EnOcean expands enhanced data encryption to its complete 868 MHz batteryless wireless portfolio

Energy harvesting wireless sensor modules now integrate state-of-the-art data encryption mechanisms to meet the requirements of specific applications such as monitoring or alert sensor systems

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EnOcean, the world leader in energy harvesting wireless technology, has added encrypted data communication to its complete range of energy harvesting wireless sensor modules. These enhanced security mechanisms can optionally be activated and prevent different types of attacks, including replay and eaves-dropping attacks or forging messages. End products, such as window contacts, can easily be switched from standard to secure mode for an enhanced security level to meet specific requirements of new application fields, such as monitoring, metering or alert sensor systems.

The security mode was added to the following sensor modules in 868 MHz for Europe: STM 330 and STM 331 temperature sensor modules, STM 320 and STM 329 magnet contact transmitter modules as well as the STM 250 OEM window contact. They complete the already available TCM 310 transceiver module running EnOcean Link as security middleware for gateways and the encrypted PTM 215/PTM 335 switch modules. EnOcean will be presenting its portfolio integrating enhanced security at ISH 2015 (Frankfurt/Main, March 10–14) at the EnOcean Alliance stand B69 in hall 10.3.

Choice of security

From April 2015, the EnOcean standard 868 MHz sensor modules will include the optional functionality of enhanced security mechanisms. Shipped in standard mode, the encrypted data transmission can be activated by simply pressing the learn button for ten seconds. Without any change in product design, OEMs can now offer devices that give customers the choice whether they want to use enhanced security features from the very beginning or at a later stage. If needed, the security mode can be deactivated by pressing and holding the learn button again. Also a receiver that decodes encrypted telegrams can still process standard telegrams enabling OEMs to effortlessly include enhanced data security in their existing EnOcean-based portfolio.

State-of-the-art encryption

The enhanced security features add to the unique 32-bit identification number (ID) of the standard modules which cannot be changed or copied and therefore protect against duplication. This authentication method already offers field-proven secure and reliable communication in building automation. For applications requesting additional data security, the security mode protects batteryless wireless communication with enhanced security measures to prevent replay or eaves-dropping attacks and forging of messages.

One feature is a maximum 24-bit rolling code (RC) incremented with each telegram which is used to calculate a maximum 32-bit cypher-based message authentication code (CMAC). The CMAC uses the AES 128 encryption algorithm. Another mechanism is the encryption of data packets by the transmitter. The data is encrypted using the AES algorithm with a 128-bit key.

"The reliability of our standard modules is ideal for secure wireless data transfer in building automation systems. For applications that require additional validation, EnOcean has expanded its security mechanisms with the standardised AES algorithm. This is a solid state-of-the-art approach for enhanced

data encryption," says Andreas Schneider, Chief Marketing Officer, EnOcean GmbH. "With the optional security mode, our OEMs can open up new markets with batteryless solutions, for example metering of conditions, comfort functionalities and energy-saving applications. This is a decisive competitive advantage."

About EnOcean

EnOcean is the originator of patented energy harvesting wireless technology. Headquartered in Oberhaching, near Munich, the company manufactures and markets energy harvesting wireless modules for use in building, smart home and industrial applications as well as in further application fields such as the Internet of Things. EnOcean technology combines miniaturized energy converters with ultra-low-power electronics and robust RF communication. For more than 10 years, leading product manufacturers have chosen wireless modules from EnOcean to enable their system ideas. EnOcean is a promoter of the EnOcean Alliance, a consortium of companies from the world's building sector that has set itself the aim of creating innovative solutions for sustainable buildings. Self-powered wireless technology from EnOcean has been successfully deployed in several hundreds of thousands buildings worldwide. The EnOcean wireless protocol is standardized internationally as ISO/IEC 14543-3-10, which is optimized for wireless solutions with ultra-low power consumption and energy harvesting.

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