alarm detectors are one of the most important elements in the protection of residential or industrial buildings that contain glass fillings. Research has revealed that more than 75% of break-ins in these buildings are aimed at the glass panels. However, existing models of glass break alarm detectors are very outdated and cause many false alarms. Due to very strict legislation, there are no glass breaking alarm detectors on the market that meet the highest level of security required by, for example, state institutions or banks. . The new model of the glass breaking alarm detector uses an accelerometer for more accurate measurement of the resulting damage and a special sensor that periodically measures the concentration of internal gas. By using a combination of the mentioned elements, it is possible to create a previously non-existent glass breaking alarm detector and thereby achieve the highest level of security.

### Description

The glass-break alarm detector consists of a sensing part integrated into the glass filling and an evaluation part built into the window frame. The sensing part contains an accelerometer that senses and evaluates the resulting vibrations. A gyroscope is used to detect the opening, tilting or prying of the window itself. A special sensor for measuring the internal gas concentration is placed inside the glass filling, where it periodically measures the concentration of the internal gas, which is mostly Krypton (Kr) or Argon (Ar). When the glass panel is broken, there will be vibrations that are indicated by the accelerometer, and at the same time there will be an internal gas leak, which is detected by a special sensor. This two-phase verification results in a glass-break alarm detector that meets the highest level of security and is highly resistant to false alarms.

### Commercial opportunity

The glass-break alarm detector, which as the only detector in its category meets the requirements for the highest security level IV according to ČSN EN 50131-2-7-2, can be used, for example, in banks or state institutions, where the highest level is required by the

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aforementioned standard. Furthermore, the created model of the alarm detector can also be used in normal family houses. The given technology can be used for the production of modern glass breaking alarm detectors.