

## Company Profile

EnOcean GmbH is the pioneer of energy harvesting. Headquartered in Oberhaching, near Munich, the company delivers valuable data for the Internet of Things (IoT) with its resource-saving technology. For nearly 20 years, EnOcean produces maintenance-free wireless switches and sensors, which gain their energy from the surrounding – from movement, light or temperature. The combination of miniaturized energy converters, ultra-low power electronics and robust radio technology based on open standards (EnOcean, Zigbee and Bluetooth®) forms the foundation for digitized buildings, services and production processes in the IoT. The self-powered solutions are used in building automation, smart homes, LED lighting control and industrial applications. As an innovation driver, EnOcean is a strong partner for more than 350 leading product manufacturers and has already succeeded more than a million buildings worldwide with energy harvesting solutions.

### **The self-powered Internet of Things**

EnOcean modules and Easyfit products use the energy harvesting principle, which obtains energy from the surrounding environment to supply self-powered wireless sensor networks. Together with an efficient energy management system, the energy harvesting technology enables communication between maintenance-free IoT devices based on various wireless standards such as EnOcean, Zigbee and Bluetooth.

Data is the key to IoT applications. Energy harvesting sensors provide data for the Internet of Things in a resource-saving, self-powered and maintenance-free way – and thus help to use buildings, cities and industrial facilities more intelligently. EnOcean solutions enable low-maintenance sensor networks at a large scale – wireless and without battery replacement – that can be seamlessly integrated into flexible IoT networks. This makes energy harvesting the technology for a sustainable use of energy and information, including new working and living environments.

### **The EnOcean module portfolio – energy harvesting wireless modules for maintenance-free sensor solutions**

The product lines "868 MHz EnOcean" for Europe, "902 MHz EnOcean" for North America and "928 MHz EnOcean" for Japan consist of self-powered, wireless switch, sensor and receiver modules as well as various tools. They are based on the EnOcean wireless standard introduced by the EnOcean Alliance (ISO/IEC 14543-3-1X) in the sub-1-GHz-range, which has proven itself in building automation and smart homes thanks to its high reliability and a wireless range of up to 30 meters. Standardized sensor profiles ensure the interoperability

of more than 1,500 products from the EnOcean ecosystem, enabling flexible-networked system solutions. Another component of the EnOcean product family is a solar-based multi-sensor in the form factor of the standardized switch module (PTM). A true multi-talent, it integrates five sensors for temperature, humidity, illuminance, acceleration and magnetic contact. It can be configured and commissioned via an NFC interface (Near Field Communication) using an NFC reader, smartphone or tablet.

The EnOcean module portfolio also includes the "2.4 GHz Zigbee" product line with battery-free wireless switching modules for 2.4 GHz Zigbee systems that can be used in smart home applications worldwide. With "2.4 GHz Bluetooth", EnOcean also offers a wireless switching module for modern lighting control and a solar-based multi-sensor module for Bluetooth systems. All Bluetooth modules can be configured via an NFC interface.

The "Battery-free by EnOcean" seal identifies 100 % battery-free wireless switches and sensors. These include switches for the EnOcean and Bluetooth wireless standards and the smart switches from the Friends of Hue program for Philips Hue (Zigbee).

### **Easyfit – finished products for wireless and self-powered controls**

Easyfit products are self-powered switches and sensors using wireless standards such as EnOcean, Bluetooth and Zigbee, thus making IoT solutions more energy-efficient, more flexible and lower in cost. The portfolio includes battery-free Easyfit switches in frame designs for Europe and North America, a solar-powered motion detector and a solar-powered multi-sensor. All products integrate NFC for easy configuration.

For North America, EnOcean's Easyfit brand offers a comprehensive portfolio of wireless white label LED control devices for lighting systems with the EnOcean 902 MHz wireless standard. This Easyfit product line includes battery-free sensors and switches, actuators, LED lighting controls and a commissioning tool that enable easy configuration, intelligent local control and seamless integration into building automation with the EnOcean 902 MHz wireless standard for North America.

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