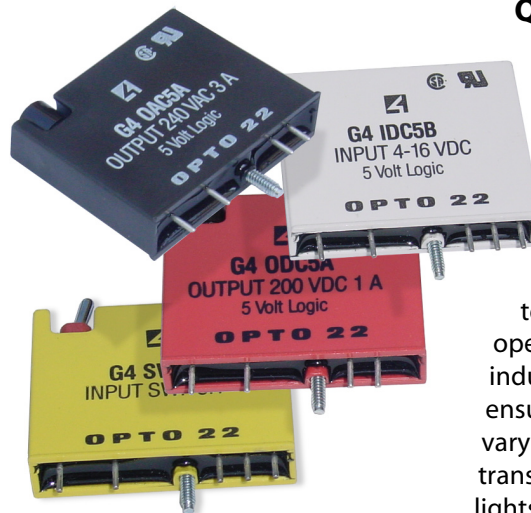


Living It: Opto 22 Factory Deploys SNAP-IT for Data Acquisition from Manufacturing Processes

Walking the Walk

As a manufacturer of hardware and software for remote monitoring, enterprise data acquisition, and machine-to-machine (M2M) communications, Opto 22's goal is to help organizations connect to and communicate with their physical line of business assets. This includes all of the machines, systems and equipment that form the core of the organization's business operations—things like telecommunications equipment; HVAC, lighting, and security systems; refrigerators and freezers; utility equipment, and, in many cases, manufacturing machinery. Of the many industries that Opto 22's input/output and control systems are deployed in—including water and power, food service, retail, oil and gas—none has been impacted more than manufacturing. Opto 22 hardware is used in the manufacturing processes of everything from popular consumer products like Dasani water, to high tech components like Motorola semiconductors and even Opto 22's very own products.

It's true. Opto 22 lives what it preaches as few other companies do, using its SNAP-IT system to monitor and gather data from its manufacturing equipment and bringing it back to enterprise applications and databases for reporting, analysis, and other purposes.



200% Tested

In the center of Opto 22's Temecula, California factory sits the G4 Handler, a large manufacturing machine used for final assembly and testing of all of the company's G4 modules. "G4 modules are single point input/output modules used mainly for applications involving the sending and receiving of digital, that is, on/off signals," states Bob Sheffres, Opto 22 Vice President of Sales. "Since their introduction back in the mid-eighties, we've sold millions of these modules and they're still one of our best selling products."

Like most Opto 22 modules, G4's are guaranteed for life. That means the company must submit the modules to rigorous testing before they're shipped to customers. That's where the G4 Handler comes in. Custom built by Opto 22 engineer Ron Schmidt, the machine individually tests each and every G4 module, not once but twice.

Quick and Easy Data Acquisition

Each day at Opto 22, large trays of fifty G4 modules are fed into the G4 Handler. The machine's robotic tester then puts each one through several tests. These include an in-rush current test in which each module is subjected to approximately ten times its normal operating load. Each module is also tested at both its minimum and maximum operating current loads. Next are the inductive, capacitive, and resistive tests, which ensure that the modules can handle signals for varying types of electrical equipment such as transformers, power supplies and motors, and lights. "The G4 Handler even tests the small LED

on each module that lets you know when it's operating," says Schmidt. Any G4 module that fails any one of these tests is immediately discarded.

Opto 22 had been manufacturing its G4 modules and stringently testing them this way for more than a dozen years and knew how valuable the data relating to this process could be. The company decided to install the wireless LAN version of its recently introduced SNAP-IT hardware on the G4 Handler. SNAP-IT is a network-ready, packaged system that uses sensor interfaces to connect to virtually any mechanical, electrical, or electronic asset. Although used quite often for control purposes, in this instance, Opto 22 had no desire to disturb its module manufacturing and testing processes. Instead, Armando Corral, Opto 22 Manufacturing Production Manager, and others recognized that SNAP-IT could non-invasively attach to the production equipment, access useful data, and deliver it to a desktop PC in real time.

The Results

Once connected to the G4 Handler, the SNAP-IT system was easily configured to begin sending data to Corral's production databases. This data includes the machine's on/off status, motor status, and total number of modules that have failed full load and other tests. "SNAP-IT gives me the ability to use a PC, at my desk or anywhere else in the building, to view this data in real time. For example, I'm able to see stats on how many modules have failed the hi-potential (hi-pot) test. A tray of modules with a failure rate of 5% or more serves as an immediate red flag for me."

Opto 22 has such high production standards that even a failure rate this low is unacceptable. "Normally, we see a failure rate of less than 1 percent," says Corral. "So if I access a report that indicates anything above that, I immediately head out to the factory floor to review the production process and determine the problem." Corral says that typically, it's not a problem with the module, per se, but more often oxidation or dust on the pins is preventing a good contact with the tester.

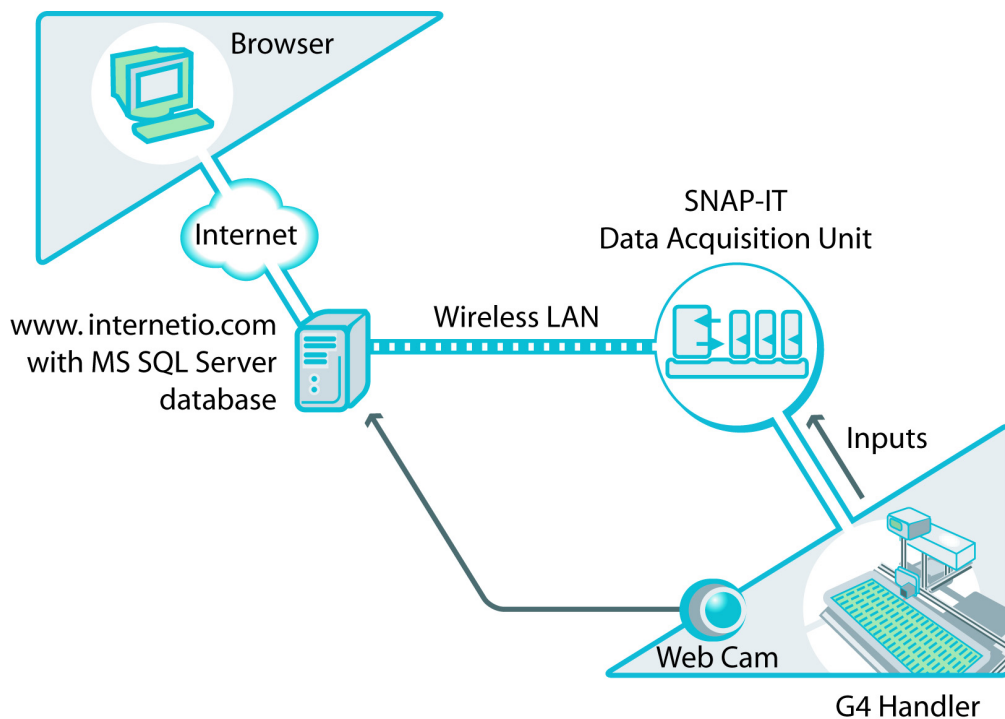


Figure 1: System Diagram of the G4 Handler Connected to Opto 22's Live Demo Site, www.internetio.com

The G4 remote monitoring and data acquisition also helps Opto 22 with inventory control. "Eliminating waste is a very important in a manufacturing facility," says Corral. "Production engineers and factory workers are not allowed to throw away any defective or failed parts or raw materials without my approval. Keeping a close eye on the G4 module assembly and testing helps me better manage this facet of my job."

Opto 22 also knows the value of quantifying its 200% tested claims with actual production statistics. The company chose to make its G4 Handler data available to the general public, thereby enhancing its reputation as a manufacturer of reliable I/O and at the same time showing potential SNAP-IT customers some of the capabilities of the product line. Logging onto the

"Live Demo" section of the Opto 22 web site gives visitors a live shot of the G4 Handler at work and access to testing results.

G4 Handler data acquired by SNAP-IT is reconfirming what Corral and most Opto 22 customers already know: Opto 22 modules are the best in the world. "Opto 22 hardware is known worldwide for its reliability. Our I/O systems, particularly our modules, just don't fail," says Sheffres. "This is proven everyday in the thousands of applications in which they're deployed all across the globe. By analyzing the data from the G4 Handler, we're able to ensure that we continue to maintain our very high standards."

View the G4 Handler live demo at www.internetio.com.

About Opto 22

Opto 22 manufactures and develops hardware and software products for applications in industrial automation, remote monitoring, and enterprise data acquisition. Using standard, commercially available Internet, networking, and computer technologies, Opto 22's SNAP systems allow customers to monitor, control, and acquire data from all of the mechanical, electrical, or 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 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-OPTO or visit our Web site at www.opto22.com.