

ENERGY MANAGEMENT FOR THE SMART FACTORY OF TOMORROW

WHAT ACTUALLY MAKES a production plant into a smart factory? Naturally, it is about the integration capability of various equipment and systems as well as intelligent devices and ergonomic technology. An essential component, however, is energy management. Because the smart factory of tomorrow exemplifies a sustainable, energy-efficient and environmentally-friendly production.

In order to achieve this, all relevant production, consumption and energy data must be gathered, analyzed and correlated with one another. Only those who have an overview of their company-wide energy consumption can continuously improve on a long-term basis. We asked an expert what exactly is needed to achieve successful energy management. Here, Thomas Winter, Technical Manager at our Partner Company, KÖHL AG in Luxembourg, gives us insights in a question and answer session.

Mr Winter, how did the cooperation between KÖHL and COPA-DATA come about? For how long has KÖHL been a member of the COPA-DATA Partner Community?

THOMAS WINTER: Our first contact was back in 2008 in connection with a project tender for a customer in Luxembourg. From our point of view, the zenon product was the best choice because of its diversity of drivers. Together with this customer and Mr Alexander Punzenberger from COPA-DATA, we were able to visit a BMW plant as a reference. Unfortunately, however, the project went to a competitor. Nevertheless, we acquired our first zenon license at the beginning of 2009, when we used zenon as part of a thesis based on a KÖHL substation control system. Our increasing use of zenon, particularly in the tobacco industry, convinced us to join the COPA-DATA Partner Community in 2012.

What has been your experience with the COPA-DATA Partner Community? With what requirements

and expectations did you join the network? What advantages have you gained?

THOMAS WINTER: The idea of the community as an active worldwide network is particularly interesting for us, as we also operate across the world. Recently, during our activities within the framework of energy management, we were able to establish some interesting contacts and have gained a great deal of positive inspiration. The network offers interesting insights into industry areas that are normally kept undisclosed.

You have a long history of experience with various software products. What encouraged you to choose the COPA-DATA technology as a basis for your Eco.on® product?

THOMAS WINTER: COPA-DATA's products are based on current technologies and positively stand out in areas such as ergonomics and innovation when compared with other products. At the same time, the driver diversity allows zenon to be open to almost all hardware connections. A further important advantage is the integration of VSTA, which helps by giving the complete Windows and .NET level of performance. If there would be customer approaches or requirements that have not existed before, VSTA allows one to develop these independently. Whereas, with a closed, black-box solution one would often be unable to proceed further.

Please tell us more about Eco.on. What differentiates your product from competitors' products?

THOMAS WINTER: Eco.on encompasses not only a sustainable and holistic Energy Management System that can meet both the requirements of DIN ISO 50001 and Overall Equipment Effectiveness (OEE), it also draws on advice and expertise gained over many years in the industry and the production world. It is our goal here, as well as in our other projects, to offer our customers not simply a

product, but a solution. Certainly, the main difference that Eco.on offers in comparison with other products on the market is the close proximity to the process. Effective energy management can only really be successful if it is possible to collect the individual energy consumption data in conjunction with the plant data within a single system. Only when, in addition to the pure consumption data, the actual production data flows into the analysis, is it possible to give a valuable evaluation of the efficiency of a facility or a production line. This is the only way that consumption can be realistically assessed and accordingly reduced.

THOMAS WINTER: As automation experts, it is our goal to operate plants securely and effectively. Production data is already being accurately collected in many companies. Equipment faults are logged exactly according to time and then these details are also evaluated. We would like to take this “typical” approach at an automation level and implement it for energy data as well. With zenon we are in the position to gather all relevant data (PDC and energy) systematically in a single system, archive it appropriately and evaluate it user-specifically. Thanks to current technologies, individual user information is available at almost any time and everywhere.

Only when, in addition to the pure consumption data, the actual production data flows into the analysis, is it possible to continuously improve the energy-related performance and, as a result, reduce energy costs in the long-term.

THOMAS WINTER KÖHL AG

It is thereby possible to continuously improve the energy-related performance (operation, consumption, efficiency) and, as a result, reduce energy costs in the long-term.

How do you assess market opportunities for energy management? Are there tendencies in certain industries and application areas where energy management is particularly in demand?

THOMAS WINTER: The subject of energy management is currently of great interest across all the industry areas we cover. Particularly when an Energy Management System according to ISO 50001 is introduced into energy-intensive production processes, there is a further possibility of cost savings as a result of legal regulations. Generally, the subject of energy conservation is a current topic in almost all industry sectors. Detached from government and saving programs, it makes sense for companies across all sectors to focus on their own consumption. This is particularly the case when the sum of all energy costs adds up to an amount that cannot be ignored. Often information regarding energy and media consumption is already available, but cannot be read in connection with the production data. Therefore, many customers have the desire to be able to allocate the actual consumed energy of individual products in order to take that knowledge into account for their pricing strategy. In order to be able to guarantee this, it is necessary to take a product-oriented approach.

Your energy management certainly goes beyond simple reporting. What vision are you pursuing here?

In your view, for effective energy management, how should data be correlated? What conclusions can then be made?

THOMAS WINTER: At the top of the list is, of course, the consumption relating to the individual types of media. Here, all relevant energy data is involved; such as electricity, gas, heating, water etc. This also includes the so-called metadata for individual energy references such as price data, tariffs or quotas. In order to be able to gain conclusions from the process data, information about the equipment condition is also of importance. Here, process-oriented values also come into play, such as temperature or flow rates, as well as the condition of motors, fans and valves. This is the only way that it is possible to analyze the direct effects of optimizations and answer the process-oriented questions: for example, does the exhaust air motor have to run at full speed? When should it run and when is it unnecessary for the process? If all this data can be practically gathered then optimizations and their concrete effects can be directly evaluated: production plants or operation halls can gain optimized energy efficiency, without having to lose productivity or availability.

How are your customers benefiting from utilizing Eco.on?

THOMAS WINTER: Eco.on is a tool that our customers intuitively use on a daily basis for their work. The knowledge that is gained with the help of this tool supports our customers in attaining an energy-efficient production. Improvement measures can be evaluated and

documented so that not only ISO 50001 requirements for energy are fulfilled but also the user is able to optimize the complete production process for energy efficiency and achieve cost savings.

What opportunities do you see for Eco.on in the smart factory of the future?

THOMAS WINTER: Today, Eco.on enables us to meet the exact needs of the customer. Eco.on offers modular scalability and therefore future enhancements are possible. One has to start with individual areas and gradually expand the system. Multi-site and real mobile operation is possible by using a browser-based or Smartphone client. VPN and remote technologies put us, as the system integrator, in a position to assist with rapid and effective support. Multiple site administration and networking are simple to achieve today.

What's next for KÖHL Maschinenbau AG and COPA-DATA?

THOMAS WINTER: We hope to continue jointly developing the topic of energy management in the market, to win new customers together and, in turn, continue to deliver successful projects.

Many thanks for the interview.



<http://kaywa.me/O3zsV>

Video: OEE and ISO 50001 should team up – here's why!

ABOUT MR. WINTER

As Technical Manager, Thomas Winter has been responsible for system technology in the KÖHL Group since 2000. His area of expertise covers the electro-technical planning and engineering of KÖHL-delivered plants as well as general automation projects with external equipment suppliers. Customers come from the food, pharmaceutical, chemical, and automotive industries, as well as, heavy industry and foundries. The topic of energy has always been his focus through many years of project experience in the areas of regenerative energies (wind, biogas and photovoltaic). This presented an opportunity to let his experience in the areas of industrial automation and energy flow into an energy management product. Energy technology is a subject that has accompanied Mr Winter since the beginning of his career. After his studies in electrical engineering at the Saarland University he worked for ABB Kraftwerke AG in Mannheim for seven years.



ABOUT THE KÖHL GROUP

KÖHL offers innovative solutions for more profitability and sustainability in the energy, automation, intra-logistics, tobacco technology and building services industries. Over 630 employees develop intelligent products and systems that secure a leading edge in the global market for its customers worldwide. The success story of the KÖHL group is coupled closely with the courage of their founders Edith and Wilfried Köhl. In 1971 they established the company Elektro KÖHL in Trier. In 1982, the company moved to the industrial region, Trier-Euren. The founding of KÖHL Schaltanlagen GmbH in 1986 allowed the company to satisfy the increasing demand for automated production processes. The next major expansion was in 1987 with KÖHL Maschinenbau GmbH, which specialized in the manufacturing of customer-specific machines and plants. Since 2002, the areas of equipment and system technology, robot, logistic and information systems are managed from Wecker (Luxembourg). Further locations in Dresden, Moscow and St. Petersburg secure a close proximity to the customer.

You can also find more information at **www.koehl.eu**