

Case Study: PepsiAmericas

PepsiAmericas Enlists Opto-Solutions for Bottling Facilities Water and Power Monitoring, Ammonia Detection

The Integrator – Opto-Solutions

Opto-Solutions (www.opto-solutions.com) is a consulting and integration services company founded by Anthony Dern, a control engineer with more than 20 years experience helping customers design and deploy industrial automation, monitoring, and data acquisition projects. Included in this vast experience is a 12-year stint at Opto 22 of Temecula, California, the well-known manufacturer of I/O systems and other control hardware and software.

“I’ve always been of the opinion that Opto hardware is the best around. Some people underestimate it, but it’s truly as powerful as anything from the bigger vendors and it’s a lot easier to use. With it, you’re getting close to the best bang for your buck.”

Dern left Opto 22 two years ago to form Opto-Solutions. The company uses Opto 22 products to design systems for machine control, asset management, security and access control, building management, and other applications.

The Customer – PepsiAmericas

PepsiAmericas, Inc. (www.pepsiamericas.com) is a three billion dollar company and the second largest Pepsi bottler. With operations in nine countries in central Europe, the Caribbean and North America, PepsiAmericas manufactures and distributes a broad portfolio of Pepsi products—including the famous Pepsi Cola, Dr. Pepper, and Mountain Dew soft drinks and Aquafina brand drinking water—to more than 122 million consumers. Recently, PepsiAmericas sought a technology solution that would



provide the company with the facility and equipment information needed to achieve significant energy savings.

“PepsiAmericas had attempted to get this project off the ground more than four years ago but for a variety of reasons, it kept getting delayed,” says Gary Kowaleski, Project Manager for the PepsiAmericas project. “With regard to energy consumption, PepsiAmericas knew that its facilities could be operating more efficiently, but they needed an expert to design a solution, choose the hardware and then implement it.”

The Solution – Opto 22 SNAP Ethernet Monitoring and Data Acquisition Systems

After passing through the hands of two other consulting firms, the PepsiAmericas energy management project fell to Opto-Solutions. The company chose to install Opto 22 Ethernet-based SNAP Ultimate I/O monitoring and data acquisition systems at PepsiAmericas facilities in Urbandale, Iowa, Oshkosh, Wisconsin, Chicago, Illinois, and Fargo, North Dakota. At these locations, I/O modules on the SNAP Ultimate I/O rack are hard wired to electric meters, gas meters, and two separate meters measuring water used for the bottling processes and for facility bathrooms, water fountains, and other everyday purposes. At each location, the SNAP Ultimate processor (or brain) aggregates water usage data and sends it to Microsoft SQL Server databases—accessible to the individual facility’s managers and to executives at PepsiAmericas’ corporate headquarters in Rolling Meadows, Illinois—for reporting and analysis. In this way, PepsiAmericas is effectively identifying its water consumption as precisely as possible.



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"In most cases, the first step to reducing utility costs—electricity, water, and gas—is the gathering of all data relating to consumption," says Dern. "We wanted to help PepsiAmericas accomplish this through the proactive monitoring of critical facility operations and business processes, and delivery of data via the Internet for analysis."

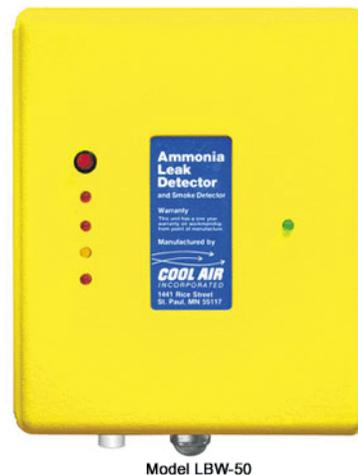
Opto-Solutions has also configured PepsiAmericas new system for ammonia monitoring. For large cold storage facilities, ammonia is often the refrigerant of choice because it produces the greatest net refrigerating effect. However, large amounts of ammonia can be toxic and because refrigeration system valves vent into the atmosphere, the Environmental Protection Agency requires large bottling companies like PepsiAmericas to have ammonia detection and alarming systems operating at all times.

"The PepsiAmericas' facilities typically had systems—leak detectors and alarm panels manufactured by Cool Air Inc.— that monitored the vent lines coming through the roof. These systems are excellent for local alarming but really have no ability to communicate over the web and notify personnel at their desktop or anywhere outside of the building," says Dern. "This was a case where the customer needed a system more suited for generating the reports required by the EPA."

By wiring digital I/O modules to the Cool Air hardware, Opto-Solutions was able to connect the ammonia detection equipment to the SNAP system, effectively web-enabling it. After configuring the system to notify when ammonia readings approach a preset danger level, Dern familiarized PepsiAmericas personnel with an Opto-Solutions-designed custom web application for viewing operational data in a graphical interface. Using this web application, authorized parties at PepsiAmericas can also identify and acknowledge visual alarms and change alarm thresholds. It also serves as the tool PepsiAmericas uses to configure the SNAP system to generate and send warning e-mails



Energy consumption data from compressors and other equipment is acquired and sent to SQL databases.



PepsiAmericas' ammonia detection equipment is now monitored by an Opto 22 SNAP I/O system.

to anyone, anywhere—even executives at PepsiAmericas headquarters in Rolling Meadows.

"Let's face it, regulatory compliance reporting is not a revenue producing activity," says Kowaleski. "Companies need to do it in the most economical way possible. For a relatively small investment, Opto-Solutions was able to design and deploy a system that lets PepsiAmericas meet the requirements of the EPA, plus a whole lot more."

Next up for Opto-Solutions was a retrofit of PepsiAmericas' Munster, Indiana facility, which was the first to adopt the Opto 22 hardware.

"This particular facility was outfitted with SNAP Ethernet I/O, installed by another consulting company years before Opto-Solutions was brought in," explains Dern. "Though it was introduced more than five years ago, SNAP Ethernet I/O is still a very viable industrial hardware device. But the scope and breadth of what needed to take place at Munster called for an upgrade to a more powerful system."

"Basically, PepsiAmericas needed to be able to communicate the Munster facility data to SQL databases the same way they were doing it at the other locations," says Kowaleski.

"Opto 22's SNAP hardware family is so flexible that there are multiple ways to send and receive data with it," says Dern. For instance, we could have designed PepsiAmericas system to share data via OPC server. It just so happens, however, that the company is doing a lot with .NET applications. So in this case, we created a control strategy for the SNAP Ultimate brain to serve data within the .NET framework. .NET technologies don't work quite as well with SNAP Ethernet I/O, which is what made Munster's switch to Ultimate necessary."

Also at the Munster facility, Dern found that the installed SNAP system was monitoring the facility's veris meter which, much like the meters found in garages or on the sides of private homes, connects to the main power cables and measures and records power usage in the form of kilowatts and kilowatt hours. But as he began Munster's upgrade to SNAP Ultimate I/O, Dern discovered that monitoring at this particular facility was not limited to power, water and ammonia. Indeed, the versatility of the Opto 22 hardware had been more fully realized and the existing SNAP system was connecting to a much broader and extensive collection of PepsiAmericas key systems, devices, and equipment—lights, pumps, Type J thermocouples, and suction and condensing compressors. As a result, the company was acquiring and delivering flow rates, temperature readings, equipment status and other valuable enterprise data.



The Future

As an emerging leader in providing engineering and design expertise for industrial monitoring and data acquisition, Opto-Solutions is increasingly finding itself called upon to provide a variety of energy management services, including a likely install of SNAP systems at 10-15 additional PepsiAmericas bottling locations.

By specializing in deploying Web-enabled technologies from Opto 22, Opto-Solutions is giving customers the tools needed to collect data from enterprise systems and equipment and deliver it to databases for accurate measurement of individual system performance, reporting, and ultimately, significant cost savings.

About Opto 22

Opto 22 develops and manufactures hardware and software products for applications in industrial automation, remote monitoring, and data acquisition. Using standard, commercially available Internet, networking, and computer technologies, Opto 22's input/output and control systems allow customers to monitor, control, and acquire data from all of the mechanical, electrical, and electronic assets that are key to their business operations. Opto 22's products and services support automation end users, OEMs, and information technology and operations personnel. Founded in 1974 and with over 85 million Opto 22-connected devices deployed worldwide, the company has an established reputation for innovation, quality, and reliability.

Opto 22 products are sold through a worldwide network of distributors, partners, and system integrators. For more information, contact Opto 22 headquarters at 800-321-6786 (951-695-3000) or visit the website at www.opto22.com.