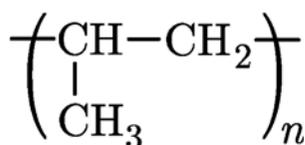


Case Study: Automated Interface Solutions

Systems Integrator Implements SNAP PAC System, Improves Processes for Polypropylene Manufacturer

Indiana-based Automated Interface Solutions (AIS), a division of Industrial Maintenance Engineering, Inc., designs, builds, and implements measurement and control systems for many process industries, including plastics, metals, paper, fiberglass, rubber, and textiles. AIS started out as a third-party service company for web thickness gauging¹ and control systems. Currently, AIS offers complete web measurement and control systems as well as upgrade packages for vendor gauging systems, from Honeywell, ABB, Eurotherm, Accuray, Indev, Fife, Ohmart, Thermo Fisher, and others.



Polypropylene is a thermoplastic that has applications in packaging, apparel, textile, automotive, and other industries.

One of AIS's leading customers is a top manufacturer of polypropylene, a thermoplastic/polymer used both as a structural plastic and as a fiber. Polypropylene is often used to make food containers, particularly those that need to be dishwasher safe, as the melting point of polypropylene (320°F) is very high compared to that of many other plastics. Polypropylene can also be extruded into thin plastic film and used for labels on water bottles or other packaging purposes.

This polypropylene manufacturer was experiencing process control and integration challenges related to its Measurex-brand control system that had been installed sometime before Measurex was acquired by Honeywell in 1997. Among other issues, engineering and maintenance personnel were finding it difficult to source spare parts and acquire new components. Also, communication to a legacy Foxboro distributed control system was becoming increasingly difficult due to the unreliability and high maintenance needs of the Foxboro gateway.

Complicating matters further was the fact that, in addition to the Measurex and Foxboro systems, the customer's control

1. Web thickness gauging refers to measurement and control of thickness during manufacturing of solid and foam sheet, cast film, biax film, blown film, coatings, and the like.

architecture also included an Allen-Bradley® ControlLogix® system, which controls multiple extruders in a coextrusion arrangement and communicates to the Foxboro system via the EtherNet/IP™ protocol.

"The Measurex system utilized a custom-designed UNIX®-based gateway to communicate to the Foxboro system, which could then pass data along to the A-B Logix hardware via EtherNet/IP," says Glenn Wrightsman II, Senior Software Engineer at Automated Interface Solutions. "This method of data transfer was very unreliable, and because it was custom, it was very expensive to maintain and modify."

AIS elected to try to improve these processes by implementing an Opto 22 SNAP PAC System™. Because Opto 22 controllers and I/O are innately capable of communicating via EtherNet/IP, AIS decided to replace the Measurex control system I/O with SNAP PAC R-series hardware. Two rack-mounted PACs were designated to control two scanners, along with another PAC to manage overall processes, including transverse directional control and orienting, measuring, and extruding the polypropylene film. Perhaps most significantly, the Opto 22 hardware would, unlike the Measurex system, connect to and communicate with the Allen-Bradley hardware directly, thereby eliminating the need to pass and translate the data through the Foxboro system.



AIS designed a process control and data acquisition system that includes analog, digital, and high density I/O that controls the thickness profile for the polypropylene sheets.

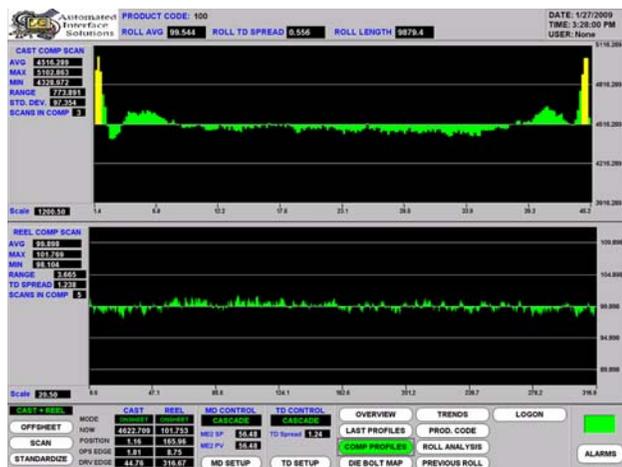
As one of the earliest adopters of the Opto 22 technology officially referred to by the company as "SNAP I/O for Allen-Bradley Systems," AIS procured the new hardware, received free engineering support from Opto 22, and successfully tested its new

Case Study: Automated Interface Solutions

configuration, which was installed in parallel with the old system until analysis and confirmation of viability could be established. AIS worked with its customer to define all of the process control data they wanted the Allen-Bradley system to have access to, then made that data available within the shared memory of the SNAP PAC controllers. It was then possible to quickly pass the live data (I/O readings relating to the current and previous rolls, such as width, length, and thickness) back and forth from the R1s to the A-B ControlLogix PLC.

"We then present the data via a Wonderware® Intouch® human machine interface," explains Wrightsman. "HMI screens display real-time information on the scanners, indicate die bolt positions (on or off), roll lengths and averages, and other data. We also establish and acknowledge alarms from these screens."

Data transfer is accomplished through the use of OptoOPCServer™, an OLE for Process Control (OPC)-compliant application for the Opto 22 SNAP PAC System that makes it simple to consolidate and publish data to OPC-aware clients, like Wonderware's InTouch. Wrightsman notes that his customer is passing more than 6,400 I/O tags through OptoOPCServer to the HMI without issue.



HMI screens present profile data from the Opto 22 programmable automation controllers.

After a very brief validation period, a permanent cut over to the new system was scheduled and AIS reports that its customer is "very happy with the efficiency of its new 'Opto to Allen-Bradley' configuration," particularly its high connectivity and the ease with which data now passes back and forth. Moreover, once the I/O was in place, Wrightsman and AIS were able to migrate the system in little more than a single day.

For its part, AIS, as an original equipment manufacturer and systems integrator, is a big proponent of Opto 22.

"In addition to the free training you get with Opto, we really like the cost of the I/O," says Wrightsman. "As an OEM, we need a lot of modules both to build systems and to have on hand as spares. As we look to market similar systems to other customers, we're excited about the prospect of now having EtherNet/IP-capable hardware as part of our portfolio of Opto 22-based solutions."

About Opto 22

Opto 22 develops and manufactures hardware and software for applications involving industrial automation and control, remote monitoring, and data acquisition. Opto 22 products use standard, commercially available networking and computer technologies, and have an established reputation worldwide for ease-of-use, innovation, quality, and reliability. Opto 22 products are used by automation end-users, OEMs, and information technology and operations personnel. The company was founded in 1974 and is privately held in Temecula, California, USA. Opto 22 products are available through a worldwide network of distributors and system integrators. For more information, contact Opto 22 headquarters at +1-951-695-3000 or visit www.opto22.com.