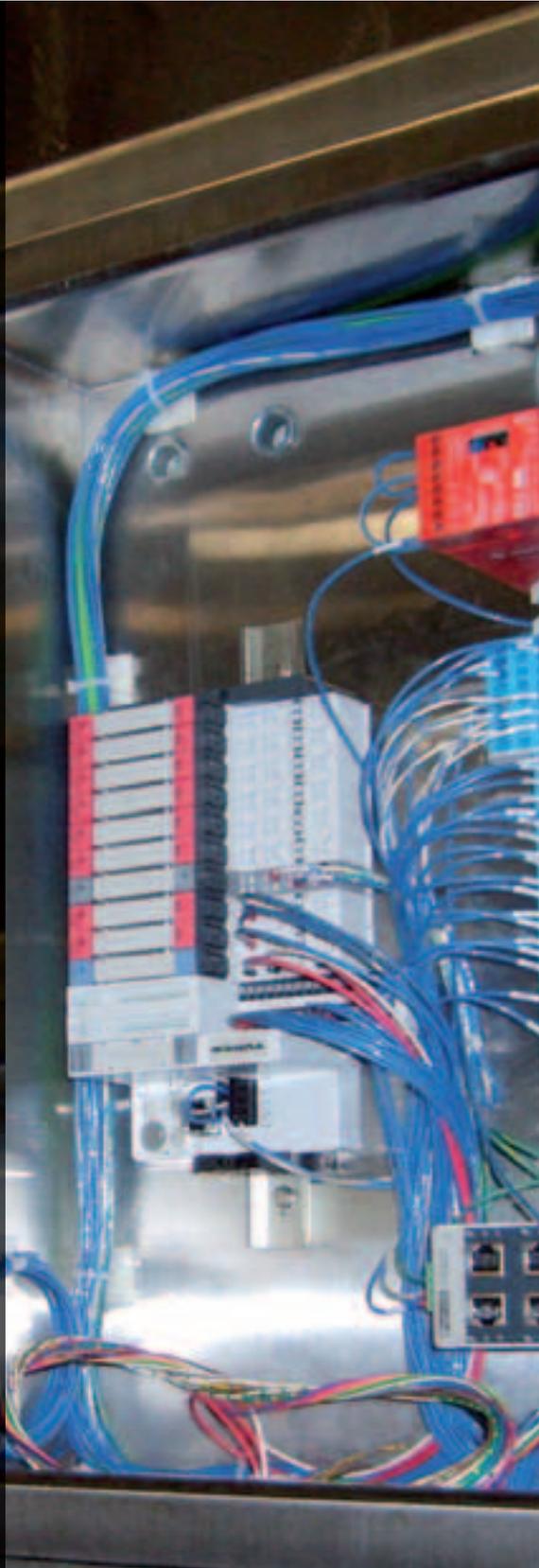


Peerless Machinery Corporation incorporated substations onto each of their machines to obtain local control on the plant floor



Local Control

Distributed I/O cuts installation time in half for snack food equipment manufacturer Peerless Machinery Corporation

Peerless Machinery Corporation, www.the-peerlessgroup.us, a food equipment manufacturer based in Sydney, Ohio, provides dough mixing and dough makeup equipment, along with cookie and cracker machinery to the baking industry. Whether the machines are used for bagels, muffins, granola bars, cakes or a plethora of other food items, Peerless' mixing machines, bread dividers and dough equipment are vital to the baking and snack food industries. The snack food industry continues to thrive in many nations across the world. According to Daryl Thomas, chairman of the Snack Food Association, www.sfa.org, the snack food industry generates \$26 billion dollars in annual sales and is growing at an average rate of 4.5 percent per year.

Product customization

A hallmark of Peerless' continued success is its ability to custom build machines to its customers' specifications, including mixing bowl capacities and the way they are installed in the frames (tilt geometry), the actual frame designs, refrigeration packages and control systems. Peerless also provides integrated systems for its customers, such as dough handling systems that move dough from the mixer to make-up and forming equipment.

Being versatile may be a cornerstone to the success of the company, but customizing machines for individual customers created some serious challenges for Peerless. This is especially true when designing machines that conform to the size requirements found in the food manufacturing sector, as well as customizing control systems.

The first obstacle Peerless faced was standardizing on a network protocol that would synchronize all systems in order for them to operate in tandem. EtherNet/IP was the network protocol that Peerless chose to use because it provides tighter control and helped Peerless streamline operations. "We see EtherNet/IP as the emerging standard, as it is gaining worldwide acceptance in the industrial sector," says Eric Cruse, Controls Engineer with Peerless. "We also wanted a system that would allow expansion of diagnostic information and provide an open platform for our customers." Although implementing EtherNet/IP gave the company tighter control, Peerless still had a centralized cabinet full of drives and PLCs, and was running lines of conduit with hard-wired cables from its machines to the controllers. Because of the layout of the plant floor, the lines of conduit can be up to 250 feet long, and are sometimes routed to a different floor in the plant altogether.

Another challenge for the company is maintaining a clean manufacturing environment without harming the components that keep the plant up and running. Since all of Peerless' applications are used in the food industry, it is imperative that the machines remain sanitary. High pressure, high temperature washdowns, often using harsh cleaning agents, are necessary to maintain a sterile working environment.



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Eric Cruse, Peerless Machinery Corporation

Implementing standard I/O

To address these issues, Peerless chose to implement distributed I/O to remove the main control panel away from the potentially harsh environment. The company accomplished this by creating substations on each machine using Turck USA’s BL20 EtherNet/IP terminal-wired I/O. BL 20 is an IP 20-rated I/O designed for cabinet installation, and provides the company with the local control it needs on the plant floor without the primary control panel. “We chose to use Turck’s BL20 line because it’s easy to troubleshoot at the machine,” adds Cruse. Peerless also uses Turck NEMA4X rated junction boxes within

the distributed I/O structure, and runs all localized sensors and other equipment through these boxes.

Each substation contains one BL20 system that maintains control for one machine, and utilizes Turck fully connectorized cordsets to transfer information from the substation to the main control cabinet. By doing this, Peerless no longer needs to run long lines of conduit and hard-wire each machine to the main control cabinet. “Converting to distributed I/O has cut in-plant installation time in half,” adds Cruse.

Local support and product flexibility

According to Cruse, implementing a standard I/O structure was the primary reason Peerless chose to use Turck’s distributed I/O products, because it negates the need for constant firmware updates. “We chose Turck because of the local support and delivery they provide, as well as the availability of products,” adds Cruse. “Not only has distributed I/O with a standard network protocol lessened our installation time, plug and play technology has given us the flexibility to put I/O at any point we need to get EtherNet/IP.”

Quick read

Peerless Machinery Corporation chose to use Turck I/O products within their distributed I/O structure to create substations that puts the control on the plant floor. Turck plug and play technology allows Peerless to put I/O at any point where EtherNet/IP is needed.

Author



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