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ENGLISH

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MAINTENANCE-FREE WIRELESS SWITCHES & SENSORS

2010 ISSUE 2

ENERGY HARVESTING

ENOCEAN TECHNOLOGY
Sleeping to save energy

NEW PROMOTER
Jäger Direkt now a promoter of the EnOcean Alliance

ENERGY HARVESTING DELUXE
EnOcean technology optimizes energy consumption in Jebel Ali Hotel in Dubai

SIEMENS
Energy-efficient control of room applications with EnOcean-enabled wall switches

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technic & design

Dear readers,

Something that was realized years ago in wired building systems is now being confirmed by the world of wireless too: Namely that there's no single technical remedy for all the problems posed by building automation. What's important is to implement technologies that mutually complement each other, and have no problem in communicating with one another.

With its flexibility and freedom from maintenance, EnOcean technology is an attractive solution in building automation. A further advantage of batteryless wireless technology is the ease with which EnOcean-enabled products and systems can be integrated into common building automation systems. Wireless sensors are optimal for the room/fire compartment level, superordinate control functions are produced by the automation system. Regardless of whether it communicates by LON, KNX, BACnet, TCP/IP or Ethernet, the operator of a building can implement sustainable energy management concepts with little effort.

The latest development on the market is products that fuse a number of technologies in one solution, such as those from Shaspa and Akktor featured in this issue. They integrate all common bus standards and tie them to the management level – IBM's service delivery level for instance.

Actually, this isn't all that new. Smartphones already integrate six wireless modems over the operating system – from GSM, UMTS with four frequencies through Bluetooth to WLAN.

Markus Brehler,
CEO, EnOcean GmbH

SLEEPING TO SAVE ENERGY

Energy harvesting wireless modules from EnOcean receive and transmit data only when required to save energy.

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NEW PROMOTER

Jäger Direkt now a promoter of the EnOcean Alliance

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MASTHEAD

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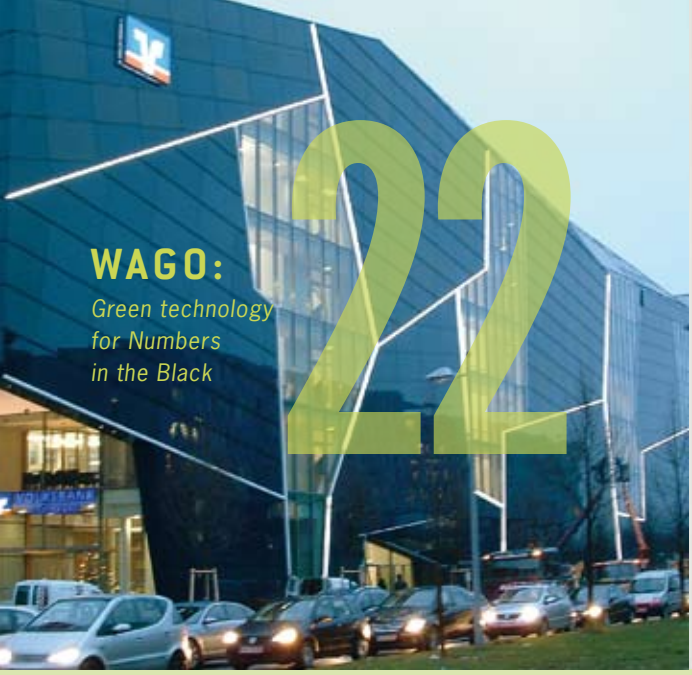

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THE ABCs OF ENOCEAN

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 100,000 buildings.

By Andreas Schneider, Executive VP, 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.

BROAD-BASED INTEGRATION

OEM partners from very different sectors can simply integrate EnOcean modules in their products. In this way EnOcean technology allows speedy development and deployment of new wireless solutions. With the new Dolphin platform EnOcean modules can for the first time not only transmit information but also receive it – creating the basis for innovative wireless applications in building services, in industry, medical engineering and for any number of other purposes. And all EnOcean-enabled products are interoperable. That means devices from different manufacturers can quite easily communicate and cooperate with one another in one and the same system.

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WELCOME TO THE ALLIANCE FOR SUSTAINABLE BUILDINGS

By Graham Martin, Chairman, EnOcean Alliance

enocean® alliance
No Wires. No Batteries. No Limits.

Leading companies worldwide from the building sector formed in 2008 the EnOcean Alliance, with the aim of promoting and establishing innovative automation solutions for sustainable buildings – and so to make buildings more energy-efficient, more flexible and lower in cost. We aim to standardize and internationalize EnOcean wireless technology, and to ensure interoperability between the products of different manufacturers.

As a member of the EnOcean Alliance you have the possibility of accessing new business areas with innovative EnOcean technology. Furthermore you can proactively work together within the Alliance Technical Working Group to implement interoperable products based on approved Alliance specifications, and to propose features and profiles for adoption in the standard. You also can benefit from Alliance marketing activities – such as joint trade shows, public relations support, advertising and lobbying.

The Alliance offers three membership classes:

- **PROMOTERS:** key players who lead, define and drive the Alliance.
- **PARTICIPANTS:** companies and suppliers providing products and services using EnOcean technology.
- **ASSOCIATE MEMBERS:** building professionals, academics, smaller distribution partners and others interested in the technology, advancements, examples, training, etc.

We invite you to join us as a Participant 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

SLEEPING TO SAVE ENERGY

Energy harvesting wireless modules from EnOcean receive and transmit data only when required to save energy.

By Armin Anders, VP Product Marketing, EnOcean GmbH

Energy harvesting is a technology that has made huge progress in recent years. There is now a diverse range of energy-saving electronic products on the market that draw energy from their surroundings. EnOcean, with its batteryless wireless modules, is a pacesetter in this development, showing the way to fully energy-autonomous applications. The energy-harvesting interface of the STM 300 wireless module, for example, enables the connection of diverse energy converters. The module can be programmed so that measured values are read out by means of the energy supplied by a tiny solar cell, and the result can trigger different activities. However, it is not only energy-harvesting technology that positions EnOcean-enabled products under the "green" banner. Even more energy is saved using unique wireless technology and the technique that turns modules off when they are not in use.

RESPONDING FAST AND RESTING LONG

Self-powered wireless technology eliminates the need for battery replacement and the time and resources this involves. Mechanical or thermoelectric converters and solar cells can act as a substitute for batteries if there is sufficient energy surplus to bridge periods when there is no energy to be harvested from the surroundings. The charge capacitor for this purpose consequently works similarly to the power reserve of an automatic clock, storing energy for phases in which there might not be enough light to operate an energy harvesting module by a mini solar cell, for example. In complete darkness the stored energy will suffice for several days of regular operation. Different means of energy conversion and energy storage can be combined by applying a building block principle to match different applications.

Used in building automation, energy-autonomous wireless systems must be able to work over distances of up to 30 meters, and through a number of walls. However, continuous operation of wireless transmitters or receivers would consume too much energy and most of the sensor systems in a building only process relatively small amounts of data, at intervals of several minutes. This is precisely what EnOcean technology makes use of. The modules save a large amount of energy by executing all operations of the sensors and actuators very rapidly, and consistently turning off modules when they are not needed. For this purpose the sensor modules incorporate special timers that require only very little energy and all other components during the sleep phases and waking them again when they are required to operate.

The fast activation and turn-off of a sensor also saves energy. This approach is especially effective if the parameters to be measured change slowly, because very small action cycles can be achieved. When analyzing processes that are highly dynamic as a function of time however, such as vibration of machine parts, it is an advantage if the measured values are processed first. In a case like this no measured data are transmitted, only the status, decisions or warnings. The STM 110 sensor module, for instance, only sends measured values if there is a change from what it last sent – after all, it takes more energy to transmit than to measure.

MULTIPLE WIRELESS TELEGRAMS WITH MINIMAL ENERGY

Similar to the sensor functions, in wireless transmission too the focus is on saving: activate fast and turn off again. Data transmission in EnOcean wireless technology takes only 0.6 milliseconds for a complete telegram.

For extra data security, each telegram is repeated twice in the space of about 30 milliseconds, with a randomly controlled delay between the three transmitted pulses. This high-speed and very short multiple transmission means that hundreds of transmitters can work in parallel in narrow confines on the same wireless frequency. Each EnOcean module comes with a unique 32-bit identification number to exclude any possibility of overlap with other wireless switches. The range is 300 meters in the open and up to 30 meters inside buildings. Although transmitted power is up to 10 milliwatts, the wireless transmission technology used here only has an energy requirement of 50 microwatt seconds for a single telegram. That corresponds approximately to the power needed to lift a weight of 1 gram by 5 millimeters. Requiring so little energy, a sensor can be powered simply by operating a light switch.

WIRELESS SOLUTIONS FOR BIDIRECTIONAL COMMUNICATION

With the introduction of its new Dolphin platform, EnOcean now enables the creation of compact plug&play modules that are energy-autonomous and bidirectional. The major components of the bidirectional Dolphin system architecture are the STM 300, TCM 300 and TCM 320 wireless modules. At the core of these three modules is the Dolphin EO3000I, a compact ASIC that integrates both RF technology and flexibly programmed digital electronics on an extremely miniature scale. Only a few parts are needed to create a bidirectional wireless sensor, such as a crystal, an antenna and the power supply. With its energy converter interface and complete RF transceiver, the ASIC enables extremely short – and thus energy-saving – data telegrams.

The new Dolphin modules are the ideal platform for energy-optimized building automation systems.

The range of Dolphin-supported solutions is already wide: examples include self-powered applications in condition monitoring and bidirectional gateways and repeaters with very low power consumption. OEM partners of EnOcean continue to work on products enabled by this energy-harvesting, bidirectional wireless technology. In the near future, entirely new, energy-saving application possibilities are anticipated in building automation and industry.

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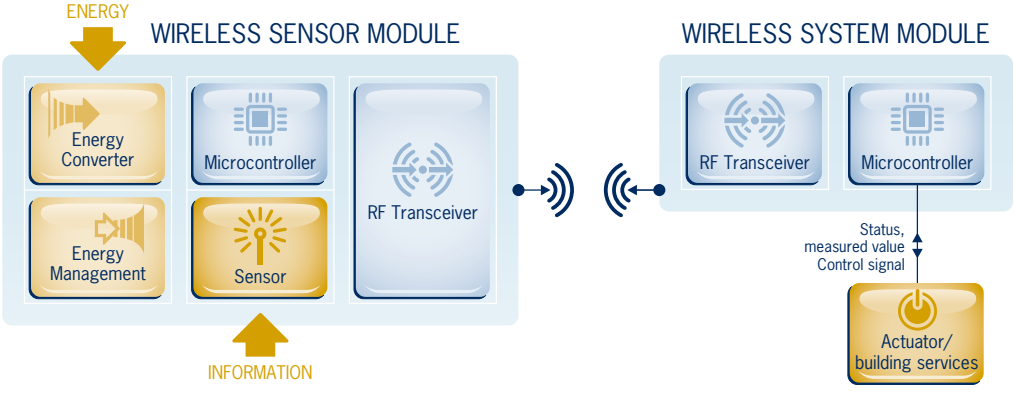

THE PERFECT COMBINATION FOR INDIVIDUAL SWITCHING APPLICATIONS

The new batteryless PTM 330 wireless module presents numerous possibilities of application in building automation and industry – especially when combined with the new ECO 200 energy converter.

By Dr Wolfgang Heller, Product Line Manager, EnOcean GmbH

With the invention of the energy-autonomous light switch EnOcean laid the foundation for flexible automation systems in energy-efficient buildings. It uses an electrodynamic generator that produces sufficient energy to transmit commands by a wireless module, and thus control light and heating for example. In the new PTM 330 wireless transmitter module for use in the 868 MHz and 315 MHz frequency bands, EnOcean now offers its customers the possibility of speedily and simply implementing individual switching solutions in very different segments. An energy pulse – produced by the new ECO 200 energy converter for instance – enables transmission of a wireless telegram containing a unique 32-bit module ID, the polarity of the energy pulse, and the state of four digital inputs.

The ECO 200 is the third generation of mechanical converters, showing improvements in the efficiency of energy conversion, in noise emission and fully automated manufacture. Here the magnetic flux is abruptly reversed by a coil as soon as a spring mechanism reaches a snap-over point.

APPLICATION IN VERY DIFFERENT SECTORS

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 solderfree to the ECO 200 energy converter. The latter exhibits spring contacts that simply connect to the contacts of the PTM 330 (the connections on the rear of the board are visible in the illustration). In a second mode of orientation the PTM 330 is turned at an angle of 180° to the ECO 200. The

board bears two meander structures by which a rubber keypad is placed upon the board to set the level of two of the four digital inputs. The PTM 332 variant is suitable for placement on a board as an SMT component. In this case the connections for the power supply and four

The new generation of energy converters is more efficient, create less noise and their manufacture is automated.

digital inputs are brought out by contact arrangements on the short sides of the module. With the four inputs it is possible to simulate two rockers of a PTM 200/200C switch. This is of particular advantage if an alternative design is required, other antennas than the wire antenna are to be used, or when working from different energy sources – pulses generated by an electronic circuit for instance. The PTM 332 enables connection of a wire antenna or 50-Ω antennas.

SIMPLE CONFIGURATION

A configuration interface enables alteration of the content of wireless telegrams during manufacture of an end-device – configurable as part of EnOcean telegrams of the type RPS. The content can be individually defined for each of the 32 possible wireless telegrams. This allows an exchange of rocker information for example, a reversal of polarity, or sending telegrams for window handles or access card switches in compliance with the standardized communication profiles of the EnOcean Alliance.

COST-ATTRACTIVE MANUFACTURE

The new PTM 330 module family is suitable for a whole variety of energy-harvesting switches. Given its many installation options the new module offers a large measure of flexibility in product development, and enables cost-attractive manufacture of large series.

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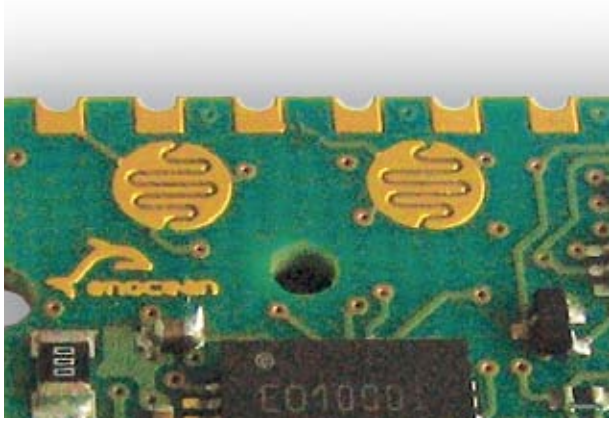
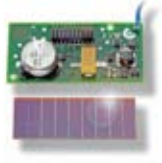
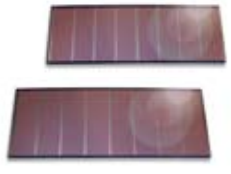


RoHS COMPLIANT 2002/95/EC

ENOCEAN MODULES

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

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
NEW **PTM 330** **Radio transmitter module** ■ Dimensions: 26 mm x 21 mm x 3 mm ■ Operation with ECO 200 or external energy source ■ Four digital inputs ■ Variant PTM 332 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 radio 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 available ■ 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 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		✓ ECS 300 ECS 310	✓ ECS 300 ECS 310

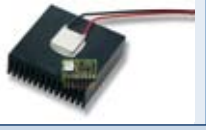
RECEIVER AND TRANSCEIVER MODULES

		AVAILABLE FOR	
		868 MHZ	315 MHZ
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 300 TCM 320	✔ TCM 300C TCM 320C
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)		✔ RCM 100/ 120/122/ 130/140/ 152	
TCM 110/120 **Transceiver module** ■ 5 V voltage supply ■ 33 mA current consumption ■ Dimensions 24 mm x 42 mm x 5 mm **TCM 110:** ■ Single- and two-level repeater for EnOcean wireless telegrams **TCM 120:** ■ Bidirectional wireless ■ Serial interface		✔ TCM 110 TCM 120	
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

		AVAILABLE FOR	
		868 MHZ	315 MHZ
OEM UNIVERSAL SWITCH IN SERT PTM 250 ■ Compatible with following designs with 55 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 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 teached. Simple connection of the line voltage and load by screw terminals.		✓ RCM 250	
NEW **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
ECT 300 PERPETUUM DEVELOPER KIT Optimized thermo energy harvester for EnOcean Developer Kit EDK 300. Operates on temperature difference as little as 2°C.		✓ ECT 300	✓ ECT 300

ENERGY HARVESTING – WHERE ARE WE HEADED?

Interest in the subject of energy harvesting continues unabated. An increasing number of people are fairly fascinated by a new method that makes it possible to gather – or harvest – energy from our surroundings, for example from motion, light or differences in temperature. perpetuum spoke to Frank Schmidt, CTO of EnOcean and one of the pioneers of energy harvesting, about today's and future opportunities presented by the innovative technology.

perpetuum: Energy-harvesting wireless sensors have already gone through a phase of rapid development. The term is only about ten years old, but the components already feature in a host of applications. Enabled by EnOcean technology there are more than 500 end-products today, marketed by over 150 different manufacturers. Frank, how do you view this development?

Frank Schmidt: The innovation cycles really are extremely short. Today we're already speaking of the third generation in the major building blocks of the technology. In other words the energy converters and mechanisms for storing it, the energy management, wireless modules and software. Each generation has seen essential advances in these building blocks. One example is that of the energy converters for wireless switches. The first generation appeared on the market in 2003, still functioning by the piezoelectric principle.

Soon after this product was launched we were already working on alternative concepts. As a result the piezoelectric converters were superseded in 2006 by the second product generation, this time based on the electromagnetic principle. The new converters were smaller, more efficient, longer lived and more cost-attractive. At the beginning of 2011 the next generation is coming to market – with even better efficiency, longer lived again, plus from automated fabrication. There are similar marked improvements with the wireless modules and in the software too.

Can this kind of pace be sustained in development of the technology, or are we likely to see progress stagnate instead?

Frank Schmidt: Where development is concerned you have to view legacy and entirely new devices and applications separately. Existing wireless modules, energy converters or software tools have already undergone a number of development cycles in field-tested applications, meaning that potential for improvement decreases. But their performance is fully adequate, so the focus is shifting to rationalizing fabrication costs and minimizing component size.

The situation is different with new kinds of components such as energy converters for temperature differences, low-power wireless receivers or energy-saving bidirectional communication concepts. The challenges facing us here are new so enormous advances are possible and called for, which we can expect to see in products over the next few years. The same applies of course to their use in new fields of application.

Speaking of applications, some of the predictions you find in articles and on the internet sound quite

adventurous – like self-powered wireless implants in the human body to monitor our health, vibration converters in nanotechnology seated in chips on a board to supply them with power, or wireless sensors that attract insects like carnivorous plants to obtain energy from them.

Frank Schmidt: I think these are very good examples of the broad-based research that's already going on. There's an exchange – knowledge and experience – across the board with biologists, materials scientists, medical scientists and many other disciplines. Many people are fascinated by the possibilities that the technology is opening up. And no doubt we're going to see entirely new and worthwhile applications in the coming years. Although some concepts are also doomed to failure.

In my opinion the ideas with the best prospects are those that can reliably solve an existing problem in real conditions and at the same time more economically than was the case before. There are enough examples. In agriculture sensors could be installed over large areas to produce a number of benefits and profit. Forest fires could then be detected in good time, or high-grade plants could receive an optimal supply of nutrients and water. In a vineyard for example, where numerous sensors could meter fertilizer status, pH values and water content in the soil locally and send the results wirelessly to a control center.

Another example is what's called assisted living. Given the changing age structure of the industrialized nations, new concepts are needed that take the place of labor-intensive rest homes to make elderly people more self-dependent. Technology is still needed to prevent health risks or detect them early, which is where sensors can play a key role. The absence of any need for service is especially important, so the energy-autonomous wireless sensors are cut out for the job.

The technical aspects and advantages sound very convincing. There are other factors that play an important role when it comes to winning new markets. What do you think needs to be done to really, successfully establish a technology longterm?

Frank Schmidt: It's essential that you find enough users who are all contributing to the same purpose – that of creating a standard that's an authoritative platform for the expansion of legacy and the development of new applications. At any rate, it will be exciting to see which way energy harvesting goes in the years ahead. But no matter where it's heading, EnOcean will continue to play a leading role.

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OVERVIEW OF ENOCEAN ALLIANCE MEMBERS

www.enocean-alliance.org/products

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JÄGER DIREKT NOW A PROMOTER OF THE ENOCEAN ALLIANCE

At the start of July 2010, Jäger Direkt became a promoter of the EnOcean Alliance. As such, the company, based in Reichelsheim, Germany, will actively participate in establishing the EnOcean standard worldwide, and contribute its own impulse to the working of the organization. Through its expertise and with a broad portfolio of interoperable EnOcean-enabled products, Jäger Direkt will optimally support the EnOcean Alliance's objective of creating green buildings with innovative energy-harvesting solutions. As of the beginning of July, Jäger Direkt is also a member of the EnOcean Alliance supervisory board.

By Graham Martin, Chairman, EnOcean Alliance

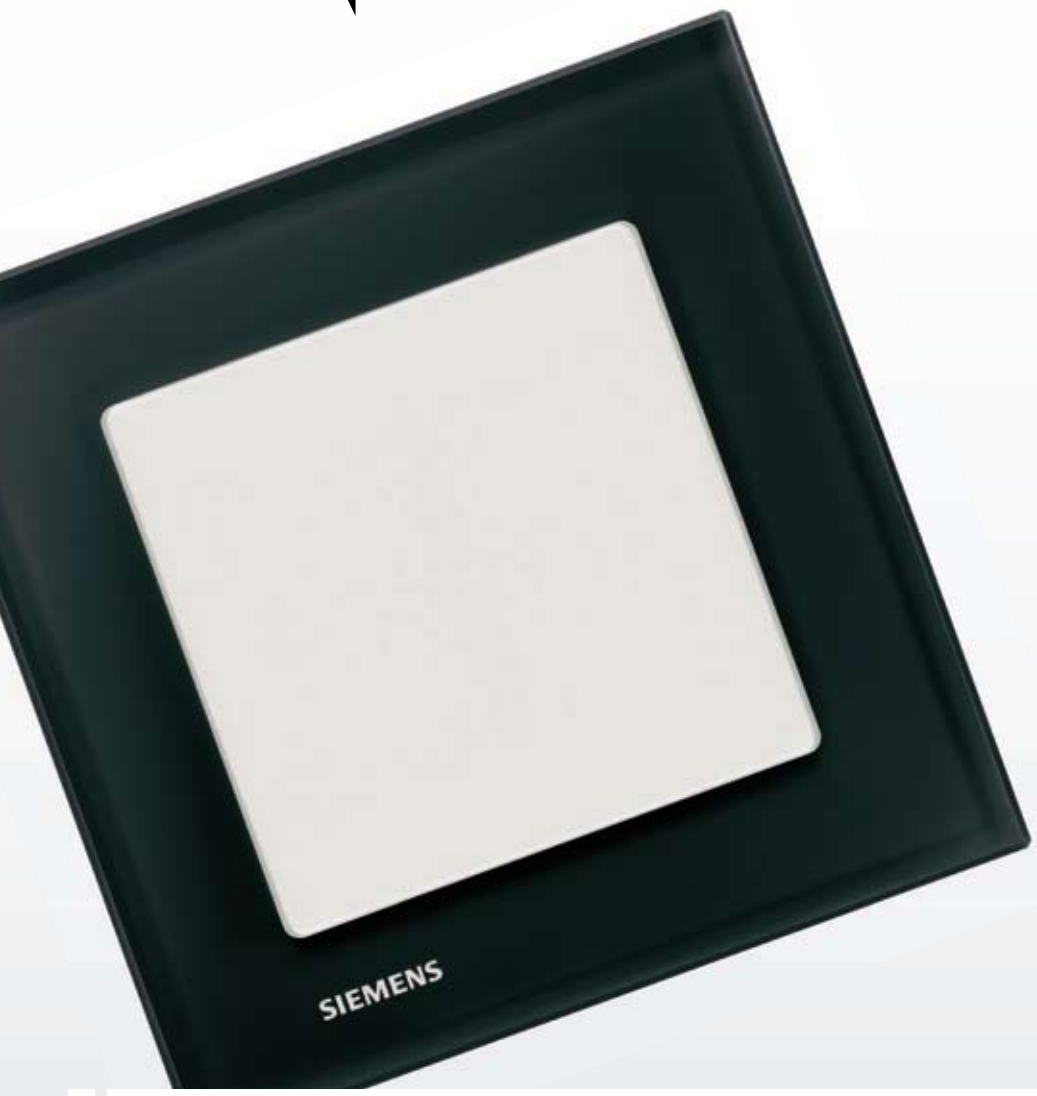
For more than 20 years Jäger Direkt has been offering electrical engineering products, systems and services for businesses – from consulting and planning/project support through delivery processes to support in startup operations and project documentation. It concentrates not only on single products but also on system solutions that present concrete benefits for both OEM and end-user. The company currently employs 200 persons and ships its products to more than 20,000 electrical engineering businesses.

INNOVATIVE SOLUTIONS FOR SUSTAINABLE BUILDING

In OPUS® greenNet Jäger Direkt offers not just single solutions but a complete system for intelligent and ecological building management. The system combines products from different manufacturers, all enabled by EnOcean's energy-harvesting wireless technology. The focus of the system is on energy efficiency, safety and convenience of retrofitting and expansion. Lighting, receptacle outlets, blinds and heating, for instance, can be controlled centrally or when you are moving about through the ViToo visualization software. This kind of solution is very interesting for elderly people who want to stay in their homes as they get older. The system can be used to implement a house emergency call service, acknowledgement that medication has been taken or decentralized opening/closing of house doors for a care service.

www.Jaeger-Direkt.com
www.OPUSgreen.Net

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



enocean

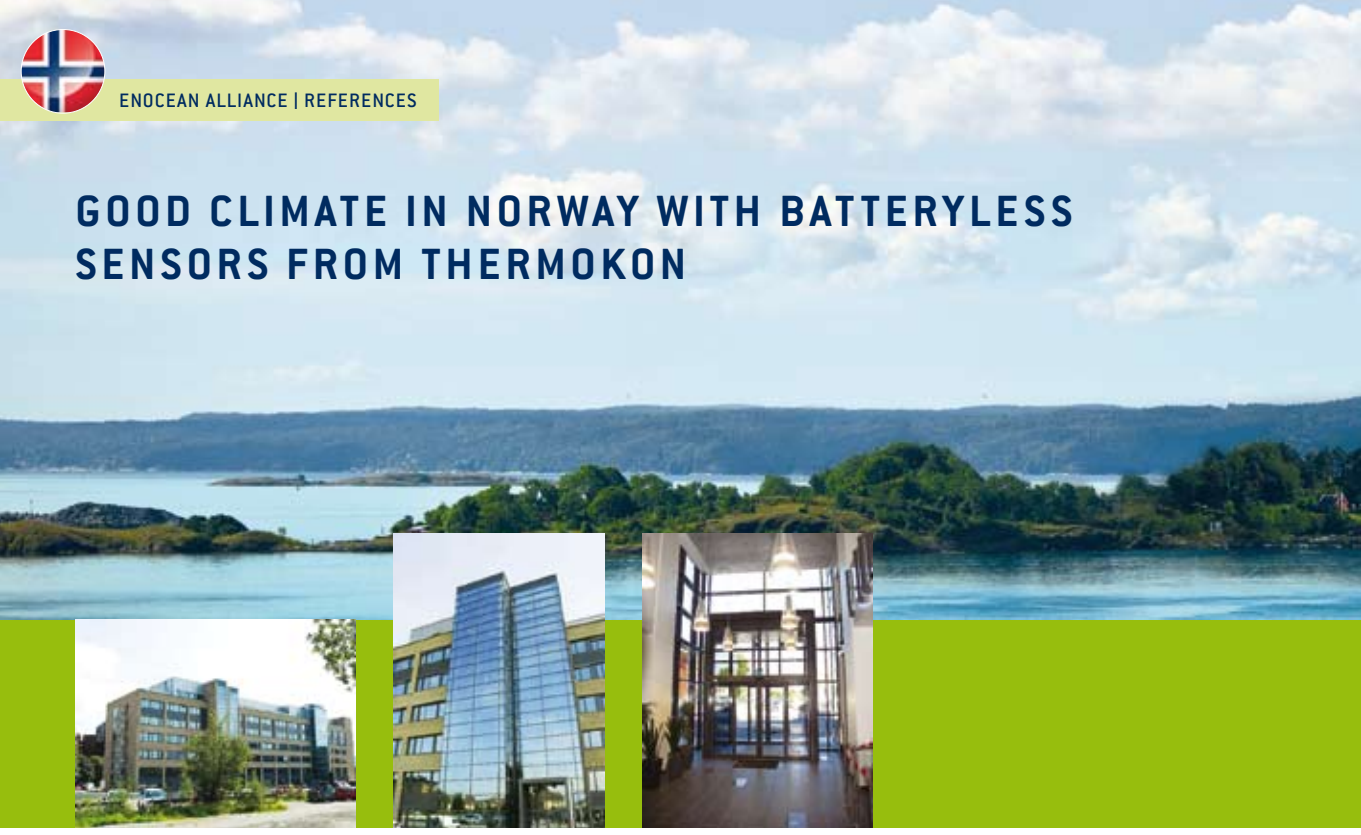
By taking advantage of flexible installation with maintenance-free EnOcean products.

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

GOOD CLIMATE IN NORWAY WITH BATTERYLESS SENSORS FROM THERMOKON



The key argument "no batteries and maintenance-free" was convincing enough for the redevelopment of a 13,400 sqm building complex in Oslo. The old building was turned into a complex providing spacious and well-lit offices. The whole automation of the building was planned, installed and programmed by SD-Consult Building Automation in Norway.

By Frank Neudecker, Export Manager, Thermokon Sensortechnik GmbH

Modernization of the building complex presented a number of challenges, especially where the use of energy was concerned. Creating a bright modern office complex with a glass facade, maximum reduction of energy consumption in the building as well as wireless control of heating and cooling were focal aspects for the owner. The client Gassmann Eiendom AS was impressed by the flexibility and ease of installation of EnOcean-enabled wireless technology, plus the reliable use of energy harvested from the surroundings.

The existing structure was not designed to bear the extra weight of stiffening and reinforcement, so the first major effort was to stabilize the building shell.

OPTIMIZING INDOOR CLIMATE

After work on the facade was completed, building automation was migrated to state-of-the-art technology. The former air handling units were replaced by new units located on all seven floors. Altogether 500 zones were fitted with new ventilation units and cooling plants.

SR04P EasySens room control units from Thermokon Sensortechnik provide a pleasant climate and efficiently control cooling and heating. Transmission of the measured room temperature is wireless by EnOcean telegrams to a controller from Distech Controls. Adapting the set-point is possible using a rotary knob.

The energy to power a sensor and transmit telegrams is obtained from the surroundings by an integrated solar cell. This avoids cumbersome battery replacement and high maintenance costs. Moreover, because the positioning of wireless sensors is no longer tied to power lines, it is very cost-effective and a sensor can be located where it is most ergonomic.

All technical systems and components were integrated in a BAS system based on the Niagara platform.

SUCCESSFUL MODERNIZATION

The two four-storey blocks were located side by side at Grensveien 86 in Oslo. Today, after the extensive renovation lasting 20 months and an increase to seven floors, the modern building presents itself as a unified whole with a new main entrance made of glass. Both of the old elevators were replaced by new panoramic elevators made of glass and steel. They form a separate element of the seven-storey building and structure the long facade.

SR04P room control unit
from Thermokon

GREEN BUILDING PHILOSOPHY

A modern, sustainable green building has emerged as the result of optimal renovation resulting in significant savings in energy costs for the future. The flexibility of the wireless system was very important for this project because of the walls of glass and steel. Movable walls respond to the special needs of new customers, so any wiring would limit the possibilities of individual room configuration.

www.thermokon.com

GREEN TECHNOLOGY FOR NUMBERS IN THE BLACK

The main office of the Volksbank Karlsruhe offers full functionality with maximum energy savings thanks to modular building control and WAGO expertise.

By Michael Dewald, Project Manager Building Automation, WAGO Kontakttechnik GmbH & Co. KG

That modern architecture and sustainable environmental protection can form a perfect unity is shown by the new headquarters of the Volksbank Karlsruhe: geothermal prospecting, photovoltaic panels and three atriums with a heat recovery system guarantee that no energy is required from outside for the inside behind an elegant facade. Concept, consulting and building automation components came from WAGO in Minden.

Anyone turning into the Kriegsstrasse in Karlsruhe sees a building that impresses in the first place by its unusual architecture. It is not only outwardly something special. The Volksbank Karlsruhe is a zero-energy building: electricity, heating, hot water - the new main office needs no external energy source. All that is consumed over the entire year is produced independently with a total of 120 large-scale photovoltaic modules and fed into the grid.

To achieve a constant temperature, the building owner, architect and general contractor abandoned the idea of a conventional heating system. Instead the offices of thermally activated concrete slabs are integrated into the water pipes, cooled in summer and heated in winter. 75 probes of the near-surface geothermal system are installed more than 35 meters deep in the soil and connected via a wired network to a highly efficient heat pump in the basement. The three atriums in the south facade assume turn key energy functions: sufficient light reaches the work areas of the six floors, they provide balanced ventilation and the air warmed by the sun is channeled over a heat recovery system and used to heat the intake air.

SMART SAVINGS PLAN

"The original concept of the Volksbank Karlsruhe was based on KNX bus technology, but the engineering office responsible for the electrical design was not really satisfied. WAGO project sales was able to win the contract after intense consultation in the same year and developed a new concept that is more flexible and at the same time more cost-effective", explains Rainer Knodel of WAGO in Minden.

A combination of WAGO's modular 750 I/O system with Ethernet controllers and the Winsta connector system fully convinced the customer. "As a basis for the communication infrastructure, we opted for a classic Ethernet network of category 6, set up parallel to the computer network of the Volksbank Karlsruhe", says Franz Rimmelspacher, Account Manager at SPIE Germany System Integration. A programmable Ethernet TCP/IP controller from WAGO was installed in the wiring cabinets of the six floors. A switch on each floor connects these to the other controllers that are housed in the system distributors in the hollow floors.

Zero-energy building with exceptional architecture: the main office of Volksbank Karlsruhe.

Left: Interior of the Volksbank Karlsruhe with its well thought-out lighting concept.

Right: EnOcean switches for controlling office lighting, shade and temperature.

SMART SWITCHES

In order to later regulate every room separately, there are a total of three master system distributors with their own TCP/IP controllers, which again are connected to a slave system distributor without controllers. In this way, the automation components distribute uniformly over the entire building area and also have enough capacity for subsequent conversions.

Since December 2008 the staff have been able to control the lighting, shade and temperature of their offices in the main administration by batteryless devices with EnOcean wireless technology. “The master distribution systems were simply equipped with the wireless receiver bus terminal, which transmits the signals to the EnOcean controller”, says Rainer Knodel of the convenient EnOcean solution.

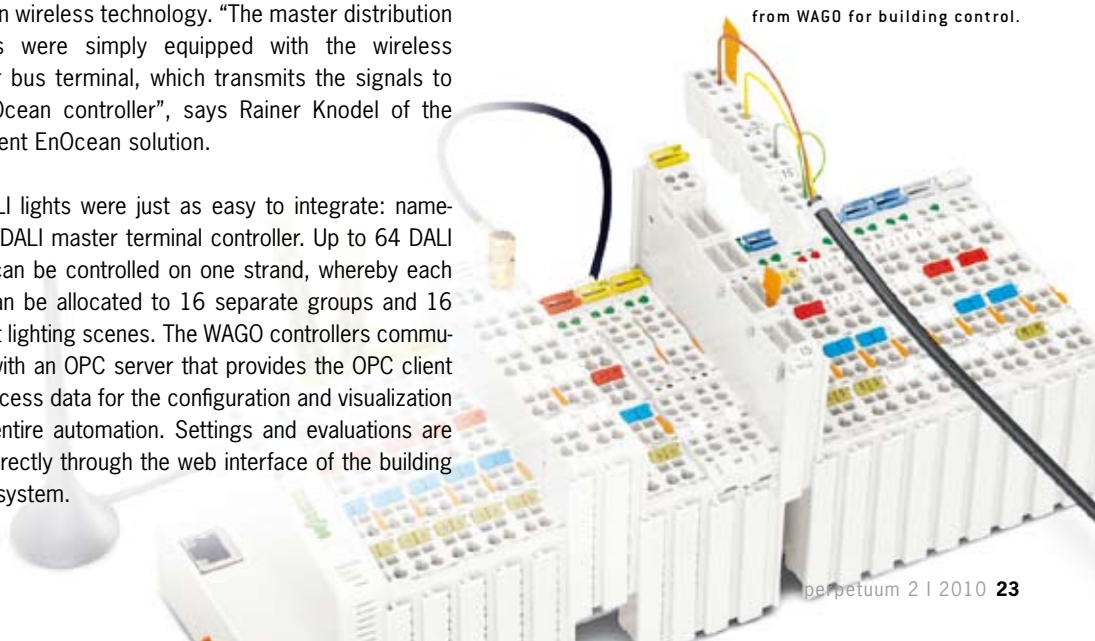
The DALI lights were just as easy to integrate: namely via a DALI master terminal controller. Up to 64 DALI slaves can be controlled on one strand, whereby each slave can be allocated to 16 separate groups and 16 different lighting scenes. The WAGO controllers communicate with an OPC server that provides the OPC client with process data for the configuration and visualization of the entire automation. Settings and evaluations are made directly through the web interface of the building control system.

SMART INVESTMENT

After completion of the main office, cooperation between SPIE and WAGO will continue with various items of optimization, such as automatic closing of blinds depending on the elevation of the sun.

www.wago.com

Programmable Ethernet TCP/IP controller from WAGO for building control.



ENERGY HARVESTING IN EXPLOSIVE AREAS

The advantages of energy harvesting that come with EnOcean components have now started to benefit applications in hazardous areas. An extra plus in use of the cableless and batteryless technology for this purpose is that it very much reduces the service and maintenance.

By Rainer Lumme, Product Manager Explosion Protection, and René Scherer, E-Marketing Manager, steute Schaltgeräte GmbH & Co. KG

The focus at steute is on industrial switchgear for both sophisticated and hazardous applications, which distinguishes it from the other enterprises among EnOcean's partners whose central competence is building services and engineering. Here EnOcean technology is demonstrating its worth for a variety of purposes. Switchgear from steute using the energy harvesting principle has proved highly successful in control engineering applications, enabling the company to exploit new markets.

INTERESTING FOR EXPLOSIVE DUTY

Consequently the question arose as to whether the Explosion Protection line of business could also profit from the technology. It goes without saying that this is the kind of application where special safety measures are called for. A central requirement is that switches must not produce any sparks, which could cause an explosion. Nor may specific surface temperatures be exceeded.

DEVELOPING TEST CONVENTIONS FOR WIRELESS-EX

Switchgear must first be certified by a neutral body before it may be used in category zones 1 (gas-ex) and 21 (dust-ex). Here two basic issues fast became clear. First of all, that fundamentally there are no hindrances to the use of EnOcean technology in explosive areas because the amount of energy contained in the signals is too small to produce an explosion. Secondly, that no test conventions existed at that time for wireless-ex technologies.

EU standards should not stand in the way of technical progress, so these conventions were developed and used to test the first explosion-proof switchgear with EnOcean technology. As as result the switchgear is classed as "intrinsically safe" for type of protection and "ib" for ignition protection level. Consequently it can be used standard-compliant and safely in zones of gas-ex category 1. For use in a dust-ex zone 21 it was designed as ignition protection type "ib D21". The EC type examination certificate was issued by a notified body.

CERTIFICATION EFFORT REWARDED

Of the energy-autonomous devices in the steute range, the wireless-ex switchgear is distinguished among other things by careful encapsulation of the housing. The power source here is an electrodynamic generator developed by steute to withstand the everyday demands of a tough industrial environment. For a number of months now, steute has been offering products in wireless-ex technology that include position switches, foot switches, operator units and pull-wire switches.

The first applications evidence that the certification effort is paying back. The operator of a gas pumping station wanted to be able to query the status of manually operated valves. The solution was to attach cableless ex-proof position switches of the type EEx F 95 D to the valve heads that detect the open and closed status of these valves by means of a cam. Signals can then be decoded and displayed at a control station.

Seeing as the valves themselves need no power supply, there was none ready in place at this point of the pum-

ping station, and its installation would have been much more costly than the position switches themselves. Here, thanks to the wireless-ex technology, the user was able to save expense although the devices cost more than cabled position switches. A consideration of overall cost including installation is thus very much in favor of a solution implemented with energy harvesting technology.

Another example of application is the fuel docking station of a refinery. Here the position switch, manually operated by an actuating lever, signals that the filler nozzle of the docking arm is precisely above the opening on top of a tanker. A cabled ex-proof switch was originally used for this purpose. But this solution was always failing because of the fast wear and tear of the cable leads.

The constant movement inside the joints of the filler arm and the embrittlement through the fuel caused the connection to break after a relatively short time. The problem was resolved by the use of rugged, cableless ex-proof position switches of the EEx F 335 4VH series in metal enclosures. These transmit their signal to a switchgear cabinet, likewise ex-proofed, that houses a receiving unit.

NUMEROUS ADVANTAGES IN EXPLOSION RISK AREAS

Batteryless wireless technology in potentially explosive areas presents numerous other advantages when you compare with applications in industrial automation and building services engineering. Doing away with batteries saves cost because the maintenance of equipment in such areas calls for personnel with the right qualifications. Plus, wireless signal transmission means you can dispense with additional ex-proofed components such as cables and connectors. And the switchgear can – entirely without leads – "radio" out of the explosion risk area. So the user needs no costly ex-proofed housing technology for the receiving unit.

With its wireless-ex switchgear steute opens up a new avenue for EnOcean technology. While the examples illustrate just a few of the applications the technology can be expected to appear in: the imagination is the idea, the solution is EnOcean.

www.steute.com

THE SOMEWHAT DIFFERENT ARCHITECT'S OFFICE

Oldenburg architect uses EnOcean technology to create individual high-tech premises from conventional sea containers.

By Alexander Schaper, Director of Business Development, NTplus




The new office of architect Matthias Salinger in Oldenburg is a real head-turner. It is housed in three smart high-cube sea containers stacked one on top of the other. These are fitted with every electrical/electronic convenience, plenty of wood, a modern kitchen, bath with shower and four balconies.

The architect got the idea with the high-cube sea containers when he saw containerized sleeping quarters on a building site in Wilhelmshaven. "I thought, something like that can be fitted out for companies that want flexible offices", says Matthias Salinger. The cubes represent intelligent design, and are suitable for building sites, trade businesses, offices, holiday homes, exhibitions or events. "The containers are placed on top of or next to one another like building blocks and flexibly joined", explains the architect.

INTELLIGENT DESIGN MEETS INTELLIGENT TECHNOLOGY

The electrical installation was planned and set out according to VDE standards. All light circuits and other building information is transmitted by EnOcean technology and processed within the power distribution. The switching elements generate their power by actuation of the rocker, so they require no battery and are maintenance-free.

Special components allow processing and display of the information obtained from switches and other EnOcean devices direct through the IT network to a touch panel. From here it is possible to centrally control the container installation.

CUSTOM CONTAINERS WITH EVERY TECHNICAL FACILITY

The supply of line voltage to the high-cube sea containers is through a central main distribution board in the installation. A special cable harness makes it possible to connect up the individual container elements to form the overall installation. The containers are fitted with all technical facilities (such as LAN, WLAN, video, alarm, telecom, etc). A specially developed UMTS junction box makes all services available when there is network access. So a landline is not essential to supply the installation with internet and telephone.

The cable harness and subdistribution boards are fabricated and assembled according to requirement and wish. Only standard components are used for this purpose. All systems in the installation can – if necessary – be interconnected so that all information is available at every point. The communication technology in this project was delivered by NT plus.

www.ntplus.de/team50

PATIENT-FRIENDLY LIGHTING CONTROLS

The Veterans Affairs Hospital in Dayton uses wireless lighting controls and increases comfort and convenience for its patients.

By Jan Finlinson, Managing Director, ILLUMRA

Managers of a veterans affairs hospital searched for a solution to provide increased comfort and satisfaction for patients. The objective was to provide veterans with lighting controls that were easy-to-reach. In addition, the VA hospital had very strict requirements for the devices installed in the hospital. The wireless controls were required to not interfere with other critical wireless devices already installed in the medical center, calling for a specific RF signal that did not interrupt important signals already being transmitted within the hospital.

After searching through various solutions and methods, the hospital chose EnOcean-enabled energy harvesting wireless lighting controls. EnOcean solutions are extremely reliable, easy-to-use and flexible. The controls operate using uncongested radio frequencies - meeting all criteria imposed by the hospital.

EASY TO INSTALL

Easy installation and zero maintenance were major requirements of the VA hospital. Pairing a self-powered wireless light switch with a plug–in dimmer/relay provided an easy solution to the awkward problem of placing lighting controls on mobile hospital beds. This allowed veterans to place the “peel ’n’ stick” switch in the most convenient location based upon their preference.

The lighting kits were rapidly installed because the solution required no wiring – non-electrician installers simply matched light switches with receivers; then plugged lamps into the plug-in receiver. With noticeable decreases in installation costs, the team installed the lighting management system and was able to minimize hospital closures due to the fact that wiring obstacles were completely averted.

FAST RETURN ON INVESTMENT

Factoring electricity rates, occupancy history and installation costs, the hospital saw an instant return on investment. Installation costs were lowered by at least 30 percent because all controls were either a wireless or simple plug-in-and-forget solution. In addition, no-one can attest to the joy these switches gave hospital patients. Being able to move the switches to patient preference provided immense satisfaction to patients and hospital staff alike, achieving the ultimate goal.

www.illumra.com

ENOCEAN TECHNOLOGY IN FIRST FRENCH BIOCLIMATIC BUILDING WITH POSITIVE ENERGY

Wieland Electric employs EnOcean technology in France among other things in the Pôle Solère project and the future head office of CGG Veritas Services.

By Audrey Lavigne, Marketing & Communication, Wieland Electric France

Wieland Electric joins in an environmental policy by participating in the ambitious Pôle Solère project, the first bioclimatic building of offices with positive energy.

The 4200 sqm building of three levels was fitted with a Wieland Electric radio-controlled solution using EnOcean wireless technology (150 lights with graduation and 250 TOR lights). The engineering consulting firm ENERTEC as well as the installer CEME SOTRELEC, which collaborated on this project, were looking for a lighting management solution. They were attracted by the modularity and performance of the solution proposed by Wieland. The total absence of cabling to connect pushbuttons to the output module thanks to this technology allows cost optimization and greater flexibility in the installation. Also, due to the whole conception of the switches, the absence of batteries is an indisputable ecological argument.

This project is not the only one in France. Innovative EnOcean technology was also implemented in the future CGG Veritas Services head office situated in Massy Palaiseau. The 17,850 sqm building on six levels was awarded HQE certification for its environment-friendly planning. Piloted by Bouygues Immobilier and the national installer SNEF, the project also features a radio-controlled solution from Wieland Electric. Here it adds modularity to the installation and allows an open office configuration to the end-user that will be split later. An alarm system allows centralization of all building light controls, much facilitating their use.

Wieland Electric continues to develop its approach to energy efficiency thanks to innovative and environment-friendly products, in particular enabled by EnOcean technology.

www.wieland-electric.com

STRADIVARI, GUARNERI AND ENOCEAN

The Glinka State Central Museum of Musical Culture in Moscow is a unique repository of musical heritage. The museum collects, preserves, restores and studies musical masterpieces. The collection of the museum comprises nearly one million exhibits and contains musical instruments and objects of peoples of the world, including rare Stradivari and Guarneri violins. EnOcean-enabled devices are now in place here to ensure the right lighting and temperature.

By Peter Hartmann, Managing Director, BootUp GmbH and Konstantin Galenko, Managing Director, ATLAS Group

A major concern of the operator of the museum was that it should remain open as normal without any disturbance for the duration of the project. Here the EnOcean-enabled sensors and switches were ideal; they were fitted in just a few days after the museum closed for the evening. A total of 65 temperature and humidity sensors were installed.

NO CABLING

Installing a cabled system would have called for a good deal of construction work. Some areas would also have had to close for the period of the conversion. One area is regularly rearranged for changing exhibitions and events. The lighting and climate control then have to be individually matched, for which purpose mobile sensors and remote-control switches were used, allowing the necessary flexibility.

RECORDING EXACT ENVIRONMENTAL DATA

The different exhibits must be kept in specific climatic conditions. For optimal setting of temperature the environmental data are measured, and displayed and recorded by the BootUp software.

SCENE CONTROL BY LOCATION

The museum works with different means of illumination. During conversion the existing light sources were split into groups that can be controlled individually. Dimmable luminaires are used to implement modern light control.

Motion detectors register the position of a visitor. The measured light intensity determines the background lighting, which is produced as a function of the particular location. All settings, including the scenes, are also possible from a touch screen PC.

The visitor can also hear recorded samples of the exhibits. Here the multi-room audio system is controlled by an IR interface from Atlas Group. When no visitors are present, the system automatically goes into an energy-saving mode.

The display and recording of data and the entire scene control for light and sound are implemented with BootUp myHomeControl software. An intuitive user interface in Russian satisfies all requirements of the museum.

A SYSTEM WITH MANY ADVANTAGES

The decision to use EnOcean technology presented a number of advantages: maintenance-free and energy-autonomous sensors, simple implementation of scalable climatic zone control, plus the possibility of operating devices from different manufacturers and combining them with BootUp control in a single system. The project was completed in just one week.

www.bootup.ch
www.myhomecontrol.ch
www.atlasgroup.ru

ENERGY HARVESTING DELUXE

ENOCEAN TECHNOLOGY OPTIMIZES ENERGY CONSUMPTION IN JEBEL ALI HOTEL IN DUBAI

Dubai's 5-star family beach resort, Jebel Ali Golf Resort & Spa, optimizes energy consumption with EnOcean-enabled automation system.

By Bjorn Martenson, Managing Director, Interior Automation

Known as Dubai's Only True Resort, the 5-star family beach resort, Jebel Ali Golf Resort & Spa, combines exceptional leisure options with professional meeting facilities, surrounded by 128 acres of stunning natural features. The resort features an 800-meter palm-lined private beach, lush gardens and three temperature-controlled swimming pools plus 15 restaurants and bars.

PAYBACK BETWEEN TWO AND THREE YEARS

The hotel was conducting a major renovation of its rooms in the summer of 2009 and energy savings were high on the agenda. The hotel was looking at a very quick renovation period in order to minimize the disruption to its operations and it was unsure of how a system could be implemented in the rooms without requiring too much interference with civil works and new wiring. It soon became obvious that a wireless solution was perfect for this situation. Interior Automation proposed a system that would implement a room keycard switch – previously not installed in the rooms – which would control the lighting and the air-conditioning when a guest was not present in the rooms. Calculations done together with the hotel indicated that an estimated total of 25-35 percent of their energy use for lighting and HVAC could be saved with this solution, providing a payback between two and three years.

ENERGY SAVING INSTEAD OF ENERGY WASTE

One of the requirements of the hotel was to replace the existing thermostat to a more modern looking LCD thermostat that would suit the new renovated room. Interior Automation provided a Thermokon thermostat for this, which not only suited the hotel's appearance requirement, but also provided an energy saving input (ESI) that could automatically regulate the temperature to a higher setpoint when activated. The wiring between the existing thermostat and the fan coil unit was the only part of cabling in the rooms that was changed. A small fan coil unit control box was added in the false ceiling above the bathroom of the room. The existing cables remained for the fan coil unit connection, and new cables were pulled – in a single action – inside the existing conduit of the thermostat.

EnOcean-enabled window/door contact optimizes the energy consumption in rooms.

The main energy saving device in the rooms is now the EnOcean-enabled keycard switch, which is linked to the ESI of the thermostat, so that when a guest vacates the room and removes the keycard from the station, the room temperature is set at 26°C instead of staying at 18-22°C constantly. An additional receiver for the lighting and power circuits is installed in the existing electrical distribution board and set to turn off immediately when the keycard is removed.

The solution also has a wireless door contact on the balcony door of each room that turns off the fan coil unit inside the room when the door is open. This not only saves energy by not operating the air-conditioning inside when the balcony is open but also saves the engineering team maintenance on the filters of the fan coil.

ENERGY SAVING INSTEAD OF ENERGY WASTE

With the help of Interior Automation the electrical team of the contractor (Dutco Balfour Beatty) was able to commission 20 rooms per day – saving a great deal of time compared to a conventional installation. A further benefit was that wallpaper and other finishes in the room were able to be completed without needing to wait for wiring or conduiting to be finished beforehand. The contractor has estimated that the wireless system saved three to four weeks on their total installation program.

The increased revenue from being able to open the hotel sooner means that the system essentially paid for itself and all energy savings now contribute to a better bottom line for the hotel.

www.interior–automation.com
www.jebelali-international.com

ENERGY-EFFICIENT CONTROL OF ROOM APPLICATIONS WITH ENOCEAN-ENABLED WALL SWITCHES FROM SIEMENS

Whether you are looking to control light, sun protection or indoor temperature: thanks to the new AP 221 and AP 222 EnOcean-enabled wall switches from Siemens, virtually all indoor functions can be operated without the need for cables. The wireless switches thus help maximize energy efficiency. With individually selectable frames, they also fit perfectly into an existing room situation.

By Robert Zizlsperger, Marketing Manager, Siemens AG

The key to increased energy efficiency indoors is intelligent automation of room functions in which all relevant operations can be linked together. Automatic adjustment of power flows as a function of presence and daylight means that superfluous energy consumption can be avoided in an effective manner – whether in offices, administrative buildings or residential property. An extra bonus in terms of energy and cost savings can be achieved when room automation solutions are combined with proven EnOcean technology, as in the new AP 221 and AP 222 EnOcean-enabled wall switches from Siemens.

SIMPLE AND FLEXIBLE INSTALLATION

The batteryless, maintenance-free wireless switches can be installed anywhere and come in two- or four-channel versions. Via radioed signals they allow various room functions to be controlled and regulated with ease – from lighting and sun protection right through to heating, ventilation and air-conditioning. Power is generated by an electrodynamic generator: When pushbuttons are pressed, an energy converter is activated via a bracket. This converts mechanical energy in the pushing/releasing of the pushbuttons into electrical energy, which is used to transmit the wireless signal. The signal contains the unique 32-bit ID of the transmitter as well as the required information for the receiver, the EnOcean gateway. Transmission is on the standardized European frequency of 868.3 MHz.

The possible uses of the wall switches are virtually limitless: for instance, they can be integrated into all standard automation systems (including KNX, KNX-RF, LON, DALI, BACnet, TCP/IP). Alternatively, output can be routed via a wireless receiver (actuator), which decodes the message frames from the wall switch and converts them into switching or dimming signals or signals for venetian blinds.

The integrated product range of Siemens also contains an extensive portfolio of sensors and actuators for the automated control of building applications enabled by EnOcean technology.

INDIVIDUAL DESIGN OPTIONS

The switches on the new EnOcean switches are available in electrical white, titanium white, carbon metallic and aluminum metallic, and are characterized by flat design and the use of environmentally sustainable materials. Aditionally variants of printed pushbuttons are available – with up and down arrows for blind control or numeration (1/0) for on-off switching. They can be flexibly combined with suitable design frames from the Siemens DELTA line, DELTA vita or DELTA miro collections using the modular design system (i-system). The switches can thus be ideally customized to suit existing room conditions.

INTEGRATED PORTFOLIO FOR BUILDING AUTOMATION

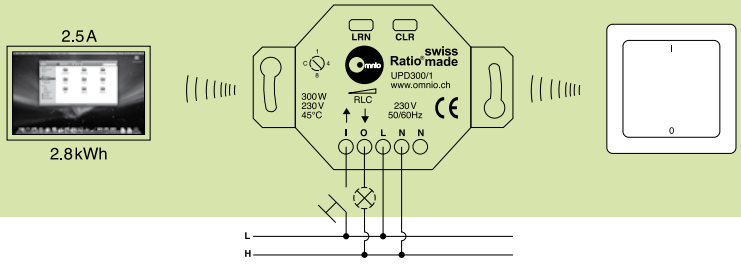
The new EnOcean wall switches from Siemens form an integral part of the company's solutions for optimum energy efficiency in buildings. The integrated product range covers building automation and lighting, heating, ventilation and air-conditioning technology right through to low-voltage energy distribution, and also contains an extensive portfolio of sensors and actuators for the automated control of building applications enabled by EnOcean technology. Its cross-system approach allows considerable energy and cost savings. The investment thus pays back in only a few years.

www.siemens.com/enocean

BIDIRECTIONAL ACTUATORS WITH INTEGRATED ELECTRICITY METERING

Since they debuted on the market in 2006, batteryless switches and actuators from Omnio have gone into more than 1000 detached houses and dwellings. Now the Swiss company has re-engineered all its flush-mounting and REG actuators and made the change to bidirectional Dolphin modules. That means the new actuators can not only receive information but also transmit it.

By Christian Genter, Managing Director, Omnio AG



The substantial experience gathered in the meantime with products enabled by EnOcean technology had shown that in many areas there was potential for improvement. In bidirectional communication for instance, in working with repeaters, or the possibility of integrating sensors in actuators.

INTEGRATED ELECTRICITY METERING

The new actuators from Omnio come with a telephone extension input that makes it possible to connect existing conventional switches with immediate status checkback. They also feature an integrated repeater, which increases their range without the need for extra repeaters. Another highlight is the possibility of metering, monitoring and reporting electricity consumption.

The innovative Dolphin-based actuators enable as many as eight scenes to be saved and recalled. Dimming is produced by button or value telegrams. They also feature a two-point and PWM controller plus a sleep timer function that can dim down to lights off in 30 minutes.

OPTIMIZING ELECTRICITY CONSUMPTION AND COST

If all loads are fitted with a Ratio actuator with integrated current sensor, the owner has a means of optimizing consumption and thus the cost of electricity. At the other end, the new products also offer the electricity utilities new possibilities. In certain circumstances and with the approval of the owner, they could have access to the individual loads or consumers in a building.

STRAIGHTFORWARD EXPANSION OF EXISTING INSTALLATIONS

For the renovation of a building the existing installation can easily be expanded for example – while maintaining its switches with group switch and central switch. Additionally, the integrated electricity metering can serve here to display and file momentary electricity figures and/or for purposes of energy load management. Range problems can be overcome by activating the repeater function on the individual actuators.

The new actuators, suitable for applications in building automation and in industrial plant, are obtainable from October 2010.

www.omnio.ch

NEWS FROM EASYCLICK

New on the market from PEHA is a batteryless hotel card switch to operate lights and other electricity consumers. Also new in the PEHA portfolio is an easily operated remote control for 50 channels.

By Werner Petritz, Product Manager, PEHA Paul Hochköpper GmbH Co. & KG

The new batteryless hotel card switch serves to hold the hotel card and at the same time to save energy.

PEHA's new batteryless hotel card switch expands the functionality of its Easyclick system. It serves to hold the hotel card and at the same time ensures a large measure of security plus energy saving. Removal of the card cuts out unneeded circuits via Easyclick receivers. When it is inserted the hotel card switch activates the lighting and other electricity consumers.

Matching the PEHA switch collections AURA and NOVA, this transmitter is ideal for retrofits and renovation because it can be screwed or glued in place in any desired location. In addition to convenience and energy saving, the new hotel card switch offers the possibility of visualizing hotel room occupancy with the myHomeControl software. The hotel card switch works with all Easyclick Plus receivers and other wireless interfaces for building systems engineering.

REMOTE CONTROL FOR 50 CHANNELS

This new handheld is compatible with all wireless receivers that use EnOcean technology. It thus is ideal for switching and dimming lights, for controlling roller shutters or blinds and other consumers. Simple menu control by navigation keys and intuitive operation of the handheld transmitter are supported by terms and icons selected from a library to represent the 50 possible functions. These can be clearly arranged in five areas with up to ten functions. Ten speed selection keys allow direct selection of frequently used functions.

The convenient new handheld transmitter with USB interface is battery-powered because 50 channels plus a large graphical display plus plain text could not be implemented without batteries. It comes with batteries, cable and a software CD for individual labeling using a PC.

www.peha-elektro.com

INTELLIGENT ROOM AUTOMATION WITH WIRELESS DIALOG

SAUTER is a pace-setter when it comes to energy efficiency. That naturally applies to the ecoUnit1 room control. The innovative product is part of the SAUTER EY-modulo 5 automation system family that received the Building Efficiency Award 2009. The new bidirectional wireless communication enables the user to view room conditions on a display.

By Oskar Riesterer, Head of Product Management Room Automation, SAUTER AG

At home in Basle, Switzerland, SAUTER develops, manufactures and markets energy-efficient systems for building management, and offers extensive services to optimize the use of energy. The focus of the company's products and services covers office and administrative buildings, research and educational institutions, hospitals, industrial and laboratory buildings, airports, recreation centers and hotels.

The latest generation of ecoUnit1 room controls from SAUTER features state-of-the-art technology, is energy-autonomous, inexpensive to install and maintain, and simple to operate. Innovative EnOcean wireless technology and the new Dolphin STM 300 module enable sensors to communicate with each other in two directions. That creates a helpful dialog for the user. As well as transmitting the ventilator speed set for a room to a central control for instance, a room control unit can receive and display room status information from a central point.

MINI SOLAR CELL TO POWER

The bidirectional communication enables the user to see what is happening in a room. Easily understood icons on the display of the new ecoUnit1 indicate actual values and setpoints, humidity, light intensity, air quality, operating mode, ventilator speed, heating/cooling and operating information. Operation is based on the energy-harvesting principle, it is fed simply by a miniature solar cell. So requiring no batteries, the device is service-free. The cableless technology reduces installation costs of course.

ECONOMICAL, FLEXIBLE, MODERN

Not only technology but handling, compatibility and design are emphasized in SAUTER products. Consequently the new room control will fit into the majority of third-party frames on the market. It is easy to comply with the user's color preferences, and customized labeling or inscriptions are also possible. The room automation solution from SAUTER also offers a great deal of flexibility when modernizing or refurbishing an existing building. Cableless operation does away with the need to route channels through walls and plaster over them again. The detached wireless receiver can be positioned to produce the best possible communication between transmitter and receiver. The devices can be screwed or glued in place anywhere, so they are also ideal for the most modern building designs with glass partitions for instance.

www.sauter-controls.com
www.sauter-100.com

GATEWAYS AND REPEATERS WITH DOLPHIN INSIDE

Switzerland's BootUp is marketing its first gateways and repeaters enabled by EnOcean's new Dolphin platform.

By Peter Hartmann, Managing Director, BootUp GmbH

All new devices from BootUp are based on EnOcean's TCM 300. This transceiver module is the ideal building block for permanently powered components such as flush-mounted actuators or gateways. The module delivers out-of-the-box switching, dimming, repeating and gateway functionalities. In addition to these basic configurations, extra functionalities can be developed and integrated in applications using the EnOcean API. The new gateways and repeaters come in versions for both the 868 MHz and 315 MHz band, making them a global solution. They are intended for surface mounting, and are easily attached to walls or ceilings. All devices are obtainable now.

GATEWAYS ENABLED BY DOLPHIN

The USB gateway is a universal interface with the EnOcean wireless network that addresses as many as 128 actuators and receives any number of transmitters. This is a bidirectional serial interface for connection to a PC, notebook and other USB-capable devices. It is highly suitable for PC applications that visualize, control and operate EnOcean devices. Plus, it can help overcome wireless range problems in existing installations.

The RS485 and RS232 gateways serve as bidirectional serial interfaces with controllers, PLCs, management systems, PCs or notebooks. These are an excellent solution for bridging large distances between an EnOcean wireless network and a management system. Both devices can also serve purely as receivers.

REPEATERS

The new BootUp repeater boosts the signal of EnOcean wireless telegrams between sensors and receivers. A typical use is when sensors are located beyond receiving range or problems of range occur in an existing installation between transmitters and receivers. If walls are put up in between for example, or furniture, cabinets and the like are shifted. The repeater will automatically receive all valid EnOcean telegrams and amplify them before sending them on their way. In level 1 mode only those telegrams that come directly from a transmitter are processed, boosted and retransmitted. In level 2 mode already amplified telegrams are also boosted once more and transmitted again. Modes are changed over by a DIP switch.

www.BootUp.ch
www.myHomeControl.ch

CREATING A GREEN NETWORK

For more than 20 years Thermokon Sensortechnik has been producing modern sensor technology with quality and innovation. As a strong partner and promoter of the EnOcean Alliance, Thermokon implemented self-powered wireless technology in its high-end sensor solutions to create a whole new portfolio: EasySens.

By Nico Gotthardt, Product Manager, Thermokon Sensortechnik GmbH

Besides wireless switches for light and blinds control, the EasySens product line also includes intelligent units to detect room temperature, relative humidity or CO2 concentration. Combined with operating elements to adjust setpoints or detect presence, the sensors can be directly connected to receiving actuators so that fully functional sensor networks are created.

SRC-ADO UNIVERSAL RECEIVER – IDEAL SOLUTION FOR ROOM AUTOMATION

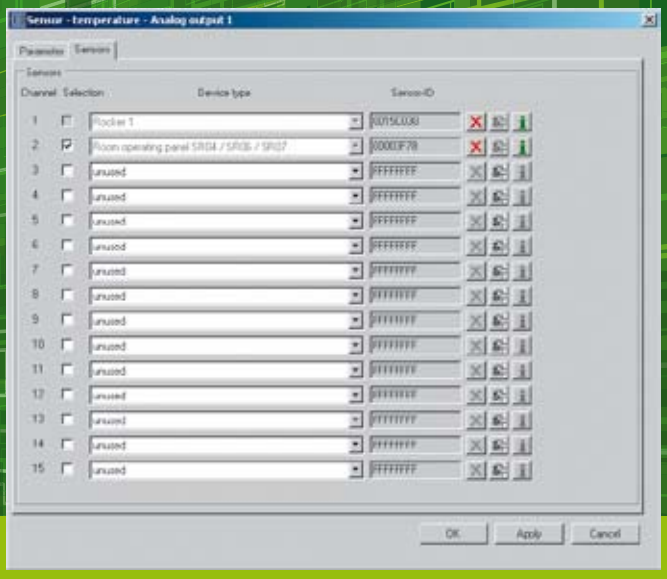
In this application example the SRC-ADO universal receiver should be used as a centralized receiving element. With up to four analog (0-10 V) and four digital (relay) outputs as well as an integrated control function (dimming-heating-cooling (PI), fan coil and changeover function), it is the ideal solution for full room automation – including heating, lighting and blinds control.

Configuration of the receiver is required to create a wireless EnOcean-enabled network. The SRC-ADO consequently comes with appropriate software. A direct connection between computer and universal receiver is set up on a USB interface. After the common configuration process of the operating system, the connection is made and tested automatically. By means of setpoint values, all outputs can be checked out in the test mode.

WIRELESS COMMUNICATION

Allocation of sensor type to output is followed by the teach-in procedure. The product is assigned to the receiver output and function via the teach-in button or by manual input of a sensor ID. Teach-in is necessary for every sensor, otherwise no communication is possible. As many as 15 transmitters can be connected to the SRC-ADO.

After the connection of sensors or switches, several controller adjustments can be set in the sensor menu. The outputs can always be verified via a monitoring function. If, for example, the wireless EasySens Mini switch series is used for light or blinds control in a room, the requested digital output is only actuated and the switching function is selected in the drop-down menu. Afterwards the switch is teached in to the window of the output configuration by a single click. Thanks to the monitoring function, the allocated digital output can be monitored directly. If the value changes upon button actuation, the wireless EasySens Mini switch is connected properly for use.



Configuration tool from Thermokon

OPTIMAL REDUCTION OF ENERGY CONSUMPTION

For detection of room temperature and setpoint adjustment for the heating circuit control the SR04P can be used for example. The requested analog output is selected and the sensor type is allocated to the output. In the teach-in menu connection of the SR04P and SRC-ADO is established via the teach-in button at the back of the device. To evaluate the sensor signals for temperature and setpoint, two analog outputs are necessary, producing the particular value in the form 0-10 V. Furthermore, various settings such as temperature range or offset can be adjusted during configuration of the sensor value, which can be monitored continuously via the integrated monitoring function.

To complete network creation, the SRC-ADO is disconnected from USB communication. USB connection to the computer is solely necessary for sensor configuration and allocation.

The interconnection of other EnOcean-enabled products, as offered by different EnOcean Alliance members, is effected in the same straightforward manner, showing the way to creation of an EnOcean-enabled green network.

www.thermokon.com

BOUNDLESS COMMUNICATION

The Shaspa bridge binds EnOcean-enabled products into the IBM service delivery platform.

By Oliver Goh, CEO, Shaspa Research Ltd

Smarter buildings are on the horizon. There is an increasing number of network-enabled appliances and devices, coupled with the widespread availability of broadband communications that are creating new intelligent products and services that reach far beyond traditional markets.

Today's internet of people is evolving into an internet of things, and soon there will be more than one trillion connected devices. By 2013, 1.2 billion connected consumer electronic devices are expected in the more than 800 million homes with broadband connections.

Compared with previous attempts to enable the smart home, where intelligence was based on centralized control through a home server or gateway, the intelligence and with it the complexity in the new smarter home is moved out from the home onto the network, or more precisely the internet cloud.

INTELLIGENT SUSTAINABLE ENVIRONMENT

Shaspa provides an innovative service delivery framework and set of services blending the technologies that enable customers to use the basic building blocks available for their projects.

The Shaspa bridge was developed to run Shaspa's application service framework, which when running in the cloud enables technology for device management and services as well as the creation of a wide array of value-added services for third parties. This solution brings manufacturers and service providers together, collaborating to design and develop the service products of tomorrow.

The product connects a new era of smarter devices to the IBM service delivery platform offering. It supports the most commonly found protocols in building automation – for example KNX, Modbus, ZigBee or DALI – and combines them with new devices based on the new EnOcean Dolphin. In this way service providers and customers can protect their investment and extend existing functionality enabling devices from a variety of vendors.

Combined with Shaspa's application service framework running in the cloud, it enables technology for device management and services, and also allows the generation of a variety of value-added services for third parties. The solution provides both manufacturers and service providers with new ways to cooperate, collaborate and design new products connected to services.

Typical applications are the smart home, home energy management, social energy meters, green data centers, assisted living or E-mobility. The applications can be purchased on demand.

www.shaspa.com

PROBABLY THE SMALLEST PIR SENSOR IN THE WORLD

Everybody in the business of designing lighting systems with motion and presence sensors will have heard architects complaining about the size of sensors. For this reason Unotech developed a PIR sensor just 23 mm in size.

By Henrik Norén, Managing Director, Unotech A/S

Given the increasing awareness of the importance of environmental protection, customers can make a substantial contribution to cutting energy consumption by applying Unotech's new PD-360LS PIR sensor. This not only benefits the climate but also significantly reduces the operating costs of an installation. Lighting represents up to 50 percent of overall electricity costs in buildings. So lighting has become a focus for major savings, simply by only having lights turned on when they are really needed for instance.

COMBINING LUX AND PIR SENSING

The PD-360LS activity sensor is designed for inconspicuous flush mounting in the ceiling and has a 360° detection field. Positioned about three meters above the floor it will cover an area of six by eight meters. Where extended coverage is needed, two sensors can be connected to a PIFE controller via RJ-22 plugs. In addition to its activity sensing functions, the new PIR sensor has an integral lux sensor to determine the level of ambient light. This makes it well suited for applications where additional control governed by ambient light is required, for twilight sensing for example. The PD-360LS comes with a 3-meter signal cable terminated in an RJ-22 plug for speedy installation. Customers can choose between on/off control via the activity sensor or turn-on via a wall switch. The PD-360LS is predefined to interface with all EnOcean-enabled receivers. When persons are detected, "PIR ON" is immediately transmitted and if no subsequent movement is detected for 60 seconds "PIR OFF" is transmitted. Any change of more than 10 lux in ambient light will also immediately transmit a message. This configuration can also be useful for other control tasks. It can be integrated into the control of heating and ventilation as well as air-conditioning installations.

www.unotech.dk

ENOCEAN AND BACNET –

IDEAL SOLUTIONS FOR BUILDING AUTOMATION

The ASHRAE standard BACnet and batteryless technology from EnOcean complement one other ideally: The existing BACnet infrastructure can be extended seamlessly with wireless applications. This enables rapid upgrades of existing installations and brings the latest technology to areas of buildings that until now were beyond the scope of most solutions.

By Steve Jones, Managing Director, The S4 Group, Inc.

The building automation marketplace is currently awash with numerous standards and protocols. Each of these communications protocols has emerged from varying initial conditions and domain-specific requirements. Some of these protocols are based on standards and considered open in that they are not controlled by any single for-profit entity while others are proprietary. Some are geared towards general-purpose building automation communication use while others – like the EnOcean wireless standard – are optimized for specific requirements and domain tasks.

BACNET

BACnet is a communications protocol for Building Automation and Control NETworks and an ASHRAE, ANSI and ISO standard. Work on the specifications started in 1987 and was finalized eight years later, becoming ASHRAE/ANSI standard 135. The philosophy behind the BACnet was to facilitate communication between building automation and control systems for a wide variety of applications such as heating, ventilation, air-conditioning control, lighting control, access control and/or fire detection systems. BACnet defines standards for all aspects of a building automation system from what kind of cable to use for the physical infrastructure to how to form a particular request or command and the format of the response.

BENEFITS OF COMBINING ENOCEAN WITH BACNET

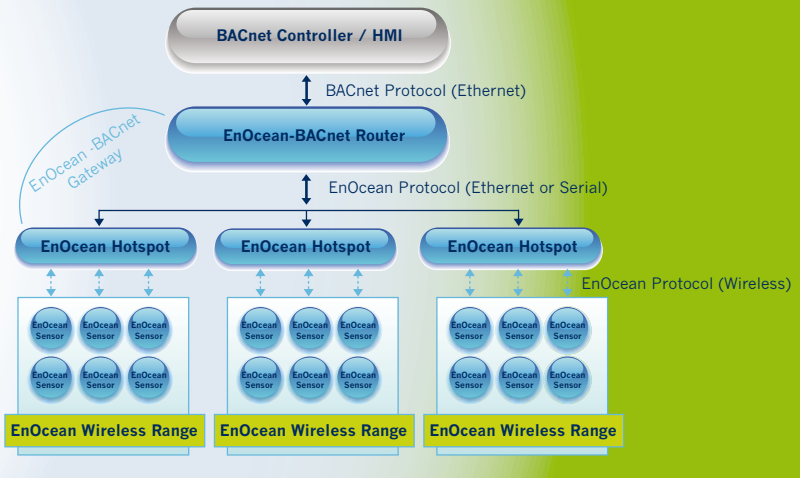
Combining industry-wide deployment of BACnet with the versatility of EnOcean wireless technology can bring numerous benefits to building owners and facilities managers. By utilizing BACnet as a backbone, EnOcean switches, sensors and devices can cost-effectively penetrate the last mile of building infrastructure. This approach yields rapid upgrades of existing BAS installations and brings the latest technology to parts of buildings that until now were beyond the scope of most solutions.

Being able to operate wirelessly and without a traditional power source are key strengths of EnOcean technology. Bringing those strengths into the BACnet world leads to innovative solutions and tremendous market potential. For this reason the S4 Group is currently developing a BACnet/EnOcean router and EnOcean hotspot, working together as a BACnet/EnOcean gateway, to bridge the gap between these two important segments of the building automation marketplace.

APPLICATION AREAS

The two standards can be implemented in a hotel for example, in which all existing services and functions – including HVAC, lighting, blinds – would be supervised and controlled by an EnOcean-enabled BAS. The hotel owners would be able to remotely monitor room status, override setpoints and occupancy status or precondition a room for guests so that it is comfortable by the time they arrive. After guests check in, room conditions can be controlled by the room occupancy status.

To achieve this result, each room should be retrofitted with an EnOcean hotspot from S4 Group for example. One or more BACnet/EnOcean routers would monitor and manage the EnOcean hotspots and provide an EnOcean/BACnet gateway service. The BACnet gateway is fully bi-directional and supports all BACnet services and features allowing rooms to be integrated into a hotel management system and the primary building automation system. In this way the energy management of the building would be optimized, data for trend and historical analysis collected and occupant comfort maximized.



Another application example is office buildings. A building constructed in the 1960s could be updated by a building automation system. A budget-conscious solution would include EnOcean wireless controls, sensors, and switches including HVAC and lighting control, open window detection, and occupancy detection. This provides optimal comfort and energy management within each office. It also allows easy placement of light switches where supplemental switches are needed. The addition of an EnOcean hotspot from S4 Group in each office and multiple BACnet/EnOcean routers in the mechanical support area would allow remote monitoring of all spaces and give maintenance staff the ability to diagnose problems remotely. Energy use in common areas could be better managed with occupancy detection to control lighting levels and HVAC settings.

HIGH INTERNATIONAL ACCEPTANCE

Both protocols – EnOcean and BACnet – are mature, reliable and have international industry traction and acceptance. Each performs excellently in its respective domain. Bringing them together, in one seamless solution, is the logical choice for hybrid wired and wireless building automation networks. The S4 Group is currently working with the BACnet Wireless Working Group, EnOcean and the EnOcean Alliance to determine how to most effectively and efficiently map BACnet-specific functionality to EnOcean devices and finalize a standard for EnOcean and BACnet bidirectional communication.

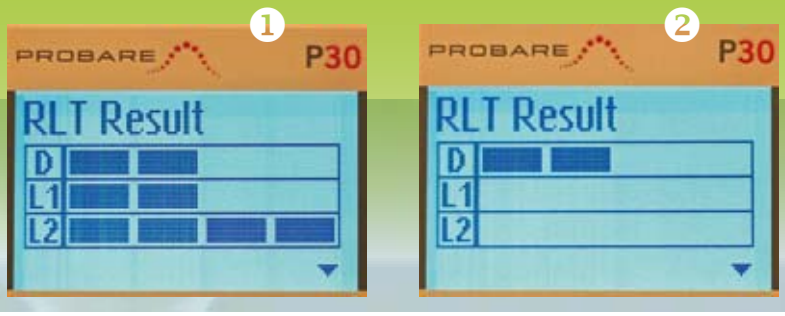
www.thes4group.com

RELIABLE ENOCEAN CONNECTIVITY –

RADIO LINK QUALITY AS OBJECTIVE CRITERION (PART 2)

In the last issue we saw that a qualitative assessment of the reliability of EnOcean wireless links is not possible on the basis of a pure level measurement combined with displaying telegram content. Determining radio link quality must be based on a statistically meaningful number of EnOcean telegrams with defined characteristics. To enable communication that is interoperable between manufacturers, the EnOcean Alliance recently adopted an appropriate EnOcean equipment profile, the socalled EEP radio link test.

By Thomas Rieder, Managing Director, PROBARE



The following parameters should be considered to reliably evaluate this test communication: number of telegrams received, receive level per telegram, fluctuation of receive levels of individual telegrams, number of subtelegrams per received communication, receive level of individual subtelegrams, fluctuation of receive levels of individual subtelegrams, and frequency occupancy by other users.

Remember that in bidirectional communication you must assess these parameters separately for each direction. Repeaters mean that you have to consider every possible connecting path. Taking all these part considerations together produces a convincing judgment of the reliability of an EnOcean wireless link between points A and B.

One solution for presenting these complex relationships in a concise and clear way for the planner or installer is a multi-step graphical display. The following two examples were measured in the field. The figures visualize the quality of the radio link in the form of a four-step bar. One bar means less than adequate reliability, two or three bars ensure continuous operation without problems, while four bars indicate extremely high link quality.

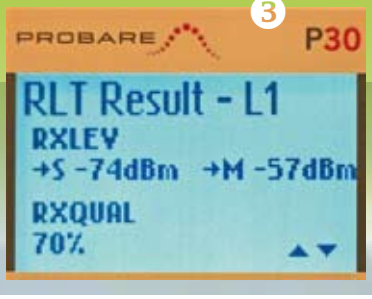
EXAMPLE 1: REPEATERS YES OR NO?

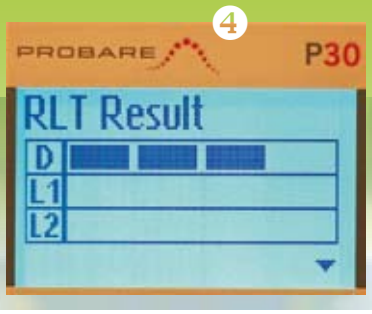
In this example the EnOcean installation consisted of sensors and light switches plus a gateway as an interface with automation software. All components were fitted on a floor area of approx. 70 sqm. Seeing as EnOcean devices were also foreseen later on the floor above, a repeater was planned and installed there in the corridor. To be quite sure that no EnOcean telegrams were lost, a repeater was also installed on the ground floor close to a staircase, and configured to work as a level 2 repeater. The entire installation worked very reliably and to the utmost satisfaction of the user.

In the course of considerations to implement bidirectional communication, measurements of radio link quality were conducted. These, surprisingly, showed the following: At the location of the gateway a wireless link on the ground floor that was considered to be very critical in planning proved to be quite unproblematic. Not only the direct wireless path worked totally reliably, the sensor signal could also be received through a level 1 repeater and a level 2 repeater (Fig. 1). Cutting out the repeater on the upper floor for test purposes even showed that the repeater on the ground floor was unable to fulfill its original aim of increasing reliability on the ground floor (Fig. 2). There was no need for repeaters in this installation, so the two devices were taken out of service. That reduces the load on the wireless channel as well as saving energy.

EXAMPLE 2: WIRELESS LINK WITH SPORADIC OUTAGES

A bidirectional EnOcean wireless link of about 15 meters works reliably, even if a drywall is standing in the way. Once reinforced concrete and metal surfaces are close





by however, these can give rise to undesirable reflections and thus sporadic losses of communication.

In the installation of the example a gateway had to be fitted at the end of an L-shaped corridor on the ceiling and close to a larger metal surface. The opposite station was at the other end of the corridor, directly in the adjoining room. Observations over a longer period showed that telegrams were continuously being lost between the gateway and the opposite station, but the reverse path seemed to be working quite reliably. The measured quality of the wireless link was also insufficiently reliable with just one bar. A closer analysis of the data showed the reason for this result. The wireless link from the gateway to the opposite station was considerably worse than that in the reverse direction. Fig. 3 shows that the wireless link to the gateway exhibited a very high receive level of -57 dBm while at the opposite station the receive level was -74 dBm. Both figures would suggest high reliability, but the marked difference points to a critical situation. In this case the remedy was to reposition the gateway by about 50 cm. The radio link quality measured then is shown in Fig. 4, with three bars indicating sustained reliable EnOcean connectivity.

www.probare.biz

VOLUNTEERING FOR HAITI

On January 12, 2010 Haiti suffered a devastating 7.0 earthquake. An estimated 300,000 people were killed and untold hundreds of thousands were injured. What followed in Haiti was tremendous homelessness and despair, mixed with equally impressive signs of hope and resilient people. My wife Sherri and I traveled to Leogane, the epicenter of the quake, just over two months after the initial devastation. What we found on our arrival was destruction beyond words and incredible Haitian people who were fit and extremely resourceful to survive and make the best of a tragic situation.

By Troy Davis, OEM Sales North America, EnOcean Inc.

Our aim in going there was to volunteer in any capacity we could, without the red tape of a huge charity. We joined a group called All Hands Volunteers (AHV), as it is known to the 100 international volunteers at the base. AHV promised to put us to work directly helping the people of Leogane, and that is exactly what they did.

POIGNANT SCENES

The intense two weeks started out landing at what was left of Port-au-Prince Airport. Leaving the red steel gates of the airport, we were met with swarms of people. Some of them trying to make a few dollars by helping the Blans (white people) carry their luggage, others simply patting their stomachs to indicate their hunger and begging for money.

The view from the taxi was shocking, building after building flattened. Because so many are no longer standing, millions of people now reside homeless. They congregate in makeshift tent camps or Internally Displaced People camps as we came to know them. Even more, we now come to realize that this is the reality of life for most of the Haitian population, and it is disheartening to see a family living in a tin shed with a tarp for walls. It becomes clear to us that not one single family in Haiti was unaffected by this devastation, and we have been here less than two hours.

TURBULENT FIRST 24 HOURS

Following our arrival at the AHV base, we set up our tent on the roof, put on work boots and went out to clear rubble. At the first location we helped clear a home where a mother and child had been lost. The family had buried the dead and was left with a broken pile of concrete that our AHV team promptly cleared.

The first night of sleep was challenging when at 2:17 am screams from the locals accompanied the shaking of the building to a 4.2 earthquake, an eerie silence followed. The AHV volunteers stand blurry-eyed in the courtyard, away from deadly overhead concrete. This would repeat once more during our time here, welcome to our first 24 hours in Haiti.

In the course of our two weeks in Leogane, Sherri and I would help to clear several home sites, allowing these resilient families to have a foundation to start over. Everything we would uncover – from wedding photos to children's toys – we returned to a very grateful owner. The simplest things in Haiti have value, even something as insignificant as a toothbrush can be difficult to afford on the low wages paid here, it was our intention to save anything we found.

Nearly all the homes in Haiti were made of concrete, including the roof. When the walls and roof collapsed, it would leave large sections of concrete intact. It was our job to use sledge hammers to break this up and load it into wheelbarrows to haul away. We have done a lot of hard labor projects over the years, and this was by far the most demanding thing we have ever done.

92 PERCENT DESTRUCTION

With 92 percent of the buildings in Leogane destroyed, there is no shortage of work, and the AHV staff does an excellent job of allocating these projects. AHV plans to be in Leogane until December 2011 helping as many families as possible.

Months have passed since the earthquake, numerous locations do not have electricity restored, and fresh water is still gathered at local wells. Haiti is likely to be recovering from this disaster for the next 20 to 25 years. It is my hope that the wonderful Haitian people we have met will prosper and see recovery much faster.

AN EXTREME EXPERIENCE

We have had the privilege of traveling all over the world, and found ourselves in some interesting places. Few can compare with this trip to Haiti, which brought with it some serious weight. It lasted only two weeks, but will carry with it a lifetime of appreciation for Haiti and its resilient people. It was an incredible experience and I will find myself in Haiti again. Thanks to the people of AHV for the opportunity and to the people of Leogane for welcoming us into their lives.

If you are interested in volunteering or donating to a wonderful organization, AHV is a great choice where your dollars are spent directly in the epicenter of damage.

www.hands.org

BOUNDLESS AUTOMATION: ENOCEAN ALLIANCE AT GREENBUILD IN CHICAGO

Members of the EnOcean Alliance present new solutions for energy-efficient building automation.

Visitors to the EnOcean Alliance booth (#583) at Greenbuild Expo 2010 (November 17–19), can see the future of intelligent buildings. In addition to EnOcean Inc., four other members of the EnOcean Alliance are presenting innovative products for more energy-efficient, more flexible and smarter automation solutions: Magnum Energy Solutions, Echoflex, Illumra and Leviton.

What all these exhibitors have in common is their use of EnOcean's self-powered wireless technology in their products. Joint use of this basic technology assures the EnOcean Alliance of interoperability between all its products. Solutions from different manufacturers can then communicate with one another and work together in one and the same complex building automation system.

OTHER MEMBERS OF THE ENOCEAN ALLIANCE AT GREENBUILD

More innovation enabled by EnOcean technology is being presented by the following members of the EnOcean Alliance: Verve Living Systems (booth 2319), Leviton (982), Osram Sylvania (561) and Philips Ledalite Architectural Products (901).

OUR NEW PEOPLE

EDDIE JOHNSON, DIRECTOR OEM SALES US

Eddie Johnson has joined EnOcean Inc. as Director OEM Sales covering eastern North America. Eddie will work from home office in Louisville Kentucky. He has a strong educational foundation in technology (BSEE) and business (MBA). He has worked in building automation with emphasis on lighting controls for more than 20 years. Pertinent highlights include Telemics, a manufacturer of wireless controls for street lighting where he managed sales including the relationship with channel partner GE Lighting Systems. Tyco Electronics subsequently purchased Telemics, and at Tyco Eddie led engineering and product management, developing market strategy for the outdoor lighting market. Most recently he was VP of Sales for Encelium, a manufacturer of energy conserving lighting controls. Eddie created the channel partner network and managed representative and dealer channels.

JOHN CORBETT, SALES DIRECTOR UK

John Corbett joined EnOcean GmbH as Sales Director UK on September 1. An electronics engineer, he comes to EnOcean from Plugwise, an energy management company. Prior to this, John worked with a number of semiconductor companies, including Fairchild where he was a founder director in Europe, National and more recently Ember.

Although a seasoned sales person he has not forgotten his engineering roots and this will allow EnOcean to expand rapidly in the UK. Working as Sales Director John will cooperate closely with current and new British OEM partners to get innovative building solutions to market quickly and help them implement new projects.

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ENOCEAN REAPS RECOGNITION

EnOcean has won the prize for "Best development in the field of energy harvesting" awarded by IDTechEx, an independent market research and consulting enterprise. The prize goes to the company with the best energy-harvesting product developed in the last 24 months. EnOcean was commended for the technical advantages and market potential of its product compared to other entrants.

EnOcean impressed the jury with its advances in energy conversion by means of a thermoelectric converter (ECT 300), which enables direct production of electricity from temperature differences – on warm parts of machinery for instance, heating radiators or even the human body. For this purpose a circuit was developed that converts a small voltage – from 20 mV upwards – into useful voltage of 3 V for example, which is enough to power a wireless sensor. The prize was presented during the Energy Harvesting & Storage Europe 2010 international conference and exhibition in Munich.

Armin Anders from EnOcean and Dr Peter Harrop, Chairman, IDTechEx, during the award ceremony at the Energy Harvesting & Storage Europe 2010 in Munich (from left).

"GOOD, BETTER, LEVITON"

"CONSULTING SPECIFYING ENGINEER" MAGAZINE NAMES LEVNET WIRELESS PRODUCTS "BEST PRODUCT OF THE YEAR" FOR 2010 FOR THE SECOND CONSECUTIVE YEAR

Leviton's LevNet RF wireless lighting control products were chosen by Consulting Specifying Engineer (CSE) magazine as the Best Product of the Year for the second consecutive year. The high-performance line of wireless occupancy sensors, switches and accessories combines Leviton's legendary styling and superior performance features with reliable wireless technology from EnOcean, the leader in self-powered wireless lighting control solutions.

Without wires to run, LevNet RF devices reduce labor and material costs, and require only minutes to configure. Once installed, LevNet RF devices can be used in virtually any commercial retrofit environment to control energy consumption and reduce a facility's carbon footprint.

"It is truly an honor that Consulting Specifying Engineer magazine and their subscribers have chosen our wireless products as the Gold award winner in the lighting control products category once again this year," said Richard Westfall, Vice President and General Manager for Leviton's Lighting Management Systems. "Energy conservation has never been more important, from both an environmental and economic perspective. These back to back awards illustrate our commitment to providing innovative energy management solutions and maintaining a leadership position in this market among members of the specification community."

LEVITON WIRELESS PRODUCTS NAMED AMONG TOP 81 MONEY-SAVING PRODUCTS

Leviton's LevNet RF line of lighting controls was selected by "Buildings Magazine" as one of its Top 81 Money-Saving Products. In selecting their top picks in the category editors took into account criteria such as: initial cost, life-cycle costs, sustainability, longevity, energy efficiency, occupant productivity and maintenance requirements.

The revolutionary line of self-powered, eco-friendly lighting control devices integrates Leviton's signature performance and design features with best-in-class technology from EnOcean. Without wires to run, LevNet RF devices reduce labor and material costs, and require only minutes to configure. Once installed, LevNet devices can be used in virtually any commercial retrofit environment to control energy consumption and reduce a facility's carbon footprint.

www.leviton.com

OCTOBER 2010

October 3, 2010
Smart Building 2010, Hoevelaken, Netherlands
Presentation by Thomas Köthke (EnOcean) and exhibition by Distech Controls.

October 6–7, 2010
M&E – The Building Services Event, London, UK
EnOcean Alliance with partners MK Electric, Ex-Or and Distech Controls are exhibiting on booth C104.

October 13–14, 2010
Wireless Sensor Networks, Energy Harvesting & RFID Asia 2010, Hong Kong
EnOcean is exhibiting, with presentation by Armin Anders (EnOcean).

25.–29.10.2010
Hotel Technology Next Generation Members Meeting, Berlin, Germany
EnOcean Alliance and Omnio exhibit and hold a presentation.

NOVEMBER 2010

November 9–12, 2010
electronica, Munich, Germany
EnOcean is exhibiting on booth A4.266.

November 10–11, 2010
Wireless Congress, Munich, Germany
Presentation by Wolfgang Heller, Markus Kreitmair (both EnOcean) and Graham Martin (Chairmain EnOcean Alliance).

November 16–17, 2010
Energy Harvesting & Storage USA, Boston, USA
EnOcean is exhibiting, with presentation by Armin Anders (EnOcean).

November 17–19, 2010
Japan Home & Building Show, Tokio, Japan
EnOcean is exhibiting.

November 16–18, 2010
Greenbuild Expo 2010, Chicago, USA
EnOcean Alliance and partners are exhibiting on booth 583.

DECEMBER 2010

December 8–9, 2010
Ecobuild America 2010, Washington D.C., USA
EnOcean Alliance is exhibiting.

JANUARY 2011

January 31–February 2, 2011
AHR Expo 2011, Las Vegas, USA
EnOcean Alliance and partners are exhibiting.

MARCH 2011

March 15–19, 2011
ISH 2011, Frankfurt, Germany
EnOcean Alliance and partners are exhibiting.

MAY 2011

May 17–19, 2011
Lightfair 2011, Philadelphia, USA
EnOcean Alliance and partners are exhibiting.

ENOCEAN AND TEXAS INSTRUMENTS EXPAND TECHNOLOGY COOPERATION

GLOBAL MARKET LEADER FOR ENERGY-EFFICIENT COMPONENTS COMMITS TO ENOCEAN STANDARD

EnOcean and Texas Instruments (TI) announced the expansion of their cooperation to provide innovative wireless solutions for building automation. Through this agreement, the companies will jointly create solutions enabling self-powered wireless sensor networks. To further optimize its product portfolio, EnOcean will integrate TI components in its energy-efficient wireless modules. EnOcean's batteryless wireless technology harvests energy from its surroundings – motion, light or differences in temperature – and enables new ecologically minded self-powered wireless applications.

Texas Instruments and EnOcean have collaborated since 2005 and TI components have been implemented in a variety of EnOcean modules. TI has also been a member of the EnOcean Alliance since 2008, working with other members of the Alliance on energy-efficient solutions for green buildings.

"Energy harvesting wireless technology reduces the installation cost of lighting, heating/air-conditioning control and monitoring by up to 70 percent. This technology enables longterm energy conservation and sustainability for our customers", said Laurent Giai-Miniet, general manager of TI's Low-Power RF business unit. "Cooperating with EnOcean is an important step towards gaining a firm foothold in a fast growing market. The deciding factor in the expansion of our relationship with EnOcean was their proven expertise of energy harvesting technology, with wide market experience and a broad customer base."

ENOCEAN NAMES UNITRONIC "DISTRIBUTOR OF THE YEAR 2010"

EnOcean GmbH named Unitronic AG "Distributor of the Year 2010" for its superb performance in marketing EnOcean's energy harvesting wireless sensors.

By Michael Gartz, International Sales Manager, EnOcean GmbH

Looking forward to much more success with energy-harvesting wireless technology, Stefan Hauf (left) and Michael Gartz.

In making the award the developer of energy harvesting wireless technology emphasized the strategic importance of the worldwide distributor network for the company's future success. Through module sales and the accompanying design-in support the distributors play a significant role in establishing this innovative technology on international markets. They also carry out extensive OEM projects in the fast growing building automation segment.

Unitronic director Stefan Hauf expressed his pleasure at receiving the award: "EnOcean technology, with its combination of miniaturized energy converters, power-saving electronic circuitry and reliable energy harvesting wireless, convinced us and our customers from the very start – and in no small part because EnOcean wireless sensors enable intelligent monitoring and control solutions of a kind that couldn't be implemented with any other technology."

Through the awards program, EnOcean distributors gain access to an extensive range of services. These include second-level support by EnOcean field application engineers (FAEs), annual distributor meetings, FAE training and support in OEM projects and the development of new markets.

www.unitronic.de

End-products with EnOcean technology can be obtained direct from manufacturers (see page 17 – member overview), wholesalers. See further information on www.enocean-alliance.org/products

AUSTRIA		KOREA	
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