EnOcean
Self-powered IoT

EnOcean - Energy Harvesting in IoT

Transforming Buildings with Sustainability

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Sales Director Northern Europe

12/10/2023

Who we are

EnOcean
Self-powered IoT

We create smart environments

We equip buildings of any size with intelligent technology. Thanks to being wireless, EnOcean devices are also ideally suited for retrofits. Our self-powered radio switches and sensors measure and monitor:

Usage

Alarms

Motion

Door / window status

Light

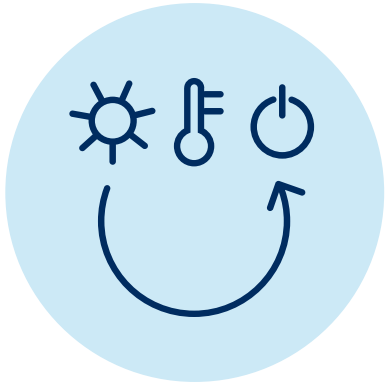
Air quality

Humidity

Temperature

How it works

EnOcean uses **sustainable** and **energy-efficient** technologies for easy-to-use products. We combine miniaturized energy harvesters and ultra-low power wireless technology to create maintenance-free sensor solutions for the use in buildings, smart homes and industrial applications as well as for the IoT.



Energy harvesting generates power from ambient energy: kinetic, solar and thermo.

We create interoperable **wireless** sensor solutions based on the open standards **Bluetooth, EnOcean** and **Zigbee**.

Ultra low power management ensures batteryless 24/7 operation.

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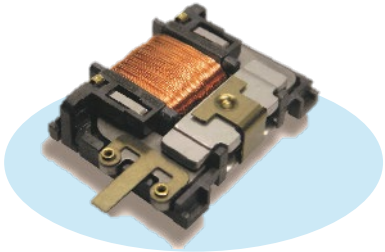
Energy Harvesting – the secret ingredient

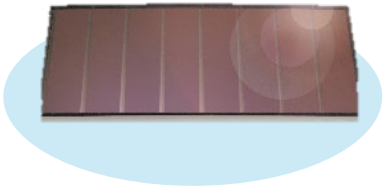
We obtain energy for our battery-free and wireless sensors and switches from the immediate surroundings. Our energy sources are motion, light, and temperature.

Mechanical: Energy from movement



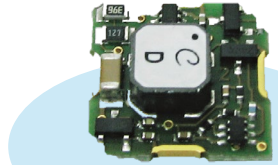
- Electrodynamic Energy Generator
- Energy conversion from a button press
- 1,000,000 maintenance-free operations
- Allows small and flat rocker designs

Solar: Natural and indoor light



- Small solar cell 13x35mm with energy storage
- Energy harvesting with ‘quick start’ and continuous operation

Thermal: Peltier / Seebeck effect driven



- Standard Peltier (Seebeck) element in combination with EnOcean ultra low power DC/DC converter
- Allows energy harvesting actuators such as TRVs
- Powered by heat differences

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Why

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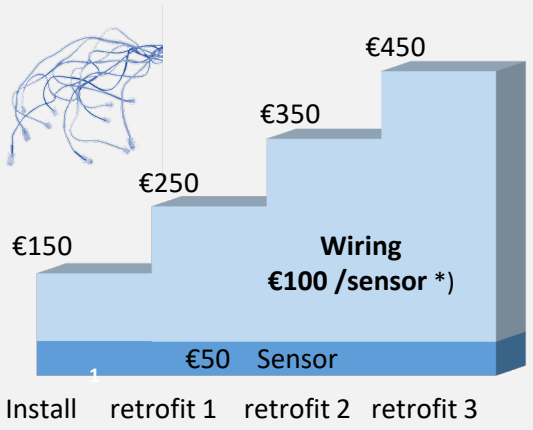
Sustainable IoT

WIRELESS, BATTERY-LESS and MAINTENANCE FREE

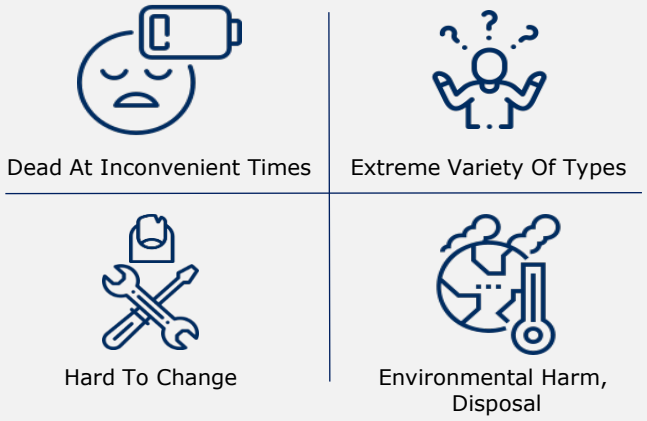
is so important

WIRED SENSOR - TCO

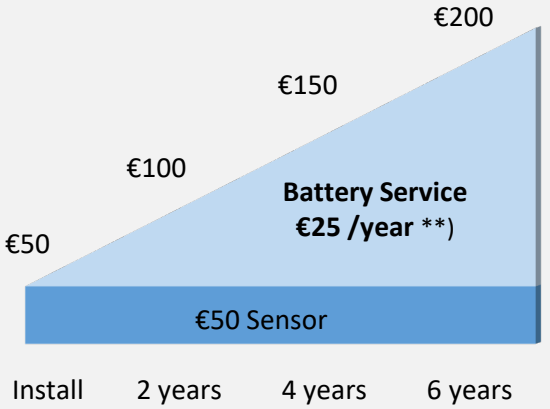


*) Ø30m cable /sensor (LAE 2021) x 3 €/m (ZVEH calculation aid, JYStY 2x2x0.8) + 10 € connecting

BATTERIES – MANY PROBLEMS



BATTERY SERVICE - TCO



**) BATTERY SERVICE - €25 per sensor if all batteries of a large system are replaced (10 min/sensor for access/replace/test/docu x €50/h + battery €4 + service margin 50%), €260 if a single battery has to be replaced (www.mouser.com/pdfDocs/Xidas_WP.pdf)
SERVICE INTERVALL - 1 year current standard by specialist IoT service companies to avoid early failures (e.g. www.tcsecurity.co.uk/index.php/faqs)

EnOcean – Sustainable and resource-saving

EnOcean for healthier and greener buildings

Sustainable companies consider **Environmental, Economic and Social** implications of every new initiative

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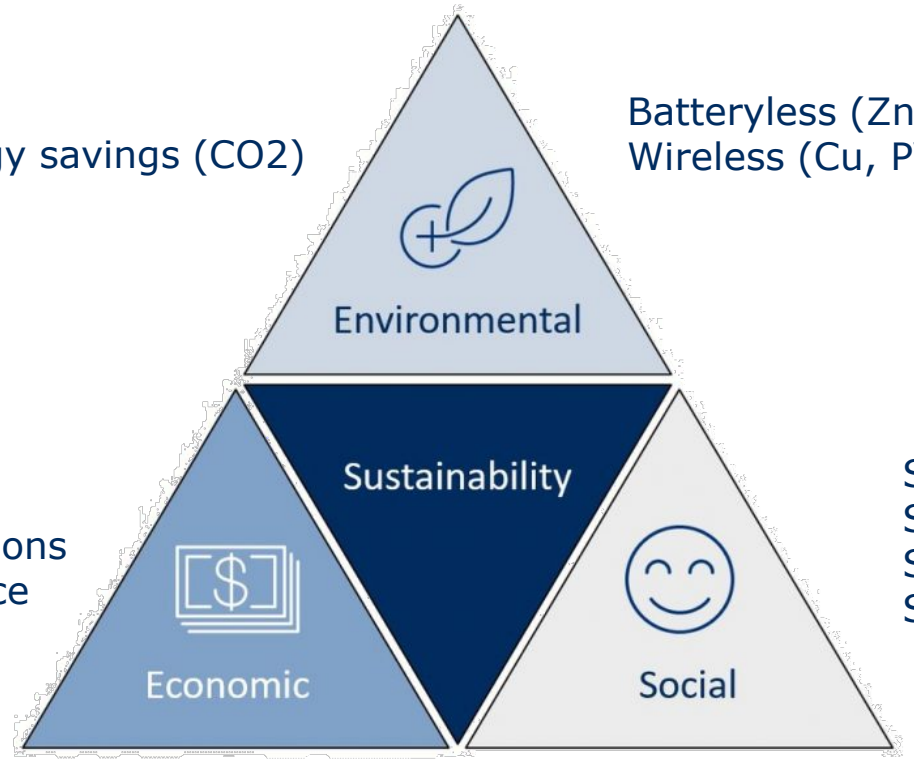
Digitization

Energy savings (CO2)

Batteryless (Zn/Ni/Co/Li)
Wireless (Cu, PVC, CO2)



Less installations
& maintenance

Smart Office
Smart Home
Smart Health
Smart Industry

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Strong Partnerships

We establish partnerships.

Customers, partners and suppliers ensure growth through innovative products and solutions.

Building automation	Lighting	IoT solutions	System Integrators

Over 400 members of the EnOcean Alliance

enocean®

signify
ZUMTOBEL
CASAMBI
XICATO
WIREPAS
Friends of hue
OSRAM
SILVAIR

aruba a Hewlett Packard Enterprise company
Microsoft
Vertuoz by ENGIE
ISS
T Systems
APLEONA
thingit.
IBM

wentzo
prolojik
metrikus
ONNEC
delmatic the lighting management company
global associates
IoT labs

Not all partners shown.

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Use Cases

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Smart Space Applications

Occupancy & space utilization

Air quality monitoring

Energy monitoring & control

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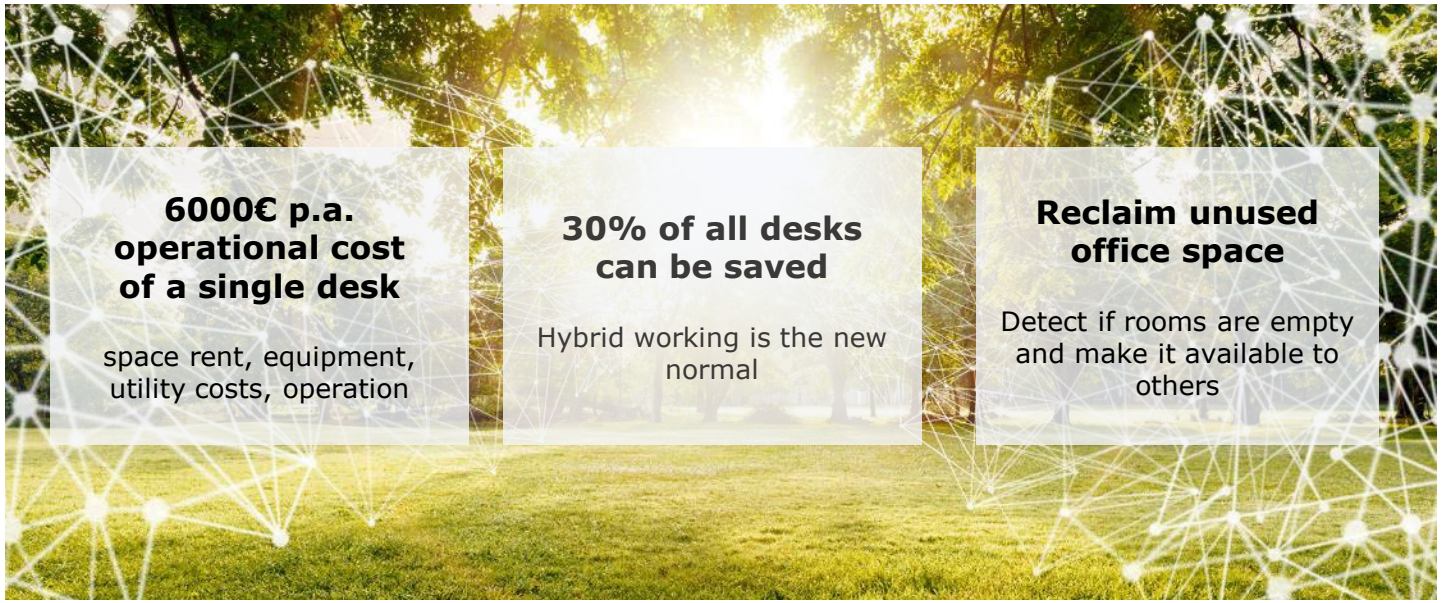
Occupancy and Space Utilization

Optimizing the office space for better utilization starts with understanding how the office is used



Desk occupancy

Motion detector

Door contact

Activity detector

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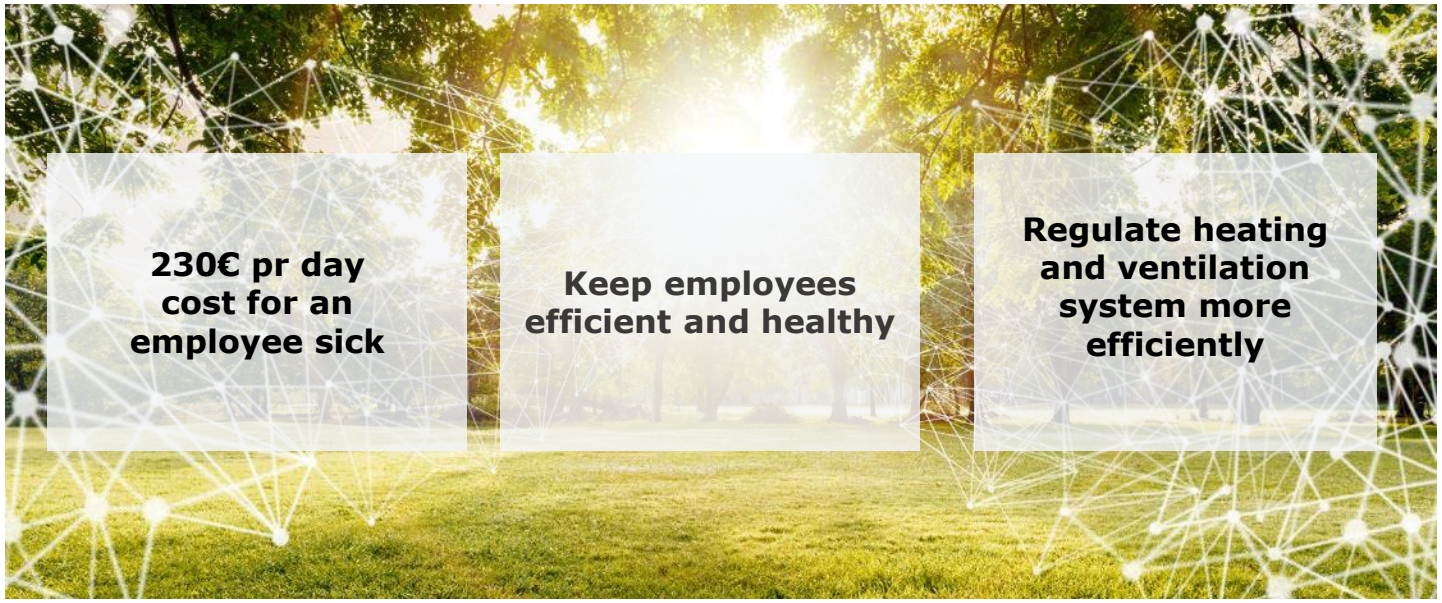
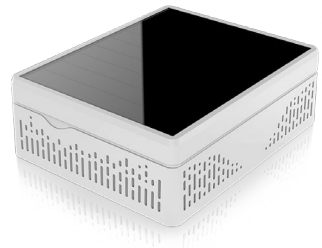
Air Quality Monitoring

Air quality is essential for providing a comfortable work environment and keeping employees healthy and efficient





CO2 & Noise

Temperature, Humidity, Light

Window contact

Temperature/ Humidity sensor

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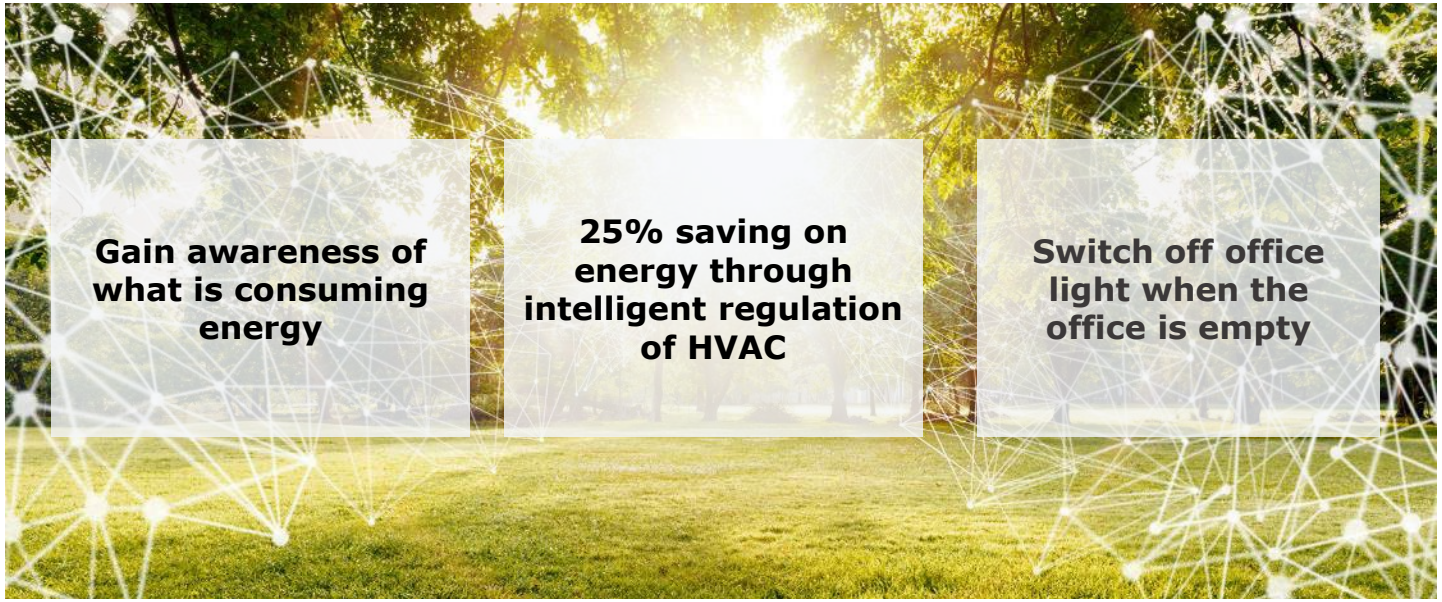
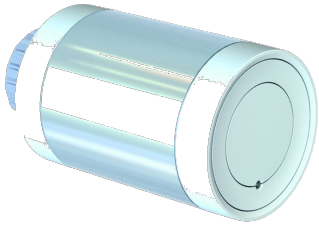
Energy Monitoring and Control

With increasing energy prices and focus on sustainability, companies needs to manage their energy consumption





Actuator heating

HVAC & BMS

Smart Meter

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Would you like to learn more? Simply contact us.

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