

AkzoNobel Powder Coatings saves over €15,000 per month thanks to advanced energy monitoring solution from Rockwell Automation

Leading coating provider enjoys the easy reporting capabilities of FactoryTalk VantagePoint coupled with advanced data collection and collation hardware

Challenge

Akzo Nobel was often seeing peak loads throughout the day from its shared services coupled to transformers running at 100% capacity. It needed a solution that would help it control and monitor its energy usage much more efficiently.

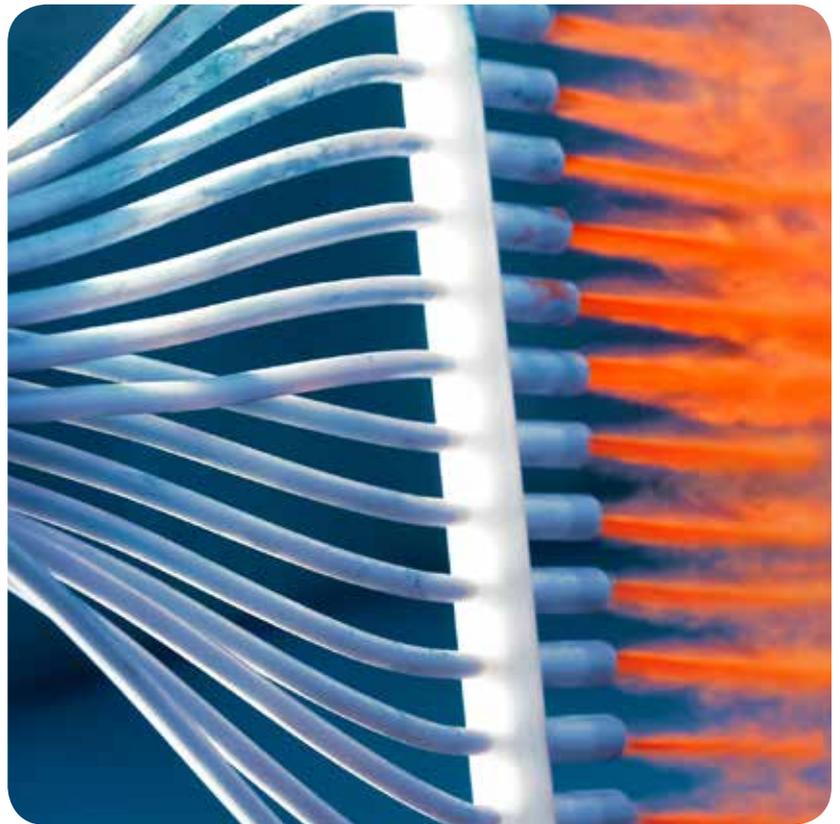
Solutions

A Rockwell Automation solution was installed, which included:

- FactoryTalk VantagePoint
- FactoryTalk EnergyMetrix
- Allen-Bradley PowerMonitor 1000s
- Allen-Bradley CompactLogix PACs
- Global Solutions support
- PEMS support

Results

- Real-time information delivered in easy to understand reports
- €15,300 monthly saving in electricity consumption
- FactoryTalk VantagePoint's expandability and ease of use means other data sources are being looked at for analysis
- Centralised solution over Ethernet
- Solution can and is being deployed to other sites



Powder coatings offer a solvent-free, tough, hard wearing and environmentally sound coating alternative to paint

Background

AkzoNobel Powder Coatings is a global business with more than 4,000 dedicated employees spread throughout five continents. The company produces high-quality powder coatings; a solvent-free alternative to paint, which offer many industries a tough, hardwearing and environmentally sound coating alternative. These powder coatings can be used on a large number of diverse products in both consumer and industrial settings, including white goods, office furniture, alloy wheels and aluminium windows.

Headquartered in Sassenheim, in The Netherlands, AkzoNobel Powder Coatings has 29 manufacturing plants, which all leverage a global marketing strategy that is fine-tuned to meet local needs. All of its products combine the latest technology with a customer-focused service package.

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The company is continuously developing and innovating, with long-, medium- and short-term Research & Development support coming from four key areas: an innovation center, based in Felling in the North East of England, Centers of Expertise spread around the world, national technical support teams and multiple product-development labs.

As well as product innovation for its customers, the company is always striving to improve its own on-site capabilities and environmental credentials. Indeed, it was a recent energy awareness campaign at the Innovation Centre in Felling that prompted it to get in touch with the Global Solutions and Power & Energy Management (PEMS) teams from Rockwell Automation to discuss the evolution of an existing energy monitoring project, which ultimately resulted in significant energy savings.

Challenge

According to Steve Wilburn, WWPG Process Engineer at AkzoNobel: "50% of the electricity used at Felling is consumed by common site services; things like compressed air, chilled water and extraction. When all of these systems are in operation, we can often see peak load conditions throughout most of the day. The biggest energy consumers are medium-sized motors, which run for long periods of time, some occasionally at full capacity. The ones used by the shared services were often running all the time, even when the particular service was not required.

"The site had two 1 MW transformers, which were running at 100% capacity and it was these transformers that



Historical data can be visualised to give a real time appreciation of energy consumption

triggered the initial investigation into the site's energy use," Wilburn explains. "We first undertook a fledgling energy monitoring programme at Felling in 2008, where we installed FactoryTalk® EnergyMetrix™ from Rockwell Automation in one half of the factory. The problem was that we didn't really analyse the data. About the same time we also went from 'made to stock' to 'made to order' and started using less power so the urgency was not there anymore.

"We then did some work with FactoryTalk VantagePoint®, a data visualisation solution and a team from Rockwell Automation lead by Gerard O'Connell, the PEMS lead for Rockwell Automation in the EMEA region, and the true appreciation of our site's power consumption and wastage changed almost overnight."



Information is gathered from either PowerMonitor 1000 units or Allen-Bradley CompactLogix programmable automation controllers

We are also using Ethernet, even the smaller applications, such as the PowerMonitor 1000, offer Ethernet capability. They are great products. Indeed, we are now running on Ethernet not only in the UK, but also in our German and French factories.

Through this enhanced ability to visualise the consumption, Wilburn and his team commenced a new larger scale project, with help from the engineering team at Rockwell Automation, which was intended to provide a real-time appraisal of what was being consumed by each of the primary assets in order for changes to be made that would ultimately result in less energy consumption.

Solution

The solution designed and deployed by AkzoNobel and the Rockwell Automation PEMS team comprised both hardware and software assets that would ultimately feed into an easy-to-decipher graphical front end supplied by VantagePoint.

A centralised EnergyMetrix suite is used to collect information gathered from either PowerMonitor™ 1000 units or Allen-Bradley CompactLogix™ programmable automation controllers (depending on equipment size/location). These units combine to give AkzoNobel the ability to measure and analyse water, air, gas, electricity and steam usage alongside plant operations in order to paint a clearer picture of energy usage. Energy cost savings are then derived from: analysing electrical peak demand profiles and determining if there are peaks that can be reduced; analysing alternative rate schedules; analysing “dead load” and determining if additional equipment can be turned off; verifying bills from utility suppliers and establishing targets for utility consumption.

“The majority of our Felling site’s equipment is now monitored by Rockwell Automation systems,” Wilburn explains. “We are also using Ethernet; even the smaller applications, such as the PowerMonitor 1000, offer Ethernet capability. They are great products. Indeed, we are now running on Ethernet not only in the UK, but also in our German and French factories.”

By using Ethernet as the communication backbone, AkzoNobel has the option to expand

the application and data flow even further into the Connected Enterprise. This will allow it to exploit a broad range of additional value-added functions, including the collection of real-time performance data, historical data for performance assessments and maintenance schedules and connectivity beyond the shop floor into enterprise systems that can help manage the equipment even more precisely in line with other assets on site. The use of standard Ethernet within EtherNet/IP™ means that there is very little that needs to be done for these connections to be established; and full security solutions are also available for user control and to help prevent unwarranted access.

Results

“FactoryTalk VantagePoint has made all the difference,” Wilburn explains. “It is fantastic. It makes it easy to visualise and extract data in real time and then generate timely reports or action. One example is our compressed air system. We can now analyse our usage in real time and make instant decisions or take immediate action. We have now reached the point where we are looking at what else we can data log and feed into VantagePoint.”

“Following the deployment of the energy monitoring solution, we have reduced our monthly electricity costs by some €15,300. We have calculated that in the first year we have made savings of €186,000.”

The technology obviously played a huge role in the reduction of AkzoNobel’s energy consumption, but Wilburn is just as impressed with the Rockwell Automation team. “It’s a matter of finding the right people. Gerard’s team is amazing – a real credit to Rockwell Automation. We are now looking to expand the solution to other factories in the group. Having seen the results from the first German factory, the second German factory is looking to deploy an Ethernet backbone and then leverage the same power and capabilities that we have seen in the UK from EnergyMetrix, VantagePoint and, of course, the Rockwell Automation engineering teams.”

Additional Information www.rockwellautomation.com

The results mentioned above are specific to Akzo Nobel’s use of Rockwell Automation products and services in conjunction with other products. Specific results may vary for other customers.



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