



ENABLED BY ENOCEAN

perpetuum®

MAINTENANCE - FREE WIRELESS SWITCHES & SENSORS

2011

ISSUE

2

10
YEARS
EnOcean

ANNIVERSARY

10 YEARS OF ENOCEAN –
10 years of innovation

NEW PROMOTER

BSC Computer becomes a promoter of the
EnOcean Alliance

SIEMENS

Efficient building management with EnOcean
technology in highest building in Italy

GE

Enhanced energy efficiency and consumer
convenience with batteryfree HabiTEQ
system from GE

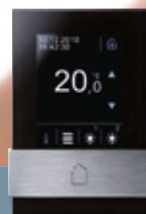


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Keep in touch with the future



Dear readers,

Ten years ago we – Markus Brehler, Frank Schmidt, Armin Anders, Oliver Sczesny and Andreas Schneider – founded EnOcean with the aid of the Siemens Technology Accelerator. Since then, we have been harvesting the power available in our surroundings, to realise maintenance-free wireless switches and sensors. Meanwhile, EnOcean's batteryless wireless technology has established itself as a wireless standard for sustainable buildings. Today there are more than 200,000 buildings that work with EnOcean wireless sensors, and over 800 interoperable products. Additionally, energy harvesting wireless technology is now becoming increasingly significant for use in industrial plant automation. For example, EnOcean-based products can be used to control the freezers in a supermarket or for reliable monitoring of the status of industrial machines and processes.

Not only can we boast a significant growth in the number of customers and completed projects, but we can also confirm sizeable geographic spread: in the USA, Great Britain and France. China is another country in which we have achieved growth recently. Success stories from China are in the news almost daily – fast rate of economic growth, huge exports and a booming construction industry are just some of the themes. New building activity is

increasing at more than nine percent annually which puts an insupportable burden on the consumption of fossil fuels. The government is trying different ways to remedy this by introducing an energy efficiency act, for example.

We think this combination of growth and pressure for energy efficiency presents good opportunities for the EnOcean eco-system and EnOcean-enabled products. This is confirmed by the activities of our international partners in China, as well as by the newly founded Chinese businesses Lutuo and YTL, which will focus on building automation with batteryless wireless technology.

EnOcean is also strengthening its presence in China by a sales director solely for the Asian market. In the near future we will open an EnOcean office in China with local staff. Together with our customers and members of the EnOcean Alliance we will continue our success story in Asia by helping to drive innovative building solutions to market quickly and by helping to implement energy efficient building projects.

We would like to extend a big thank you to all our partners and users of EnOcean technology, who have trusted us and our technology during the past ten years.

EnOcean founder team



Ten years have passed since EnOcean was founded.
That meant "spot on" for a unique success story.

Happy
Birthday
10 YEARS
OF ENOCEAN

BSC Computer becomes
a promoter of the EnOcean
Alliance

NEW PROMOTER



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MASTHEAD

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SIEMENS

*Efficient building
management with
EnOcean technology
in highest building in
Italy*

35

GE

*Enhanced energy efficiency
and consumer convenience with
batteryfree HabITEQ system from GE*

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THE ABCs OF ENOCEAN

EnOcean GmbH is the originator of patented self-powered wireless technology. Headquartered in Oberhaching near Munich, the company manufactures and markets maintenance-free wireless sensor solutions for use in buildings and industrial installations. EnOcean products are based on a combination of miniaturized energy converters, ultra-low-power electronic circuitry and reliable wireless. EnOcean wireless components are already in use in more than 200,000 buildings.

By Andreas Schneider, Chief Marketing Officer, EnOcean GmbH

GREEN

The innovative enabling technology from EnOcean works entirely without batteries, and is completely service-free. To detect information and then transmit it by short-range wireless, an EnOcean solution harvests the necessary power from its surroundings: from linear motion, light or differences in temperature for example. The energy obtained in this way suffices to send a wireless signal, and turn on a light for instance. Plus, the use of wireless switches and wireless sensors very much simplifies the cabling of a building. At the same time they make for a great deal of flexibility because no new cabling is needed if alterations are due. With little effort and with no breaking into walls, EnOcean-enabled products can be placed exactly where they are of optimum use.

SMART

EnOcean is a system that optimally connects a number of components: wireless sensor networks, energy management, software and sensor link. Each wireless node possesses its own local processor to capture measured data, for instance, and control energy management or wireless transmission. EnOcean wireless modules always come with firmware set up so that no modifications are necessary. Plus there is enough scope for application-specific configuration. Added to which, wireless sensor modules from EnOcean are very simply integrated in a whole number of different sensors.

WIRELESS

The EnOcean wireless signal uses the 868 MHz or 315 MHz frequency band, meaning the technology is suitable for solutions worldwide. Telegrams are just one millisecond in duration, and are transmitted at a rate of 125 kilobits per second. To exclude transmission errors, a telegram is repeated a number of times in the space of 30 milliseconds. Transmitting data packets in random intervals makes the probability of collision extremely small. The range of EnOcean wireless sensors is 300 meters in the open and up to 30 meters inside buildings. Each EnOcean module comes with a unique 32-bit identification number to eliminate any possibility of overlap with other wireless sensors.

INTEROPERABLE

OEM partners in very different sectors find it very easy to integrate EnOcean modules in a whole variety of products. EnOcean technology shows the way to fast development of new wireless solutions and time to market. With the STM 310 series of modules it is possible to generate full energy-autonomous applications speedily and simply, like window contacts, temperature and humidity sensors or light, pressure and gas sensors. All EnOcean enabled products are interoperable – meaning that appliances or devices created by different manufacturers can communicate with one another and cooperate without any difficulty in one and the same system.

www.enocean.com



ENOCEAN ALLIANCE STANDS FOR EFFICIENT BUILDINGS



By Graham Martin, Chairman,
EnOcean Alliance



Leading companies across the globe in the building sector formed the EnOcean Alliance in 2008, to establish innovative automation solutions for sustainable buildings – and so to make buildings more energy-efficient, more flexible and lower in cost.

Members of the EnOcean Alliance develop products and solutions based on energy harvesting wireless technology. Within three years of the foundation of the EnOcean Alliance it can not only show rapid growth in the number of member companies to over 200, but also 200,000 buildings already equipped with energy harvesting wireless technology over 750 interoperable products.

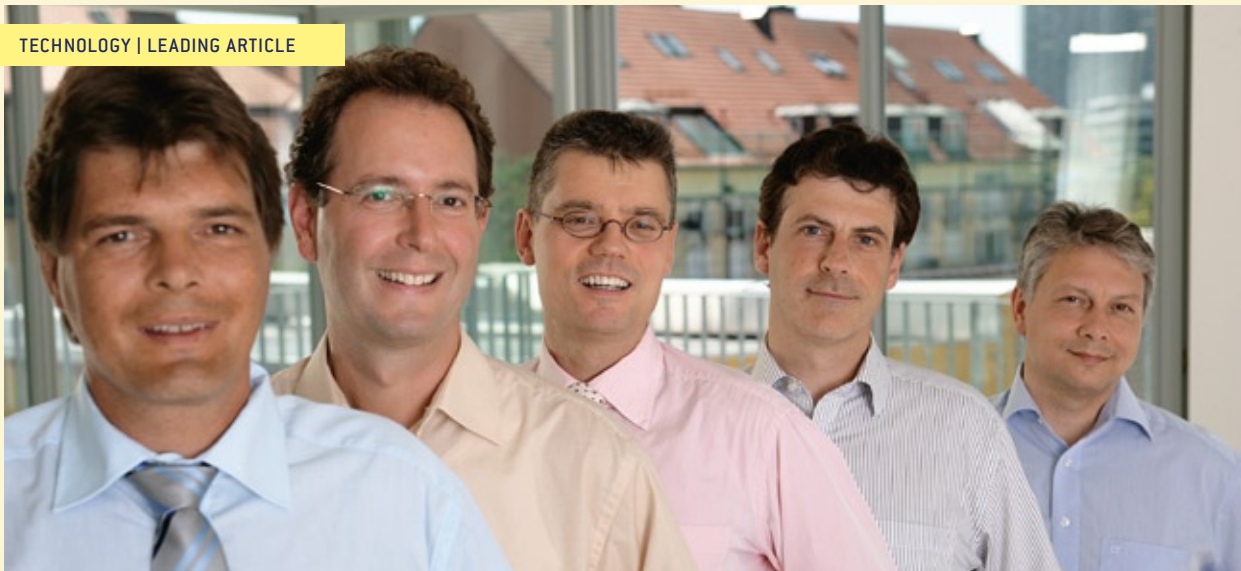
Alliance members have the possibility of accessing new business areas with innovative technology. Furthermore they can proactively work together within the Alliance Technical Working Group to implement interoperable products based on approved Alliance specifications, and to benefit from the international networking and the Alliance marketing activities – such as joint trade shows, public relations support, advertising and lobbying.

The Alliance offers three membership classes: Promoters, Participants and Associate Members. The following nine companies are promoters of the EnOcean Alliance: BSC Computer, EnOcean, Leviton, Verve™ Living Systems (a Masco Company), MK Electric (a Honeywell Business), Omnio, Jäger Direkt, Texas Instruments and Thermokon.

We invite you to join us as a member of the Alliance to enable you to benefit from this fast growing innovative eco-system and the ever increasing success of the technology:

www.enocean-alliance.org/joinus





10 YEARS OF ENOCEAN – 10 YEARS OF INNOVATION

Ten years have passed since EnOcean was officially entered in the commercial register, and EnOcean's founders took to the road with colorful demonstrators in the form of big flush-mounted cases to show potential customers that the click of a switch could produce enough energy for wireless transmission of a signal. That meant "spot on" – and batteryless of course – for a unique story of innovation and success.

By Andreas Schneider, Chief Marketing Officer, EnOcean GmbH

The term "innovation" is quite generally applied to new ideas and inventions and creating business with them. More precisely, innovations are the result of ideas once these have been implemented in new products, services or processes, are successfully put into use and make their way on the market. Seen that way, EnOcean's batteryless wireless technology, which has now gone into use in some 200,000 buildings, truly is an innovation. One innovation? A whole number of them!

The basis for all developments that have followed was the batteryless wireless switch that converts linear motion into electrical energy by a click and sense principle. It took highly energy-optimized wireless transmission and smart energy management to implement the system in a batteryless wireless module called PTM. The first applications looked at back in 2003 were light controls. But with the implementation of a purely mechanically integrated, general-purpose wireless switch module it was possible to create many different switch designs. The energy efficiency of the microsystem then made it possible for the first time to control heating installations by wireless sensors operating around the clock, in darkness too, powered by small solar cells and even the weakest interior lighting: a prime feature of EnOcean's STM module family. Simple receivers for direct control of lights and heating subse-

quently drew the attention of electricians, planners and investors.

INTEROPERABLE END-PRODUCTS

The idea of creating systems from cross-facility wireless sensor technology was successfully applied by the first EnOcean users as early as 2004, and has become the basis for interoperability of end-products in the EnOcean Alliance ecosystem. TCP/IP-based building systems started to appear in major commercial property. Producers integrated the signals of EnOcean wireless sensors in these innovative systems. Since then a perfect symbiosis of flexibly positioned and maintenance-free field devices and user-programmable system architectures has supported demands for sustainability in modern offices.

Further innovations followed: The implementation of an electromechanical energy converter that took the place of the original piezo switch in 2005 formed the basis for wireless window handles



The first wireless switch prototypes in 2001.



Exhibition booths 2010 and 2001.

and industrial switching devices. In the meantime, in addition to complete wireless modules, EnOcean supplies individual energy converter and wireless components that OEMs put into a whole variety of solutions. And the requirements of the OEMs expand in turn the range of products offered by EnOcean – a process of open innovation, as illustrated by sensors and infrastructure for building services. Extra to switches and temperature sensors, the following years produced a varied portfolio of sensors, light sensors, solar-powered motion detectors plus gateways to all common building automation standards.

PERFECT FOUNDATION FOR SMART HOME AND SMART GRID

2010 marked a further milestone in EnOcean's history of innovation with the market launch of the bidirectional Dolphin platform. Miniaturized – custom programmable – standard wireless modules, integrated energy management, simply operated interfaces and

radio frequency approval are major attributes of the EnOcean product range. The resulting end-products with visualization, actuators with energy metering functionality and status feedback, and with TCP/IP-based wireless

sensor networks create maximum energy efficiency in buildings and are used increasingly in residential building for comfort and convenience functions. They thus form a perfect foundation for smart home and smart grid solutions, aimed in future at optimizing the use and distribution of regenerative forms of energy. Before long batteryless wireless products such as heating radiator valves will be operated by differences in heat.

WORLDWIDE CUSTOMER BASE

EnOcean customers operate internationally, spreading the benefits of batteryless wireless technology since the first products became available. With the establishment of a branch in the USA in 2005, EnOcean laid the foundation for business in North America. With product variants in the 315 MHz frequency band (in particular America) and 868 MHz (especially Europe) virtually the whole world is now open for application of EnOcean technology. Offices in the UK and France plus distributors globally now support more than 100 OEMs, the 200 members of the EnOcean Alliance and countless end-users in integrating batteryless technology. The next step is an office in China. From the five-man startup team of 2001, EnOcean has become the market leader for batteryless wireless technology with more than 60 employees.

www.enocean.com



Powerful but small – in 2006 EnOcean marketed the second generation of mechanical energy converters.

A HISTORY OF SUCCESS



2001

EnOcean founded by management and Siemens Technology Accelerator

2002

World's first energy harvesting wireless switch introduced

2003

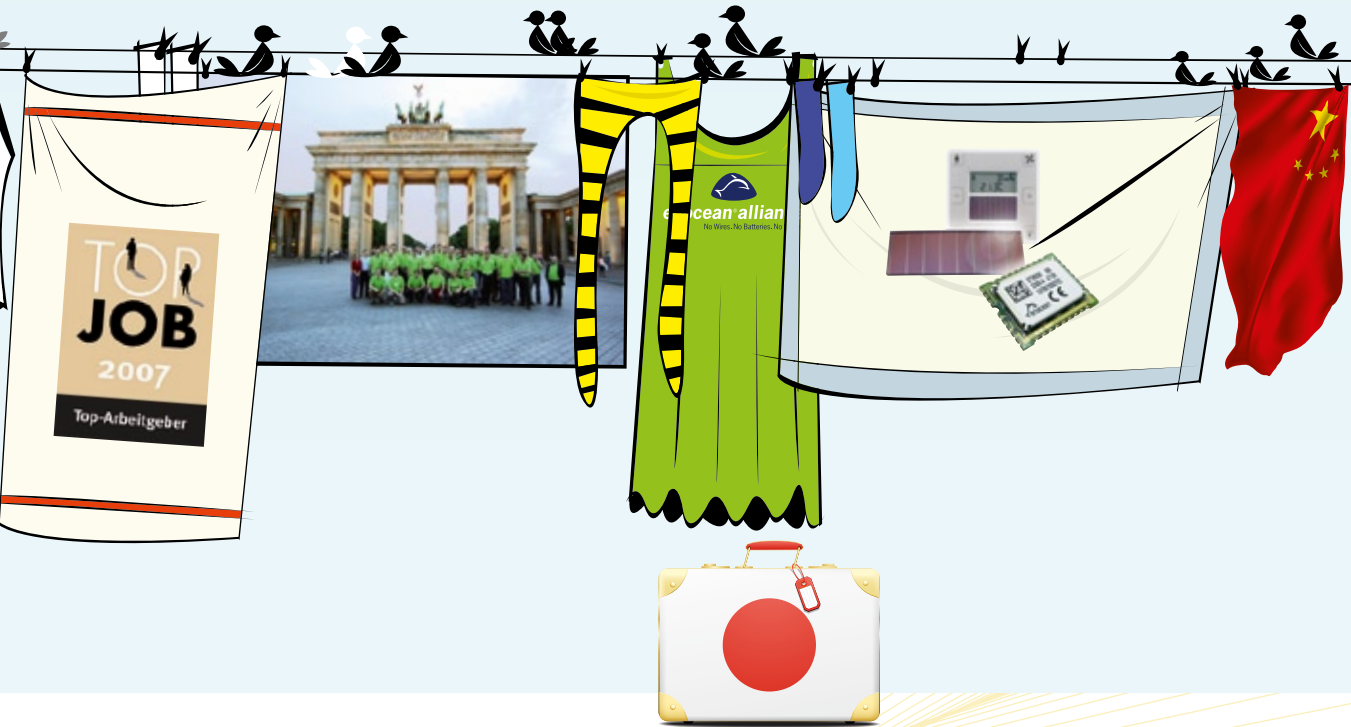
World's first energy harvesting wireless sensor introduced + World's first buildings commissioned with EnOcean technology

2005

Founding of US subsidiary EnOcean Inc.

2006

Awarded "Technology Pioneer" by World Economic Forum

**2007**

Recognition of the technology by several national and international awards

2008

Founding of EnOcean Alliance

2009

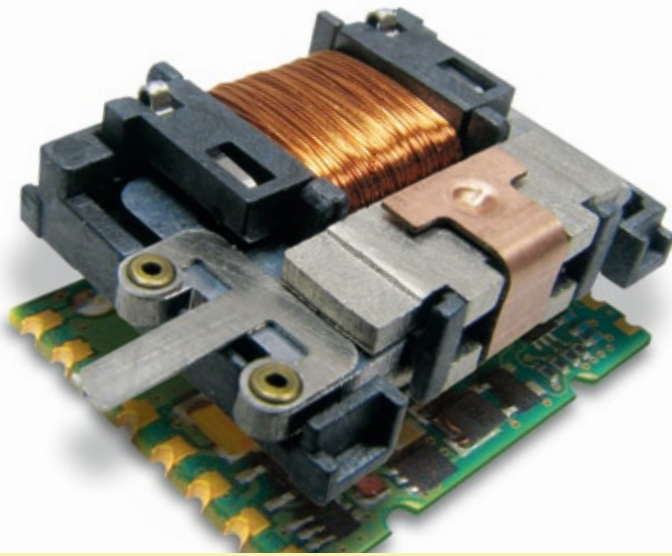
Ratification of interoperable EnOcean Alliance wireless standard
Approval of EnOcean technology in Japan

2010

Dolphin platform introduced

2011

Start of activities in China



ENERGY AT THE PUSH OF A BUTTON

The ECO 200 marks the third generation of mechanical converters from EnOcean to hit the market – optimized in efficiency and generation of noise as well as now fully automated in manufacture. In addition capacity has increased and mounting possibilities have become easier.

By Frank Schmidt, CTO, EnOcean GmbH

In mechanical energy converters the magnetic flux through a coil is abruptly reversed in polarity as soon as a spring mechanism reaches a changeover point. Sufficient energy is produced by pushing a button to operate EnOcean modules entirely without batteries. Together with the PTM 330 wireless transmitter module it is possible to implement individual switching solutions, speedily and simply, in a whole variety of industry segments. The PTM 330 is intended for use in remote control keys, wireless transmitters for access cards, window and door sensors as well as switches for industrial automation. The module can be connected to the ECO 200 energy converter without soldering. The latter comes with spring contacts that are simply joined to contacts on the PTM 330.



FIRST APPLICATIONS ALREADY IN PLACE

One example of use of the new energy generator in an industrial environment is presented by SEMD with its solution for wireless cable harness testing. Instead of conventional cabled switches, this uses energy harvesting wireless switches with the ECO 200. Just pressing a button unit produces enough energy to determine

whether individual components are correctly attached to a cable harness. A further advantage is that the classic cabling on the backplane or underside of a board is not applicable. In the conventional design of a cable harness it is often necessary to check hundreds of components per board. An electrical connection is needed between each test station and the test system and this must be documented or maintained when changes are made. Wireless sensors mean that the test units are not only more flexible but more transparent. Because the individual test components can be exchanged fast and easily without altering the overall holding fixture or halting the manufacturing system.

Also enabled by the ECO 200, SEMD has developed a handheld transmitter (FHS30) that is highly suitable for controlling doors and gates, garages, lights and nurse calling in hospitals, counting stations for persons or remote control in event staging and management. Reasons favoring use of the ECO 200 in these applications include its slim design, wide range of operating temperature and the improved contacting.

www.enocean.com

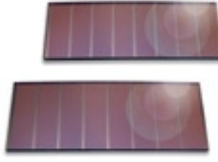


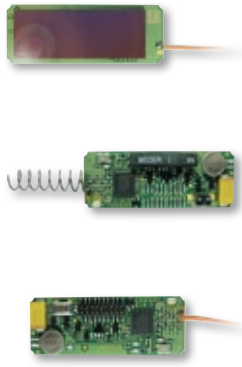
ENOCEAN MODULES



Modules with 868 MHz frequency are suitable for Europe and other countries adopting the R&TTE specification. Modules with 315 MHz frequency are suitable for North America and other countries adopting the FCC specification.

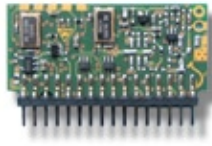
ENERGY HARVESTING WIRELESS SENSOR MODULES

ENERGY HARVESTING WIRELESS SENSOR MODULES		AVAILABLE FOR	
		868 MHz	315 MHz
PTM 200 – Ultrathin miniaturized switch module ■ Maintenance-free powering by finger pressure ■ Optionally 1 or 2 rockers or up to 4 pushbuttons ■ Dimensions 40 mm x 40 mm x 11.2 mm ■ Actuating travel 1.8 mm ■ Actuating force approx. 7 N ■ Newly certified for use in Japan		✓ PTM 200	✓ PTM 200C
PTM 330 – Wireless transmitter module ■ Dimensions 26 mm x 21 mm x 3 mm ■ Operation with ECO 200 or external energy source ■ 4 digital inputs ■ With 16 PDM pads and also with external 50-Ω antenna		✓ PTM 330	✓ PTM 330C
ECO 200 – Energy converter for linear movement ■ Dimensions 29 mm x 20 mm x 7 mm ■ Optimized for wireless transmitter module PTM 330 ■ Successor to ECO 100		✓ ECO 200	✓ ECO 200
STM 110 – Sensor module ■ Maintenance-free sensor module ■ Powered by mini-solar cell, 13 mm x 35 mm ■ Dimensions 21 mm x 40 mm x 9 mm ■ Operates for several days in total darkness ■ Periodic presence signals ■ 3 A/D converter inputs, 4 digital inputs		✓ STM 110	✓ STM 110C STM 112C
STM 300 – EnOcean scavenging transceiver module ■ Operation with external energy converter (e.g. ECS 300 solar cell) and energy storage ■ Basic firmware for cyclic sensing and transfer of measured values ■ Programmable by software API, also bidirectional radio ■ Dimensions 19 mm x 22 mm x 3 mm		✓ STM 300	✓ STM 300C
ECS 300 – Solar cell ■ For use with STM 300 for unidirectional sensors ■ 35 mm x 12.8 mm x 1.1 mm ■ 4 V, 6.5 µA at 200 lx		✓ ECS 300 ECS 310	✓ ECS 300 ECS 310
ECS 310 – Solar cell ■ For use with STM 300 for bidirectional sensors with Smart Ack ■ 50 mm x 20 mm x 1.1 mm ■ 4 V, 14 µA at 200 lx			
ECT 310 PERPETUUM – Ultra-low-power DC/DC converter for thermal energy harvester ■ Optimized thermo energy harvester for wireless transmitter module STM 312 ■ Operation starts at typ. 20 mV relating to 2 K temperature difference on standard low-cost Peltier element ■ Dimensions 14 mm x 14 mm x 5 mm		✓ ECT 310	✓ ECT 310

		AVAILABLE FOR	
		868 MHZ	315 MHZ
STM 310/311/312/320/330 – Energy harvesting wireless sensor module ■ With integrated solar cell or external energy converter, e.g. thermo converter ■ Wireless transmitter ■ Onboard sensors or external sensor port ■ Integrated charging circuit with energy storage and onboard antenna ■ Configurable and ready programmed functions ■ Programmable by API software ■ STM 310: Energy harvesting wireless sensor module - including solar cell and whip antenna ■ STM 311: Energy harvesting wireless sensor module - including solar cell and helical antenna ■ STM 312: Energy harvesting wireless sensor module - including whip antenna but no pre-installed solar cell ■ STM 320: Energy harvesting magnet contact transmitter module with helical antenna ■ STM 330: Energy harvesting wireless temperature sensor module with whip antenna			
		STM 310 STM 311 STM 312 STM 320 STM 330	STM 310C STM 311C STM 312C STM 320C STM 330C

RECEIVER AND TRANSCIVER MODULES

NEW	TCM 300/320 – Transceiver module ■ Unidirectional serial communication ■ Bidirectional serial communication ■ 1-channel/ 4-channel relay mode ■ 1-channel dimming mode ■ 1- and 2-level repeater functionality ■ Programmable by API software ■ Dimensions TCM 300: 19 mm x 22 mm x 3 mm ■ Dimensions TCM 320: 36.5 mm x 18 mm			
	TCM 310 – Transceiver module ■ Smart Ack controller functionality ■ Transparent wireless channel ■ Programmable repeater functionality (1-/2-level) ■ ESP3 support (EnOcean serial protocol V3) ■ Not API programmable! ■ Dimensions 19 mm x 22 mm x 3 mm			
	RCM 100/120/122/130/140/152 – Receiver modules ■ Wireless receiver module and actuator control module for receiving and decoding EnOcean wireless transmitter signals ■ Dimensions 18 mm x 42 mm x 5.5 mm ■ 5 V voltage supply ■ 25 mA current consumption ■ Basic functions: switch, blinds control, dimming and serial interface for bus systems ■ Simple teaching of up to 30 wireless transmitters ■ Memory function (for light and blinds scenes)			
	TCM 110/120 – Transceiver module ■ 5 V voltage supply ■ 33 mA current consumption ■ Dimensions 24 mm x 42 mm x 5 mm - TCM 110: ■ 1- and 2-level repeater for for EnOcean wireless telegrams - TCM 120: ■ Bidirectional wireless ■ Serial interface			

		AVAILABLE FOR	
		868 MHz	315 MHz
TCM 200C/220C – Transceiver module ■ Bidirectional transceiver modules ■ 5 V (TCM 200C) / 3 V (TCM 220C) supply voltage ■ Basic functions: receiver with serial interface and integrated repeater ■ Programmable in C using software API ■ 6 digital or analog inputs, 5 digital outputs ■ Dimensions 18 mm x 36.6 mm x 5 mm			✓ TCM 200C TCM 220C
FINISHED PRODUCTS FOR OEM CUSTOMERS			
OEM universal switch insert PTM 250 ■ Compatible with following designs with 55 mm x 55 mm rocker: – BERKER S1, B1, B3, B7 glass – GIRA Standard55, E2, Event, Esprit – JUNG A500, Aplus – MERTEN M-Smart, M-Arc, M-Plan ■ Surface mounting without casing ■ Switch program frame flat on the wall ■ Single or serial rocker ■ Colors: white, aluminum, anthracite, high-gloss pure white		✓ PTM 250	
OEM window contact STM 250 ■ Maintenance-free powering by daylight ■ Operates for several days in total darkness ■ Immediate signal transmission as soon as window closes or opens, triggered by window magnet ■ Periodic life signal ■ Contact monitor (110 mm x 19 mm, height 15 mm) attachable to all frame profiles ■ Color variants: white and black		✓ STM 250	
OEM single-channel wireless receiver RCM 250 EnOcean easyfit switch actuator for wireless switching of very different 230 V loads, e.g. incandescent lamps, high-volt halogen lamps or low-power motors. Up to 30 EnOcean PTM wireless switches or up to 2 EnOcean STM 250 wireless window contacts can be taught. Simple connection of the line voltage and load by screw terminals.		✓ RCM 250	
EPM 300 – Field-intensity meter EPM 300 is a mobile device for radio link range testing. It helps electrical installers to find the right position to mount products supporting EnOcean protocol.		✓ EPM 300	✓ EPM 300C
ACCESSORIES			
EDK 300 – Developer kit for EnOcean Dolphin modules Developer kit for fast implementation of EnOcean TCM 300/320 and STM 300 bidirectional wireless modules and software API.		✓ EDK 300	✓ EDK 300C
EDK 310 – Solar developer kit for Dolphin modules STM 3xy The kit extends EDK 300 for the solar-powered wireless modules of the STM 310 series. EDK 310 focuses development on solar-powered STM 310. The kit supports configuration and programming of following STM modules: STM 311, STM 312, STM 320, STM 330. EDK 300 is needed as a basis.		✓ EDK 310	✓ EDK 310C
EDK 312 – Thermo developer kit for Dolphin module STM 312 The kit extends EDK 300 for the thermo powered wireless modules of the STM 310 series. EDK 312 focuses development on STM 312 powered by an ultra-low-power DC/DC converter for thermal energy harvester ECT 310. EDK 300 is needed as a basis.		✓ EDK 312	✓ EDK 312C

GOODS LOGISTICS – SELF-POWERED WIRELESS ENTERS A NEW FIELD

Fruit and vegetables from Europe, textiles from China, coffee from South America – products we use daily reach us from all corners of the world and need to be at the right place at the right time. Air freight is often the fastest means of transportation, but constantly growing demands of all kinds mean that logistic processes can be hard put to it. An optimized flow of information is indispensable if everything in the process chain is to work smoothly and to schedule. An interesting solution is transport containers that communicate their parameters – for instance position, vibration or temperature – to a logistics infrastructure and thus help to speed up operations.

By Markus Kreitmair, Innovation Manager, EnOcean GmbH

ELECTRIC DEVICES POWERED BY ENERGY FROM THEIR SURROUNDINGS

To date you did not find technologies like GSM or GPS in use for logistic purposes in air freight because of their active transmitting components. International regulations prohibit radio components that transmit permanently in flight. An extra challenge was the independence from batteries as a power source because their regular replacement costs time and money.

This is an opportunity for EnOcean modules in battery-less wireless technology, sending extremely short data telegrams and executing their functions extremely fast. After which they always cut out those units that are not momentarily needed. With the aid of special timers in the sensor modules, requiring only about 20 nanoamps of current, all components can be fully shut down during "sleep" phases and "woken up" again when they have to act. The energy that powers EnOcean enabled sensors and actuators is drawn from their surroundings, from motion, light or differences in temperature. That makes them independent from an external power source and quite flexible in where they are located, to deliver measured values reliably and in realtime.

DYCONET RESEARCH PROJECT

The purpose of the DyCoNet (dynamic container network) project is to develop energy-autonomous, intelligent networks for air freight containers. Mobile radio technologies that are accessible worldwide (GSM/UMTS) are to be combined with positioning (GPS) and EnOcean's wireless sensor system. The current status of a shipment will then be recognizable immediately. Possible delays are visible at an early stage, scheduling becomes more accurate, and any necessary measures can be taken in good time. The project uses existing infrastructures and consequently maintains legacy process chains. Communication between logistic objects and the system is decentralized and calls for little adaptation effort.

Participating in the project – sponsored by Germany's Ministry of Economics and Technology – are, in addition to EnOcean, Lufthansa Cargo, Innotec Data, Jettainer, the Fraunhofer Institute for Material Flow and Logistics and PalNet. EnOcean is delivering suitable means of drawing power from the surroundings – from light, heat and vibration – and developing converter and charging circuits optimized for the project. Plus, the software of the STM 310 module series will be expanded for use in goods logistics.



WIDE-RANGING USE

EnOcean's STM 310 product family is not only of interest for use in air freight. It is suitable for a variety of logistics systems – take sea freight containers. During the maritime transportation of foodstuffs it is possible to monitor temperature for instance, and ensure that the necessary level of temperature is maintained from start to finish. Sensors with a reed contact can also be placed in containers carrying valuable goods to trigger an alarm if they are opened by unauthorized persons.



Another example is monitoring the cold chains of supermarkets. These can be governed with time offsets to reduce the cost of peak power needs. Suitable temperature sensors are fitted at critical points in a freezer to ensure that foodstuffs do not thaw. When a specified temperature is reached these sensors send a wireless signal to a controller to the effect that power to a freezer must be restored.

Depending on application and type of sensor, products of the STM 310 series are powered by light, temperature difference or a button cell. Some sensors, such as alarm and temperature, are ready integrated in a wireless module. Further sensor technology – for humidity, CO₂, brightness or vibration for instance – can be added on a connector interface.

www.enocean.com



Gefördert durch:



Bundesministerium
für Wirtschaft
und Technologie

DyCoNet
dynamisches container-netzwerk

aufgrund eines Beschlusses
des Deutschen Bundestages

OVERVIEW OF ENOCEAN ALLIANCE MEMBERS

www.enocean-alliance.org/products



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BSC COMPUTER BECOMES A PROMOTER OF THE ENOCEAN ALLIANCE

The provider of EnOcean LAN infrastructure boosts its involvement in standardizing energy harvesting wireless technology.

By Graham Martin, Chairman, EnOcean Alliance

BSC Computer GmbH has been announced as a promoter of the EnOcean Alliance, lending its weight to the application of batteryless EnOcean technology in TCP/IP communication systems. A member of the EnOcean Alliance since its formation, BSC Computer integrates the energy harvesting technology in its infrastructure solutions for building management. As an EnOcean Alliance promoter, BSC Computer will invest its technical expertise in continuing the development of the EnOcean standard.

CONTROLLING A BUILDING OVER THE INTERNET

BSC Computer integrates EnOcean's wireless technology in its BSC-BoSe embedded intelligence system. This building management system is set up on TCP/IP to enable the use of internet connectivity plus maintenance-free EnOcean technology in implementing cost-effective and flexible homes. It allows the use of all internet and network enabled end-devices, such as PCs or smart phones – to control building automation. Matching apps are available for both iPhone and Android. Visualization of readings – electricity, water and gas for instance – additionally allows the user to monitor specific conditions and consumption in a building, and

immediately recognize energy-saving potential. The BSC system is highly suitable for smart metering and smart grid purposes in both private households and public, commercial or industrial buildings.

"We recognized the enormous prospects for EnOcean's batteryless wireless technology early on", says Jörg Hofmann, managing director of BSC Computer, "and successfully integrated it in our embedded intelligence system. But we haven't tapped its full potential by any means. For this reason we're participating more actively in the EnOcean Alliance, cooperating with other members to promote integration of the technology in TCP/IP communication systems."

www.embedded-intelligence.de
www.enocean-alliance.org





ENOCEAN-BASED WIRELESS DEVICES ARE THE ORDER OF THE DAY IN THE NEW ADMINISTRATIVE HEADQUARTERS FOR THE REGION OF LOMBARDY

Efficient building management enabled by EnOcean technology, Gamma instabus and Desigo building automation and control system in the new Palazzo della Regione Lombardia, the highest building in Italy.

By Sven Feurer, Marketing Manager, Siemens AG, Division Building Technologies

Within the new administrative headquarters for the Region of Lombardy in Milan an energy-efficient complete solution provides an optimum building management system. Here, innovative technologies in the fields of heat and energy generation, heating, ventilation, sun protection and lighting control work in harmony with one another. EnOcean room units and wall transmitters are used as a “feeder technology”. With no need for cables, these devices transmit temperature values and manual control commands to the building automation system.

Spread across an area of 30,000 square meters, four buildings surrounding a 39-story tower, the tallest in Italy at over 160 meters. The structure, which was opened in early 2010 by Roberto Formigoni, President of the Region of Lombardy, is used as a multi-purpose building for cultural events and serves administrative and official purposes as well as offering a thousand square meters of green spaces and roof gardens. The winning design for the project was submitted by Pei Cobb Freed & Partners, New York, and Caputo Partnership and Sistema Duemila, Milan.

INNOVATIVE SOLUTIONS UNDERPIN A SENSE OF ENERGY AWARENESS

The building technology uses Siemens solutions which represent the state of the art in heat and energy generation, air-conditioning, safety, and building management. These include the integrated building automation and control system Desigo with the BACnet communication

protocol as well as a lighting system with brightness sensors and presence detectors based on KNX and DALI to ensure constant light level control. 1300 EnOcean enabled wireless wall transmitters are used to switch the lighting system on and off, thus also permitting manual operation. The management and automation of chilled beams and fan coils make a key contribution to the efficient operation of the building as a whole. To this end, over 2500 solar-operated and wireless room units with EnOcean technology have been installed. 600 EnOcean KNX gateways connect them to the overall network structure within the Palazzo Lombardia buildings.

ENOCEAN WALL TRANSMITTERS MAKE BUILDING AUTOMATION EASIER

One of the main advantages of the AP 221 and AP 222 EnOcean wall transmitters from Siemens is that they



enable wireless operation for almost all functions inside a building. They are easy to install and form the basis for a flexible and intelligent room automation system. The wall transmitters require no batteries

and no maintenance, and are available in two- and four-channel versions. Energy is produced by an electrodynamic generator. Pressing a pushbutton causes a link to actuate an energy converter, which transforms mechanical energy into electrical energy. This sends a radio signal which is uniquely picked up by the receiver, the EnOcean gateway, via a 32-bit ID. The signal is transmitted at the frequency of 868.3 MHz. A wide

variety of functions inside a building are thus easy to implement – from lighting and shading right through to heating, air-conditioning, and ventilation. A further benefit is the ability of EnOcean products to communicate with standard KNX and LON building bus systems via an appropriate gateway. If the signals from the wall transmitters are not to be integrated in a building network, an alternative is to transform the signals into switching and dimming lights or shutter/blind control signals using an EnOcean gateway.

ENERGY-EFFICIENT AIR-CONDITIONING

With a view to ensuring energy-efficient use of the building complex in Milan, a variety of energy-saving measures were introduced at various points. For instance, the system of chilled beams activates groundwater heat pumps for heating and cooling. A portion of the building's energy needs is met by solar cells fitted to the tower's south-facing facades. The energy generated is distributed as efficiently as possible inside the building by some 2500 batteryless and wireless room units, in this case the new range of Siemens QAX 9x.1 devices. These solar-powered room units detect the inside temperature and transmit the corresponding measured values to the building automation system via the EnOcean gateway.

ENERGY-EFFICIENT DOUBLE FACADE FOR THE OUTSIDE WALLS

The outside walls of the Palazzo Lombardia in Milan are constructed as a special type of facade, a version of the standard ventilated double facade, developed out of the need to create a horizontal fire barrier in the outer shell, i.e. with no transitions between the floors. Each facade module consists of a layer of double glazing with an intermediate space filled with argon. Another single-glazed wall around 95 cm further inside forms a horizontal buffer zone for each floor that is continuously ventilated: a "climate facade".

EnOcean components [e.g. QAX 96.1] are ideally suited for flexible installation indoors thanks to their wireless mode of operation. This involves an open and interoperable standard which can be regarded as highly environmentally friendly as no batteries are required.

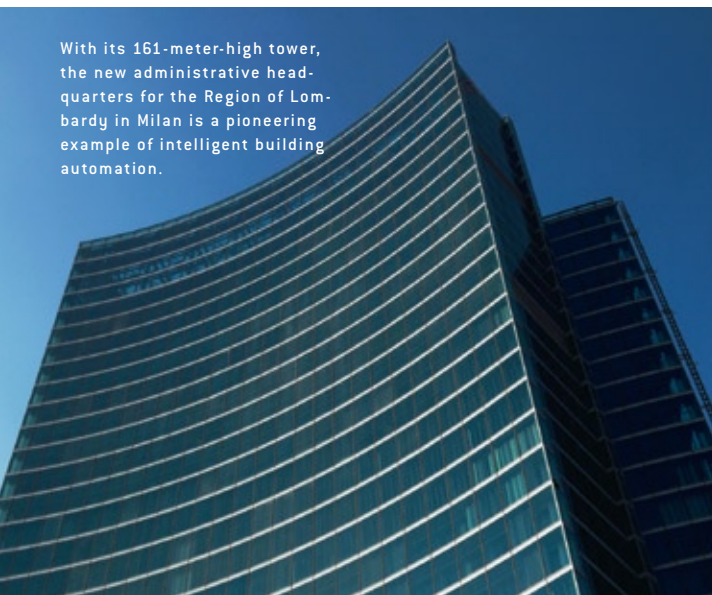


Air flowing into the room is directed from above onto the inner glass surface and flows into the buffer zone via corresponding openings located near the floor. The buffer zone is under negative pressure due to the air suction lines. The used air thus flows through the climate facade and reaches the suction openings. The buffer zone also contains rotatable vertical slats, which act as a form of dynamic shading and shield interiors from direct sunlight while still letting natural light through. The position of the slats is controlled automatically by the Designo building automation and control system. 12 brightness sensors on the outer walls and an algorithm to calculate the position of the sun around the clock control the rotation of the slats around a vertical axis, thus protecting the rooms from direct sunlight. Indirect sunlight is controlled depending on the energy required to heat the building at any given time.

ENERGY-SAVING SYSTEMS RIGHT DOWN TO THE LAST METER

The example of the Palazzo Lombardia in Milan shows that it is currently possible to operate non-residential buildings energy-efficiently using simple means. In particular, the use of terminal devices fitted with EnOcean communication technology such as the EnOcean wall transmitters and solar-powered room units from Siemens cut the time and money required to implement intelligent building automation. Because the devices are based on wireless technology and operate without batteries, they can be provided at the most suitable locations and do not require any extra power supply - proof that the building management systems of the future have their sights set on energy-efficient integrated systems, right down to the last meter and the room units and wall transmitters on the wall.

With its 161-meter-high tower, the new administrative headquarters for the Region of Lombardy in Milan is a pioneering example of intelligent building automation.

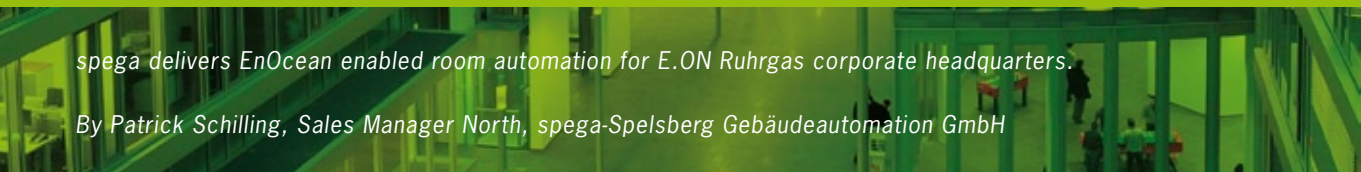




CONVINCING EXAMPLE OF ENERGY-EFFICIENT ARCHITECTURE

spega delivers EnOcean enabled room automation for E.ON Ruhrgas corporate headquarters.

By Patrick Schilling, Sales Manager North, spega-Spelsberg Gebäudeautomation GmbH



180 men packed some 24,000 cases and transported almost 2000 PCs, then things were more or less wrapped up. Since October 2010, two and a half years after the laying of the foundation stone, the 1800 people of E.ON Ruhrgas AG have been settled down in the new corporate headquarters on Brüsseler Platz. The building, right opposite the showgrounds in Essen, is characterized by modern and attractive architecture plus innovations in energy efficiency and protection of the climate. The two elliptically shaped office towers of the new building, on the site of the former Gruga Stadium, are each 63 meters high with 15 stories. Right adjacent are a number of five-floor low-rise blocks. The whole complex is joined up by a glazed, light-flooded atrium.

INNOVATIVE ENERGY CONCEPT

"The wait was worth it. Our new building sets standards in many respects. It's an open, communicative work environment, and a convincing example of energy-efficient architecture", declared Klaus Schäfer, chairman of E.ON Ruhrgas, when the company moved into its new premises. E.ON Ruhrgas uses natural gas in a trigeneration solution or CCHP (combined cooling, heat and power) to

reduce the carbon footprint, with a cogeneration plant for primary heating of the building. A photovoltaic installation on the roofs of the low-rise blocks rounds off the innovative energy concept.

E.CONTROL FOR FLEXIBILITY

In its new headquarters E.ON Ruhrgas wanted to signal energy efficiency and protection of the climate. For room automation Siemens Building Technologies, the system integrator, selected the e.control system from spega. The client wanted an office configuration that was as flexible as possible for simple and low-cost alterations in use at a later date. The spega e.control implementation is cableless throughout. Flexible in axis, decentralized and modular, the system allows reassignment of room controls, glare shielding and lighting at any time. spega lumina MS3/RC multisensors with integrated EnOcean wireless receivers present the necessary freedom of configuration, and are responsible for constant light adjustment as a function of presence, weather protection and shading/blinds. Radiant cooling and heating ceilings produce the right climate in the offices. e.control checks the temperature, controls valves



The new corporate headquarters of E.ON Ruhrgas in Essen, workplace for 1800 people.

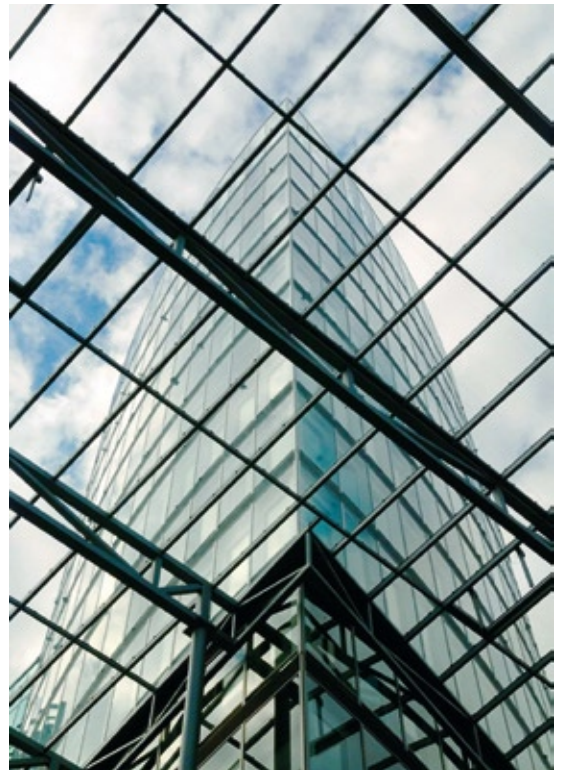
and regulates to setpoint. Enabled by EnOcean technology, heating and cooling of the rooms is also cableless and wireless. Staff can set room functions individually by remote controls. Parallel operation in a web dialog is also possible, where every person can influence all room conditions through their PC browser.

CLASS A TO EN 15232

Implementation of e.control as an integral room automation system has other rewards. The E.ON Ruhrgas building achieves energy efficiency class A in automation to EN 15232 standard. Through the consistent demand-driven scaling of the spega system, it is possible – measured by the minimum requirements of the EnEV energy saving specification taken for the new building – to save 25 percent of heating and cooling energy plus 50 percent of lighting energy at the Essen headquarters.

www.spega.com

www.eon-ruhrgas.com





CHINA FOCUSES ON ENERGY EFFICIENCY

Hainan Guest House, operated by the Hainan Airlines Group, fourth largest airline carrier in China, uses EnOcean based lighting control products. The Airline Hotel wanted to save energy and costs implementing lighting controls based on occupancy and functional requirements.

By Jianghua He, CEO, YTL Technologies

China is enjoying rapid growth in wealth, modernization and urbanization. This has created a massive increase in energy requirements and CO₂ output, causing regular problems with the grid and additional pollution especially in the larger urban areas. China has therefore made energy efficiency one of its highest priorities. Buildings, which consume around 40% of the total energy requirements and could reduce consumption by 30% through building automation systems, are therefore a prime area of focus.

The Hainan Airlines Group is China's fourth largest airline carrier, running a number of business and vacation hotels including their 5-star vacation hotel based in the Haikou District in Hainan. The hotel wanted to save energy and costs by implementing basic lighting controls based on occupancy and functional requirements.

LOOKING FOR A FLEXIBLE SOLUTION

In the public areas of the hotel there was no possibility of controlling the lights, merely a master on/off switch, resulting in the lights basically running permanently, regardless of whether the areas were occupied or not and independently of how much sunlight was available, unnecessarily wasting energy.

A key point however, was that the hotel required that installation should not disrupt normal hotel operations in any way. Existing structures could not be damaged, walls could not be opened, building noise and mess had to be avoided. In addition, public areas have to be retrofitted or redecorated every few years, so a solution that saved costs here was obviously an advantage. Wireless technology was therefore chosen – the EnOcean wireless technology was favored as it also offered maintenance-free batteryless solutions and multi-manufacturer product interoperability.



LIGHT ON DEMAND

In all the hallways of the north and south buildings a row of motion sensors were installed, allowing the lights to be turned on only when someone walks through the hallways. The brightness of the lights increases gradually as persons get closer and reduces once they are further down the hallway. The master on/off control in the banquet hall was replaced by a dimmable system with a number of individual switches to enable numerous scenes according to the various use of the hall.

In the elevator hall a control system was installed enabling the lights to be dimmed or switched off during the day and gradually increase in brightness in the evening. The system can be programmed to react to high occupancy or based upon time of day or night. Light switches were

installed which can be moved according to changing requirements or during frequent renovation work - approximately every four years.

SMOOTH INSTALLATION

The installation was performed smoothly with no disruption to normal hotel operations. First results show a saving of over 30% in lighting in the public areas of the hotel. The installation was performed by YTL Technologies, Chengdu, Sichuan, China, which has 24 offices throughout the country that install EnOcean technology.

www.ytlcn.com

www.hnastateguesthouse.com





EUROPEAN PATENT OFFICE – FEWER CABLES, MORE EFFICIENCY

Office building renovation often offers the opportunity to upgrade building automation using modern technology. A current example is the office building of the European Patent Office (EPO) built in the 1970s. Here, the KNX-IP controllers from WAGO help save costs and energy, while providing more comfort. Fire load can also be reduced using WINSTA cable assemblies, modern fieldbus systems and wireless EnOcean solutions.

By Detlef Holfelder, Technical Sales, WAGO Kontakttechnik

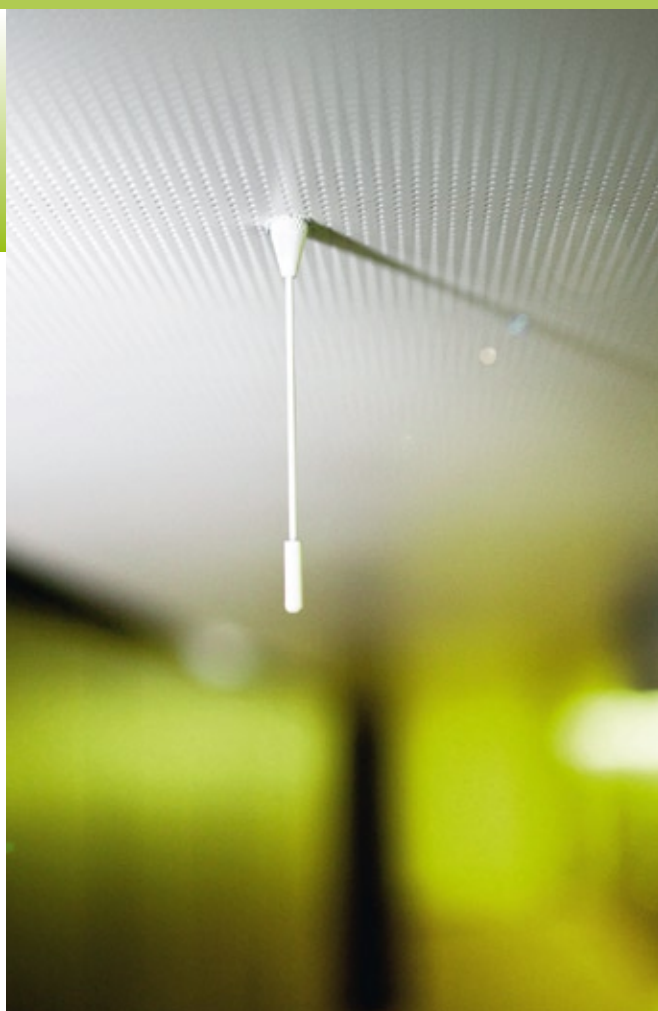
Maximizing the flexibility of the entire system was very important for EPO's project managers. "The basic room structure is always the same", explains Michael Heusler, head of the Technical Services team and responsible for building automation at EPO: "For the building automation solution, system adaptation without extensive programming was important for us, e.g. when converting two office rooms into a single large space."

DECENTRALIZED CONTROLLERS IN THE SUB-DISTRIBUTION BOARDS

Since all building stories are almost identical, decentralized controllers were placed in the subdistribution boards on each floor. Two WAGO 750-849 KNX-IP controllers are used in each board as hardware for control and regulation. Combining these controllers with the WAGO 750 I/O system yields a flexible and universal solution allowing fieldbus systems to be directly accessed from the controllers.

INTEGRATION OF AIR-CONDITIONING AND LIGHTING

Air conditioning is performed via induction air conditioners mixing preheated fresh air with room air. Heating or cooling uses warm or cold water flowing through two heat exchangers. Regulation is by electrically driven dampers controlled on a Belimo MP bus. Up to five system distribution boxes from WAGO are distributed in the facade area to connect the MP bus lines to the controllers. These send the drive control variables to the system distribution box, which in turn transmits them to the actuators on the MP bus.



Antennas for EnOcean wireless transmission are unobtrusively integrated in the ceiling.

right:
Each subdistribution board includes two KNX-IP controllers for both lighting and air-conditioning.

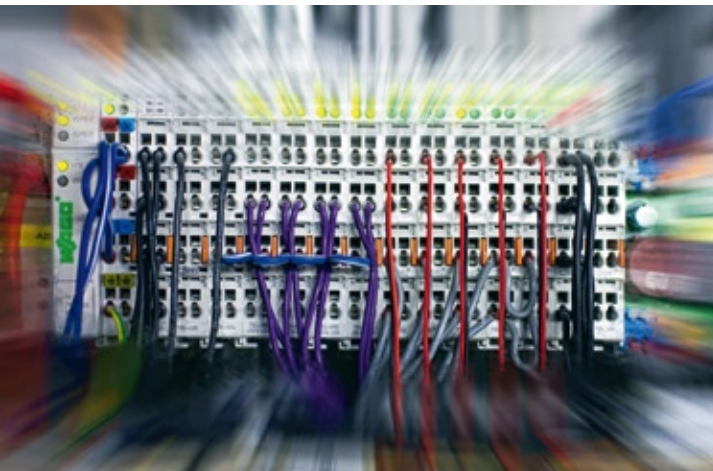


The Isar building of the European Patent Office built in the 1970s in Munich is being extensively renovated.

Individual room lighting is controlled via DALI. All lighting fixtures are connected using WINSTA® flat cables. In addition to power supply, the cables also integrate a two-pole control line for the DALI bus. The lights can be switched on and off or dimmed by the controller via the bus. The lights can also send status messages back to the controller via the bus, providing a quick and easy way to determine whether a lamp or an electronic ballast is defective. Fieldbus technology provides cable and cost savings, while simplifying installation and reducing fire load. Wireless sensors and switches are another way to save cables. Both light switches with dimming function and room thermostats are equipped with EnOcean technology.

EASY CONFIGURATION AND COMMISSIONING

WAGO's KNX-IP controller easily connects the appropriate WAGO I/O system modules to any relevant fieldbus systems and protocols. Both regulation and control are programmed using a CoDeSys IEC 61131-3-compliant language. Configuration was performed very easily for the entire project. "When remodeling rooms we wanted regulation and control programs to be adjusted in a flexible way, without reprogramming", says Michael Heusler, describing one of the major system requirements. So all configuration data (e.g. DALI addresses for lights, EnOcean addresses for light switches) are listed in an Excel spreadsheet. A formula is first created via VBA script and then read in by the CoDeSys program. Thus, a single room modification only requires the relevant Excel spreadsheet to be modified and then the script to be executed.



A central controller monitors both air-conditioning and lighting conditions in all rooms of the building. All error messages are transmitted to the control center for quick processing. The system also provides a whole range of new possibilities in terms of energy savings. For example, the central control unit sends a global switch-off command at a specific time to individual lights via DALI. Therefore, the typical situation where light is burning all night in the copy room or kitchen becomes a thing of the past.

www.wago.com





100% WIRELESS HVAC & LIGHTING BUILDING AUTOMATION SYSTEM

The Samares School Board is one of the most active in Quebec, Canada, when it comes to energy efficiency. Always looking for better solutions to retrofit their elementary schools and high schools, they made a radical choice for their most recent project: go 100% wireless.



By Louis-Nicolas Hamer, Vice-president of Product Strategy, SCL Elements

The St-Joseph elementary school had no remote or programmable control of its lighting or HVAC. The only thing the school had was central heating without any thermostats in classes or hallways and a typical ballast lighting installation without any zones. Besides adding better in-room and remote programmable control for both heating and lighting, St-Joseph required a system that could push points upstream to the existing BACnet IP system that the school board is using to monitor its schools. Solution selection was also affected by very real constraints. The school board: no cancelation of classes, no extra charges of installing the system overnight or on weekends and no dust hazards for the children.

ALL WIRELESS

The recently launched CAN2GO GW2 were the chosen products for the project. They offer bidirectional wireless control of EnOcean devices, as well as wireless mesh networking via ZigBee. Their sober white casing gives the GW2 a clean “router” look that blends with decor, and the external EnOcean and ZigBee antennas provide exceptional range for both wireless protocols. Because CAN2GO products are fully programmable and have embedded BACnet IP gateways and web servers, they would enable the St-Joseph school to push its sensing and control points all the way back to the school board's BACnet IP system. For the two main floors of the school, nine CAN2GO units control 60 HVAC end-devices - such as thermostats and actuators - and 116 lighting end-devices - like relays and switches. Networking between CAN2GO gateways is wireless.

Going “all wireless” with CAN2GO's dual wireless protocol support allowed the school to get the control it needed while staying within the aforementioned constraints. Most of the installation took place during class hours, yet there was no downtime. Also, no walls or ceilings were open, so there were no dust hazards.

“Our school board had the opportunity to install the pre-release version of the new CAN2GO line. It gave us a full BACnet integrated building automation system combining both HVAC and lighting control. All the communication to and from controllers and end-devices is wireless, so the installation process caused no downtime or repair work, an immense advantage over other alternatives. We plan to install CAN2GO in upcoming retrofit projects”, said Michel Morin, Coordinator of Energy Management at the Samares School Board, located near Montreal, Canada.

REDUCED INSTALLATION COSTS

Compared to traditional wired-only solutions, this completely wireless installation reduced electrical labor costs by 61 percent and controller costs by 32 percent. In fact, without CAN2GO's combined wireless HVAC and lighting control capabilities, the lighting phase of the project would have been cancelled. The payback, for that particular component of the installation, would have been too long. The St-Joseph case is the perfect example of how wireless technology can substantially reduce the installation costs of building automation systems without losing any of the control and programmability capabilities of traditional wired-only systems.

www.can2go.com





VERVE™ LIVING SYSTEMS MEETS GEORGIA TECH'S ENERGY SAVINGS CHALLENGE

Founded in 1885, the Georgia Institute of Technology in the USA is one of the nation's leading universities. Recently it began exploring advanced ways to reduce energy consumption within residence halls that serve the estimated 20,000 undergraduate and graduate students that call the university home. Georgia Tech called upon Verve™ Living Systems to install their innovative solution for energy-efficient hallway lighting at both the John M. Smith Residence Hall and the North Avenue Apartments.

By Tom McGuinn, Vice President – Sales, Verve™ Living Systems

Like most university residential buildings, hallway lighting is kept permanently on to provide for the safety and comfort of students. Georgia Tech chose the Verve™ solution to reduce energy consumption in the John M. Smith Residence Hall and the North Avenue Apartments without compromising safety and without the high costs and complexity associated with installation of lighting control in existing buildings.

MAXIMIZE EFFICIENCY AND RETURN ON INVESTMENT

The Verve™ solution installed in John M. Smith Residence Hall utilized seven Verve™ hallway occupancy sensors and five Verve™ electronic load controllers per floor for each of four floors. This allowed the university to maximize efficiency and return on investment in the hallways by creating five separate lighting control zones. In the North Avenue project the Verve™ solution again used hallway occupancy sensors load controllers to control different hallway configurations across four buildings.

By using EnOcean's technology for self-powered, wireless devices, the hallway sensors utilize two small solar panels to harvest power from the always-on emergency lighting standard in hallways. This means there are no wires or batteries needed, and that products can be fully installed and operational quickly. Once installed, a hallway sensor interacts wirelessly with a variety of other Verve™ products.

The full system with sensors and lighting controllers was fully functional in just hours per floor, including establishing system behaviors by simply linking sensors to lighting controllers wirelessly, via button presses. The innovative solution avoided the complexity or costs typically

associated with the PC-based configuration of more conventional lighting control systems.

ENERGY SAVINGS AND GOLD LEED STATUS

At the time of completion, the project had an estimated ROI of less than two years due to the anticipated energy savings from both the John M. Smith Residence Hall and the North Avenue Apartments. Installation of Verve™ in the latter renovation helped the university to achieve Gold LEED status.

www.vervelivingsystems.com
www.gatech.edu





100-YEAR-OLD HOUSE BECOMING PLUS-ENERGY HOUSE



Energy efficiency. A term that is associated almost inseparably with housing and construction, a kind of promise to create maximum benefit despite low cost. A prime example of energy-efficient housing is a plus-energy house. One of the first of its kind in Austria is currently being built in Hard, just 200 meters from Lake Constance.

By Martina Dannheimer, PR & Communications, myVitali AG

“Energy saving and improving quality of life at the same time”, are major goals of the building owners Daniela and Martin Brunn. The idea to convert their 100-year-old parents’ home into a house of the future was born in 2008. Energy efficiency is a special milestone in sustainable housing. So for the renovation only climate-friendly products will be used, which consume little energy in their production and also can be used further.

A HOUSE MOVES WITH THE TIMES

“Adaptable, energy-efficient, climate-friendly and reliable”, says Martin Brunn of the construction project with its integrated approach. When he looks into the future he sees the changing user needs of the residents as a further challenge. About every 20 to 30 years there is a change. Therefore the house can be shared in three independent apartments – one for example for an elderly person. To create a pleasant living environment, the developers built a comfort ventilation system with heat recovery. So the house gets the right amount of fresh air right around the clock without the residents constantly having to think about airing. The little amount of heat which the building still requires comes from the wood burning stove. So that the comfort of the home is not influenced from the “outside”, Brunn counts on the greatest possible independence from non-renewable energy sources.

SMART METERING

In order to promote energy efficiency and climate protection the energy-plus house is equipped with a smart meter. This gives the user an accurate view of its electricity, water, heating and gas consumption. The digital meter communicates from consumer to provider - and vice versa. Even the power saving tariff can be promptly sent to the consumer. By using the smart meter in con-



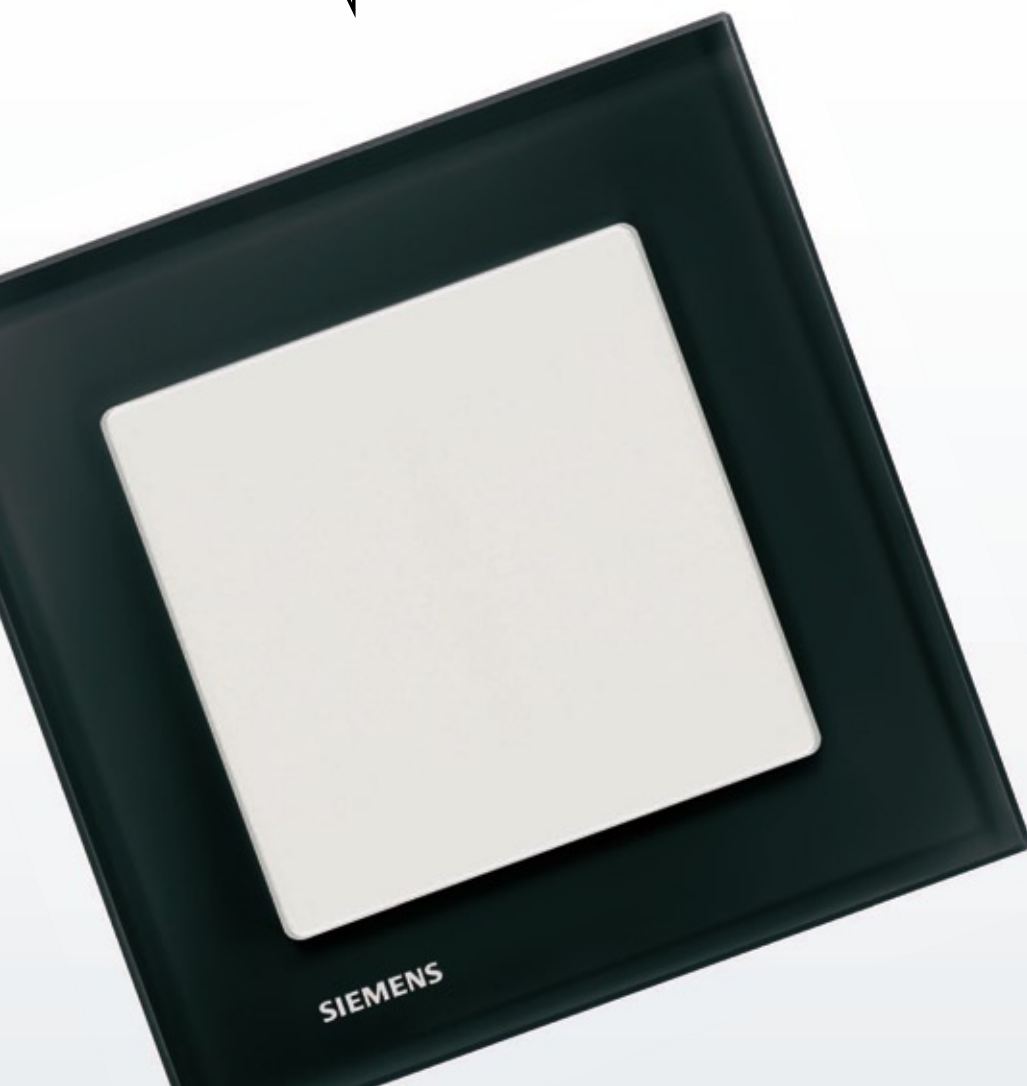
junction with the myVitali system, the resident knows not only how much he spent, but exactly for what. Additionally the plus-energy house produces more energy than needed annually for its entire operation. In this regard the integrated photovoltaic system on the roof makes a decisive contribution. The generated power of the plus-energy house could even provide three to four households.

The project was supported by two partners: the Energy Institute of Vorarlberg and myVitali AG of Widnau, Switzerland. The plus-energy house is made of wood and thus the wiring would be difficult. For this reason myVitali AG – responsible for the technical equipment – decided to use wireless EnOcean technology, which is used to control the room temperature, lighting and window-door contacts. Furthermore CO₂ sensors regulate the ventilation in the bedroom, while sensors in the cellar monitor and optimize the outside temperature and moisture.

www.myvitali.com



What is the best way to modernize buildings flexibly and save time, too?



By taking advantage of flexible installation with maintenance-free EnOcean products.

Siemens offers integrated customized solutions for lighting, sun protection and air conditioning applications – without the necessity of additional cabling at the installation. Be it individual rooms or building complexes: an EnOcean gateway ensures easy product integration into building management systems. Especially where modernisation or renovation projects are concerned, single room applications can be implemented simply and swiftly for energy-efficient lighting. Operation is by means of the maintenance-free EnOcean wall-mounted transmitter. www.siemens.com/enOcean

Answers for infrastructure.

SIEMENS



COMFORT AND CONVENIENCE, SECURITY AND ENERGY ECONOMY AT THE PUSH OF A BUTTON



More than two years on, prefabricated house builder WeberHaus continues to expand the application of EnOcean technology in its home concepts. In a number of models the user can now control their household by visualization.

By Marcus Trojan, Sales Director South Europe, EnOcean GmbH

In recent years interest in modern technologies for the home has grown considerably. WeberHaus can attest to this – since the prefabricated house builder started offering concepts with EnOcean technology, there has been a marked increase in the number of “automated homes” sold. There are a number of reasons for this. On the one hand more importance is being attached to comfort, convenience and security. On the other the price/performance has very much improved through solutions in wireless technology, simplifying the introduction of intelligent home control.

INTELLIGENT HOME CONTROL – NO CABLES, NO BATTERIES

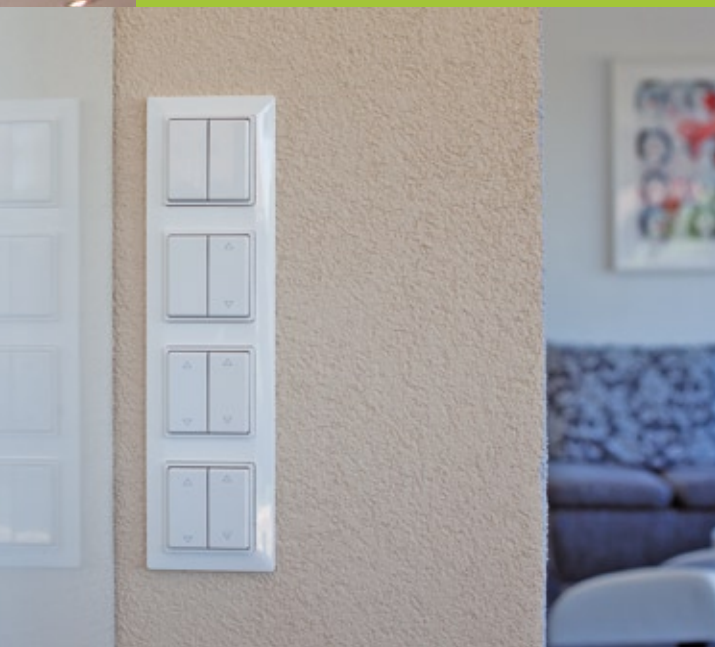
The entire household utilities can be controlled from a PC or touch panel. Or at the push of a button from an EnOcean handheld. This enables users to control their complete home with no need at all for cables and batteries. Lighting, shading and heating, for example, can be conveniently operated by a remote control or from a central point. For a secure feeling in your own four walls it is also possible to integrate camera monitoring with

alarm reporting in the innovative system. In addition to these features such a system is also attractive for its low purchase price and small energy consumption. Because constant measurement and regulation of room temperature allows precise matching of heating to the momentary need.

INDIVIDUAL SETTINGS

Family Müller from Achern in Germany opted for this system in their new home from WeberHaus. It integrates products from the manufacturers Eltako, Thermokon and BootUp, which are simple to combine because of the interoperable EnOcean standard. The nucleus of the installation is the central control from BootUp. The myHomeControl visualization software, operating on a standard PC, enables control and monitoring of the entire household.

Lights can be turned on and off or dimmed from different points – switch, handheld or central control. In addition to local control the roller blinds offer an extra, special function: They can be closed or opened individually



No cables, no batteries – the wireless switches are very flat and can be simply screwed or adhered to a wall.

according to the position of the sun, the time of day and of the year. In this way residents make the most of the low-lying sun and extra light and warmth in wintertime. In the summer the blinds guard against too much sun and heat of course. This functionality is set on the visualization software and automatically executed.

STEP DOWN TO STEP OUT

The central control also offers an “Absence” function that switches the house into an energy-saving status. Room temperature is stepped down for instance, lights are turned off and electric loads such as coffee machine or cooker automatically switched off. A house can be switched back to an occupied status remotely by cell-phone. An occupied impression can be created when there is nobody at home to ward off housebreakers by automatically closing curtains in the evening hours and irregularly turning on lights.

A further convenience feature is that when you leave the house you can see at a glance on the visualization which windows are opened or closed, which lights are on or off. Plus, if the house has a photovoltaic installation you

can read how much electricity is momentarily being consumed or generated.

All houses from WeberHaus are optionally fitted with the WeberLogic package, the home control enabled by EnOcean technology offering enhanced comfort and convenience, security and energy economy at the push of a button.

www.weberhaus.co.uk
www.bootup.ch



The nucleus of the installation is the visualization from BootUp, enabling control of the entire household from a PC or touch panel.





NORTH AMERICA'S FIRST FRANCOPHONE UNIVERSITY INVESTS IN INNOVATIONS

Laval University turns to wireless technologies and Regulvar's building automation expertise when retrofitting its buildings.

By Marc Dugré, President, Regulvar

Laval University, which is located in Quebec City, was North America's first francophone university. Its campus has approximately 30 buildings covering almost 2 km² and the university welcomes some 45,000 students annually. Inaugurated in 1968, the Jean-Charles-Bonenfant Building is now home to various services and faculties, but its primary purpose is housing the institution's largest library. Due to its age, the building is being renovated, which includes completely retrofitting the 4th floor.

BACKGROUND

Aware of the features and advantages of wireless technology, and knowing that they contribute to green solutions, the individuals in charge of the university's infrastructure department decided to take advantage of the opportunity and implemented a pilot project. Carried out in several stages and led by both Regulvar and engineering firm Dessau, it involved conversion of heating, ventilation and air-conditioning (HVAC) control systems as well as lighting systems. Work was completed in the spring of 2011.

THE SYSTEMS

For the HVAC system, Regulvar's team of specialists used different devices, including approximately 100 self-powered wireless Regulvar thermostats and as many Delta controllers, as well as Regulvar's antennas and EnOcean to BACnet RUI gateways. Installed on the air terminal devices in each room, 250 controllers automatically adjust the dampers and the heating valves. To con-



trol the LED lighting in the open areas and classrooms, the system uses approximately 100 wireless relays, about ten antennas, as well as numerous self-powered wireless devices, including 50 switches and a dozen motion sensors.

CHALLENGES AND RESULTS

The major advantage of installing self-powered wireless devices, particularly as part of a renovation project, is that no wiring is required. This clearly represents substantial savings but it also simplifies the work and preserves the existing structures as much as possible. For example, in this case the concrete ceiling coffers would have made wiring difficult or unattractive. Although the concrete represented a challenge for Regulvar's specialists, they were able to find ways to work around it and to ensure adequate communication between the components. The clients were pleasantly surprised and satisfied with the results.

www.regulvar.com



NO WIRES AND NO BATTERIES – THE INTELLIGENT BUILDING JUST GOT EASIER

Cooperation between GE and EnOcean shortens the way to intelligent buildings.

By Friederike Pickard, Marketing Manager, GE Energy Industrial Solutions

GE's HabiTEQ delivers enhanced energy efficiency and consumer convenience through the control and automation of energy use in domestic and commercial buildings. With the addition of EnOcean's batteryfree wireless technology, it will be possible to install HabiTEQ systems in locations where it is currently impractical to connect with existing devices using wires or batteries.

HabiTEQ is a flexible integrated system that runs a building's functional subsystems, including lighting, heating, ventilation, blinds and security from a central control unit operated via a control panel or online. Wireless technology makes installation cheaper and simpler and also provides aesthetic and practical benefits such as the ability to fit devices such as sensors in historic buildings or ultra-thin switches on glass panels.

ZERO MAINTENANCE

EnOcean equipped devices are zero maintenance and "harvest" energy from ambient heat and light or from a switch being pressed which, together with the reduced need for batteries, makes them an environmentally friendly way of increasing efficiency.

Todd Johnstone, chief executive officer of GE Energy's Industrial Solutions business in Europe, Middle East and Africa said: "The combination of GE HabiTEQ systems and EnOcean technology will enable families and commercial property managers to reduce their costs and energy con-

sumption while increasing comfort and convenience. That is a very attractive proposition at a time when we are all very much aware of rising energy prices and pressures to reduce our impact on the environment."

HabiTEQ can be programmed with a personal computer and also can operate automatically or in response to environmental stimulus, e.g. changing the heating in a room in response to changes in external temperature, time of day or human presence. This enables the sort of energy-efficient interaction between the subsystems that is almost impossible with conventional technology. In addition, most HabiTEQ devices are equipped to measure energy usage, enabling users to identify further opportunities to reduce costs.

Each HabiTEQ system is bespoke made to deliver the combination of flexibility, energy efficiency and convenience that each building and customer requires. It can incorporate a building's electrical protection and arrives on site as a ready prepared plug & play system requiring only a competent electrician to get things up and running. It also can be configured to manage inputs such as solar panels or electric vehicle chargers and enables utilities to implement smart energy technologies. HabiTEQ with EnOcean technology will be available from spring 2012.

www.ge.com/industrialsolutions



NEW HOSPITALITY PRODUCTS FOCUS ON ENERGY SAVINGS AND UNCOMPROMISED GUEST COMFORT

Since 2007, Verve™ Living Systems has been developing innovative sensor and control products that utilize EnOcean wireless frequency technology to provide simple solutions for achieving energy savings and increased comfort in all types of residential and commercial living spaces.

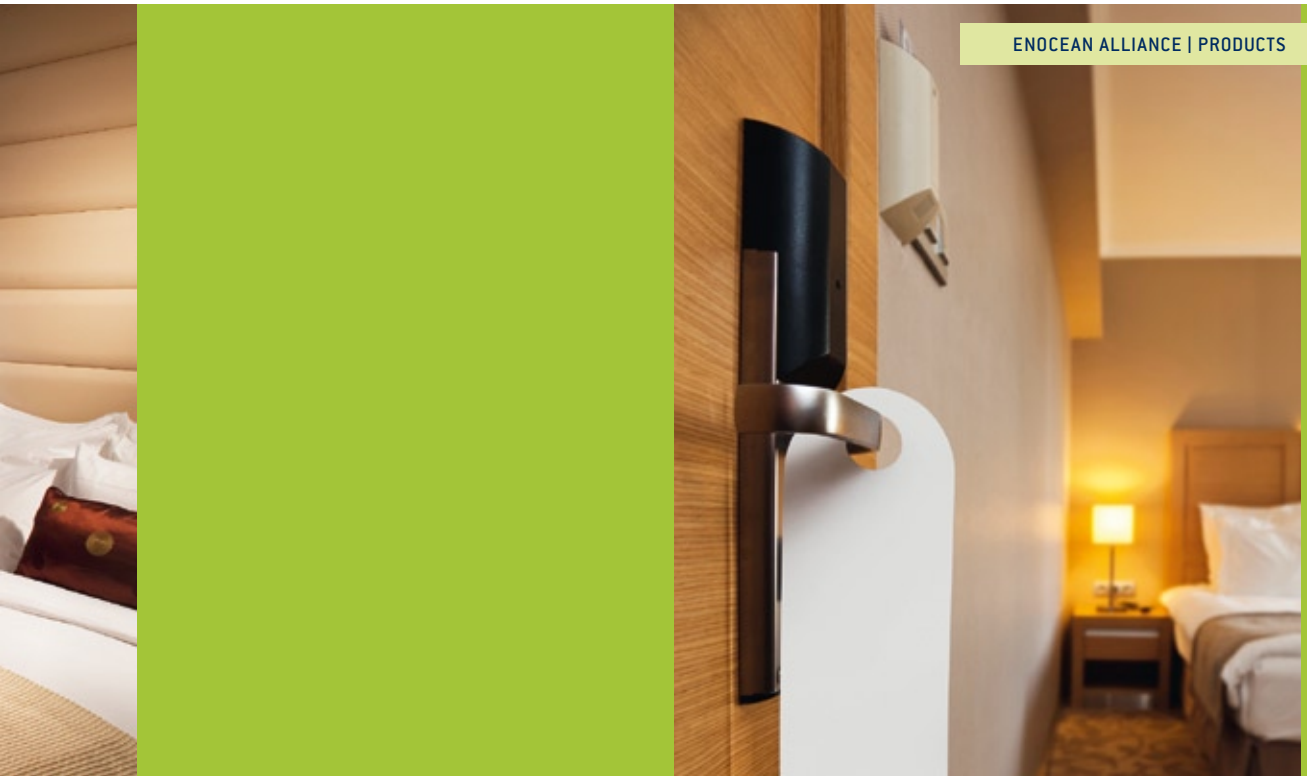
By Ruby Schaefer, Senior Director Marketing Management, Verve™ Living Systems

In June of this year, Verve™ introduced an innovative portfolio of energy-saving automation products developed specifically for the needs of the hospitality channel. The product line includes an assortment of attractively designed sensors and controls that can be combined to work together in an organic network to enable hotels to realize meaningful energy savings without compromising guest comfort. The Verve™ product line consists of four primary categories: occupancy detection, HVAC control, lighting and load control and user interfaces.

The occupancy detection category consists of a variety of wireless, batteryless sensors designed to determine the occupancy state of a room and communicate wirelessly with Verve™ control devices to set back temperature and turn off lights and miscellaneous electrical loads when a room is unoccupied.

The Verve™ key card switch is the most affordable option for occupancy based control while our ceiling and wall mounted sensors provide automated control and increased energy savings potential. Contact sensors for doors and windows can be added to increase the overall efficiency of any application and are available in both surface and recessed mounting versions.





The Verve™ HVAC setback module is designed to provide a simple, highly efficient means for switching HVAC systems between normal operation and a preconfigured setback mode. The Verve™ thermostat is compatible with 124 Vac and 120 Vac multi-stage conventional or heat pump systems.

Control of lighting and electric loads can be easily achieved through the integration of in-wall or plug-in control devices from Verve™. The inline switch module can be easily wired out of sight at the desired point of control using standard wiring practices. Linking the module to Verve™ sensors and user interfaces provides an amazingly simple solution for controlling energy use.

The Verve™ switched outlet can be installed in place of any standard outlet to enable on/off switching of lamps and electronic appliances such as televisions or computer monitors and printers. The Verve™ plug-in switch module quickly converts any standard outlet into a wireless control device.

Single, double and tabletop rocker pads provide intuitive user interfaces that enable convenient wireless control of lights and miscellaneous electric loads.

Many of the Verve™ products are self-powered and wireless making them so simple and non-invasive that installation and setup can be performed with inhouse resources and rooms can typically be returned to inventory in under an hour. They require no batteries so the need for periodic battery changes and ongoing maintenance is eliminated, saving hotels both time and money.

While initially developed for the hospitality channel, the new Verve™ products also provide affordable energy-saving HVAC, lighting and electrical load control solutions for a wide variety of retrofit and new construction applications.

www.vervelivingsystems.com





THE NEXT LEVEL: WIRELESS VALVE ACTUATOR MEETS ROOM OPERATING UNIT

Thermokon presents the compact and wireless valve actuator for heating and cooling systems SAB01.

By Nico Gotthardt, Product Manager, Thermokon Sensortechnik GmbH

The new SAB01 ideally completes the EnOcean enabled EasySens portfolio of Thermokon with the demand on innovative solutions for energy-optimized building automation. After having simply mounted the SAB01 to the standard MP30 regulation valve, the valve actuator can be easily taught into the EnOcean-based wireless network and is ready for operation immediately.

The SAB01 can also operate in connection with wired building bus technologies such as KNX, BACnet, Modbus

or LON – over Thermokon gateways. The new product accompanies the high demand on highest energy efficiency in connection with EnOcean-based wireless standards. As a result, the wireless valve actuators convince by an optimal power consumption and enable a self-sufficient heating/cooling control without the need for time and cost intensive configurations or installations.

WIRELESS VALVE ACTUATOR MEETS DESIGN ROOM CONTROL UNIT

As a design highlight in rooms and for the full benefit of the function profile the wireless EnOcean-based room operating unit Thanos enables a comfortable operation convenience. Inputs are made via the intuitive touch glass surface. The feedback for the operator is produced on a 3.5-inch full-color TFT display.

Temperature and humidity detection, setpoint adjustment or light control is centrally controlled, evaluated and seamlessly transmitted to the SAB01 valve actuator.

www.thermokon.de



SAB01 can be simply mounted to the standard MP30 regulation valve and easily taught into the EnOcean enabled wireless network.



DMX AND ENOCEAN

In July b.a.b-technologie presented a new DUO DMX gateway. The device is designed for the ceiling and DIN rail mounting and binds the DMX protocol into building control.

By Albert Baumann, Managing Director, b.a.b-technologie GmbH

The new device is designed for the ceiling and DIN rail mounting and is available in four versions: extension for the eibPort (KNX/EnOcean gateway); KNXnet/IP; KNX/TP as well as an EnOcean version. The device has an integrated EnOcean receiver and will be controlled directly by the desired EnOcean profiles.

HIGH FUNCTIONALITY AT LOW COST

The advantages of DMX systems are that they have a high dissemination and offer high functionality at low cost. Combination with EnOcean creates flexible scenarios. For example, RGB light control can be retrofitted in places where a cable could not reach, and that at affordable cost. Additionally the device offers two independently programmable DMX outputs with 512 channels each, for separate control of each of two rooms. Besides the linking of light scenes the single channels are also directly switched and dimmed by EnOcean profiles.



PROGRAMMING SEQUENCES

DMX sequences are programmed by professional DMX software (DMX configurator) offering the opportunity of a DMX preview. So every adjustment on the DMX channel regulator is immediately visible on the equipment. The software is free of charge and executable on all recent Microsoft Windows operating systems (XP through Win 7). The generated configuration file can be transferred over the network or by an SD card.

www.bab-tec.eu



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Universal 4-channel radio receiver for battery-free and wireless EnOcean industrial sensors and EnOcean radio switches

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INNOVATIVE CONNECTIONS

DEMAND-CONTROLLED VENTILATION

The French company NanoSense offers EnOcean enabled solutions for air renewal control in low-energy buildings.

By Olivier Martimort, Managing Director, NanoSense



The European Parliament has set the tone. From now on, improving energy performance is a priority for every country of the European Union by the adoption of new regulations. It is therefore now time to promote the use of renewable energies, but also gradually reduce energy consumption by insulation of buildings and intelligent management of air renewal, lighting and heating.

New regulations will require buildings to be airtight. In this context, controlled forced ventilation is becoming the main source of heat loss and the only way to effectively renew the air of a building. The issue is significant because we spend about 90 percent of our time indoors – at home, in transportation or in offices for instance – thereby running the risk of exposure to more toxic pollution than outdoors (presence of volatile organic compounds (VOCs), carbon dioxide, bacteria and fungi related to humidity). VOCs are widely present in many products and materials such as antiperspirants, paints, varnishes, adhesives, flooring, solvents, waxes, cleaners, etc. Some compounds can irritate the skin, the mucous membranes and the pulmonary system and create nausea, headache and vomiting.

OPTIMIZING AIR QUALITY

The E4000 probe from NanoSense regulates forced (mechanical) renewal of a building's indoor air by optimizing its quality. Energy savings can therefore become considerable. Gas sensors require external power making this probe a natural candidate for the KNX-TP or POE standards. But an optional EnOcean module can be added for EnOcean/KNX gateway functionality. A low-energy building may have ventilation with regulating dampers and an associated air quality probe in each room. So it seems logical to add the EnOcean gateway feature to each sensor. EnOcean telegrams with intelligible KNX addresses (floor, corridor, room number, etc) allow clear localization of EnOcean sensors and actuators of each room and facilitate organization of a building. Furthermore the constraints of wireless transmission from one room to another are eliminated. A dozen gateway options are expected to cost about the same as one traditional EnOcean/KNX gateway. The gateway will handle NanoSense's upcoming EnOcean enabled particle matter and radon sensors too (new EnOcean telegrams under approval).

It is also always possible to choose a module with EnOcean sensor type firmware instead of a gateway to turn an E4000 probe into an EnOcean sensor. The product will be available in 2012.



SELF-POWERED KEY SWITCH

New switchgear variant using EnOcean technology.

By René Scherer, E-Marketing Manager and Andreas Schenk, Product Manager Wireless, steute Schaltgeräte

steute already supplies the fields of automation and building services engineering with a wide range of self-powered, maintenance-free switching devices using EnOcean technology – for example pullwire switches, multifunctional handles and position switches, as well as control and command devices.

A new addition to this product range is the series BF 94 TZS EN 868 key switch incorporating a standardized cylinder lock coupled with an electrodynamic energy generator in housing for surface mounting. The energy generator was

developed by steute and its prominent features are an extremely compact design and long durability. These are requirements often found in the field of industrial automation and steute wireless switches are tried and tested for such conditions.

NO NEED FOR ADDITIONAL KEYS

The use of a standardized cylinder lock means that the wireless key switch can be integrated in an existing locking system without the need for additional keys. This also facilitates mounting at a later date.

Typical applications for the new wireless key switch are the opening and closing of rolling shutter gates at the entries to underground car parks, as well as the resetting of emergency stop devices and the on/off switching of electrical circuits in laboratories and other industrial institutions. Its high protection class (IP 65) also makes it suitable for outdoor use in building services engineering. Typical transmission ranges are up to 300 meters outdoors and up to 30 meters indoors.

SUITED FOR SWITCHING OF ALARM SYSTEMS

Since the housing of this device is safeguarded and cannot be opened without the key provided, this wireless switch is also suited to the on/off switching of alarm systems. In all applications, users profit from the fact that neither cables nor an energy supply are required to transmit the signals. This considerably reduces the time and effort required for installation.

www.steute.com



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INNOVATIVE CONNECTIONS

AVOIDING ENERGY LOSS AND COST THROUGH ELEVATORS



Together with PEHA and EnOcean, AirFlowControl offers an environment-friendly and energy-saving system for elevator shafts.

By Guy Stamet, General Manager, AirFlowControl SA

Ask anyone who has to do with energy efficiency in buildings and they will probably tell you the same thing: Although elevator shafts present immense potential for saving energy, to date they were wantonly neglected. The cost of heating buildings could be dramatically reduced if heat loss through open elevator shafts was avoided.

Nearly all elevators squander energy because indoor air heated at the expense of energy is constantly escaping through ventilation and smoke vents. This was the problem addressed by Luxembourg-based startup enterprise AirFlowControl (AFC), which developed a ventilation and smoke withdrawal system creating an optimum balance between air replenishment and energy consumption.

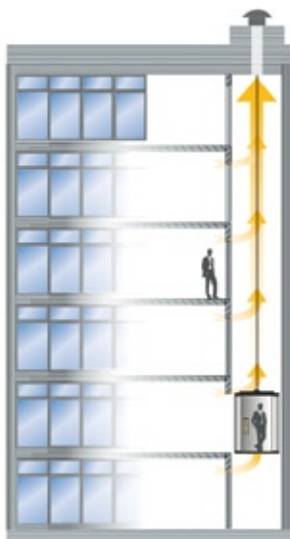
CUTTING CARBON EMISSIONS

In their BlueKit system the specialists of AFC have come up with an energy innovation that can significantly reduce losses in heating costs, and which is now protected by a worldwide patent. AFC chairman Guy Stamet, who is also a member of the international standards committee for elevators (CEN/TC 10), reckons that an average 3500 Euro yearly per elevator are wasted through unnecessary ventilation of elevator shafts. Assuming some five million elevators in use in Europe, that means undreamed of carbon emissions of 21 million tonnes.

BlueKit ensures that elevator shafts are not permanently ventilated by determining precisely whether an elevator is moving or the temperature in a shaft is too high and ventilating only when necessary. The result is enormous savings in heating costs, up to 5000 Euro per annum depending on the size of an elevator shaft. In a hospital with two

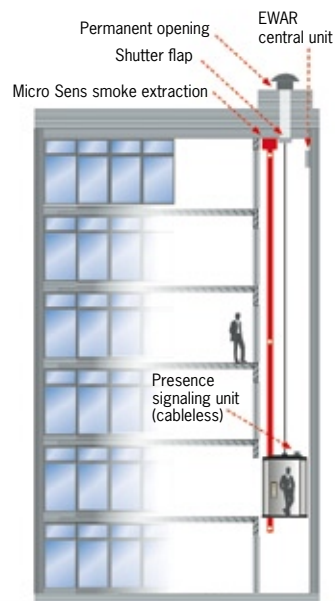
Starting situation

Heat loss through chimney effect in elevator shaft



EWAR solution

Illustration of BlueKit system (modular expandable)





BlueKit can significantly reduce losses in heating costs.

elevators between 9000 and 19,000 Euro even – and that for an investment of only 2500 to 4000 Euro. Which is why Stamet appeals not only to the sustainability philosophy of real estate owners and operators but also to their business acumen. BlueKit can amortize in some cases in a matter of months, and its installation or retrofitting is both uncomplicated and time-saving.

FLEXIBLE TECHNOLOGY

A major milestone in the development of BlueKit was creating a solution that would enable installation of the intelligent sensor technology on the roof of an elevator cabin without additional cabling – especially as the replacement interval in battery-powered operation was to be at least three to five years. This objective was then achieved given the low power consumption of EnOcean technology and the use of motion detectors with a low current drain.

EnOcean technology in the BlueKit system also serves for safety-relevant purposes. VOC sensors enable measurement of volatile substances and carbon dioxide in respira-

tory air, for instance, and in an emergency, if there is a dangerous lack of oxygen and excessive CO₂, can execute special ventilation. Additionally, smoke detectors or a key switch for the fire department automatically open venting flaps for smoke extraction in the event of a fire. Adherence to all safety-related requirements is verified by a fire protection and type approval examination conducted by the Rheinland Technical Inspection Association.

DOWN WITH ENERGY COSTS

Thus, together with PEHA, which manufactures the BlueKit system under contract to AFC and developed the EnOcean application, an innovative business idea has resulted whose market potential in Europe is exceptionally attractive. In the meantime there is an EC directive that explicitly calls for the installation of such systems to profit from the immense energy-saving opportunities.

www.peha.de
www.afc.lu



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or 2-channel sunblind control 770-629/102-000



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INNOVATIVE CONNECTIONS

NEW CAN2GO CONTROLLERS AND GATEWAYS EXTEND ENOCEAN RANGE AND INCREASE BACNET INTEGRATION CAPABILITIES

SCL Elements has launched its second generation of CAN2GO controllers and gateways. They offer unprecedented wireless range, multi-protocol support and processing power – enabling each unit to simultaneously control dozens of devices and handle multiple applications.

*By David Lamarche, Director of Communications,
SCL Elements*

These enhanced products allow building managers and system integrators to deploy more cost-effective energy efficiency solutions that manage HVAC, lighting, metering and more, with less hardware and downtime.

The second generation CAN2GO universal and VAV controllers, as well as the GW2 gateway, all boast 400 MHz processors, 64 MB of RAM and 2 GB flash storage. They can provide simultaneous control and BACnet/IP integration of digital and analog I/O, Modbus peripherals and EnOcean and ZigBee wireless devices. The added power allows each locally programmable unit to handle more wired and wireless control points at no extra cost.

All three products offer high powered antenna options for EnOcean and ZigBee wireless communication. The extended wireless range enables one CAN2GO unit to manage multiple rooms and building areas, decreasing building automation installation time and hardware costs.

MINIMAL EXPENSE AND DOWNTIME

Using each CAN2GO's ability to manage HVAC, lighting, metering and other building automation applications simultaneously, system integrators and building managers can also easily scale up their systems by adding lighting control to HVAC control – and vice versa – with minimal expense and downtime.

The new controllers (UN2 and VA2) as well as the new gateway (GW2) have embedded BACnet/IP gateways for integration with third-party BACnet systems. They also have embedded web servers hosting the CAN2GO web BMS – a fully programmable building management system for single and multi-site small and medium buildings of less than 100,000 square feet.





TEAMED FOR ENERGY EFFICIENCY IN ROOM TEMPERATURE CONTROL

The MD15-FTL miniature wireless actuator and the RBW322-FTL solar wireless room control unit from Kieback&Peter are enabled by EnOcean technology.

*By Jörg Bachmann, Product Management,
Kieback&Peter GmbH & Co. KG*

The RBW322-FTL is the first solar wireless control unit with integrated time-of-the-week program. The user can enter their individual times of use and setpoints. Operation on the generously scaled display is self-explanatory. Controlling room temperature guided by demand through the time-of-the-week program already has a sustainable effect on improving energy efficiency. With a dual power supply, consisting of an integrated solar panel and an internal energy storage mechanism, the unit will also work when there is inadequate light available.

The MD15-FTL is the first miniature wireless actuator to support the EnOcean standard. It is not only an actuator and controller, it also has its own temperature sensor. The miniature actuator sets up on EnOcean's new Dolphin processor generation. Power comes from batteries offering a number of years of service.

IDEAL PAIR FOR SUSTAINABLE SAVING OF HEATING ENERGY

The room control unit measures representative room temperature and transmits actual/set values wirelessly to the miniature actuator. This processes the data by a control algorithm and generates its setting command to regulate heating volume flow. The result is simple and convenient implementation of room temperature control guided by demand.

If the actuator is installed on a radiator close to a window, the integrated temperature sensor can detect changes in temperature when a window is opened. To avoid energy waste the actuator automatically shuts the valve and interrupts heating operation. This temperature sensor is also active in an emergency operating mode, for instance if wireless communication between the two is temporarily interrupted. As soon as it is restored, the room control unit measures temperature again.

MD15-FTL plus RBW322-FTL form an entirely cableless unit for energy-efficient room temperature control in new and existing buildings, enabling speedy and simple installation.

www.kieback-peter.de



FAST AND SIMPLE OPTIMIZATION OF HEATING INSTALLATIONS

Hydraulic alignment of a heating installation enhances energy efficiency by as much as 15 percent and at the same time cuts CO₂ emissions. This can be complex however, time-consuming and requires specialist knowledge, for which reason, as experience shows, it is not performed at all in many cases. Viessmann now offers an innovative solution in an automated hydraulic alignment that is initially being marketed with the new wall-mounted Vitodens 300-W gas condensing boiler heater (1.9 to 11 kW). Combined with wireless valve actuators and service software, hydraulic alignment is possible in a fraction of the time once needed.

By Jörg Hofmann, Managing Director, BSC Computer GmbH





No intervention is necessary while the Viessmann Vitodens 300-W, the Vitosoft 300 service software and the wireless valve actuators perform the hydraulic alignment. Afterwards the valve actuators are replaced by the original thermostat heads.

Hydraulic alignment is necessary so that all radiators of an installation are supplied with exactly the right heat for the particular room. The heating water volume rates of flow over the piping network to the individual radiators and the delivery rate of the circulating pump must be correctly matched. This ensures that no room receives too much or too little heat, and that efficient use is made of the energy.

It is consequently specified by Germany's heating equipment ordinance and construction tendering and contract regulations and its performance must be attested by a specialized contractor. Furthermore, proper hydraulic alignment may be needed to qualify for certain kinds of financial subsidy.

With the new Vitodens 300-W from Viessmann the work of hydraulic alignment can now be performed very much faster. As extras the workman only requires a service set with wireless valve actuators and Vitosoft 300 service software. Vitosoft 300 is based on BoSE software from BSC, while the wireless valve actuators from Kieback&Peter set up on the EnOcean Dolphin platform.

HYDRAULIC ALIGNMENT IN LESS THAN AN HOUR

Performance of the alignment is quite simple. First the workman enters data specific to a room such as heat requirement, radiator design and type of thermostat valves in the Vitosoft 300 program on a computer. Then the existing thermostat heads are replaced by the marked wireless actuators from the service set and the procedure is started through Vitosoft 300.

In the hydraulic alignment that then follows Vitosoft 300 performs the necessary measurements automatically. The individual flow resistances and thus the required pre-sets are calculated by opening and closing the radiator valves through the wireless actuators. The time needed for an installation with say ten radiators is barely an hour. The procedure is entirely automated and requires no operator intervention during measurement.

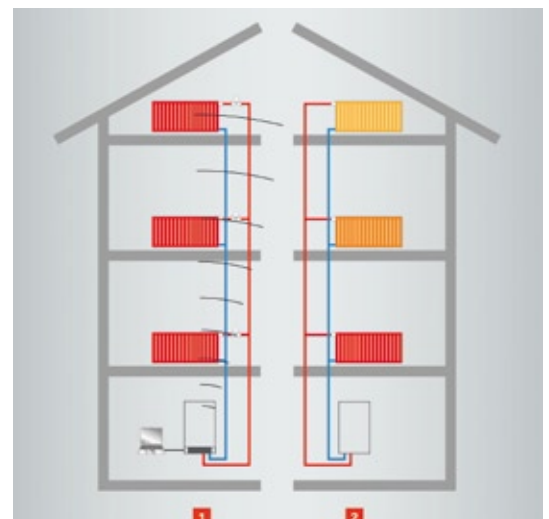
CERTIFIED ALIGNMENT

After completion of the certified alignment the presettings for each radiator valve are logged by Vitosoft 300. The user consequently has evidence in the event of applying for subsidies. Finally the presettings only have to be transferred to the thermostat valves and the thermostat heads put back in place.

www.embedded-intelligence.de

www.viessmann.com

www.kieback-peter.de



Heat distribution in a heating system [1] with and [2] without hydraulic alignment.



FROM THE EVERYDAY LIFE OF A SERVICE TECHNICIAN:

ELIMINATING SUDDEN WIRELESS INTERFERENCE IN AN ENOCEAN INSTALLATION

By Thomas Rieder, Managing Director, PROBARE

The more rewarding activities of a service technician include inspecting and documenting a properly functioning and reliable EnOcean installation. This is the kind of thing that crops up regularly once you have started up a well planned system. Less appreciated are reports from users that an EnOcean installation is basically very reliable, but there is occasional interference in individual actuators. The reason is in most cases not the immediate technology, as illustrated by the following case from the everyday life of a service technician.

Sporadic problems are not clearly reproducible and so you can seldom get to grips with them fast. This was the case in a large EnOcean installation for light and shading. It had worked quite perfectly for a number of months. Suddenly there were repeated complaints that the control of the shading solution attached to the outside of the building was causing trouble. It was soon traced to one part of the building and then only the bottom floors. But the reason still could not be identified straight away. A test of the receiving field strength on the actuators affected using a level indicator showed all clear for reliable operation, and of course the sporadic malfunction did not show its head when the service technician was on the spot.

Use of a P30 from PROBARE eventually threw light on the matter. Through its possibility of logging all activities in the EnOcean wireless channel on a USB stick the origin of the sporadic malfunctions was fast found. In addition to the EnOcean messages the P30 also records the activities of all other users of the frequency, accurate in timing and level. So we were able to see that another frequency user was emitting a very strong signal at irregular times. What was striking was that the duration of this signal fluctuated between 500 milliseconds and almost 7 seconds. After some searching in the immediate vicinity of this part of the building, we identified a newly purchased handheld remote control as the cause. The differing signal duration was simply the result of how long it was operated. The P30 was able to verify the previously logged signal strength in realtime by its bar-graph display for extraneous signals.

The reason for the sporadic malfunction was consequently a missing limit to transmitting time in the newly procured manual remote control of a proprietary radio system. So the problem was solved and the reliability of the EnOcean installation was restored.

www.probare.biz



ENOCEAN ALLIANCE MEMBERS MEETING IN PARIS

Three years after its creation the EnOcean Alliance welcomed its 200th member.



At the seventh official EnOcean Alliance members meeting, which took place in Paris at the beginning of June, the Alliance announced its 200th member: the French company NanoSense. Within three years of the foundation of the EnOcean Alliance it can not only show rapid growth in the number of member companies, but also 200,000 buildings already equipped with energy harvesting wireless technology over 750 interoperable products.

Over 75 members from Europe and North America grouped together in Paris to discuss further technical and strategic topics – such as smart grid, EnOcean over TCP/IP and interoperability. Speakers from Cisco, Bouygues, Rexel, Elithis and EnOcean delivered papers on intelligent buildings, energy efficiency and new capabilities of energy harvesting wireless technology.



Parallel to the members meeting the EnOcean Alliance hosted its first Open House Exhibition in France. 17 member companies presented to more than 300 building professionals at the Eiffel Tower (Salon Gustave Eiffel) their latest flexible, cost-effective, energy-efficient solutions for green buildings – including Honeywell, GE Energy, Distech Controls, Phoenix Contact, Wago and Thermokon.



NEW PEOPLE



CHRISTINA JONES, BUSINESS DEVELOPMENT MANAGER – WEST REGION, ENOCEAN INC.

Christina has a degree in AH&R and has extensive experience in all aspects of automation. She is a licensed contractor and control technician. Christina Jones implemented the design of the first LEED platinum school in the world. To accelerate market penetration for EnOcean's self-powered wireless devices Christina Jones will work closely with EnOcean partners and support builders, architects, specifiers and electricians in the realization of EnOcean enabled projects.

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e-mail: chris.jones@enoclean.com



CORY VANDERPOOL, BUSINESS DEVELOPMENT DIRECTOR NORTH AMERICA, ENOCEAN ALLIANCE

Cory Vanderpool has joined the EnOcean Alliance in a full-time position as Business Development Director North America. She will support EnOcean Alliance members and their activities in the region to increase awareness of the technology and create additional market pull for products and services of Alliance members. Cory Vanderpool has been actively involved in promoting energy efficiency in buildings in North America as Executive Director of the Greenlink Alliance for the past two years. Previously she held various marketing and business development positions including seven years at SI International. She also writes about green buildings and energy efficiency for magazines and an online sustainability journal called Triple Pundit. Cory Vanderpool is currently doing her PhD in environmental policy at George Mason University.

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e-mail: cory.vanderpool@enoclean-alliance.org

ALPHA MICRO COMPONENTS SIGNS DISTRIBUTION PARTNERSHIP WITH ENOCEAN GMBH

Alpha Micro Components, an independent franchised distributor of electronic components, has entered into an agreement with EnOcean GmbH to distribute EnOcean's energy harvesting wireless sensor modules in the UK and Ireland.

The UK and Ireland are very important markets for EnOcean. Partnering with a well-respected distributor like Alpha Micro will help increase and maintain EnOcean's presence there. The combination of Alpha Micro's in-house design team, which offers its customers a considerable added-value service, and exceptional expertise in wireless technology, should allow EnOcean to form a solid foundation for expanding its customer base among British and Irish enterprises.

Maxine Hewitt, Marketing Director of Alpha Micro Components, says: "We're very pleased to be partnering with EnOcean, which greatly enhances our extensive range of wireless industrial automation solutions. EnOcean was the first developer to recognize the potential that harnessing the energy around us has for both



sustainable energy consumption and reducing operating costs. This innovative technology is vital for helping organizations in both the industrial sector and the built environment meet their sustainability demands. This is a very exciting development for Alpha Micro and our customers."

www.alphamicro.net



10 YEARS OF ENERGY HARVESTING WIRELESS TECHNOLOGY: CUSTOMER FEEDBACK ABOUT ENOCEAN

"As a partner from the early days, we soon saw the advantages of EnOcean's self-powered wireless technology, and have used it to put our business on an international footing. With the simply integrated wireless modules we've always been able to respond fast to the demands of customers and the market, for energy-efficient, comfortable and flexible solutions in building automation."

**Harald Zygan, Managing Director,
Thermokon Sensortechnik**

"We welcome integration of EnOcean technology in the WeberHaus concept, especially because it implements a very high standard of building services management that results in appreciable value added."

**Klaus-Dieter Schwendemann,
Marketing Director, WeberHaus**

"There would be no Omnio without EnOcean. We banked on this fascinating technology from the very start, and it proved right. We made use of the opportunity to become a leading name in innovative building automation systems, and the market has fully substantiated this aim."

**Christian Genter,
Managing Director, Omnio**

"Compared to other wireless communication solutions, EnOcean's unique combination of energy harvesting and wireless technology is embedded in standardized modules that are very simple to integrate into various switch designs. Not only do we benefit from the high level of functionality, but the technology also enables a faster time to market and reduced design risks. This, combined with the technology's existing success in Europe, made the cooperation an attractive proposition for MK."

**Phil Daniell, Marketing Director
of MK Electric (a honeywell company)**

SEPTEMBER 2011

September 19-21, 2011
Shanghai International Intelligent Building Exhibition (SIBE), ChinaEnOcean Alliance and Alliance members exhibit at T08.
www.ibexpo.com/en/**September 20-21, 2011**
Intelligent Building Systems, Paris, France
Members from EnOcean Alliance are exhibiting.
www.ibs-event.com

OCTOBER 2011

October 4-6, 2011
Greenbuild Expo 2011, Toronto, Canada
EnOcean Alliance and members exhibit.
www.greenbuildexpo.org**October 11-12, 2011**
M&E – The Building Services Event, London, UK
EnOcean Alliance and Alliance members exhibit at E91.
www.buildingservicesevent.com**October 12-14, 2011**
World Energy Engineering Congress 2011, Chicago, USA
EnOcean Alliance members exhibit.
www.energycongress.com

NOVEMBER 2011

November 8-11, 2011
Hi-Tech Building 2011, Moscow, Russia
EnOcean Alliance and Alliance members exhibit.
www.hitechhouse.ru**November 9-10, 2011,**
Wireless Congress 2011, Munich, Germany
Presentation by Andreas Schneider (EnOcean).
www.wireless-congress.com

DECEMBER 2011

December 7-8, 2011
Ecobuild America 2011, Washington D.C., USA
EnOcean Alliance exhibits.
www.aeeecobuild.com

JANUARY 2012

January 23-25, 2012
AHR Expo, Chicago, USA
EnOcean Alliance and members exhibit.
www.ahrexpo.com

FEBRUARY 2012

February 28 - March 3, 2012
R+T - Leading world trade fair for roller shutters, doors/gates and sun protection systems, Stuttgart, Germany
Alliance members exhibit.
www.messe-stuttgart.de

APRIL 2012

Apr 15-20, 2012
light+building, Frankfurt, Germany
EnOcean Alliance and members exhibit.
www.light-building.messefrankfurt.com

MAY 2012

May 9-12, 2012
Lightfair 2012, Las Vegas, USA
EnOcean Alliance and Alliance members exhibit.
www.lightfair.com

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ENOCEAN IN THE MIDDLE KINGDOM

Increasing importance is focusing on energy-efficient and environment-friendly technologies in China.

By Michael Gartz, Sales Director Asia, EnOcean GmbH



The world's most populous country is going through a phase of considerable change. Just a few years ago the emphasis was solely on strong economic growth regardless of the environmental problems associated with it. But now politicians and large sectors of the populace are becoming increasingly aware of energy-efficient and environment-friendly technologies. In its efforts to ensure a cleaner future, the Chinese State Council has called on local government to invest more in energy-saving and ecologically sound products and projects.

Germany's Minister of Transport, Building and Urban Development, Peter Ramsauer, and his Chinese counterpart, Jiang Weixin, recently signed an agreement to increase cooperation in the development of climate-friendly major and mega cities.

JOINT APPEARANCES WITH CHINESE PARTNERS

Further to joint appearances at the Chinese Light & Building in Guangzhou and the Shanghai International Building Expo for instance, EnOcean is becoming more present through roadshows, conferences and meetings with investors, architecture firms and politicians. Initial successes are already showing – Chinese partners can present a wide-ranging selection of EnOcean enabled

products, and have implemented their first projects, with a whole number of building projects planned.

EnOcean technology is precisely the right foundation on which to create energy-efficient buildings. So in addition to a fast pace of economic growth and more prosperity for its people, China can also look into a green and environment-friendly future.

www.enocean.com



End-products with EnOcean technology can be obtained direct from manufacturers (see page 18 – member overview) or wholesalers. See further information on www.enocean-alliance.org/products

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