

Building management systems for providing security in existing KNX projects: Organizational measures and device monitoring

Part 1: Status of security in building automation

Security of home and building automation is one of the major topics these days. But why is security in building automation so important? Why should I bother if someone wants to know for example my room temperature?

The answer is especially in case of functional buildings very simple. It is about avoiding massive economic impact like:

- Complete wide shutdown of the system in a hotel
- Bypassing the security system e.g. shutting down the alarm system
- Mass panic in public spaces caused by failure of the lighting system
- Serious impairment of work in hospitals due to failure of the lighting system in the emergency room
- Manipulation of consumption values of smart meters and many more

The building management system may also be an entrance point to other systems like the hotel management systems.

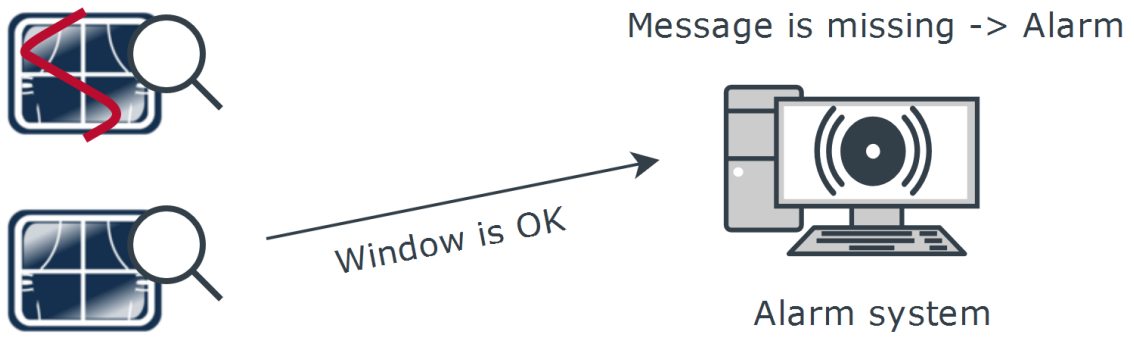
There are two services that are security-critical - access control and intruder alarms.

In the past, all common protocols were prone to security attacks. Due to the detected threats, but also the actuality of the issue, the situation is improving noticeably. New security standards are available for KNX (KNX data Security, KNX IP Security). Furthermore, modern cryptographic technologies, such as those used in other areas (TSL / SSL, e-banking, ...), are used.

For new projects, secure communication within the building automation system is thus ensured. What happens, however, with already existing KNX projects in which no secure KNX devices have been used yet? In some cases, a pure use of encryption is not sufficient. Why, will be explained in the following examples:

Denial-of-service-attack in alarm system

In case of an intrusion the glass breakage sensor sends a message, when the window is broken. Thus, the building owner gets informed about the intrusion. A Jamming attack can fully break the alarm system and avoid that the alarm system receives the message from the glass breakage sensor. This problem cannot be solved by encryption. A secure solution is to adjust the sensor in a way, that it sends periodical „OK“ messages to the alarm system. If this „ok“ message is missing an alarm is raised.



Read more to learn how to avoid security lacks in existing and future projects.

Part 2: Security in existing KNX projects

Part 3: Secure building automation through management solution (NETx BMS Server)