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ENGLISH

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MAINTENANCE-FREE WIRELESS SWITCHES & SENSORS

ISSUE 1 2012

SMART HOMES

SECURITY
Upping security levels for EnOcean-enabled networks

NUUON
Smart Home installation in Jeddah apartment building

KIEBACK&PETER
Energy-autonomous miniature wireless actuator works on thermal energy

CAN2GO
St. John's Basilica Cathedral gets an energy makeover

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Dear readers,

I took up the position of CEO of EnOcean in mid-October 2011, but my keen interest in energy harvesting solutions started many years ago. Whilst working with EnOcean as a supplier, I was amazed by the potential this technology offered for practically limitless application scenarios. I'm thrilled at this opportunity of helping EnOcean to promote the company's technology and drive international business growth by offering the right solutions and best-in-class support to our customers worldwide.

EnOcean has been very successful as a pioneer and leader in energy harvesting wireless technology and is a key player in the building and industrial automation sectors. There are many other great possibilities to build new pillars of growth in industries where energy harvesting and wireless technology can provide value. I'm confident that moving forward our solutions will find new and diverse applications. Wireless and batteryless technology will transform consumers' lives, enabling a new age of innovation involving smart homes, smart metering, smart appliances and smart grids.

An important part of our growth journey is increasing internationalization. We intend to bring the success and innovative developments achieved in Western Europe and the USA to the rest of the world. As part of this strategy, EnOcean and the EnOcean Alliance – we've just welcomed our 250th member – have a strong presence at this year's world-leading international trade shows, including AHR Expo in Chicago, Interclima+Elec in Paris, Ecobuild in London and Mostra Convegno Expocomfort in Milan, as well as the upcoming Light+Building in Frankfurt and LIGHTFAIR in Las Vegas.

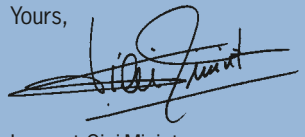
Worldwide demand for innovative, self-powered wireless solutions is rapidly increasing. That's why we continue to expand our international scope and are growing our customer base in China, Japan, Europe and North America. In addition to our existing sales team, as of January 2012 we now have technical sales representatives in both China and Japan and we will continue to deploy field base resources anchored in these geographical regions.

Further growth will be enabled by international standardization of the EnOcean physical layer. I'm pleased to say that the approval process of the IEC committee has been completed and the EnOcean wireless is now certified to ISO/IEC 14543-3-10.

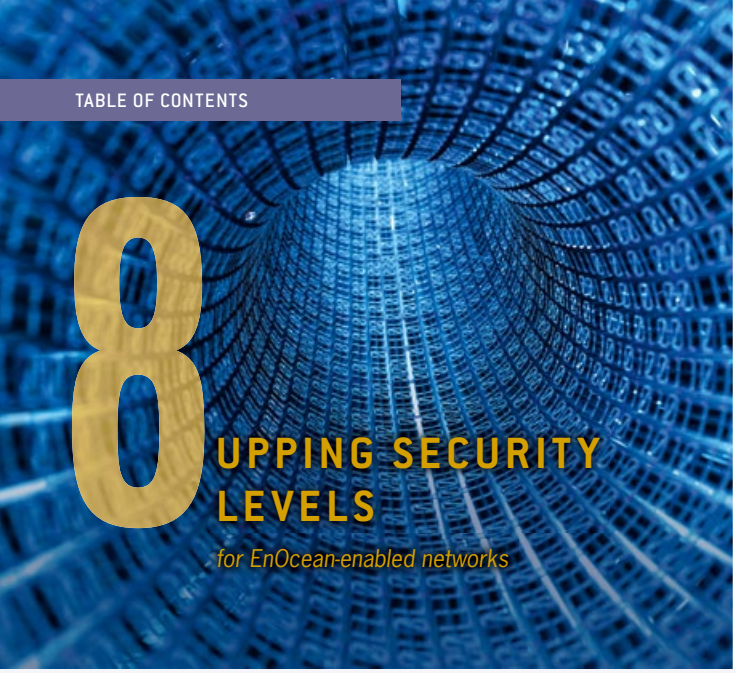
As you can see, there are many exciting things going on in the EnOcean family – read on to find out more about the latest developments. I'd also be very happy to give you a more in-depth view at an individual meeting, for example at the upcoming Light+Building show in Frankfurt and LIGHTFAIR in Las Vegas, where you'll find EnOcean not only at the EnOcean Alliance booth but also at the booths of many other exhibitors – a clear sign that EnOcean technology is fast becoming THE wireless standard in sustainable buildings.

Join us on our growth journey.

Yours,



Laurent Giai-Miniet
CEO, EnOcean GmbH



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for EnOcean-enabled networks

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Smart Home installation in Jeddah apartment building

MASTHEAD

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THE ABC OF ENOCEAN

EnOcean GmbH is the originator of patented self-powered wireless technology. Headquartered in Oberhaching near Munich, Germany, 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 technology. EnOcean wireless components are already in use in more than 200,000 buildings.

By Andreas Schneider, Chief Marketing Officer, EnOcean GmbH

GREEN

The innovative enabling technology from EnOcean works entirely without batteries and is completely service-free. To detect information and then transmit it by short-range wireless, an EnOcean solution harvests the necessary power from its surroundings: from linear motion, light or differences in temperature, for example. The energy obtained in this way is sufficient to send a wireless signal or turn on a light, for instance. What's more, the use of wireless switches and wireless sensors greatly simplifies the cabling of a building. At the same time, they ensure a high level of flexibility, because no new cabling is needed in the event of alterations. EnOcean-enabled products can be placed in the most effective position – with minimum outlay and without the need to break through walls.

SMART

EnOcean is a system that optimally connects a number of components including wireless sensor networks, energy management, software and sensor links. Each wireless node has its own local processor to capture measured data, for example, and control energy management or wireless transmission functions. EnOcean wireless modules always come with firmware designed so that no modifications are necessary. There is also sufficient scope for application-specific configuration. Furthermore wireless sensor modules from EnOcean are very easy to integrate into a whole number of different sensors.

WIRELESS

The EnOcean wireless signal uses the 868 MHz or 315 MHz frequency band, which means 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 rule out the possibility of transmission errors, a telegram is repeated a number of times in the space of 30 milliseconds. Transmitting data packets at random intervals ensures the probability of collision is extremely small. EnOcean wireless sensors have a range of 300 meters outside and up to 30 meters inside buildings. Each EnOcean module comes with a unique 32-bit identification code to eliminate any possibility of overlap with other wireless sensors.

INTEROPERABEL

OEM partners in many different sectors find it very easy to integrate EnOcean modules in a whole variety of products. EnOcean technology points the way to fast development of new wireless solutions and time to market. Combining ECO 200, the third generation of EnOcean's mechanical energy converters, with the transmitter module PTM 330 creates an entire system for batteryless wireless operations. This new pairing creates an optimum basis for the fast and simple implementation of energy harvesting switching solutions in building automation, industry and household appliances. All EnOcean-enabled products are interoperable, which means that appliances or devices developed by different manufacturers can communicate with one another and cooperate without any difficulty in a single system.

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ENOCEAN ALLIANCE STANDS FOR EFFICIENT BUILDINGS

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

By Graham Martin, Chairman, EnOcean Alliance

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

Members of the EnOcean Alliance develop products and solutions based on energy harvesting wireless technology. Within three years of the foundation of the EnOcean Alliance it can not only show rapid growth in the number of member companies to over 250, but also 200,000 buildings already equipped with energy harvesting wireless technology over 850 interoperable products.

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

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

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

www.enocean-alliance.org/joinus

UPPING SECURITY LEVELS FOR ENOCEAN-ENABLED NETWORKS

Security plays an crucial role in distributed networks. Wireless systems need to be guarded by suitable measures so that access is only granted to authorized persons. Extra security precautions should be considered in specific applications that call for reliability and robustness.

Armin Anders, VP Product Management and Co-founder, EnOcean GmbH

Basic security measures are more than sufficient for many building automation operations, such as controlling lights and blinds. If someone flicks a light switch on or off but the light does not respond to the command, this might cause minor irritation and they will need to press the switch again, but there are certainly no serious consequences. However, it is an entirely different matter when it comes to access systems, alarm installations, automated meter reading systems and other security applications. In 2010, EnOcean launched the Dolphin system platform, which fully supports bidirectional communication in energy-autonomous sensor and actuator systems. It also incorporates a key-security mechanism designed to safeguard the system's integrity and transmitter authentification. As of mid-2012, two further mechanisms – rolling code and encryption – will be added to increase the level of security.

PROTECTION AGAINST DUPLICATION AND TRANSMISSION ERRORS

To prevent unauthorized access, wireless networks require a minimum level of data security protection. The EnOcean wireless standard ISO/IEC 14543-3-10 already addresses the following basic security measures:

- **Checksum (integrity) – protection against transmission errors**
  Integrity means ensuring that all data packets are not altered during transmission. One simple security measure is to attach a checksum to each communication. This might not be much of a safeguard against criminal activity, but it is a simple and effective means of preventing transmission errors.
- **Unique transmitter ID (authentication) – protection against duplication**
  Authentication assures a user that they are communicating with the intended participant. This involves checking the identity of both communicating parties. Each EnOcean wireless transmitter has its own 32-bit identification code (ID) that is firmly burnt into the module by the manufacturer and cannot be altered or copied by the user. There are more than four billion different IDs so that no unauthorized users or, in the simplest case, unwanted duplicates can worm their way into the network.

EXTRA PROTECTION AGAINST ATTACKS

In addition to the security concepts already integrated to the EnOcean standard, Dolphin API will soon offer further functions to enhance network security:

- **Rolling code (actuality) – protection against replay attacks**
  An EnOcean wireless node manages a counter for incoming and outgoing data packets and thus ensures actuality. This can ward off replay attacks, where an eavesdropper listens in to a transmission and repeats it later, causing the receiver to open something, for example. A 16-bit rolling code (RC) incremented with each telegram is generated as a constantly changing (i.e. rolling) security mechanism. The telegram header, telegram data and current rolling code are used to calculate a 32-bit message authentication code (MAC). This is done by means of the advanced encryption standard (AES) algorithm and a 128-bit key. As an additional option, the rolling code and MAC can then be added to the telegram or, if the energy situation is critical, only the MAC. A telegram is validated through the successful verification of the expected RC and a correct MAC.

Typical Use Cases	ID Authent.	Reply Attack	Eaves dropping	Energy Demand	Telegram Structure
Wall Switch, Sensor	✔	–	–	150 uWs	ORG | Data | ID.ST.CKS
Automated Meter Reading	✔	–	✔		ORG-S | Data | ID.ST.CKS
Garage Opener, simple Car Fob	✔	✔	–		ORG-S | Data | RC 16 bit | MAC 32 bit | ID.ST.CKS
Lockerbox Control	✔	✔	✔		ORG-S | Data | RC 16 bit | MAC 32 bit | ID.ST.CKS
Advanced Smart Metering	✔	–	✔	Line powered	ORG-CH | ORG-S | Data | ID.ST.CKS ORG-CH | Data | ID.ST.CKS

Legend:

MAC	Message Authentification Code	ORG	R-ORG EnOcean Telegram	ID, ST, CKS	Transmitter Identifier, Statusbyte, Checksum
encrypted	Field is encrypted RC4/AES	ORG- S	R-ORG Security Telegram		
RC	Rolling Code	ORG- CH	R-ORG Chained Telegram	Data	Telegram Payload

Security mechanisms can be combined to implement different security levels

■ **Encryption – protection against eavesdropping**
Security or even secrecy means preventing the interception and misuse of transmitted data. To address this situation, data packets are encrypted by a transmitter and decrypted by the receiver. Data encryption uses either the ARC4 (Alleged Ron's code 4) algorithm with a 32-bit key or, for higher security needs, the AES algorithm with a 128-bit key.

FLEXIBLE SECURITY CONCEPT

Greater data security involves an increase in the amount of energy required for communication, because telegrams are longer. Transmitting a 128-bit MAC, for instance, requires chained telegram structures, because standard EnOcean telegrams, which are determined by the system, are limited to 14 bytes of useful data, or even as few as 9 bytes if they are addressed. Additionally, energy is required to calculate the encryption, and RC also involves saving a changed count in the memory. As more energy is needed along with more security, EnOcean has opted for a modular security concept that can be matched flexibly to the interplay between energy consumption and security requirements. The security mechanisms operate independently and can be combined to create different security levels according to demand.

NO LOSS OF INTEROPERABILITY

All the algorithms used are publicly accessible. Security is based on the length and secrecy of the keys that are used. Devices of different manufacturers can still communicate with one another using the new security mechanisms, because both the key and the combination of mechanisms are taught in a universal teach-in telegram. It should be noted that the keys are transmitted as plain text during the teach-in process. Encryption in this phase, using Pretty Good Privacy (PGP) for example, would involve too much calculation. If the wireless transmission of keys in the teach-in phase is critical in terms of security, they can also be transmitted to the wireless modules via the serial interface.

INDIVIDUAL MATCH

Initial keys are generated automatically by the Dolphin API as a function of the module ID, but they can also be altered by the application itself. This way, it is possible to choose between a common key for the entire network or a separate one for every link between two devices.
If the security mechanisms implemented in the API prove inadequate in individual cases, users can also implement further security algorithms in their system using manufacturer-specific communication (MSC).

www.enocean.com

SIMPLE ENTRY TO APPLICATION DEVELOPMENT WITH THE ESK 300 STARTER KIT

The ESK 300 starter kit eases your way into and around energy harvesting wireless technology, helping EnOcean partners to develop new applications for a variety of battery-free and wireless switching elements –from industry through building and building services automation on any scale to household appliances.

By Markus Kreitmair, Innovation Manager, EnOcean GmbH

This starter kit demonstrates the possibilities of energy-autonomous wireless sensor technology in the context of key EnOcean components. Energy for sensors and wireless communication is produced at the push of a button or from a solar cell. Measured room temperature data is transmitted via a wireless interface, while switching commands and sensor data are visualized on a PC. In addition, designers and engineers can build their own self-powered switch. That and more is very simple with the ESK 300.

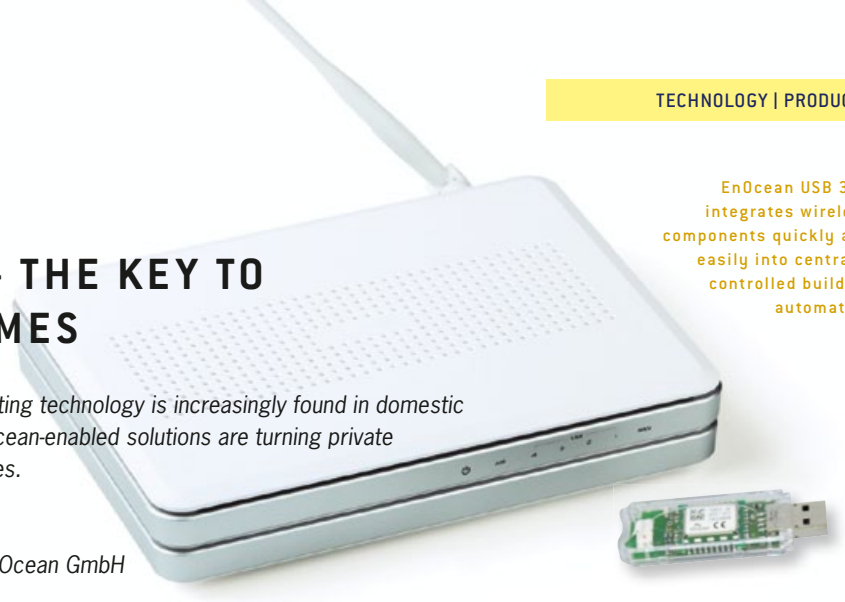
The kit consists of a switch module for building services (PTM 200), a suite for industrial switches (PTM 330, ECO 200 and package), a temperature sensor (STM 330), a USB receiver (USB 300) and PC software for visualization (DolphinView Basic).

VERSATILE TECHNOLOGY

The flexibility of the system – based on an energy converter and wireless module – enables a whole range of switching solutions powered by batteryless energy harvesting. In industrial environments in particular, this opens up numerous opportunities for using maintenance-free and cableless devices – wherever a button can be pressed. This system from EnOcean offers OEM partners exceptional flexibility in product development coupled with first-class support.

www.enocean.com

The starter kit consists of USB 300, PTM 200, ECO 200, PTM 330, STM 330 plus DolphinView Basic



EnOcean USB 300 integrates wireless components quickly and easily into centrally controlled building automation

USB 300 – THE KEY TO SMART HOMES

Wireless energy harvesting technology is increasingly found in domestic environments too. EnOcean-enabled solutions are turning private homes into smart homes.

By Markus Kreitmair,
Innovation Manager, EnOcean GmbH

Standard applications of batteryless wireless technology applications enable decentralized communication, e.g. between a wireless switch and an actuator or between window contacts and the regulator of a radiator. For greater energy savings, it is becoming increasingly important to network components, which is where you start to speak of the smart home and smart metering. The aim is to save energy while enhancing comfort and convenience in the home.

THE SIMPLE WAY TO STATE OF THE ART

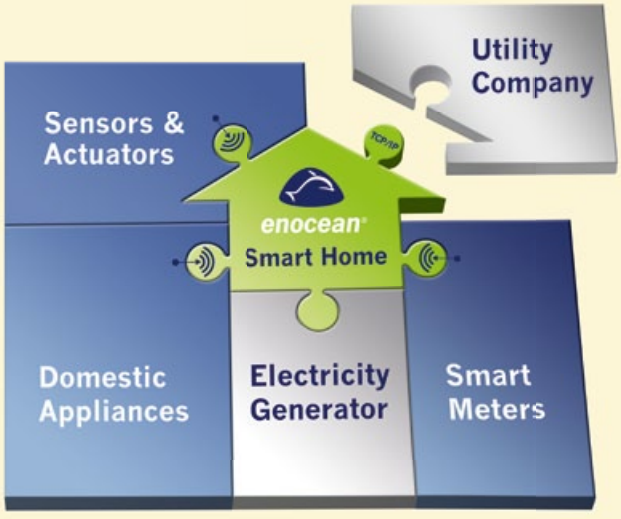
The USB 300 gateway from EnOcean provides a quick and easy way of gathering all wireless EnOcean components in the form of centrally controlled building automation. This is a small USB stick with a wireless EnOcean transceiver that can be connected directly to the USB interface of a PC, a set-top box or a WLAN router. The USB 300 is a TCM 310 transceiver module with gateway controller software. It features a bidirectional wireless interface and communicates with the host on a serial driver interface.

The following basic functions are already implemented:

- Reception and transmission of EnOcean telegrams
- Fast data transfer with additional information such as receiving quality
- Programmable repeater
- Postmaster for Smart Acknowledge

MAKING THE SMART HOME SMARTER

A smart home solution with EnOcean can already combine batteryless control of lights, heating and air-conditioning with the control of household appliances integrated into the EnOcean system by an adapter plug. Wireless energy harvesting technology is ideal for retrofitting smart homes. If an attic is converted or upgraded, or if more switches are needed at a later date, EnOcean technology is a suitable and low-cost alternative to cabling with all the caulking and renovating it involves. A smart home with EnOcean also creates the right foundation for future smart grid solutions and for creating a living environment suitable for the elderly.



www.enocean.com

ENOCEAN MODULES AND ACCESSORIES

RoHS COMPLIANT 2002/95/EC

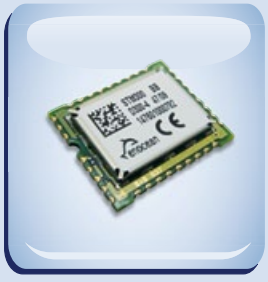
ALL MODULES ARE AVAILABLE FOR 868 MHZ AND 315 MHZ

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

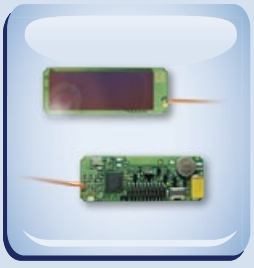
ENERGY HARVESTING WIRELESS SENSOR MODULES

PTM 200
Ideal for energy harvesting wireless switches

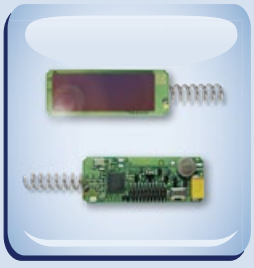
ECO 200 & PTM 330
The perfect combination for unique switch applications



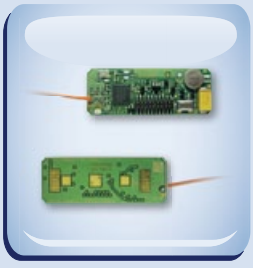
STM 300
Ideal for bidirectional energy harvesting wireless sensors and innovative actuators



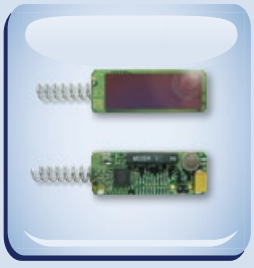
STM 310
Energy harvesting wireless sensor module – with solar cell and whip antenna



STM 311
Energy harvesting wireless sensor module – with solar cell with helical antenna



STM 312
Energy harvesting wireless sensor module – with solar cell but without whip antenna



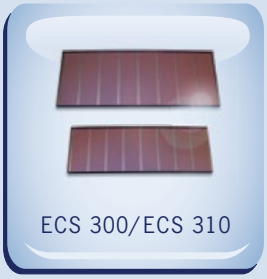
STM 320
Energy harvesting magnet contact transmitter module with helical antenna

STM 330
Energy harvesting wireless temperature sensor module with whip antenna

ENERGY CONVERTER

ECO 200

Mechanical
Harvests linear motion for use in wireless switches



ECS 300/ECS 310

Solar
Harvests indoor light for energy harvesting wireless sensors and actuators

ECT 310

Thermo-electric
Harvests temperature differentials for energy harvesting

RECEIVER AND TRANSCEIVER MODULES

TCM 300/TCM 310

TCM 320

USB 300

TCM 300, TCM 310, TCM 320 and USB 300 – ideal for permanently powered system components

ENOCEAN-SOFTWARE

DolphinStudio

DolphinAPI

DolphinView

In variations:
DolphinView Basic
DolphinView Advanced

ACCESSORIES

EDK 300
Developer kit for EnOcean Dolphin modules – with extensions for new solutions

Solar developer kit EDK 310
for Dolphin modules in the STM 310 series

Thermo developer kit EDK 312
for STM 312 Dolphin module

EnOcean starter kit ESK 300 –
the ideal entry to EnOcean technology

EPM 300 – Field-intensity meter

CONTACT

Our value-added distributors provide customers with application support and technical expertise.

www.enocean.com/distributor

SUPPORT

Further support materials can be found here:

www.enocean.com/support

PUSHING ALL THE RIGHT BUTTONS

Bell pushes are an essential part of everyday bus operations. However, due to their simple functionality they can be easily overlooked when it comes to designing the next generation of buses.

By Andy Overend, Sales Manager, BMAC Ltd

That has all changed with the introduction of the Wireless Bell Push from BMAC. Instead of using meters and meters of cabling to connect each bell push to the bus' battery, the Wireless Bell Push employs the EnOcean battery-free and wireless microchip radio transmitter. When a passenger presses the bell push, an EnOcean Energy Harvester converts this simple action to transmit a signal to the receiver module, which in turn activates the stop sign and sounds the bell.

The signal generated by the transmitter is unique to each individual bell push, ensuring that there is no cross-over interference between the other bell pushes on the bus or other buses on the road. With the Wireless Bell Push, the receiver module is connected to the bus electrical system. The bell pushes are then fitted into place. Each bell push is programmed to the receiver module to create, for example, four logical circuits – downstairs, upstairs and in the wheelchair and priority sitting areas.

WIRELESS BELL PUSH REDUCES FITTING TIME AND COSTS

Threading up to 100 meters of cable to individual bell pushes on a bus, including all the machining to fit the bell pushes can be a time-consuming procedure. The wireless bell push eliminates a lot of this fitting work and cuts the cost of all the cabling, thus helping to create a more efficient production line.

Such a simple fitting also benefits bus operators, who no longer have to take the bus off the road for lengthy periods to trace the cable that has shorted due to worn insulation. This helps further reduce downtimes and ensures that the bus is back on the road quickly.

www.bmac.ltd.uk

WIRELESS CONTROL OF VALVES FOR GAS, WATER AND OIL

Based on its extensive experience in the flow control industry, Radin Radio Controls identified a need for the remote operation of gas, water and oil solenoid valves with 3-pin DIN connections, using wireless technology and thus eliminating intrusive and costly wiring.

By Maxine Hewitt, Managing Director, Alpha Micro Components Ltd

Having seen EnOcean's energy harvesting wireless sensor technology, Radin approached EnOcean and Alpha Micro Components, a UK franchised distributor for EnOcean. In addition to its role as distributor, Alpha Micro is able to add value by providing in-house application engineering design services. The company also has 16 years of experience in integrating franchised components into board-level designs.

As a result, Radin Radio Controls and Alpha Micro have launched the patented Radin Controller using the EnOcean TCM 300 transceiver module, which can be paired with any EnOcean-based switch or gateway for applications where the flow of liquid or gas has to be stopped and resumed remotely and safely wirelessly, including by mobile phone.

www.alphamicro.net

Self-powered wireless switch and Radin valve controller

THE ENOCEAN WIRELESS STANDARD MAKES ITS WAY

The EnOcean Alliance is the association of EnOcean technology users. In addition to the Marketing Working Group (MWG) there is a Technical Working Group (TWG) that focuses on device interoperability and standardization of the technology. The TWG also produces vital incentives for the further development of EnOcean technology.

Armin Anders, Chairman of the EnOcean Alliance TWG and VP Product Management of EnOcean GmbH, and Norbert Metzner, Director of Engineering, EnOcean GmbH

The technical working group of the EnOcean Alliance currently has more than 100 members and deals with the major aspects of standardization and interoperability. The EnOcean Alliance meets twice a year – once in Europe and once in North America – to discuss the results of the working groups and to plan the next steps, identify and assess new topics and appoint working groups to address specific issues. Smaller international and interdisciplinary working groups, have proved effective in developing system specifications and technical instructions for the EnOcean standard. Progress is coordinated through specification workshops and regular teleconferences. The overall TWG usually meets once a month for a teleconference.
The TWG also plays a consulting role in technical matters for the MWG. The success of the TWG is founded on the contributions made by the individual members of the EnOcean Alliance. This has led to the creation of impressive technical competence that ensures stable and sustained development of the standard. Below is a brief description of the focusal points of the individual working groups and the latest results.

COMPLETION OF IEC STANDARDIZATION

At the start of 2011, EnOcean submitted a draft in the form of a New Work Item to the IEC with the aim of establishing an international standard for the physical EnOcean air interface. Thanks to support from some members of the EnOcean Alliance, the acceptance of the Work Item was ensured. With slight modifications the draft of the standard was accepted worldwide by the national IEC bodies. It is now published as standard ISO/IEC 14543-3-10.

UPDATED ENOCEAN EQUIPMENT PROFILES

EnOcean Equipment Profiles (EEPs) define communication between two or more EnOcean-enabled devices. An EEP describes the characteristics of a particular device and interprets the communicated data. It is based on extensive discussions and harmonization among the manufacturers of EnOcean-enabled devices. The current status is EEP specification V2.1, which describes some 20 application classes and almost 100 telegram profiles. Work is already in progress on an update, which is due to be launched in the spring of 2012. Major innovations include a universal teach-in (UTE) procedure and bidirectional communication profiles, an elementary prerequisite for further applications in the smart home, for example. Since EnOcean launched the bidirectional Dolphin architecture, manufacturers have developed numerous sensors and actuators that can both receive control signals and send status signals. The appropriate commands have been defined and compiled in application families in a modular cooking recipe. This clear-sighted approach is intended to simplify the harmonization of new profiles, which tend to be rather complicated at present.

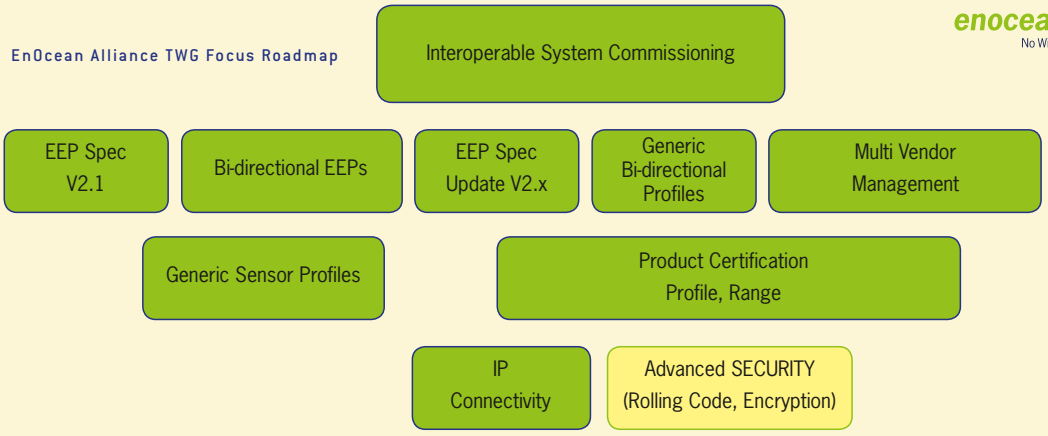
EXTRA FLEXIBILITY – GENERIC PROFILES

A new approach means a step forwards for EnOcean communication profiles. Based on the OSI layer model, a system specification has been devised that improves the speed and flexibility of product development for manufacturers. Once the language of the generic profiles has been implemented, virtually any sensor or actuator can be defined. All that is required is knowledge of the methods and formats.

EASING THE WORKLOAD THROUGH REMOTE COMMISSIONING

In mid-2011 a working group was set up to look at the wireless-based, i.e. remote commissioning and maintenance of EnOcean-enabled installations. The system

EnOcean Alliance TWG Focus Roadmap



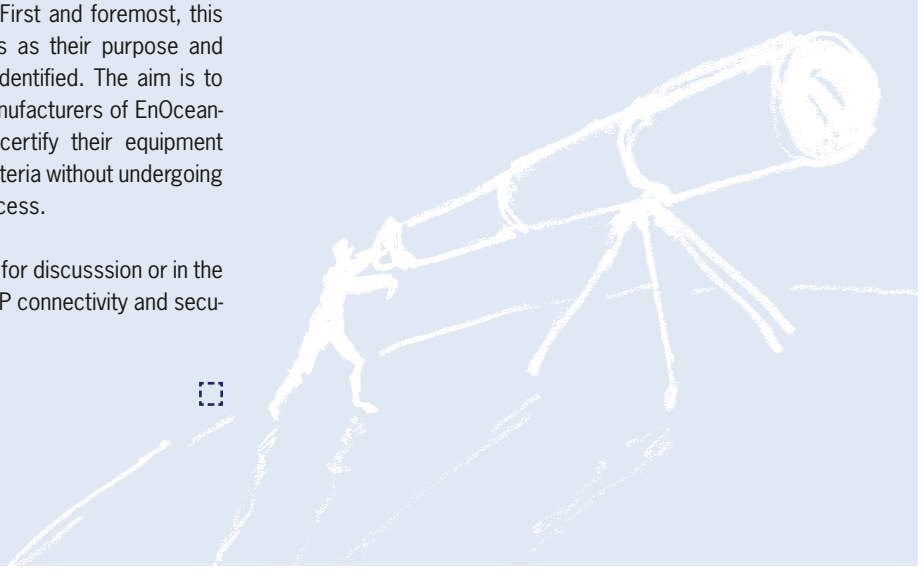
specification to be devised will generate definitions, methods and data formats; data content will only be specified to the extent required for minimum interoperability. The EnOcean Alliance views this as a way of simplifying and greatly easing the workload for installation and maintenance/service technicians.

SIMPLE CERTIFICATION

Interoperability is a key feature of EnOcean-enabled products. As the EnOcean Alliance continues to grow, quality features are needed to describe the interaction between individual network components. First and foremost, this will simplify product applications as their purpose and capacity for interoperation are identified. The aim is to create a procedure by which manufacturers of EnOcean-enabled products are able to certify their equipment using simple but effective test criteria without undergoing a time-consuming expensive process.

Other future-focused subjects up for discusssion or in the process of specification include IP connectivity and security.

www.enocean-alliance.org



OVERVIEW OF ENOCEAN ALLIANCE MEMBERS

www.enocean-alliance.org/products

PROMOTERS

PARTICIPANTS

... AND MORE THAN 150 ASSOCIATE MEMBERS

SMART HOME INSTALLATION IN JEDDAH APARTMENT BUILDING

Jeddah lies in the west of the kingdom of Saudi Arabia on the Red Sea coast. Here, smart buildings are attracting the attention of every sector, including private owners of residential buildings who want to elevate the standards of their homes and buildings.

By Bianca Rohde, General Manager, Nuuon Trading LLC

The owners of such a residential building decided to include automation systems in their new apartment building. They asked Nuuon and their local partner AEO to provide the installation, commissioning and training for an automation system. The project is still underway and will be completed in February/March 2012. The apartment building contains a total of eight three-bedroom flats (each approx. 150 sqm) and two penthouse villas (each approx. 300 sqm). A number of additional rooms in the basement will also be equipped with automation control. Each apartment has its independent automation system connected to an overall system.

THE BRIEF

A system was required to integrate safety and security, energy management through lighting and temperature, and audio distribution. The system had to be reliable, efficiently manage energy, ensure the safety of the tenants, provide convenient and friendly control, and maintain the building with the lowest cost of ownership.

THE SOLUTION

Nuuon offered a system that could be easily integrated to suit the client's functional requirements, bearing in mind the architectural design of the building and division of areas/zones. We chose various EnOcean hardware from our partner Jaeger Direkt for automation and the all-in-one Nuuon software solution for control. An additional part of the integration is the background audio distribution system, which will be controlled over IRTrans devices. Also every apartment will be equipped with an intercom and access control system.

The automation component was designed to save energy by optimizing lighting levels according to time, motion, events and action, and temperature levels based on outside temperature and time. The system adjusts temperature settings automatically, and dims/switches lights, blinds automatically based on preprogrammed logic. The system integrates safety and security with audio, lighting and temperature while monitoring motion and smoke.

Upon detecting motion or smoke, the system will turn the HVAC on/off, turn the lights on/off, and announce zone identification to allow faster response. The system will also send preprogrammed SMS to the owner to tell them which area has been tripped.

The heart of each apartment is the all-in-one Nuuon software solution that gives tenants the possibility of controlling everything from one device. Every tenant will possess a tablet PC with ready installed Apple app and WLAN connectivity. To be flexible the tenants can also control the system via a web interface from any browser-based device or over the new Android app.

The main benefit of the Nuuon software is that it allows the customer to combine and control products from vendor A with those from vendor B, which normally will never talk to each other.

Left: Apartment building in Jeddah
Right: Nuuon iFront mobile phone

INSTALLATION

For this project, most of the programming of the predetermined zones and outputs was performed at our facility in Dubai so that the equipment was shipped to the site ready programmed for fast installation. As part of the Nuuon project process, the equipment went through a series of tests, from mechanical inspection to assembly at our facility, and upcoming commissioning on site. The system will be fine-tuned on site, and handover will be completed once the owner has been trained in operation and troubleshooting.

EXPERIENCE FROM THE PROJECT

Considering what else is happening in the Kingdom of Saudi Arabia in terms of mega infrastructure and construction projects, what makes a difference to the client is the savings that can be made thanks to the efficiency and productivity of the contractor.

www.nuuon.com

EQUIPMENT LIST – ENOCEAN INTEROPERABILITY AT ITS BEST

370	x	EnOcean pushbutton
370	x	OPUS 55 – single, double, treble frames and rockers
235	x	On/off, 1 CH, flush-mount actuator (OPUS greenNet)
45	x	On/off, 2 CH, flush-mount actuator (OPUS greenNet)
205	x	Ceiling rose 1 CH dimmer actuator (OPUS greenNet)
90	x	1 CH blind actuator (OPUS greenNet)
16	x	Repeater (OPUS greenNet)
40	x	PIFE/PD-360 motion detector (Unotech)
13	x	Wireless smoke detector (Funkstuhl)
75	x	Z-Wave thermostat controller
13	x	EnOcean USB gateway (BootUp)
13	x	Z-Wave gateway
13	x	Nuuon Server Box with home automation software
13	x	Apple iPad
2	x	SMS gateway
13	x	IRTrans IR interface for multimedia control
13	x	Wireless electronic door cylinder with E-keys
13	x	2-wire indoor touch screen video intercom monitor
1	x	2-wire outdoor apartment video door station with proximity card reader
4	x	IP camera
1.030	x	UK power socket (OPUS) several conventional switcher, cable outlets, etc

ROOMS WITH A VIEW

That is the slogan with which Business + Innovation Center Kaiserslautern GmbH (bic) – with a program aimed primarily at technology-oriented companies – features on its Internet site. Managing director Prof. Ralph Wiegand underscores that in its new building a high-grade infrastructure is created by combining sophisticated technology and a modular room concept.

By Dr Andreas Wetzel, SAUTER Cumulus GmbH, Building Management

Flexibility in use was a central factor in planning the building, inviting proposals and awarding contracts. Different concepts were appraised by a specialist committee, which was convinced by the integral EY-modulo 5 solution from SAUTER. Contrary to the original plan, foreseeing a number of parallel communication protocols for different facilities, the answer implemented now is an open BACnet/IP network throughout. This ranges from the novaPro Open management level through the modular modu525 automation stations in the control cabinets of the primary energy supply to the ecos502 room controllers. The new building of the Innovation Center presents more than 4000 sqm floor space on four levels. Investment totaled around 7 million Euros.

MODULAR ROOM CONCEPT SIMPLIFIES CHANGING USE

The ecos502 room controllers from SAUTER integrate all necessary technical facilities like heating, ventilation, sunscreening and lighting on a flexible and user-programmable automation hardware platform. The innovative planning follows VDI 3813 to create room-independent functional segments instead of a conventional room definition. The necessary infrastructure is provided in the dropped ceilings and in raised floors so that partitioning walls need not incorporate building automation functionality and can be reconfigured to match the needs of a growing enterprise.

Allocation of functional segments to the rooms is direct, without manufacturer-specific software in the installed ecos502 room controllers. A SAUTER BACnet object defines allocation of more than 50 functional segments to the logical units (rooms/control zones). Two functional segments are always called up on a room controller in the process environment, so the logical room units can be combined in an overriding hardware manner. Through these logical units all room functions of VDI 3813 plus the related regulation and control are automatically matched to the actual room configuration. The operator can make changes simply in ongoing use through the management level.

FLEXIBLY POSITIONED ROOM CONTROL PANELS

Because of frequent changes in room configuration, controls in a room need to be repositioned and reassigned. SAUTER EnOcean room control panels are consequently installed in the building of the Business + Innovation Center. This alternative to the cabled room control panels of the EY-modulo 5 series switches all facilities and can be positioned anywhere in a room. Each functional segment can be provided with such a control panel. If segments are combined, the functionalities of the panels automatically match to one another.

Above: the Business + Innovation Center in Kaiserslautern has implemented SAUTER automation technology throughout the new building.
Left: SAUTER ecoUnit 146 with keypad.

The EnOcean room control panels with their integrated solar cell require no extra power supply. The bidirectional wireless technology not only enables switching commands to be sent to the room controller. Information from building automation such as actual readings, set-points, time and date can be transmitted to an EnOcean room control panel. Compact fitting dimensions of 55 x 55 mm allow direct integration of panels into common switch systems (Jung, Gira, Mertens, Busch Jäger). The symbols that are used simplify intuitive operation of as many as twelve functions. Innovative work environments call for innovative room concepts. In the Building + Innovation Center in Kaiserslautern this is implemented consistently and successfully. Extra to the flexibility in use of the building, it is bound to have a positive impact on costs.

www.sauter-controls.com

ST-JOHN'S BASILICA CATHEDRAL GETS AN ENERGY MAKEOVER WITH CAN2GO

The St. John the Baptist Cathedral (St-John's, Newfoundland, Canada) was consecrated in 1855. On its centenary, in 1955, the Vatican raised the Cathedral to the rank of Minor Basilica. The title is restricted to certain churches, truly outstanding for their historical, artistic and ecclesiastical importance.

By David Lamarche, Director of Marketing & Communications, SCL Elements

It goes without saying that a retrofit in such a building, would have to be done with extreme care. This was the task at hand in 2011, when Basilica administrators decided to improve heating control for increased comfort and energy efficiency.

THE SETUP

The project was handled by Newfoundland HVAC, an industry leader in the Canadian province and part of the Moss Holdings group of companies. They had already installed a BACnet front end in the Basilica, but hadn't been able to install control in the main areas of the building because wiring was out of the question.

This "2nd phase", which had a clear mandate to go further, combined multiple of products from different manufacturers: EnOcean thermostats, Mitsubishi heat pumps, 80 fan coil units and the existing Automated Logic front end. The challenge was to get everything to talk together... without installing any wires for control or networking. CAN2GO turned out to be the only candidate up to the challenge.

MULTI-PROTOCOL INTEGRATION IN ONE BOX

CAN2GO controllers can fulfill the role of programmable controller, gateway and server at the same time. They also support wired and wireless control and networking. For the Basilica, the controllers were placed inside the fan coil units surrounding the main area, with just their wireless antennas peeking out. This allowed the CAN2GO units to get power, communicate with all the EnOcean devices and network with other CAN2GO units without passing any wire inside the Cathedral. All the points are automatically converted to BACnet points by the controllers, and sent to the BACnet front end by a single CAN2GO unit connected to the LAN.

QUOTE FROM THE SYSTEM INTEGRATOR

"Due to the historical significance of the Basilica and the lack of wiring options, there was a requirement that wireless temperature sensors be used in the main church area. Since there are about 80 heat pump fan coils installed in this area and in many smaller rooms and hallways, we used 20 EnOcean thermostats and 10 UN2 CAN2GO controllers. All of the CAN2GO controllers communicated via Zigbee. The CAN2GO system was very easily integrated into our DDC front end through Bacnet and allowed us to provide accurate heating control in the church. CAN2GO provided excellent product support throughout the project."

- Barry Goulding, Newfoundland HVAC

BRIDGING THE GAP

In the minds of many in the building automation industry, old and new technologies remain separated by complex integration challenges. The St. John the Baptist Cathedral project shows that complete wireless to BACnet integration is alive and well; for the benefit of system integrators and facility managers alike.

www.can2go.com

ENOCEAN IN SINGAPORE'S MAJOR SHOPPING MALL

Changi City Point, a new shopping mall located in the heart of Changi Business Park, is described as the "Garden City in the East" due to its inclusion of flora and fauna features around the mall.

By Charles Chong, general manager, Yongfu International LLP

There are several skylights located in the interior of the shopping mall offering natural light to illuminate the interior as part of the energy saving program implemented for the building. Only one circuit of lights turns on for the mall interior. The aim is to light up the remaining two circuits at each wing only when the lux level falls.

ENOCEAN SENSORS AND RECEIVERS PERFECT FOR RETROFIT

As this is a newly completed building, all wiring and light fixtures (more than 15 circuits) have already been installed, and would be costly to install conventional sensors and undertake rewiring and redo the ceiling works. Moreover, the timing for opening of this shopping mall is also very near, for which reason the proposal for using EnOcean sensors and receivers was adopted. At the various skylight points located at level 2 and level 1, PEHA sensors were installed. Thermokon SRC ADO receivers were installed in the various riser electrical rooms located at two ends of the building, about 70 meters away. Antenna cables of 20 meters were procured to cable up the receivers. A point to note is that the level 1 skylight obtains its electrical supply from the basement riser. An SRE repeater from Thermokon is consequently included to enhance the signal from the sensor to the antenna.

INSTALLATION IN ONLY TWO DAYS

Installation took only two days and amounted to only a fraction of the total cost. No rewiring was needed at the light fixtures but only cabling for the receivers and antenna. Now the shopping mall will only light up the second and third circuits of lights during cloudy days and nighttime when the lux level falls below a preset value.

www.yongfu.com.sg

IMTECH ARENA IN HAMBURG – A SYMBOL FOR OPTIMIZED ENERGY USE

Renovation of the Imtech Arena, as the home ground of the famous Hamburg soccer club HSV will be named for the next six years, did not stop at heating of the field. There was enormous potential for energy efficiency in consumers like the dressing rooms, boxes, restaurants and offices – for which the EasySens wireless system from Thermokon was chosen as the solution.

By Heike Loh, Marketing, Thermokon Sensortechnik GmbH

Creating a high degree of comfort and substantially reducing energy consumption at the same time certainly was a sizeable challenge for Imtech's competence center for stadium and arena technology. For more energy-efficient use of the stadium in Hamburg, all systems had to be optimized in design and attuned to one another.

Faced with the prospect of expense and effort through laying of cables, it was soon decided to implement the cableless EnOcean enabled EasySens wireless sensor system from Thermokon. Especially in large-scale projects like the Imtech Arena, that can fast produce significant cost savings. Plus there is the major advantage of flexibility in where to locate the sensors.

CABLELESS ROOM SENSORS CONTROL UNDERFLOOR HEATING

In renovation of the HSV stadium, high-grade sensors responding to room temperature were installed to control the underfloor heating in all office and training areas.

The project encompassed almost 250 EasySens SR04 wireless room sensors, which are able to send their readings – without the need for external powering – to 37 EasySens SRC65 Modbus wireless receivers. These receivers can feature an LON, KNX, RS485, BACnet, MP Bus or Micronet interface, and serve as gateways to a variety of superordinate control systems. That simplified connection to Imtech's IP-based control system.

Above: EasySens SR04P wireless room sensor.
Below: EasySens SRC65 Modbus wireless receiver.
Left: EasySens SR04 wireless room sensor.

35 PERCENT LESS ENERGY

Optimized use of resources and alternative generation of energy have reduced the energy consumption of the Imtech Arena by as much as 35 percent, which amounts to almost 1200 tonnes less annual carbon emission. That is the same as what about 200 detached houses produce as greenhouse gases in a single year.

Thermokon presents a variety of products to monitor temperature, relative humidity and brightness. All EasySens devices conform with the EnOcean standard. The minimum transmitting power of 10 mW is sufficient for a range of up to 30 meters inside buildings and 300 meters in the open. The smart EasySens wireless system actively contributes to the sustainability of green buildings.

www.thermokon.com

SCHEIBER PUTS ENOCEAN AFLOAT ALL OVER THE WORLD

Lighting is essential to create a warm environment onboard sailing boats. Installing lights is not really the problem – the biggest problem is layout of the wiring because of the lack of space to route the cables. To simplify their job and open new possibilities for shipyards, SCHEIBER has developed a range of modules using EnOcean wireless technology and dedicated to lighting management in 12 or 24 V DC circuits.

By Jean-Paul Siaudeau, general director, SCHEIBER SA

The leading European shipyard decided to use these new modules onboard all its medium and large boats (from 35 to 80 feet) from the beginning of 2012. Two to three thousand boats will be equipped in this way and sold in 30 countries all around the world.

LIGHT MANAGEMENT ENABLED BY ENOCEAN FOR COST SAVINGS AND NEW FLEXIBILITY IN UP TO 3000 BOATS

A test period on prototypes and small series of boats in 2010 proved the possibilities of cost saving and of new flexibility. The analysis was supported by software features developed by SCHEIBER. Four circuits driven by a single PTM 250 module make the cost per switch economical. Four or six outputs per power module make the cost per output very competitive. The link to the SCHEIBER CAN network of the boat (already installed to monitor DC, AC voltages and currents, fuel and water tank levels) produces feedback on a local color touchscreen, on the main navigation screen or on a smart phone running an Android SCHEIBER application.

NEW FEATURES ALREADY IN DEVELOPMENT

New functionality is being developed, such as dimming capabilities on each output of the six-way modules, a dedicated lighting network with master and slave modules linked on a CAN bus, DC LED drive, operation via a tablet PC and a fully waterproof six-circuit remote control.

The self-powered wireless technology opens new horizons in boats and not only for lighting. Other ideas and projects are emerging, such as a waterproof control panel for motorboats outside on the helm post. Boat doors could be monitored without wires to save time and money. The same applies to water and fuel tanks.

With EnOcean technology SCHEIBER is putting “No Wires. No Batteries. No Limits” afloat around the world on all oceans.

www.scheiber.fr

SOCCER STADIUM ATMOSPHERE – COMFORT AND TECHNOLOGY OF THE BEST

Power utility ENTEGA relies on iPad-controlled technology for its box at the stadium of federal league Mainz 05 soccer club.

By Ina Trautmann, Marketing Management, JÄGER DIREKT

Companionable weekends at a great soccer match, business appointments or internal company meetings – the box at the Coface Arena in Mainz is an important and attractive location for the power utility. It soon became clear that the technology had to be optimal, says electrician Norbert Stang of ENTEGA Energieeffizienz.

Modern smart technology sets no limits in functionality. So the skill lies in combining simplicity with innovation. The challenge here is that everything necessary is in place – heating, TV, individual lighting control and the like – but the person entering the box may be using it for the first time. It could be difficult to find your way around. That is unless building system control is implemented that needs no explanation.

WIDE-RANGING FUNCTIONALITY

Control of the lights in the box is possible both by switches and with an iPad. The flexible functions and modules in the system from OPUS greenNet were simply adapted in the planning phase, and are easily added to.

Various light bands on the ceilings can be combined in a whole number of ways to produce the right lighting in winter, in the evening, in intervals, after an event and so on. Dimmed or reduced lighting during a match creates a matching atmosphere. Impressive highlights like an LED solution with adjustable changing colors or the illuminated ENTEGA logo were major elements that the utility wished.

EASY TO LEARN – EASY TO USE

A major planning aim was to enable users to leave without troublesome searching for light and heating switches. For which reason there is a “Central Off” switch so that the user knows they have turned everything off. Even the door reports when someone leaves if it is not closed. A simple small contact to signal the door status makes it possible to see whether doors and windows are open or closed. A retrofit would enable external reading of open/closed status from a smart phone, for instance.

NATIONWIDE NETWORK

Cooperating partners ENTEGA and JÄGER DIREKT (producer of OPUS greenNet) are currently creating a nationwide network with regional specialist electrical businesses for professional consulting, planning, installation and commissioning of modern building system control solutions – so that ideas for saving potential from the utility reach the consumer.

www.OPUSgreen.Net

COMFORT AND CONVENIENCE, FLEXIBILITY AND AUTOMATION FOR THE HOME

BUILDING A BLOCK HOUSE THE GREEN WAY

Efficient technology in the block house from Fullwood of the Schwarz family has helped to create a modern green building. The green concept is rounded off by a system for energy-efficient control of lights, blinds and more enabled by EnOcean's energy harvesting wireless technology. Dispensing with wiring makes the owners flexible in their planning and how they install all switches, sensors and actuators, plus they can simply add extra components when they wish.

By Angelika Dester, PR Manager, EnOcean GmbH

In their prefabricated wooden block house the Schwarz family has succeeded in combining energy efficiency with a healthy living climate. The home, built in 2006 close to Potsdam, consists almost entirely of natural materials like wood, hemp and earthenware. The latest technology also plays a part in achieving an especially positive energy balance — consisting of a heat pump, thermal and electric solar plant and room ventilation with energy recovery. Plus, the occupants obtain their power entirely from ecological sources.

FLEXIBILITY INSTEAD OF RIGIDITY

The family also turned its attention to modern home automation for controlling lights and blinds to reduce energy consumption and at the same time enhance living comfort and convenience. The problem was, recalls the owner, "that the house was entirely prefabricated, so we'd have had to plan where we wanted all the switches right down to the centimeter before fabrication." He adds, "We didn't want to decide that kind of thing so early on. But every change in the position of switches after completion would obviously have been meant a lot of effort and expense."

So the family chose a system enabled by EnOcean's energy harvesting wireless technology. Being without wires and batteries meant that all components could be placed where they were best suited after the house was finished. That avoided all the bother of cabling and resulted in flexible planning. Plus, of course, EnOcean's environment-friendly technology fitted right into the ecological concept characterizing the house.

SIMPLE INTEGRATION

The core of the system is formed of two programmable logic controllers (PLCs) from WAGO. As a central unit these connect a total of 21 EnOcean wireless light switches from the standard AS 500 range of Jung, batteryless units for the doorbell and a wireless handheld from Omnio for convenient operation of the garage door. Seen overall, the Schwarz family operates all interior and exterior lights, the bell, the garage door, the gate opener, three-level interior ventilation and the blinds by the batteryless EnOcean switches. The loads are connected directly either to an EnOcean actuator, an KNX actuator or over a PLC. So it is also possible to use the EnOcean switches to operate the blinds and switching actuators for outside lighting controlled over KNX. The family has implemented its own convenience functions: Briefly pressing a button turns the light in a room on or off. Pressing it longer activates or deactivates the light in the next room. The open EnOcean specification enabled straightforward combination of the products of different manufacturers for the building automation solution.

Says the Schwarz family, looking at the green home they have created for themselves, “An unbeatable advantage of EnOcean’s energy harvesting wireless technology for home automation is its flexibility. We can simply change the position and number of our switches or, like the light switch in the carport, add as we want to, without any rebuilding. That kind of convenience, together with all the functionality, the freedom from maintenance of the products and the simple integration into other systems — you don’t get that with any other solution.”

www.jung.de
www.omnio.ch
www.wago.de

JOONIOR: CONTROL YOUR BUILDING WITH TELEFUNKEN'S SMART BUILDING SYSTEM – EVEN WHEN YOU ARE NOT IN

Joonior House

Joonior, the smart building solution from Telefunken, aims to bring home networking and building automation closer to a broad-based target group. Joonior is equipped with the EnOcean radio technology, which means that there is no extra cabling needed for its installation. Therefore, Joonior can easily be retrofitted into existing buildings as well. With their attractive and high-class design, Joonior devices will harmoniously integrate themselves into any living environment. However, it should be highlighted that Telefunken's smart building system is suitable for residential buildings as well as for offices and other commercial property.

By Christian Roth, Sales Manager, Telefunken Smart Building GmbH

Control the heating system, automatically switch on and off your home appliances, or monitor security systems – this is just a summary of what Joonior could do for you. Choose freely the device you prefer to control your building with, as Joonior can easily be operated via user-friendly software, which is available for smartphones, tablets and PCs. Moreover, you can handle your building not only when you are there, but also, for instance, check the status of your windows or doors from afar. However, there is no need to worry about safety, as the access is provided through a secure portal. Additionally, business partners who would like to attract new customer groups can use the portal as well to present and offer their services to the users of the Joonior system.

The Joonior product overview

Energy efficiency has been a major focus throughout the development of each Joonior device. Hence, the system has a remarkably low power consumption, which in turn means minimal operating costs. Joonior is environmentally friendly as well: by using EnOcean's battery-free technology, Joonior makes its own little contribution towards more sustainability.

THE EASY WAY TO GET STARTED: THE STARTER PACKAGE

Consisting of ten already configured devices, the Joonior starter package provides an easy way to quickly launch the system and get to know its features. Additionally, the Joonior App is available on the Apple App Store. For more information about Joonior, please visit the Telefunken Smart Building website.

www.telefunken-sb.de

The Joonior starter package simplifies starting out with the smart building solution from Telefunken

ENERGY-AUTONOMOUS MINIATURE WIRELESS ACTUATOR WORKS ON THERMAL ENERGY

Energy-autonomous MD10-FtL-HE miniature wireless actuator

The thermal energy of a heating medium serves as an energy source for the new wireless MD10-FtL-HE miniature actuator from Kieback&Peter. The key to this new application of innovative, batteryless EnOcean wireless technology is efficient conversion of thermal energy into electrical energy and its storage, together with intelligent energy management. Combined with its integrated thermostat the miniature actuator is completely energy-autonomous. Once installed it needs no further maintenance.

By Jörg Bachmann, Kieback&Peter GmbH & Co. KG

The MD10-FtL-HE miniature actuator uses the Seebeck effect for its energy supply. A thermogenerator integrated into its mechanism converts the thermal energy of the heating medium into useful electrical energy. This energy source is available virtually without cost by means of the hot water heating of a radiator, and also without additional installation effort.

Additionally equipped with energy storage and smart energy storage management, the miniature actuator needs no wiring or batteries and is completely maintenance-free. It uses only energy harvesting delivered free of charge by the heating medium for both its wireless communication and its setting movements.

FAMILIAR OPERATION

The MD10-FtL-HE looks like a typical radiator valve with thermostatic head. Operation is like that of radiator thermostat valves. It is actually a combination of radiator thermostatic head and motorized actuator. As with a thermostat valve, the user sets the desired room temperature by turning the thermostatic head with the numbers 1–5. The integrated thermostat then regulates the room temperature to match the setting. If the room temperature increases or drops, the actuator adjusts the heat accordingly.

SMART ENERGY SAVINGS

The MD10-FtL-HE communicates with wireless EnOcean partners like external controllers or control panels through the EnOcean protocol. These are able to control it by wireless signals following a stored weekly timing program for example. Room temperature is adjusted based on need and automatically compensates to a reduced temperature setpoint when a room is not in use. This is evidence of the high savings potential for heating energy that can be achieved with the MD10-FtL-HE.
The miniature actuator also detects open windows. If a window is opened, the supply of heating medium to the radiator is automatically interrupted by temporarily closing the valve to prevent energy waste.

MINIMAL INVESTMENT FOR MAXIMUM BENEFIT

The MD10-FtL-HE miniature actuator is a low-cost investment for energy-efficient room temperature control. Easy installation, simple and familiar operation plus freedom from maintenance make for high user acceptance and distinguish this actuator from conventional solutions.

www.kieback-peter.com

TURN ON AND OFF HOW AND WHERE YOU WANT TO – WITH THE OPUS GREENNET ADAPTER PLUG

JÄGER DIREKT presents the adapter plug from OPUS greenNet in a new design to make wireless enabled building automation even more attractive.

By Ina Trautmann, Marketing Management, JÄGER DIREKT

In an entirely new design comes the OPUS greenNet adapter plug from JÄGER DIREKT. The possibility of combining a single transmitter with a receiver allows simple plug & play entry into innovative solutions for wireless enabled building automation. The technology can also be expanded to teach as many as 30 transmitters on the adapter. This adapter plug can also be integrated, of course, if products are added later on for flush or rail mounting.

SAVING ENERGY THE CONVENIENT WAY

Many of us will know a situation where you have to stand up to turn on a lamp when it starts to get dark outside. It can be simpler. By means of the OPUS greenNet adapter plus a simple transmitter (wall-mounted, movement-triggered or handheld) the lamp can be turned on easily and remotely. The technology can be applied quite flexibly to other appliances and devices – coffee-makers or electric irons, table lamps or Christmas tree lights, garden lights in the summer or winter.

Many consumers, once they are turned off, go into a standby mode and continue to draw current. Consumption may be very low but in the course of time the cost is considerable and unnecessary. This is where the adapter plug assumes a kind of standby killer role. Turning off an appliance by means of the adapter plug means that it no longer receives any current. The OPUS greenNet adapter plug consequently adds to convenience, saves energy and makes a contribution to protection of the environment.

www.OPUSgreen.Net

ENOCEANPARTS.COM NOW SERVING SELF-POWERED WIRELESS PRODUCTS

alpscontrols.com has launched a new website – enoceanparts.com – where EnOcean-enabled self-powered wireless products from all over the world will be available for purchase on one convenient site and at extremely competitive prices. Contractors and system integrators can now build systems from one location and purchase a wide assortment of interoperable products that subscribe to the same wireless standard. This enables them to offer their customers comprehensive wireless system solutions for their building automation projects.

By Alan Lopuszynski, Director of Marketing, alpscontrols.com

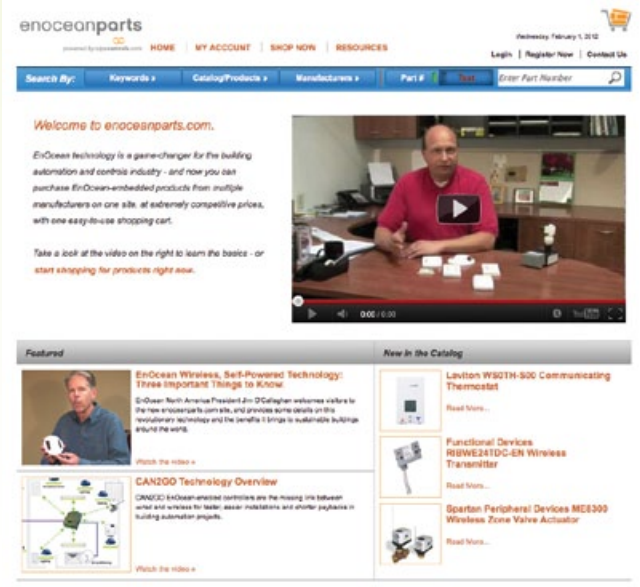
The new site is powered by alpscontrols.com, an online-only distributor of HVAC, building automation products and more. alpscontrols.com provides its customers with state-of-the-art product searches, browsing and add-to-cart processes; personalized, knowledgeable technical support personnel; convenient and time-saving project and accounting tools; and an innovative business model that allows for the best pricing in the industry.

The new enoceanparts.com site will provide all of alpscontrols.com's powerful online tools and support, but with a product selection that exclusively features EnOcean-embedded technology products from the company's product-partners.

"EnOcean Technology is a game-changer for our industry," says alpscontrols.com President David Meyers, "So we're excited to create this new site where their embedded products will be available in a single online location that offers great pricing, convenience and support."

EnOcean, Inc. President Jim O'Callaghan said of the new site, "We're excited about the new enoceanparts.com portal, as it directly targets a need identified by contractors and integrators for a dedicated source of solutions and support for self-powered wireless building automation."

www.alpscontrols.com



Left: MAICO smart ventilation solution
below: ER 100 RC

SMART WIRELESS TECHNOLOGY SHOWS THE WAY TO PLEASANT INDOOR CLIMATE

MAICO is presenting its new ventilation solution for living quarters, featuring smart use of wireless energy harvesting EnOcean technology.

By Sabrina Jokiel, Marketing, MAICO Elektroapparate-Fabrik GmbH

The new MAICO smart ventilation solution, suitable for living areas up to 140 sqm, operates with one or more wirelessly controlled ventilators. With the possibility of choosing between the ECA 100 ipro RC small room fans and the ER 100 RC single duct fan. Communication between the MAICO smart components is enabled by wireless EnOcean technology. There is no need for elaborate planning – the number of components is determined by the size of the living area. MAICO smart presents a decisive advantage when restoration or rehabilitation measures are undertaken, namely that there is no need to lay ventilation pipes.

www.maico-ventilatoren.com

PIONEERING BUILDING SENSING PRODUCTS

Ecologix Wirless Controls has already devised a range of groundbreaking products that allow individual pieces of electrical equipment in buildings to be monitored second-by-second, are easy to use and don't need technical or dedicated expertise.

By Edward Mellor, R&D Director, Ecologix Wireless Controls

Solar powered CO_2 sensor

Two pioneering wireless products – EnOcean Current Clamp (patent pending) and the EnOcean Solar Powered CO_2 Sensor – allow businesses to reduce energy consumption and improve air quality in their buildings – both of which work without batteries and maintenance. These wireless, maintenance-free products received the prestigious M&E Best Product Award in 2011 and are additions to the already successful Seamless Sensing product range.

ENOCEAN CURRENT CLAMP MEASURES ENERGY USAGE

The Current Clamp measures just 4 cm long and can be installed in seconds, without interrupting any electrical power; it is simply clipped on a single core cable to measure energy usage. Immediate energy values can be seen and used as an alert if too much electricity is being used.

ENOCEAN SOLAR POWERED CO_2 SENSOR IMPROVES AIR QUALITY MEASUREMENT

The Solar Powered CO_2 Sensor, which uses the low power CO_2 gas sensor from COZIR, is powered by indoor light. Installation costs are minimal and it can be mounted anywhere within a room without the constraints of electrical power connections available. It's a 'peel and stick' sensor with no ongoing battery replacement. The CO_2 gas levels in a room are a key indicator to the air quality and staff comfort. It can operate for 17 hours in total darkness and is fully EnOcean compliant, making it easy to integrate into a commercial building's management system. The self-powered CO_2 sensor is a world first product and is used for Indoor Air Quality (IAQ) monitoring, Heating, Ventilation and Air Conditioning (HVAC) systems.

www.ecologixcontrols.com

LOW POWER COZIR RANGE

Also on display will be the company's low power COZIR range, offering a number of unique benefits compared to conventional NDIR CO_2 gas sensors. With an extremely low continuous power consumption of 3.5mW, COZIR sensors are significantly superior in this domain to all other products on the market (Standard NDIR sensor; 50–500mW).

Additionally, the sensors can be switched on and take a measurement in just 1.2 seconds (Standard NDIR sensor; 20–120 seconds). Depending on application, the user can allow 5 seconds for an even more accurate measurement. This results in an extremely low energy consumption of 6 to 17.5mJ per measurement (Standard NDIR sensor; 700–4000mJ).

www.cozir.com

CAN2GO ADDS DASHBOARD, BLOCK PROGRAMMING AND ANDROID APP TO WEB BMS

The CAN2GO Web BMS is a license-free web-based building management system designed to offer the energy efficiency of building automation at a much lower price. It is included with CAN2GO controllers and supports popular objects such as schedules, trend logs and events. The Web BMS also has ready-made EnOcean objects enabling easy discovery, configuration and bidirectional control of EnOcean thermostats, relays, switches and more.

By David Lamarche, Director of Marketing & Communications, SCL Elements

Being license-free, the Web BMS provides a better payback to facility managers and building owners, especially in the underserved light-commercial and mid-market buildings, where the fixed costs of software licenses and dedicated servers have limited BAS deployment.

WEB BMS SUPPORTS BLOCK PROGRAMMING AND OFFERS AN ANDROID APP

A number of features have been added to the Web BMS. First, it now supports block programming, a method of commissioning that is used by many system integrators. This will allow more building automation companies to add wireless products to their solutions portfolio, without having to learn too many new tricks.

Second, the Web BMS offers a new downloadable Android app (for phones and tablets) that provides mobility for managers and technicians that are on the go. A tablet can also be used as a live display of energy consumption and building systems activity. This can help sensitize occupants about their energy footprint, as well as show efforts made to improve efficiency.

REAL-TIME DATA MONITORING

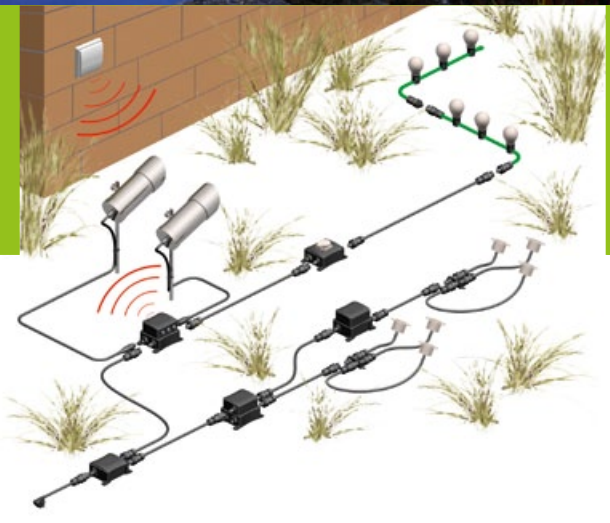
Finally, the Web BMS has a new dashboard feature that provides clear-cut visualizations for system integrators and facility managers that want customizable real-time data monitoring of their buildings. They can create dashboards for rooms, zones, floors, or entire buildings. Dashboards are created by drag-and-dropping widgets of graphs, charts and gauges on a canvas, and then associating them with objects, trend logs and variables already configured in the Web BMS.

www.can2go.com

Screenshot of the new dashboard feature of the CAN2GO Web BMS

CONVENIENT WIRELESS OUTDOOR INSTALLATIONS

Left: gesis®IP+
Right: outdoor system with EnOcean



The gesis®IP+ round connector system from Wieland Electric has been proven a million times over. The complete preassembled system comes with cables, distributors and electronic components for easy installation of equipment ranging from supply systems to LED lights. Now, the system is also available with integrated EnOcean wireless technology. Thanks to Wieland Electric, outdoor installations and installations in harsh conditions are easy and flexible.

By Ulrike Hensel, PR Manager, Wieland Electric GmbH

ELECTRICAL INSTALLATIONS FOR GARDENS, OUTDOOR SYSTEMS AND OBJECTS

Outdoor installations often consist of many different spotlights, ground lights, water feature lighting, transformers, and pumps. With the pluggable gesis®IP+ system, electrical installations are quick and safe. The system can be used outdoors thanks to a high degree of protection (IP68). Thanks to its pluggable design, the gesis®IP+ system is easy to connect. Mechanically and color-coded connectors prevent serious installation errors. The cables and the plug connectors are preassembled and tested during production. Plug connectors for on-site installation are also available as an option. The gesis®IP+ system is a smart installation system offering a high level of flexibility: Installations can be easily modified and components can be quickly replaced.

A HIGH LEVEL OF FLEXIBILITY FOR OUTDOOR INSTALLATIONS

The 4-port gesis®RC RST-0/4 switch with integrated EnOcean radio technology makes the system even more versatile. The four outputs for 230 V and max. 6 A each can be controlled separately via standard EnOcean sensor functions. The supply cable is connected to an unswitched output, so that an additional distributor can be connected. Two LED controllers from the system family can be connected to each switched output. The distributor is UV-resistant and designed for ambient temperatures of -25°C to 55°C. The transmission frequency used is 868.3 MHz.

www.wieland-electric.com

A SINGLE ENOCEAN ACCESSORY TO MANAGE ALL ROOM FUNCTIONS

Distech Controls introduces its new EnOcean remote control for multifunction management. This new accessory with LCD display easily controls all comfort parameters in a room. Being an EnOcean product, no wiring is required. This remote control was specially designed for easy installation and repartitioning.

By Amadine Chevalier, Marketing & Communication Coordinator, Distech Controls

EnOcean remote control

The ergonomic and intuitive keypad allows integrated control of temperature, fan speed (off, 1-2-3, auto), lighting (on/off, dimming), blinds (open/close), occupied/unoccupied status.

This wireless EnOcean remote control also measures and displays temperature using an embedded NTC sensor. It can be wall-mounted or used as a removable accessory.

The EnOcean remote control from Distech Controls is fully compatible with all EnOcean products supporting the following profiles:

- Room operating panel: temperature sensor, setpoint, fan speed, occupied/unoccupied control. The latest approved profile is EEP: A5-01-1F.
- Rocker switch, four rockers: light and sunblinds control – application style 2. Profile EEP: 05-03-01.

www.distech-controls.eu

NO BATTERIES INCLUDED – T-MAC'S WIST MAKES ENERGY MANAGEMENT MORE CONVENIENT

The development of wireless technology has enabled businesses to break free from the traditional endless lengths of cabling and wiring, revolutionising the way a business can work, which is now of great importance for any organisation. t-mac has developed a battery-less solution for businesses looking for an even more convenient and environmentally-friendly way to manage their energy.

By Lisa Gingell, Business Development Director, t-mac Technologies Ltd

t-mac's Wireless Sensor Technology (WiST) is virtually maintenance-free and offers an effective solution to the increasing market demand and business need for 'wireless' control. One of the most advanced and secure wireless systems available on the market, WiST works with any building management system (BMS) and is tailor-made to meet business demands today.

While most wireless sensors on the market require batteries which need to be changed every three to five years, t-mac's WiST harvests energy from its surroundings making the buying and disposal of batteries a thing of the past. WiST takes the energy existing in the environment, for example solar, movement and heat, and converts it into energy that can be used electrically. This also means that as the system is constantly generating and storing energy, it maintains frequent quality communications between sensors and Building Management Systems.

T-MAC'S SENSORS USE ENOCEAN TECHNOLOGY

The use of wireless sensors has never been easier and never so secure. t-mac's sensors are based around a proven standards based technology from EnOcean, using the licence-free 868 MHz frequency band, making them suitable throughout most of the world. Telegrams which are sent by the t-mac sensors have a low possibility of signal-collision due to the relatively high data rate (125 kilobits per second) and short transmission time (one millisecond). In addition, they transmit a telegram twice within the space of 30 milliseconds, to reduce the possibility of transmission errors.

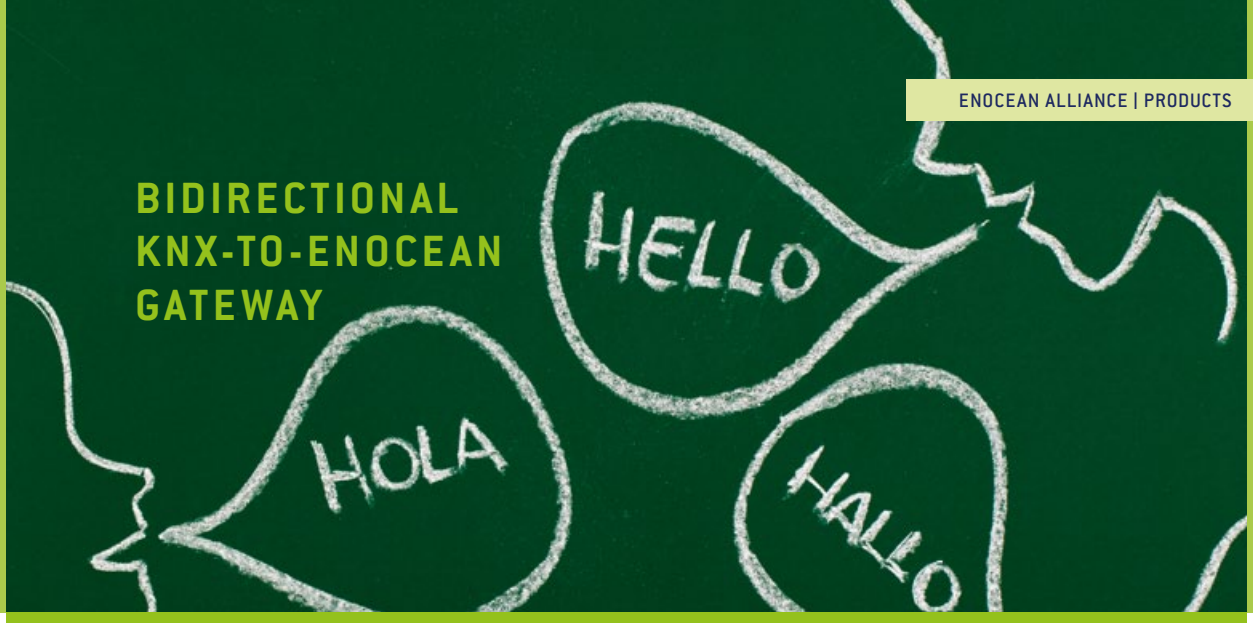
WiST sensors have a range of approximately 300 metres in the open, and up to 30 metres inside a building. Each WiST sensor comes with a unique 32-bit identification number to exclude any possibility of overlap with other EnOcean based wireless devices.

ENERGY MANAGEMENT MADE EASY WITH T-MAC'S WIST SENSORS

Once installed, wireless sensors monitor functions critical to each assets condition and efficiency based on a combination of measurements, such as vibration, temperature, lux levels and power quality. The data collected can then be transmitted wirelessly to t-mac via a wireless receiver. From here, the information is uploaded to a web page on a central server for user viewing, analysis, multi-site comparison and reporting functions. This is a flexible, cost effective, time saving, as well as environmentally friendly approach to managing equipment in any building.

www.t-mac.co.uk

BIDIRECTIONAL KNX-TO-ENOCEAN GATEWAY



Intesis presents their bidirectional KNX-to-EnOcean gateway for seamless integration of sensors, actuators and bidirectional EnOcean devices in KNX systems.

By Isaac Gual, EnOcean Product Manager, Intesis software SL

KNX is a worldwide standard with more than 200 members, widely installed in European buildings and houses and also in many other countries around the world. Interaction between EnOcean and KNX brings together the enhanced flexibility of wireless with the high performance of a standard bus.

Being able to integrate EnOcean sensors into KNX was the first step but this is no longer good enough. EnOcean actuators and bidirectional devices are a reality and hence the need for a bidirectional KNX-to-EnOcean gateway that allows integration into KNX systems. To fill this need Intesis is presenting its new IntesisBox IBOX-KNX-ENO-A1.

KNX TO ENOCEAN GATEWAY

The IBOX-KNX-ENO-A1 allows integration of EnOcean sensors, actuators and bidirectional devices into KNX. Sensors collect data from devices such as rockers, window contacts, thermostats. The data are updated in the status communication objects of the gateway and sent to the configured group address. This information can also be requested on demand. Actuators use KNX devices such as room controllers, or systems to control EnOcean actuators. When the control communication object receives new data, the EnOcean telegram is sent wirelessly addressed to the detected device and the action is performed accordingly. Bidirectional devices can both transmit and receive EnOcean telegrams. That allows the IntesisBox to integrate them into the KNX system as if they were native products.

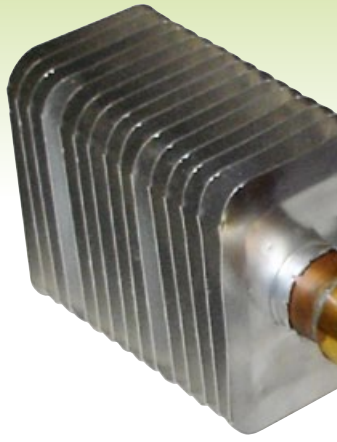
www.intesis.com

IBOX-KNX-ENO-A1 gateway

THERMODYNAMIC VALVE ACTUATOR OPENS THE DOOR TO NEW HVAC APPLICATIONS OF BIDIRECTIONAL WIRELESS COMMUNICATIONS

Self-powered wireless valve actuator takes energy harvesting to a new frontier – energy harvesting on the control side in HVAC applications.

By Paul Balazovjech, President, Spartan Peripheral Devices



A change in temperature contains a lot of latent energy. Using "energy harvesting" wireless thermo sensor technology, a sensor can collect and save even the tiniest amounts of energy from the environment to provide enough power to send a radio signal or be amplified and stored to be used to move a control valve actuator.

Until recently, remote-controlled heating valves typically needed a cable on which the controlled power supply is fed to their motor actuator. These radio-controlled devices were powered by batteries. However, a heating valve takes a relatively large amount of energy to adjust the temperature, resulting in constant battery swap-outs. In larger buildings, this is not only bothersome and costly but also is a burden on the environment.

WIRELESS SOLUTIONS

The alternative is a battery-less or self-powered wireless solution, meaning that the energy needed to power a device is derived from the process itself or the environment. This is made possible by a Peltier element – an electronic component that generates electric current when there is a difference in temperature between its two sides.

Spartan Peripheral Devices is creating a new wireless line of products which uses this revolutionary energy recuperating for self powered devices under the brand name ThermoPyla. The first element in the new product line is a thermodynamic wireless self powered globe control valve actuator ME8430 for the North American market with a 315 MHz receiver, and an ME8480 for the European market with an 868 MHz receiver. The complete thermodynamic unit consists of the energy harvesting module TGU (thermo generating unit) that was specially designed to transfer heat from the water source into the energy harvesting Peltier element. A specially designed non-clogging radiator insures the maximum dissipation of heat and the greatest temperature difference for the highest efficiency. The ME8400 series actuator comprises an energy accumulator, energy storage, position control and the EnOcean 2-way communication Dolphin chip set. Fuzzy logic intelligent software constantly monitors the stored energy levels and decides how to optimize most effectively the stored energy.

Wireless, battery-less zone valve actuators now represents an important part of a complete control solution. These actuators can be easily integrated with other wireless products including thermostats, occupancy sensors, door switches, keycard switches for hotel rooms, light switches and relays. By combining these devices, or "control sequences," HVAC contractors can play a key role in maximizing energy efficiency while also supporting a high level of personal comfort for building occupants. These control sequences can be created and upgraded gradually, as individual additional wireless products are needed over time.

Wireless actuators, coupled with a full range of two-way and three-way valve bodies, offer HVAC contractors a great deal of flexibility, especially for building retrofits that must adhere to strict energy-efficiency requirements. A wireless zone valve actuator can be

integrated in an autonomous zone system (per room) or part of a large network system. Each zone can then combine different components – from a simple point-to-point thermostat/actuator combo, to a more elaborate combination of different components.

On a larger scale, autonomous systems can be integrated into a network that can be controlled through different gateways using the EnOcean interoperable wireless standard for building automation (visit www.enocean-alliance.org for more information). Interoperability between different end-products ensures that sensors from one manufacturer can communicate with receiver gateways of another.

ADDITIONAL CONSIDERATIONS

It also is important to select a wireless zone valve actuator with common mounting options, that can support a wide range of valve body types with different connections. This provides contractors considerable flexibility when using valve bodies with solder connections for copper piping, or threaded connections, with or without unions, for iron piping. This interchangeability is also important with angle-type valve bodies when used in a variety of applications such as retrofitting perimeter heating radiators. Other styles should also include straight-type valve bodies (two-way for variable flow, and three-way for constant flow applications) typically used on fan coils, unit heaters, heating cabinets and unit ventilators. Spartan Peripheral Devices is a manufacturer of valve bodies with this full range in NPT threads for North American Standards and BSP Metric threads for European Standards. High-quality wireless zone valve actuators are based on a proven mechanical gearbox designed for more than 500,000 cycles. In this application, the wireless actuator utilizes a DC motor for low power consumption. Paired with an electro-optical rotation counter, the actuator can achieve drift-free accurate proportional positioning. These wireless actuators can be implemented with the 315-MHz chip set for North American applications or with the 868-MHz chip set for European applications.

A simple point-to-point, standalone room thermostat and wireless zone valve actuator can serve as a starting point for individual room control.

This can be expanded to an energy-conserving mode by adding a window switch or occupancy sensor. Then, a controller (gateway) can be overlaid and integrated into a wireless network accessible by a central management unit. This wireless network can be easily extended into an existing BACnet network system.

Wireless control valve actuators designed for two-way communication with other devices based on the EnOcean protocol enable a zone valve actuator to play a more active role in the control system. It can receive and react to a modulating positioning signal and accurately control room temperature. At the same time, it can transmit additional information, such as valve position, back to the controller on the same node to make better control decisions. In modern building engineering there are many possibilities for the use of thermo-powered sensors in heating, air-conditioning and ventilation, plumbing, or in heating cost allocators and heating meters. A wireless, battery-less zone valve actuator may just fit the bill when evaluating a complete HVAC control solution.

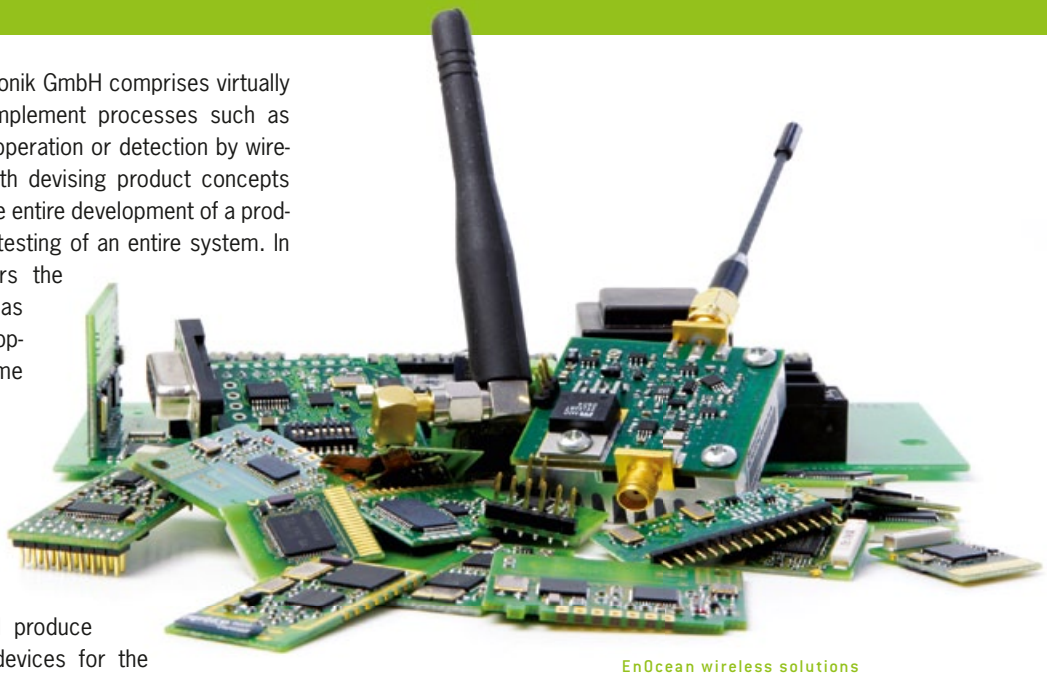
www.spartan-pd.com

TAILOR-MADE WIRELESS SOLUTIONS

Data transmission by wireless means independence, mobility and flexibility. IK Elektronik GmbH has been developing and manufacturing products for this sector for 15 years: products focused on concrete customer requirements, the particular application and the technical environment. IK Elektronik can underscore its performance through a number of successfully implemented and complex projects in the radio-frequency and microwave segments.

By Alexandre Schäfer, Sales Engineer,
IK Elektronik GmbH

The portfolio of IK Elektronik GmbH comprises virtually everything needed to implement processes such as test and measurement, operation or detection by wireless means. It starts with devising product concepts and proceeds through the entire development of a product to manufacture and testing of an entire system. In the course of the years the 60-strong company has evolved from a development specialist to become a full-service provider for wireless solutions.



EnOcean wireless solutions from IK Elektronik.

Close and long cooperation between EnOcean and IK Elektronik plays an important role. Both companies develop and produce wireless modules and devices for the 315 MHz and 868 MHz frequency bands. On this basis IK Elektronik develops modules and application concepts for wireless technology for which the EO3000I onboard chip is also used. With their high transmission reliability and extra-low-power consumption, these modules control bidirectional communication between actuators and sensors, especially in building services automation.

EXPLICITLY AIMED – FROM IDEA TO APPLICATION

"Our services in building automation turn the customer's idea into a concrete product optimally matched to the requirements", says IK sales engineer Alexandre Schäfer. Typical services are software development and adaptation, hardware development, board design and integration, antenna and range concepts, definition of functionality and the performance of product certification. The company works a high-performance manufacturing facility and test equipment source directed specifically at the production of wireless modules.

The specialist for wireless solutions is based in Hammerbrücke in Saxony/Germany with a branch facility in Dresden. The focus of the company is on building automation. New projects are managed by five developer teams to ensure implementation true to deadline and true to quality.

www.ik-elektronik.com

AIR-CONDITIONING WITH ENOCEAN WIRELESS TECHNOLOGY SAVES ENERGY

HVAC applications account for some 50% of the energy consumed in a building. Until recently, no control and monitoring of air-conditioning systems by open wireless protocols was possible. This article describes how energy savings can be achieved with EnOcean enabled interfaces for true split-level integration of air-conditioning units.

IntesisBox® EnOcean interface

By Isaac Gual, EnOcean Product Manager, Intesis software SL

Energy savings in air-conditioning call for good design, good insulation and energy-efficient air-conditioner units. But all the best practices in building and installation can be spoiled if the user does not operate an installation properly, either because of carelessness, e.g. leaving windows open, or lack of knowledge, e.g. not choosing the most suitable setpoint. This is where the need for control and monitoring of AC units can be seen as a must. The following explains the use of EnOcean wireless technology for this purpose.

Use of the proprietary protocol of an air-conditioning manufacturer enables integration of the capabilities in the EnOcean ecosystem, from turning an air-conditioner on/off through to reception of an error code – allowing timely and precise intervention by facility management – without forgetting mode or fan speed.

ENERGY SAVINGS

The following concepts in the control and supervision of air-conditioners allow a user to achieve major energy savings:

Open window: Having an air-conditioner turned on while a window is open is one of the biggest wastes of energy imaginable because the whole purpose of the AC (either heating or cooling) can never be achieved in such a situation. Here the air-conditioner is automatically turned off and disabled when a window is opened, and will remain turned off until the window is closed again.

Presence: If a room is unoccupied there is no sense in heating or cooling it as if people were present. Consequently, when no-one is in an area the air-conditioner setpoint is automatically adjusted, achieving reduced energy consumption without loss of comfort. After non-presence is detected for a certain length of time the air-conditioner turns off safely and automatically. Once presence is re-established the previously configured temperature is restored without the need for user action.

Setpoint limitation: In applications like hotels and offices users do not bother about energy consumption because they are not the ones paying the bills. In other cases they simply do not have the knowledge needed to choose the appropriate setpoint. Adding EnOcean connectivity to an air-conditioner allows controlling of the temperature range for each mode (heat or cool) avoiding misuse of heating or cooling capabilities.

STANDALONE AND CENTRALIZED SOLUTIONS

All these energy saving capabilities can be implemented in both standalone and centralized solutions.

Standalone: Without the need of any BMS system the AC interface receives the information from all the sensors and performs the associated control. That allows the creation of simple installations very fast and at low cost, with very little need for configuration.

Centralized: In addition to the above-mentioned functionality, BMS, for instance, allows recording and controlling of air conditioner use and conditions, and can be used to balance energy consumption and decrease peak consumption, leading to a more rational and well dimensioned power grid.

INTESISBOX ENOCEAN INTERFACE FOR AIR-CONDITIONERS

All functionality spoken of can be achieved using the IntesisBox EnOcean interface range of products developed by Intesis. They are available for major air-conditioner brands such as Mitsubishi Electric, Daikin, Panasonic, Mitsubishi Heavy, Fujitsu, General and Hitachi.

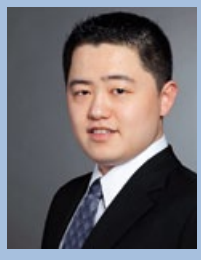
www.intesis.com

NEW PEOPLE

MARIAN HONSCH, APPLICATION ENGINEER, ENOCEAN

Marian Honsch joined EnOcean on July 1, 2011 as an Application Engineer to support the integration of EnOcean Dolphin modules in customer applications, particularly in the area of software. His responsibilities include generating customer documentation such as application notes and the organizing training. Marian studied information technology at the Slovak Technical University and was already involved with EnOcean and its technology during this time. He completed a one-year internship at EnOcean in Oberhaching, Germany, and worked for three months at the US office in Salt Lake City. In 2008 he took part in the Imagine Cup organized by Microsoft. With his study group delivering a paper on the subject of "Energy control for households and offices" he won second place among participants from more than 120 countries.

Email: marian.honsch@enocean.com



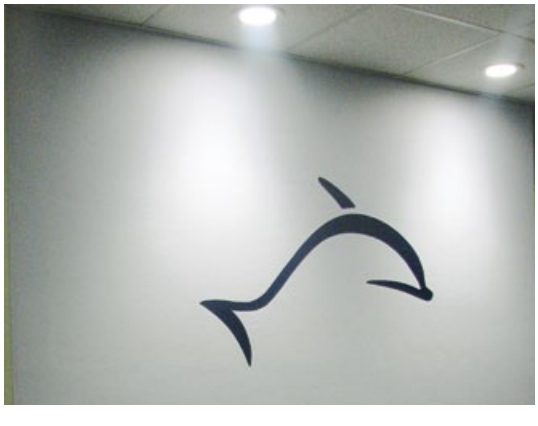
NAN XIAO, SALES MANAGER CHINA, ENOCEAN

EnOcean continues to grow internationally and has expanded its sales team in China. Nan Xiao is a graduate in electronic and telecommunication engineering. Following his studies at the universities of applied sciences in Fulda and Darmstadt, Germany, he acquired extensive practical experience in the development of EnOcean-enabled products. Born in Beijing, China, Nan Xiao lived for over ten years in Germany, where he acquired a broad range of intercultural skills to complement his excellent engineering expertise. He is therefore well qualified to promote EnOcean technology on the fast-growing Chinese market.

Email: nan.xiao@enocean.com

OSRAM BRIGHTENS UP THE ENOCEAN FOYER

The six ceiling lights in EnOcean's foyer, fitted with T8 fluorescent lamps of 4 x 18 W and ballast, have been replaced by six LEDVANCE XL downlights from OSRAM.



The new lights in the entrance are switched by easyfit RCM 240 single-channel flush-mounted receivers. The receivers are driven by batteryless four-channel easyfit wall transmitters. These lights consume 32 W compared to the 60 W of a common bulb. Using modern LED lighting combined with EnOcean-enabled products for light control cuts energy consumption by as much as 80 percent compared to conventional lighting with fluorescent lamps and magnetic ballasts. A further benefit is that the foyer is much brighter than before.

www.osram.com

UC SANTA CRUZ WINS ENOCEAN ALLIANCE WIRELESS INNOVATION PROJECT AWARD

The EnOcean Alliance has awarded the University of California Santa Cruz (UCSC) with its prestigious Wireless Innovation Project Award for 2011. The award is designed to promote innovation and increase implementation of wireless energy harvesting green and intelligent building technology.

UCSC's Science and Engineering Library is one of two on campus that serve over 16,000 students. The issue at one particular library was that existing lighting was fully activated in the morning and remained on until the cleaning staff left nearly 20 hours later. Daily occupancy of the building varied greatly and did not follow a fixed pattern. Facing time constraints and the potentially high cost of conventional wired technologies, the energy team chose to utilize Leviton's LevNet RF receivers based on EnOcean's technology to achieve their energy goals.

The Leviton receivers were paired with wireless occupancy sensors, while light sensors contributed to the energy retrofit of the existing fluorescent fixtures from T12 to T8. In this retrofit, a wireless light sensor controls all perimeter lighting fixtures adjacent to windows. These sensors ensure the lighting cannot be activated when there is an abundance of ambient light. This method of control is known as daylight harvesting. The lighting upgrade at UCSC, combined with the introduction of automation, reduced energy consumption by 50 percent in the facility, which is equivalent to potential annual energy savings of US$ 48,000. The university also made use of an energy rebate incentive for replacing the T12s and an additional incentive for the occupancy and light sensors. The project also won the "Best Practice Lighting Award" at the 2011 California Higher Education Sustainability Conference.

www.leviton.com/wirelessos

THE BIG5 GAIA GOLD AWARD 2011 – NUUON TRADING SCOOPED GOLD FOR ITS ENOCEAN TECHNOLOGY

With the maturing of the real estate market in the Middle East, especially in the UAE, contractors and developers are attaching increasing importance to build quality, cost and energy savings as well as features that set their projects apart from the competition. Residents, meanwhile, are demanding properties that add long-term value, offer convenience and ensure a higher quality of life. Nuuon won the Gold award at the 2011 Gaia Awards, the Middle East's most respected construction awards for products making green and sustainable contributions to local projects. Offering an unmatched level of flexibility, Nuuon's wireless systems can be installed quickly and easily in locations where it isn't practical to connect wires or batteries, and can be easily retrofitted without breaking through walls or ceilings for wiring. The systems can also be controlled manually from a central unit or remotely by mobile phone or via the Internet. The system controls every facet of the indoor environment with switches for lighting, shading, temperature, humidity and media devices such as televisions or stereos. As they are wireless, the switches can be freely positioned on materials such as glass, stone, wood and even furniture, and since they are slim, can be integrated more seamlessly into their environment. As well as being inexpensive to install, Nuuon's wireless systems provide long term operational cost and energy savings. This is because the systems are self-powered, harvesting ambient energy from changes in heat or lighting, which means they are maintenance-free and do not require batteries.

www.nuuon.com

VERVE™ LIVING SYSTEMS ANNOUNCES PREFERRED VENDOR AGREEMENT

Verve™ Living Systems, a developer of wireless, battery-less room controls and a brand of Masco Corporation, has signed a preferred vendor agreement with Hospitality International, a privately-owned company that has offered inexpensive franchising alternatives for hotel owners and developers since 1982. The new agreement establishes Verve™ Living Systems as the preferred supplier of energy-saving room controls for Hospitality International's franchisees.

300 HOTELS WITH OPPORTUNITY TO REDUCE ENERGY AND CONTROL OPERATING COSTS

Hospitality International hotel brands include Red Carpet Inn, Passport Inn, Scottish Inn, Master Host Inn, and Downtowner Inn across the United States, Canada and the Bahamas. The network of 300 hotels will now have the opportunity to purchase and install Verve™ products, enabling them to reduce energy and control operating costs without compromising on the comfort of their guests.

"Verve Living Systems offers an affordable solution for reducing energy costs and enhancing the guests experience," said Jim Bloodworth, Vice President of Hospitality International. "We look forward to a successful relationship and are happy to be able to provide our franchisees with these innovative product options."

HOSPITALITY PORTFOLIO

The Verve hospitality portfolio includes an assortment of wireless, battery-less sensors and control devices that can be combined to determine the occupancy state of the room, and then set back temperature and turn off lights and miscellaneous electrical loads whenever a room is unoccupied. As many of the Verve™ products are wireless, there is no need to run additional wiring, and installation can typically be completed by the property maintenance staff in less than an hour per room. They don't use batteries, which eliminates the ongoing maintenance costs associated with periodic battery replacement.

"This new relationship expands our reach and underlines our commitment to delivering solutions with effective returns on investment for the hospitality industry," said Dianne Pisarek, President of Masco Technological Innovations. "We're excited to show how Verve products provide customizable, scalable options for properties of any size."

www.vervelivingsystems.com

ENOCEAN WINS ELEKTRA 2011 PRODUCT INNOVATION AWARD

Electronics Weekly readers had until April 2011 to vote in the Product Innovation category for the 2011 Elektra Awards. When polling closed in December 2011, EnOcean's ECT 310 module for harvesting thermal energy secured a winning margin of more than 26%. It is an ultra low power DC/DC converter that enables wireless communication modules to be powered using the heat energy from sources such as radiators, industrial equipment, processes, or even the human body.

The Elektra Product Innovation Award invites electronics professionals to nominate the product they feel has made the biggest contribution to moving technology forward and adding value for users, choosing from a shortlist of candidates. EnOcean's competitors for the title included a platform for developing wireless medical monitoring devices as well as software and end-user products from extremely well-known consumer technology brands.

www.enocean.com

VERVE™ LIVING SYSTEMS WINS GREEN TECHNOLOGY PRODUCT AWARD

Verve™ Living Systems received recognition during the 2011 International Hotel Motel and Restaurant Show (IHMRS) when the Verve key card switch won the Editor's Choice Award for Best Green Technology Product.

The key card switch is part of a new hospitality product line introduced by Verve™ in 2011 and is an extremely affordable way of adding occupancy-based control of HVAC, lighting and electrical loads to hotel guest rooms. Verve™ solutions can provide an effective return on investment through energy savings – without compromising on guest comfort.

The Verve™ product portfolio includes 27 individual products across the categories of occupancy detection, HVAC control, lighting and load control, and interface products. These individual components work together as an organic network to determine the occupancy of a space and to set-back temperature settings and turn off lights, outlets and other electrical loads when the space is not occupied.

www.vervelivingsystems.com

CAN2GO RECOGNIZED FOR THIRD YEAR IN A ROW BY AHR EXPO INNOVATION AWARDS

CAN2GO received another nod from the AHR Expo Innovation Awards, this time securing an Honorable Mention in the Plumbing category for its DA2 actuator that was launched at the AHR Expo in January 2012. CAN2GO has been participating in the AHR Expo since 2010 and has received Innovation Awards recognition every year.

www.can2go.com

ENOCEAN TUTORIAL VIDEOS

For enhanced developer support, EnOcean has developed tutorial videos to help product manufacturers (OEM) easily integrate EnOcean technology into end products.

EnOcean starts with 5 basic videos:
1. Tutorial video – Installing an EnOcean development environment
2. Tutorial video – Programming TCM 300 using EDK 300 (Hello World program)
3. Tutorial video – Setting a TCM as a sniffer with DolphinView
4. Tutorial video – Configuring of STM 330
5. Tutorial video – Using and configuring TCM 300 Firmware

In addition to these videos, EnOcean customers can find related information and off-line presentations for each video on the company's website. Further technical videos are in preparation.

www.enocean.com

ENOCEAN TARGETS GLOBAL GROWTH WITH FUTURE ELECTRONICS AS NEW DISTRIBUTION PARTNER

Reinforcing the globalization of its business, EnOcean has entered into a strategic relationship with Future Energy Solutions (FES), a division of Future Electronics. EnOcean, the inventor of patented, self-powered wireless technology selected FES as its distribution partner to open new markets for its energy harvesting wireless sensor solutions. The partnership will add EnOcean's products to FES's growing portfolio of smart metering, solar, home area network, and energy harvesting solutions. The agreement covers key geographical markets in North and South America, Europe as well as Asia.

EnOcean's energy harvesting wireless modules, software, system IP and development kits provide a platform for designers to build sensor networks that are free of batteries or power cabling and deliver advantages such as enhanced environmental performance, low installation and maintenance costs, simplified network planning and easy scalability. With the new partnership, OEMs will benefit from the local support and design-in expertise of FES to enable them to rapidly develop EnOcean based products. Furthermore FES's global logistics footprint will help manufacturers minimize supply chain costs and streamline component logistics regardless of the factory location.

The complete EnOcean portfolio covers transmitters, receivers, transceivers, energy harvesters, accessories and kits such as its ESK 300 (for 868 MHz) and ESK 300C (for 315 MHz) starter kit for designing maintenance-free wireless solutions. To kick off the partnership, FES and EnOcean are jointly launching the ESK 300C starter kit to the North American market. The kit offers OEM a quick and cost-effective method to evaluate energy harvesting wireless solutions for their applications, and includes a variety of energy converters and modules. Using the kit, EnOcean's OEM partners can apply energy harvesting technology to markets ranging from building automation through smart homes, smart metering and to industry and logistics.

www.futureelectronics.com

ENERGY EFFICIENCY WITH TAX DOLLARS – CAPITAL REVIEW GROUP HELPING YOU TO UNDERSTAND AND USE YOUR INCENTIVES

In today's economy it can be very tough to find money in order to fund energy efficiency projects within buildings, even when they are deemed extremely valuable investments. Legislation at US federal level supports incentives for the improvements to make a building more energy efficient buildings and is augmented by various state-based incentives available all over the country. Building owners (and occupiers), however, tend not to utilize incentives available to them and many leave thousands of dollars on the table.

By Mark Moore, LEEP AP, CSBA, CEO

"The federal tax deduction, referred to as the Commercial Building Tax Deduction, provides up to $1.80 per square foot for buildings that save at least 50 percent of the heating and cooling energy of a building that meets ASHRAE Standard 90.1-2001. Partial deductions of up to $0.60 per square foot can be taken for measures affecting: the building envelope, lighting, or heating and cooling systems. This act has been extended through December 31, 2013."

Thankfully, there are now companies that offer full support for funding energy efficiency upgrades and retrofits, such as Capital Review Group (CRG), which combine facility engineering with tax accounting to move such projects forward for commercial and government entities. With the right strategy in place, this often results in surprisingly significant savings and a seamless and painless way to pay for energy efficiency projects.

While rebates are available, other measures also improve ROI. An analysis of real property assets may identify IRS defined "personal property assets", resulting in improved depreciation procedure for tax purposes or reducing current income tax obligations.

Personal property assets include non-structural elements, exterior land improvements and indirect construction costs. Depreciation expense is accelerated and tax payments are decreased when an asset's life is shortened, which frees cash for investment in energy efficiency. This strategy may be applied to include buildings that have been purchased, constructed, expanded or remodeled since 1987.

Section 179D deductions from EPACT 2005 can be applied to investments in energy-efficient commercial buildings designed to increase efficiency. These deductions are applicable to buildings that were either built or retrofitted after December 31, 2005. In order to qualify for the deduction, the taxpayer must receive a third-party energy efficiency certification.

In addition, the issuance of Revenue Procedure 2011-14 may allow taxpayers to claim the §179D deduction from January 1, 2006 without filing amended tax returns. This means that a taxpayer could potentially claim deductions from 2006–2011 all on one return and reduce their tax burden, if not eliminate it altogether, allowing for significant funds to be applied to energy efficiency measures.

www.capitalreviewgroup.com

APRIL 2012

02–04 HTNG, Chicago, USA, www.htng.org

15–20 Light+Building, Frankfurt, Germany, www.light-building.messefrankfurt.com

MAY 2012

09–12 Lightfair 2012, Las Vegas, USA, www.lightfair.com

15–16 Energy Harvesting & Storage Europe, Berlin, Germany, www.idtechex.com/energy-harvesting-europe

JUNE 2012

09–12 Electrical Building Technology Guangzhou – EBTG, Guangzhou, China, www.building.messefrankfurt.com.cn

26 UK Wireless Fortronic Forum 2012, Oxford, UK, www.fortronicuk.com

25–28 Hitech Hotel Show, Baltimore, USA, www.hftp.org/HITEC

26–28 Conlife, Cologne, Germany, www.conlife.de

JULY 2012

11–13 Techno-Frontier, Tokyo, Japan, www.jma.or.jp

SEPTEMBER 2012

20–22 SIBE Shanghai International Intelligent Building Exhibition, Shanghai, China, www.ibexpo.com

26–27 IBS, Paris, France, www.ibs-event.com

OCTOBER 2012

08–10 Smart Homes, Amsterdam, Netherlands, www.smarthomes2012.com

10–11 M&E, London, UK, www.buildingservicesevent.com

24–25 BSEE South, Sandown Park, UK, www.buildingcontrolsshow.co.uk

31–November 1 Hi-Tech Building, Moscow, Russia, http://htbh.ru/en/hthb/

NOVEMBER 2012

13–16 electronica, Munich, Germany, www.electronica.de

14–16 Greenbuild, San Francisco, USA, www.greenbuildexpo.org

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