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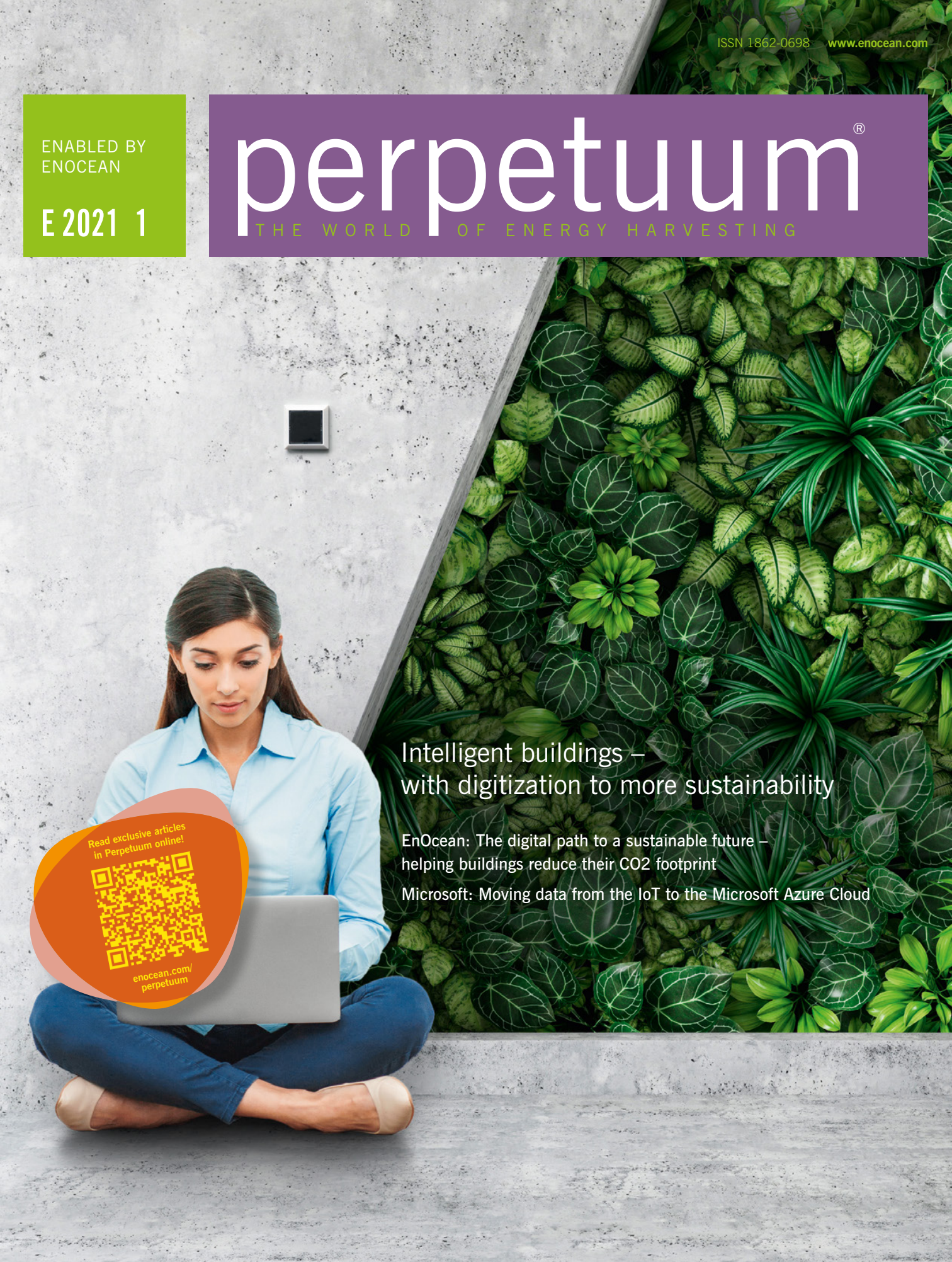

Intelligent buildings – with digitization to more sustainability

EnOcean: The digital path to a sustainable future – helping buildings reduce their CO2 footprint

Microsoft: Moving data from the IoT to the Microsoft Azure Cloud

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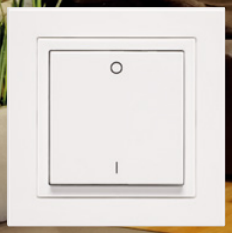
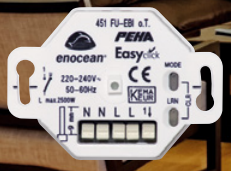
EASYCLICK*PRO* & CENTRALINE

ENOCEAN WIRELESS INTEGRATION FOR BUILDING MANAGEMENT





Easyclick*pro* flush-mounted receiver without energy measurement

Easyclick*pro* flush-mounted receiver with energy measurement and dimming function

Easyclick*pro* is an intelligent and energy-efficient radio system that works without batteries and without maintenance. It uses the latest EnOcean technology to control lights, shutters and other electrical devices and is compatible with all common building automation systems with EnOcean interface – a future-proof investment.

enocean® No batteries No wires Secure

For more information: **www.peha.de**

Honeywell PEHA

Dear readers,

EnOcean celebrates its 20th anniversary in 2021, which means 20 years of energy harvesting! Over the years, EnOcean has become synonymous with battery-free and wireless switches and sensors worldwide. It all started in the spring of 2001 when EnOcean presented its first wireless switches that gained their energy from the press of a button at electrical engineering trade fairs in Germany.

Using piezo-based energy converters, the co-founders developed a module concept that can be integrated into global switch designs. Just as an RJ45 plug grew from a mere telephone outlet into a worldwide standard for LAN cabling and today practically forms the backbone for the Internet, the first modules based on a piezo element have established themselves over time as the worldwide PTM radio module standard with an electrodynamic energy converter. And all this without batteries or cables because – thanks to energy harvesting – the press of a finger, for example, is enough to send a radio telegram. Several million switches are in operation today because EnOcean modules with the original PTM form factor are the industry standard worldwide.

But EnOcean's journey isn't over. The switches and sensors support not only the radio standard of the same name standardized by the EnOcean Alliance, but also Bluetooth and Zigbee. Thus, the company offers a constantly growing portfolio of self-powered radio modules for every use case, ranging from classic building automation to IoT-based solutions with cloud connectivity for smart buildings. This is made possible by partnerships with companies like Aruba, Cisco and Microsoft that enable intelligent (sensor) data processing without major infrastructure investments.

We're proud that EnOcean has continued to live up to its reputation as a pioneer and innovator in energy harvesting. Even after 20 years, our spirit of innovation has proven its worth and remains unchanged today. We're seeing how through our activities, a sustainable technology such as energy harvesting is taking on an increasingly important role, and in this way, we're contributing to greater sustainability in buildings.

We hope you'll enjoy reading this latest issue of Perpetuum! And don't forget that many more exclusive articles are waiting to be discovered online: enocean.com/perpetuum

Andreas Schneider,
CEO of EnOcean

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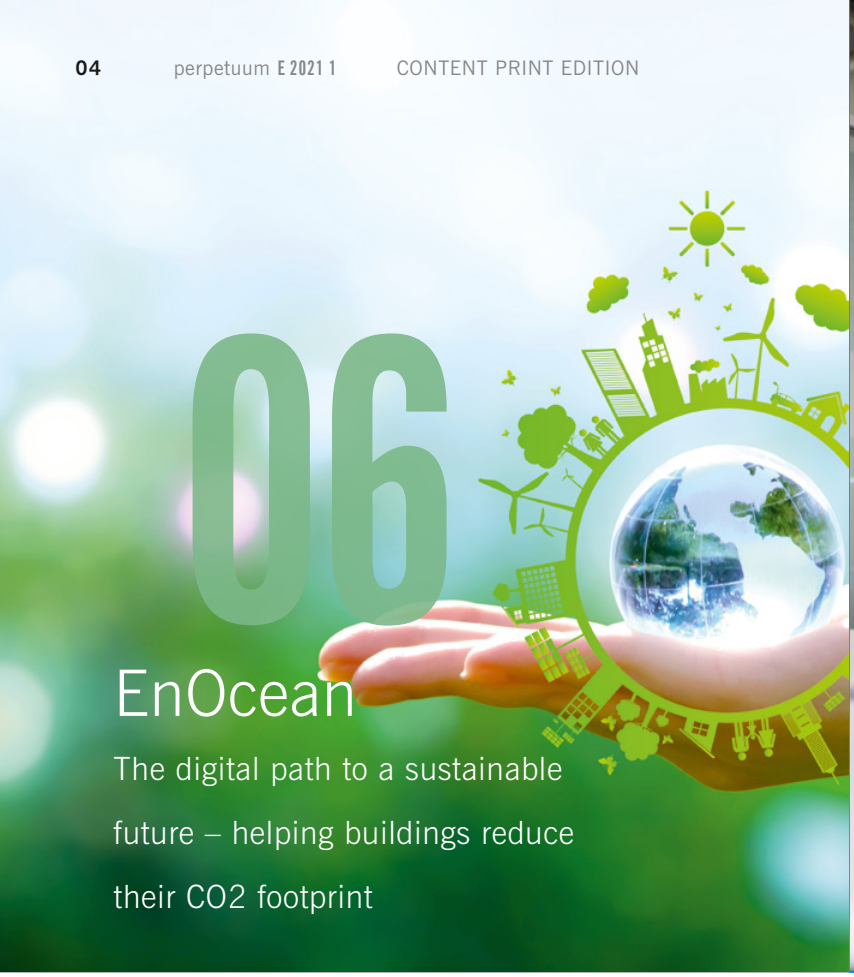

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Smart Home

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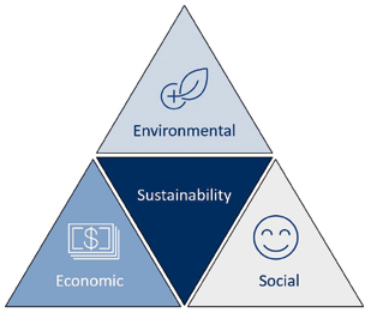
The digital path to a sustainable future: helping buildings reduce their CO2 footprint

Sustainability continues to climb to the top of the agenda for policymakers, companies, investors and private individuals. Behind this trend is a change in awareness among the general population and at the company management level. Policymakers support this change by issuing regulations on such things as energy consumption and CO2 emissions in buildings.

Digitizing buildings is only one piece of the puzzle when it comes to meeting the challenges presented by global megatrends like climate change. However, it's worth taking a closer look at this development by way of example.

By Andreas Schneider, CEO, EnOcean



Everything in balance: economically, environmentally and socially

The so-called sustainability triangle emerged in the 1990s, consisting of three main elements: economic, environmental and social. The objective is to find an equal balance between these three mainstays. If we transfer this model to technology, the concept of energy harvesting hits the mark.

Self-powered wireless sensors and switches obtain the energy they need for operation ecologically from their surroundings (such as motion, light and temperature) and do not need any batteries or cables. This approach yields economic benefits right from the start of implementation, and it is also far more cost-effective than cable- or battery-operated solutions during operation. When it comes to the social aspect, these devices help people work more productively and live healthier lives in smart buildings.

These types of wireless sensors are used for traditional building automation, in smart homes and for applications and solutions in the Internet of Things (IoT). For example, they monitor room use and optimize parking space management, supply data on the use of certain devices and facilitate cleaning based on demand. The sensors also make buildings themselves greener and help lower their CO2 emissions.

New and flexible work environments

Working from home has become a permanent part of the work culture in many companies, which gives rise to new office space requirements: fewer individual workstations and more areas that permit creative work processes and collaborative formats. Wireless sensors linked with IoT solutions help companies flexibly adapt their office rooms to these current requirements, regardless of whether they are in existing buildings or new ones.

The demand-based use of a building also optimizes its CO2 emissions. We have all seen these scenarios: Windows that are open even though the heating is on; the lights are on even though the level of daylight provides sufficient illumination. An intelligent and smart HVAC control system with self-powered sensors that supply data relating to temperature, humidity and occupancy responds to the actual demand. This is an important step toward making building management practices greener.

Smart systems for a better CO2 balance in buildings

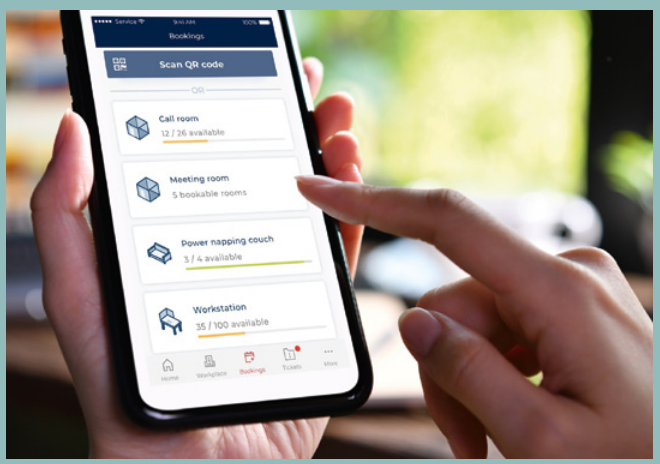
According to the World Green Building Council, buildings and the construction industry account for 39 percent of the world's carbon emissions. It is the responsibility of companies to lower the energy consumed by buildings and in this way cut CO2 emissions. Smart solutions, such as radio-based heating controllers and demand-based lighting, as well as better use of space, are logical steps forward. Smart IoT solutions and building automation systems based on energy harvesting technology are paving the way.

www.enocean.com

IoT investments in buildings – which use cases pay off?

Although the potential for IoT in facility management (FM) has been recognized for more than a decade, investments have been slow to follow, due to various challenges. These include up-front investment risks, lack of billing models and uncertainties when it comes to choosing future-proof technologies. However, the market is, in fact, undergoing major changes. We are seeing a significant rise in customer demand, and more and more standardized IoT and sensor solutions are being established, while data analysis and machine learning are coming of age. As a result, facility managers have the opportunity to become complete service providers for IoT solutions and to open up new business fields.

By Mark Fitzpatrick, Head of Digital Products, Apleona und Hanna Wegerich, Solutions Manager Digital Products, Apleona



Workstations or relaxation and conference rooms can be booked spontaneously or in advance from an app.

New market requirements

By using IoT, customers expect to gain better cost control and reduction, transparency, compliance, modern work environments as well as energy savings and measurably more sustainable buildings. Apleona offers a wide range of services in these areas. Examples include predictive maintenance, demand-driven cleaning and workplace management solutions. Such scenarios require sensors that continuously and reliably collect data. A number of application examples are already paying off, thanks to lower sensor prices and standardized technology. An important consideration is to select a use case that offers an acceptable risk-to-yield ratio in its own right. This use case must already bear all the costs for the infrastructure to be implemented – an infrastructure that can then be used for other use cases. To implement these benefits, it is important to not rely on a proprietary approach but rather to be mindful of interoperability and open standards.

Putting use cases to the test

Before companies focus on individual projects, they should define a general IoT vision. Applications that can be implemented with occupancy sensors show promise for those just getting started. Once such sensors are integrated into the building, a variety of use cases can be carried out, for example demand-driven cleaning or flexible booking of workstations and conference rooms. However, they also supply data on how the building and space are being used as a whole.

Example: flexible workstations

Employees can search for and book available workstations from an app in real time. This is made possible by desk occupancy sensors from EnOcean, which wirelessly transmit information on whether a desk is occupied. The sensors are mounted beneath the desk and detect motion with infrared signals.

Example: responsive room booking

In reality, conference rooms are often booked in advance but then not used at the specified time. The no-show rate is as much as 40 percent. Our app gives employees the ability to book the right room even spontaneously. The solar-based EnOcean occupancy sensors mounted on the ceiling report which rooms are currently available. After reserving the room, users have 15 minutes to occupy it before it is released again for rebooking.

This is the first step toward further IoT-based projects. For example, the sensors could also signal to an IoT solution that a room is not in use and the lights should be automatically turned off or the temperature adjusted.

IoT is a key factor in implementing a smart building. We believe that the FM and IoT sectors must work with customers to take into account all conceivable and useful applications and steer investments toward solutions that are based on open architectures and protocols. This approach will help companies derive more benefits from IoT over their building's entire lifespan.

www.apleona.com

Two birds with one stone

Rolling out ESG monitoring and digital readiness quickly and economically in existing buildings

While the digital transformation strategy in corporate real estate management usually pays off solely through space-saving measures, asset managers in the real estate business find their return on investment to be much more complex. Indeed, they face enormous pressure from legislators, investors and tenants to provide automated and accurate transparency in the areas of energy and sustainability (ESG monitoring). The investments needed to do this, however, are not immediately apparent in monetary terms and arise for each existing property. At first glance, this appears to be an expensive undertaking.

By Dr. Marc Gille-Sepehri, founder and CEO of Thing-it

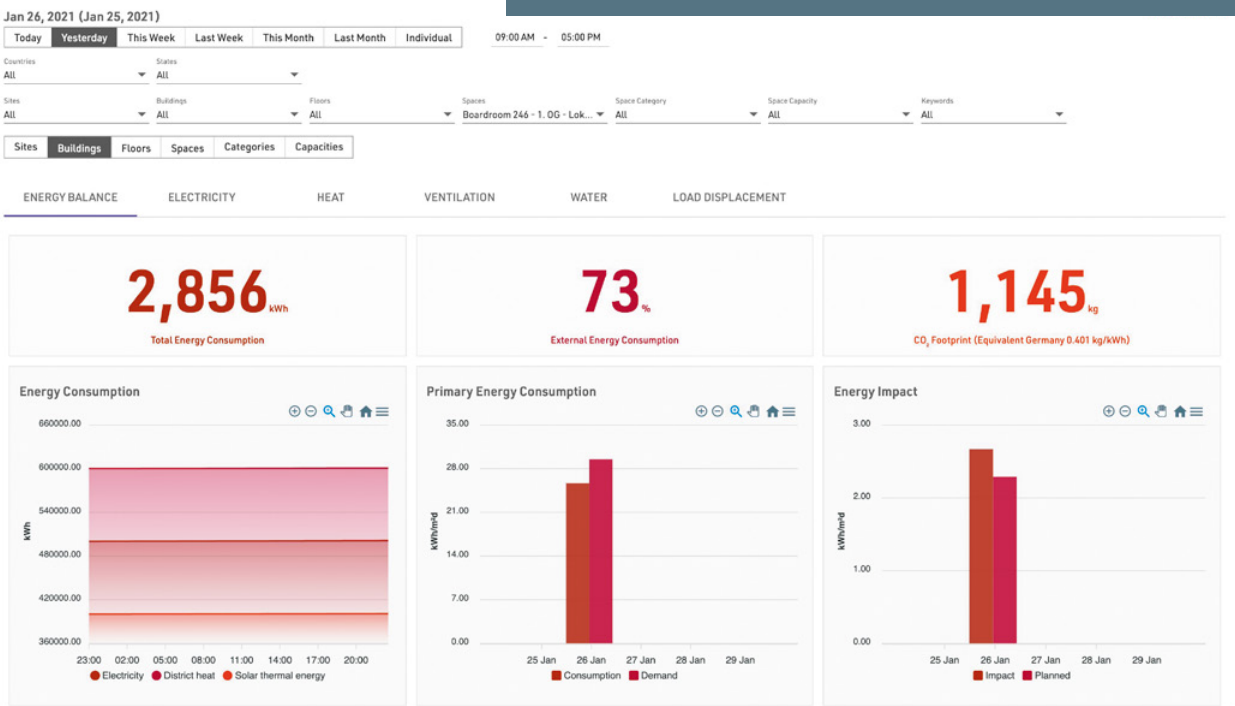
Three-stage plan for asset managers

1 A building operating system such as Thing-it is used as a central platform that covers all assets and almost effortlessly connects systems and sensors, provides dashboards and enables typical application scenarios for users (tenants, service providers).

2 An easily accessible integration approach is important for all systems to be connected and for any additional sensors that may be needed.

3 In addition to meeting the building owner's requirements, digital readiness is achieved for current and future tenants, thus monetizing the undertaking in two ways.

Live dashboards display all of a building's data relating, for example, to room use and booking as well as energy consumption and CO2 emissions.



The first step is to integrate all the technical systems in the building. This usually takes place by connecting the building (control) systems to the cloud from a central point. An understanding of the existing configuration is often critical. Artificial intelligence can help identify primary installations such as fans, cooling systems and heating loops and link them with the building operating system as well as place them in the cloud.

EnOcean technology for easy retrofits

The EnOcean ecosystem is a good choice for other sensors and actuators that may be needed (e.g. occupancy detectors and counters, power meters and room climate sensors for temperature, humidity and CO2). This ecosystem supplies sensors and actuators that are connected wirelessly and operate by energy harvesting without batteries, thus requiring no maintenance. Once the EnOcean infrastructure has been set up, it not only runs the sensors and actuators in a first rollout, but also serves as the basis for additional and even more economical retrofits for new applications.

Digital building structure

Along with the data link that connects systems, sensors and actuators, these devices must be located in the digital building infrastructure using BIM. This creates the famous “digital twin” that is used, for example, to assign and compare building areas such as rental space, device groups such as elevators, energy consumption, use data or maintenance data.

The same building blocks that benefit asset managers also support a tenant’s requirements. Once digitized, areas such as conference rooms can be booked, and when sensors detect that they are no longer in use, can be freed up again. Asset managers who master the art of such efficient and multi-use asset digitization can increase the transparency and value of their portfolios at a cost that can be calculated on a scale.

www.thing-it.com

Moving data from the IoT to Microsoft Azure Cloud

For Microsoft and many other companies, the Internet of Things (IoT) has already become an important and essential component of building automation concepts. Sensors supply the raw data needed to digitize buildings and processes and to carry out IoT projects based on this data in the Microsoft Azure Cloud. By Thomas Frahler, Business Lead Internet of Things, Microsoft

the

Microsoft Azure is a scalable and customizable cloud computing platform for data and applications that comply with the strictest security standards. It can be used to store and manage data and to develop applications. It not only meets the strictest data security standards, but also enables users to put together the programs and services themselves with the utmost flexibility, so that they can be tailored to a company's individual business processes.

Data collection via sensors

Self-powered wireless sensors from EnOcean are particularly suitable for the flexible and maintenance-free collection of data needed for an application. With the aid of explicit gateways, this data reaches the Microsoft Azure Cloud quickly and safely, or the user can simply rely on the existing IT infrastructure in the building. For example, Wi-Fi Access Points from Aruba, a Hewlett Packard Enterprise company, are ideal for the EnOcean sensors. An EnOcean USB stick, which is simply plugged into a suitable access point, is used to forward the sensor data directly to the Microsoft Azure Cloud.

Complete control over data

To carry out IoT projects in smart buildings, the raw data first needs to be converted to the right format. The EnOcean IoT Connector software is a suitable and time-saving option. The IoT Connector decodes the raw sensor data in the Azure Cloud and translates it into interpreted, ready-to-use data, which can then be used directly for the actual application. As an Azure container, the EnOcean IoT Connector is generally available from the Azure Marketplace at the click of a mouse. The data can also be stored in the Microsoft Azure Cloud – for example to evaluate historic events. The EnOcean IoT Connector has the great advantage of giving the customer complete control over the data flow.

The EnOcean IoT Connector and the Microsoft Azure Cloud enable IoT projects to be quickly set up and implemented in order to minimize CO2 emissions in buildings, save energy, create a healthy work environment and permit sustainable building use, among other things.

One click for everything

The benefits of Azure Marketplace are plain to see. Not only does it give facility managers and system integrators the software they need, but the latest updates and a step-by-step installation guide are also available. All solutions are simply billed through the Azure customer account. The interplay between EnOcean sensors, IoT Connector and the Azure Cloud portfolio provides the ideal solution for IoT projects in smart buildings.

www.azure.microsoft.com

Digital transformation

Titanium Intelligent Solutions builds distributed, cloud-based IoT building management applications to monitor, control and analyze hyperaware intelligent buildings. Titanium's technology applies artificial intelligence via Aruba's WiFi access points to various EnOcean hardware such as sensors and switches. This combination of data and context enables smart buildings to become cognizant of, and responsive to, the occupants and their environment. Hyper-aware buildings are more productive and environmentally friendly for the occupants and more economically prudent to run. Through a partnership between Titanium and Aruba, the Titanium universal IoT gateways are now being replaced with Aruba access points. By Ara Bederjikian, President, Titanium Intelligent Solutions

When an existing Aruba infrastructure is used, no separate network is needed, thus completely eliminating networking costs. Only the sensors and the USB stick need to be installed.

Team play of Aruba, EnOcean and Titanium

Titanium brings together Aruba's secure WiFi network and EnOcean's sensor data to deliver comprehensive, scalable and secure IoT platforms. Aruba's WiFi network generates provisional information such as identity, location and applications in use. In addition, facilities will be able to utilize the existing IT networks' secure infrastructure without running extra cables and gateways. This significantly reduces e-waste and promotes a much greener environment. EnOcean edge devices generate logical representations of physical data like temperature, enthalpy, power, and presence.

Current IoT market challenges

Installing multiple gateways, local servers or control panels for any IoT platform results in

with Titanium, Aruba and EnOcean

adding a separate communication network platform. It may require interdepartmental, cross-disciplinary coordination efforts which ultimately result in higher costs and delayed deployments. This complex way of installing IoT platforms can be extremely costly and slow down a company's digital transformation.

Networking benefits and savings

Using Aruba's existing WiFi network eliminates the multi-network deployment approach and provides Aruba enterprise-level security. Titanium can be easily deployed in any existing Aruba WiFi network that supports WiFi 5 and WiFi 6 Aruba access points with Aruba OS version 8.7 or later. Furthermore, Titanium's ease of deployment offers remote, semi-automated commissioning, which is designed to enable scaling across hundreds of buildings. Through the technology partnership with Aruba and EnOcean, Titanium achieves tremendous savings thanks, in part, to reduced hardware, maintenance and installation costs.

Benefits of the partnership

- Fast bring-up of hyper-aware smart buildings using cloud-based monitoring and control applications
- Easy retrofit of wireless and self-powered sensors to existing Aruba networks without a rip-and-replace
- Enterprise-class network that scales to address multi-location and multi-region deployments
- Supports more than 5,000 interoperable EnOcean Alliance devices such as thermostats, air quality and CO2 sensors or lighting and metering devices

www.titaniumintelligentsolutions.com

Digital map services

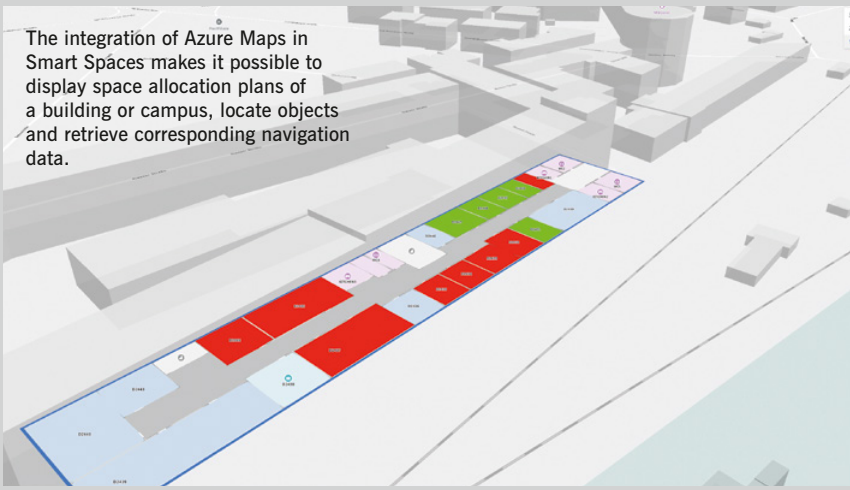
Almost everyone is familiar with digital map services. With Azure Maps, Microsoft provides a platform that offers much more than just the use of map material in the sense of classic routing. With the new abilities of Azure Maps Creator, companies can add individual indoor mapping data and enrich it with area and building data to direct employees, suppliers, customers as well as emergency services to a location.

By Nicolle Quaitsch, Head of Center of Excellence Microsoft, T-Systems MMS and Tino Mager, Senior Azure Architekt, T-Systems MMS

T-Systems MMS has integrated Azure Maps Creator into its own Smart Spaces solution. The solution allows companies to create modern work spaces that support creativity and employee wellbeing and optimize the use the office space by analyzing utilization through wireless and self-powered sensor technology by EnOcean. Various scenarios can now be implemented on top of the above-mentioned mapping capabilities.

Employees

In the case of offices spanning multiple locations or in campus areas, a rough orientation is given via signs on site. With Azure Maps, there is now direct navigation from the employees' current location to their destination, such as the room for the next meeting. This also means that objects can



The integration of Azure Maps in Smart Spaces makes it possible to display space allocation plans of a building or campus, locate objects and retrieve corresponding navigation data.

for smart spaces

be found via indoor navigation, provided they are connected to the platform.

Facility management

If facility management has several buildings in its care and trips to them are pending because, for example, damage needs to be repaired, Azure Maps can optimize the route based on priorities. Facility management can thus, for example, view and evaluate live or historical space utilization across buildings. Utilization data is collected by EnOcean sensors at the individual space or in the meeting room and integrated into the Digital Twin via the Smart Spaces platform, which is visualized in Azure Maps.

Service providers and visitors

Like employees and facility management, service providers can access Azure Maps data, for example, to find their way to a meeting location in unfamiliar surroundings and to be guided. In connection with this, they can also be granted access to rooms/areas via the Smart Spaces platform in an automated controlled manner, through the use of corresponding access cards.

Emergency management

In the event of emergencies requiring fire department or emergency medical services, for example, people can be located more quickly thanks to EnOcean presence detection sensors. With the aid of the Smart Spaces platform, the parts of the building that are still occupied are displayed in Azure Maps.

In summary, the integration of Azure Maps into MMS's Smart Spaces solution is conceivable for a variety of use cases where navigation – indoor as well as outdoor – is required.

www.t-systems-mms.com

Historic town hall now energy-efficient thanks to wireless solution

The retrofit of the “Municipio di Forlì” in the Italian province of Emilia-Romagna combines centuries-old tradition with state-of-the-art technology. For this purpose, the system integrator Casadei & Pellizzarro relied on the EasySens® wireless radio system from Thermokon.

By Claudio Rebolini, Managing Director, Thermokon Sensor Technology S.r.l.

The SR06 LCD is an energy-harvesting solar-powered wireless thermostat for controlling room temperature and lighting.

The SAB+ wireless valve actuator is also energy-harvesting through temperature differences and balances the room temperature individually in each room.

The centralized heating distribution of the previous automation system resulted in temperature imbalances inside the building that led to a significant waste of energy. The task was to provide efficiency and comfort to a historic building without having to fundamentally rewire it.

Which system requirements were important?

The chosen approach aimed at being able to control the temperature individually for each room and supply energy only to those rooms in which the required setpoint temperature was not reached. For reasons of energy efficiency, the new system also needed to be able to stop water circulation once the desired temperature was reached.

As a wireless system based on EnOcean technology, it enables fast installation and commissioning. In combination with the wireless SAB+ valve actuator for the radiators, networking with the building automation system is also extremely simple. No conventional batteries are needed, which means that the installation is not only environmentally friendly, but also maintenance-free. This also applies to the SR06 LCD room control units deployed. What particularly spoke in the client's favor was the possibility of convenient climate and lighting control in the rooms.

One of the greatest advantages, especially in historic buildings, is the elimination of wiring. For system integrators, the quick installation of the components with the possibility of pre-programming has also proven to be of great benefit. From the operator's point of view, the EnOcean technology and the resulting reduction in maintenance and increase in energy-savings brought a high degree of satisfaction.

How was the system layout in this project structured?

The approximately 150 radiators were equipped with the wireless SAB+ valve actuator, and central radio receivers were installed in the corridors that enable communication with the central heating system. In addition, a comfort scheduler and a standardized setpoint temperature were implemented.

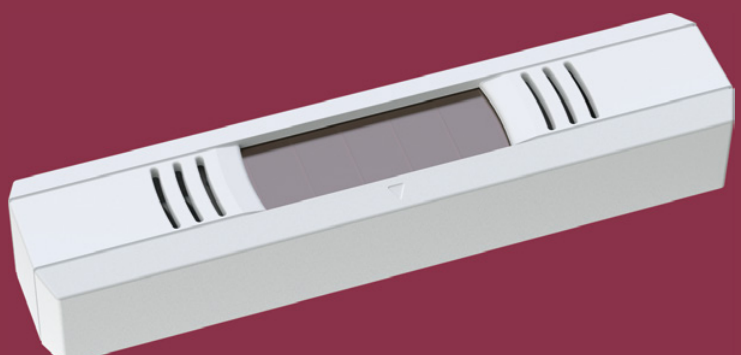
What are the experiences so far?

Both the system integrator and the end client are highly satisfied: The valve actuators enable optimal climate control and drastically reduce energy consumption. Aided by the building management system, the time-based temperature control also has a noticeably positive effect on the energy consumption.

www.thermokon.com

Compact energy saver

The new SRW03 wireless window contact from Thermokon combines several advantages: As soon as a window is opened, the wireless window contact sends a signal to the building management system through its EnOcean interface, thus ensuring automatic adjustment of the heating or cooling output on the room air-conditioning. This creates the conditions for noticeable energy savings. By Cornelius Berns, Sales Manager, Thermokon



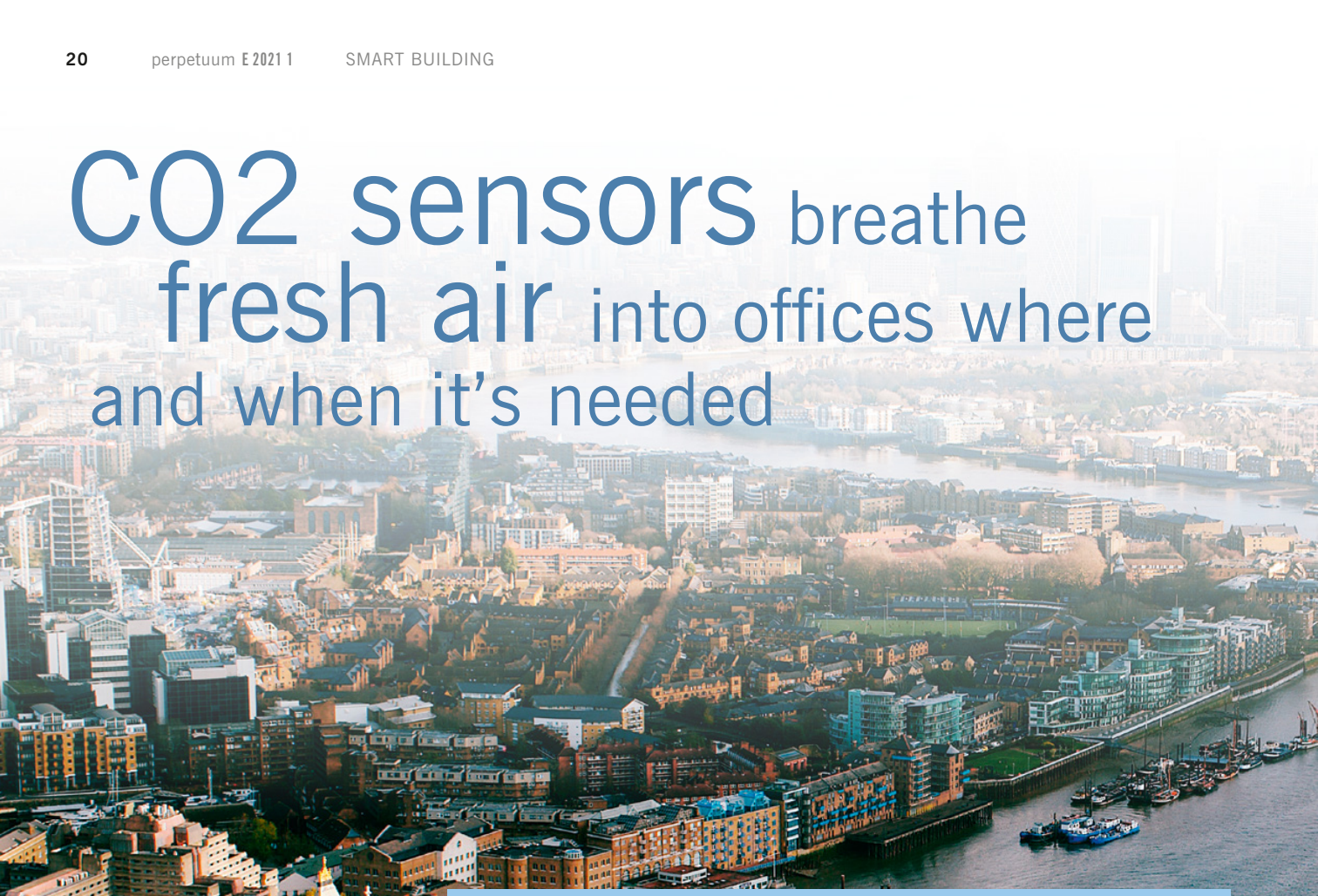
More flexibility with two variants

Available in two different versions, the SRW03 has a compact and inconspicuous design. The energy-harvesting and thus maintenance-free version with solar cell is just 9.5 cm long. The battery-powered version is also very small with a length of only 14 cm and is designed for low maintenance. By integrating two reed contacts within a single sensor, this version is the ideal solution for double-sash windows in vertical or horizontal orientation.

The new wireless window sensor is also convincing when it comes to freedom of design, because unlike numerous other sensors, both versions can be painted.

www.thermokon.com

CO2 sensors breathe fresh air into offices where and when it's needed



While the move to smart building controls and the use of CO2 sensors have been accelerated by the impact of the COVID-19 pandemic, Cavendish Engineers has been well known for championing this approach for some time.

By Peter Burbidge, Managing Director, Pressac

Initially driven by the 2020 energy-reduction targets and Energy Savings Opportunity Scheme (ESOS) in the UK, Cavendish Engineers was tasked with improving the efficiency of workspaces across its client's London portfolio.

An audit revealed the ventilation system was highly inefficient. It was running throughout their buildings, at full power throughout the working day, with energy being used to supply fresh air regardless of need. Cavendish designed and developed an intelligent system using real-time data to automate local ventilation controls.

By partnering with Pressac, Cavendish had access to highly accurate CO2 sensors to complete their innovative solution. The sensors use wireless technology and are solar-powered, making them easy to install, low-maintenance, and easy to slot into existing systems alongside other EnOcean Alliance products. What's more, by using Pressac's smart gateway they can convert EnOcean data into JSON data and send it straight to an MQTT broker or leading IoT platform.

42-percent reduction in air handling

By retrofitting sensors on each floor of the building, Cavendish could obtain an accurate measurement of CO2 levels throughout the day and then control the air handling units based on demand.

Rather than running at full power all day, units respond to increases in CO2 levels. As well as preventing the building from wasting large amounts of energy, the technology also gives facility management teams full, 24/7 visibility of workspace conditions. The project delivered a 42% reduction in air handling.

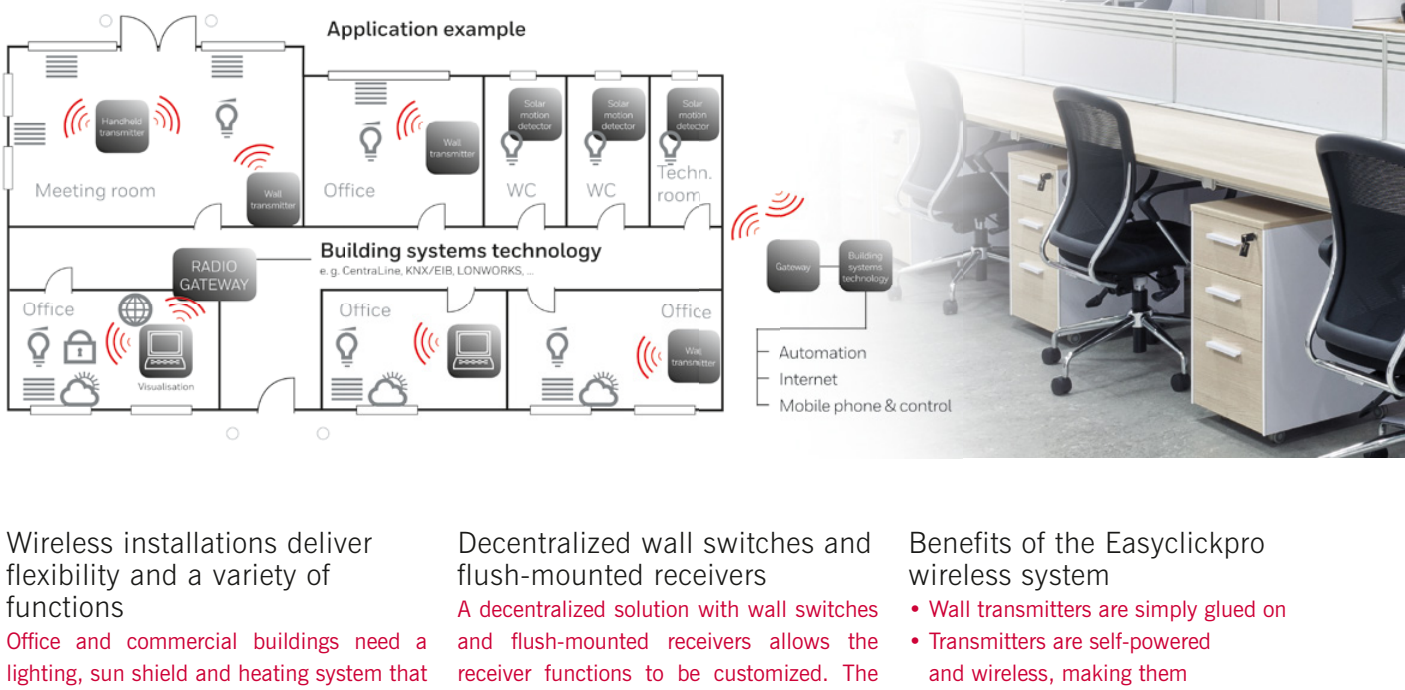
www.pressac.com

Easyclickpro wireless system ensures

energy-efficient

and flexible room use

When the conversation turns to EnOcean wireless technology, the question of specific applications quickly arises. The desire to control lights, blinds and room temperature, along with the energy-efficient and flexible use of rooms, often tops the list of priorities addressed by facility and real estate managers. This desire can be quickly realized even in existing buildings, using the solutions from Honeywell PEHA. **By Dominik Kirylo, Customer Marketing Leader EU, Honeywell PEHA**



Wireless installations deliver flexibility and a variety of functions

Office and commercial buildings need a lighting, sun shield and heating system that is reliable, energy-efficient and requires as little maintenance as possible. In addition, the system should be flexible so that appropriate adjustments can be easily made in the event that room use changes. The COVID-19 pandemic, in particular, has focused a great deal of attention on flexibility in office buildings. Not only do employees need to maintain a safe distance from each other, but companies also have to respond to changing space requirements.

Decentralized wall switches and flush-mounted receivers

A decentralized solution with wall switches and flush-mounted receivers allows the receiver functions to be customized. The wireless wall switches are simply glued in place, which is an enormous advantage particularly for installation in office rooms with a lot of glass or when reorganizing the space. With the Easyclickpro wireless system, entire open-plan offices can be readily converted into separate areas within a very short period of time. The self-powered transmitters are completely maintenance-free and compatible with many building automation systems with an EnOcean interface.

Benefits of the Easyclickpro wireless system

- Wall transmitters are simply glued on
- Transmitters are self-powered and wireless, making them maintenance-free
- A variety of functions increases comfort and energy efficiency
- Compatible with many building automation systems
- Group/central and scene functions are possible
- Motion detectors can be integrated

www.peha.de

Solvent waste overflow prevented with EnOcean-based

BASgatewayEO, a BACnet to EnOcean gateway from Contemporary Controls, is part of a solution that Argento Scientific developed for biopharmaceutical companies that need to prevent solvent waste overflow. Solvent waste, such as methanol, acetonitrile, sodium hydroxide and other hazardous chemicals, requires safe and dependable waste management solutions.

By Bennet Levine, R & D Manager, Contemporary Controls

Solar-powered level detector

Solvent waste is collected in a solvent waste carboy. That carboy has a float switch to monitor the waste solvent level. Using the BASgatewayEO with EnOcean-based window sensors and the EnOcean-based LEDRU Zone Controller, Argento Scientific was able to create a solar-powered level detector that uses OSIsoft PI to send a wireless notification to a cell phone to alert users when waste solvent reaches a specified level.

"EnOcean devices are robust, energy-efficient and solar-powered," says Adrian Argento, CEO of Argento Scientific. "Those benefits allowed us to avoid wires and batteries, which is an advantage in labs where wires can get in the way and outlets are at a premium."

EnOcean devices in the BACnet network

Signals from the EnOcean window sensors indicating level measurements were made available via BACnet to OSIsoft PI using the BASgatewayEO, which integrates EnOcean devices into BACnet networks. The gateway allows users to discover and select EnOcean devices on their network. It then creates new virtual BACnet devices for the BACnet network that are assigned the appropriate BACnet objects.

The process begins with the selection of the appropriate EnOcean Equipment Profile (EEP) for the EnOcean device. This provides the gateway with information on which BACnet objects need to be created for the relevant virtual BACnet device and how to map the EnOcean data received to these objects. This virtual device has the same properties as the EnOcean device contained in its BACnet objects and updates this data whenever the EnOcean device transmits new data. As more EnOcean devices are added to the gateway, more virtual BACnet devices are created. All of these BACnet devices exist in their own virtual network. This allows BACnet head-ends to easily discover these devices and receive the EnOcean data via BACnet. Contemporary Controls' BASgatewayEO meets the BACnet requirements for a BACnet gateway documented in the latest versions of the ASHRAE-135 BACnet standard and also acts as a BACnet router between BACnet/IP and its virtual network.

Configuration via browser

For multiple EnOcean devices of the same type, many BACnet head-ends provide the ability to copy/paste these virtual BACnet devices, including their objects, schedules, trends, graphics, and alarms, in order to simplify integration. All configuration occurs via the built-in webpages of the gateway using a standard browser without the need for separate applications and hardware. The Argento Scientific Waste Solvent Level Detector leveraged the strengths of EnOcean technology to create a reliable, wireless solution that meets the customer's needs.

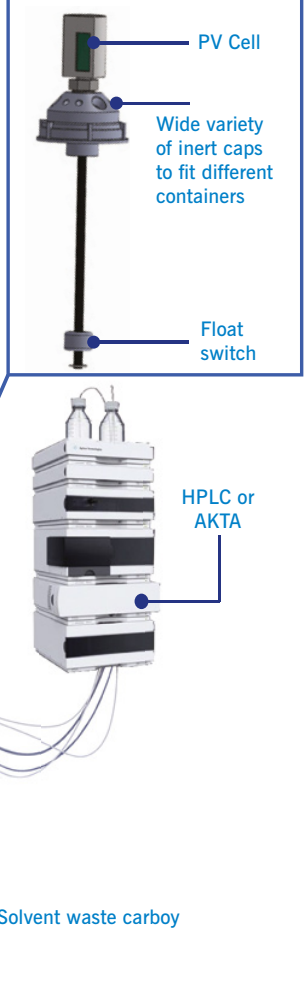
www.ccontrols.com

solution

The BACnet to EnOcean gateway from Contemporary Controls is part of the solution developed by Argento Scientific to prevent solvent waste overflow.

WASTE SOLVENT LEVEL DETECTOR

- No wires or batteries
- Retrofits to existing waste collection system
- Robust, patent-pending design
- Remote notification



The third generation of SAUTER EnOcean room operating units

The room climate can be easily and individually adjusted thanks to local operating units and push-button sensors. The SAUTER ecoUnit 1 product range is based on EnOcean battery-free wireless technology and is suitable for a wide range of applications in room automation. Old building standards, state-of-the-art glass architecture or longer periods of darkness – nothing stands in the way of using EnOcean wireless room operation units from SAUTER.

By Roland Hofstetter, Product Manager Building/Room Automation, SAUTER Head Office

The wireless and self-powered room operating units, which are part of the SAUTER modulo system family, have been given an all-round makeover. The new generation of operating unit, room sensor and EnOcean gateway boasts high-quality electronics and improved product features.

Maximum flexibility – minimum life-cycle costs

The ecoUnit146 room operating unit is equipped with "Smart Acknowledge" technology that allows the automation station to receive the temperature value, setpoint offset or button actuation of the room control unit. It can also display states and other actual values or status information on the ecoUnit146's LCD display or even reset the setpoint offset.

The ecoUnit110 room sensor has a digital temperature sensor and is compatible with third-party EnOcean interfaces. Both the sensor and the operating unit have a particularly large solar panel which, combined with the built-in energy storage, can easily bridge especially long, dark phases, e.g. long weekends.

The third device in the series, the ecosCom581 EnOcean gateway, can be integrated smoothly into SAUTER's automation system. It can be ideally placed in a remote location in the room via the RS-485 bus (SLC), has an updated platform with the latest micro-controller, and is updatable, making it possible to extend the new EnOcean Equipment Profile (EEP). The product range is rounded off by the push-button unit with an ecoUnit106 solar panel, which can be used as an extension.

www.sauter-controls.com

Sustainable construction with prefabricated homes

The prefabricated home sector in Germany has been growing for years. In 2019 and 2020, more than one in five new single-family homes and duplexes approved were prefabricated. More and more builders are choosing to construct the most climate-friendly and sustainable buildings possible. Since 1960, WeberHaus has been building single-family homes and apartment buildings from the renewable material wood and relies on innovative technology not only to build houses without wasting resources but also to "operate" them energy-efficiently later on. By Holger Heid, Product Manager, WeberHaus

The smart approach without cables or batteries

Compared to other materials, the processed wood elements save energy and significantly reduce CO2 emissions throughout the entire life cycle. However, WeberHaus relies on sustainability not only in the building's shell but also in its technical systems. Radio-based and self-powered EnOcean switches are thus used in all the company's homes, e.g. for controlling the lights. These switches make it possible to greatly reduce the use of power cables, so that fewer raw materials in the form of plastics and copper need to be consumed. The energy needed is produced by the switches themselves from sunlight or by pressing the switch, based on the energy harvesting principle.

Smart control of building systems means less CO2

A heat pump with controlled ventilation ensures ecological and economical heating and cooling. EnOcean technology is an optimal addition to the heating installation. The radio-based sensors allow for automated control of shading, thus ensuring pleasant, cooler indoor temperatures in summer. In combination, this approach ensures a pleasant, comfortable living environment with a significantly smaller CO2 footprint.

www.weberhaus.co.uk

EnOcean's latest products – ready for the challenges of today and the opportunities of tomorrow

By Matthias Kassner, Vice President Product Marketing, EnOcean

During the last year we saw a sharp increase in flexible work schemes requiring new solutions that are intuitive to use, can be quickly installed and require no maintenance. EnOcean addresses these needs with new products that strengthen our position as industry leader of energy harvesting sensor solutions:

- Our new STM 550 IoT multisensor uses the established PTM21x module form factor to provide valuable IoT data.
- The new EMDC motion detector with illumination sensor allows easy monitoring of space utilization and enables automatic control of lighting and HVAC systems.
- The integration of an NFC configuration interface into STM 550, EMDC and also our latest energy harvesting switch module PTM 215 allows quick configuration using only a smartphone or a dedicated NFC reader.
- Our new bi-stable energy harvesting switch module PTM 202 provides an intuitive user interface, which makes it ideally suited for a wide range of applications – wireless and maintenance-free.
- Analysis of EnOcean data has now become even simpler, thanks to the EnOcean IoT Connector cloud software which translates the content of EnOcean radio telegrams into easy to use key/value pairs for further analysis. The cloud environment can be selected and operated by the customer, ensuring full ownership of all data.

EnOcean IoT Connector
Intelligent Transforming

At EnOcean we believe that these new products enable our partners and their customers to address the current challenges and be ready for the opportunities of tomorrow.

www.enocean.com

MASTHEAD

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EnOcean GmbH, Kolpingring 18a
82041 Oberhaching, Germany
Phone: +49 89 6734 689 0
Fax: +49 89 6734 689 50
perpetuum@enocean.com
www.enocean.com

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COMPACT ENERGY SAVER

Wireless Window Contact SRW03 NEW

» **Flexibility** thanks to two variants:

SRW03 – energy harvesting through solar cell

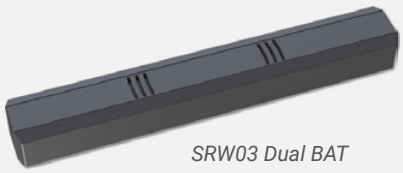
SRW03 Dual BAT – power supply provided by AAA battery

» **Unique advantage:** By integrating two reed contacts (SRW03 Dual BAT), double windows can also be monitored with only one window contact

» **Compact, flat design**

» **Standard colours:** white, anthracite

» **High flexibility in design:** both versions can be painted



SRW03 Dual BAT

SRW03

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THERMOKON SENSORTECHNIK GMBH – Platanenweg 1 – 35756 Mittenaar – Germany
email@thermokon.de – www.thermokon.de – Phone +49 2778 6960-0