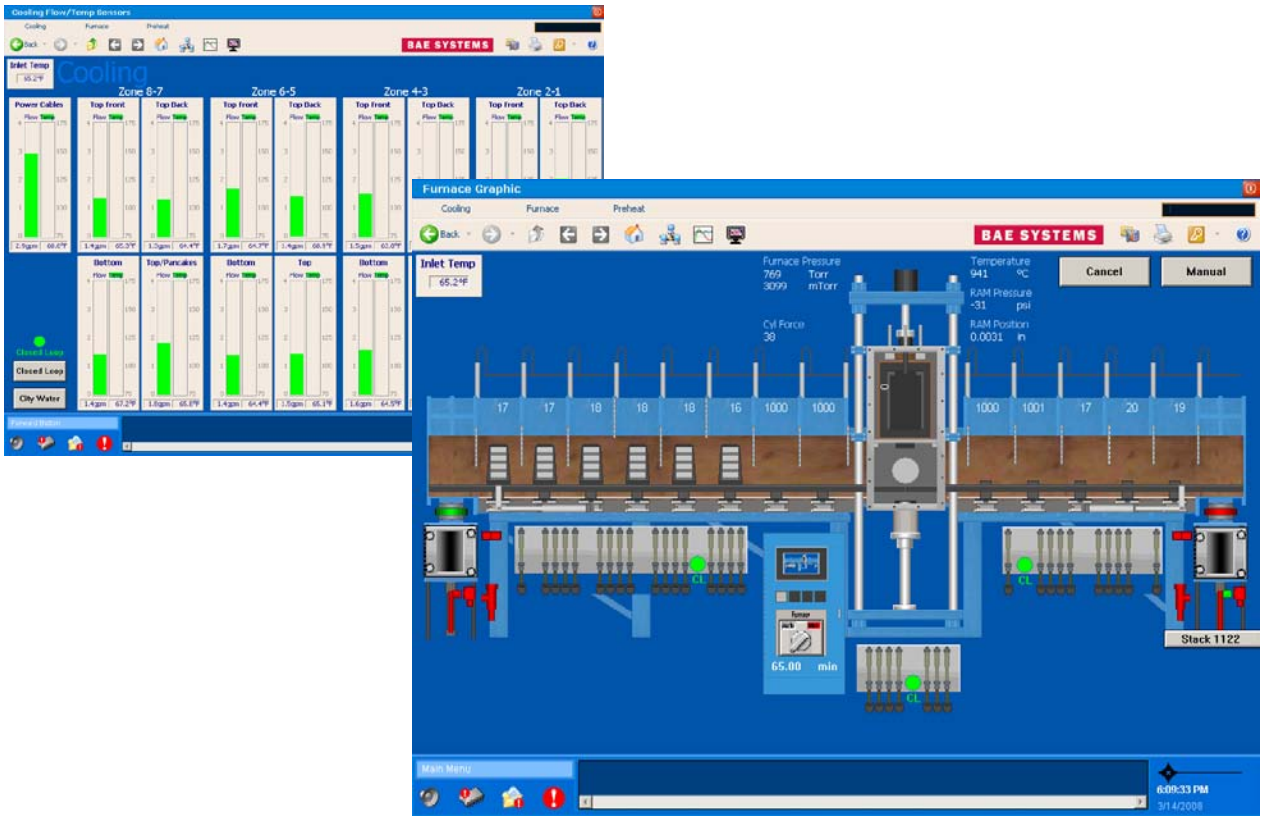
BAE Systems
Ceramic Armor Machine
Allen-Bradley / Industrial App Server

Overview

BAE Systems is a world leader in the technology of advanced materials. Part of their growth requires that they streamline and automate their process of creating Ceramic Armor. Enterprise Automation was hired to develop a Wonderware Archestra Industrial Application Server (IAS) system that would allow for expansion from the existing single R&D machine to 20 production units. The initial project is currently deployed and is being further developed by Enterprise Automation in conjunction with BAE personnel.

Solution

The R&D ceramic armor machine is controlled by an Allen-Bradley (AB) Compactlogix PLC with multiple Flex I/O nodes and four independent loop controllers. Each of the loop controllers and the AB PLC have been placed on an Ethernet network. IAS has been used to create objects for each of the loop controllers, and sections of the AB control. As an example, the water system is implemented as one object that contains all the flows, pressures, alarm set points, and alarm bits that are required by the entire water system. InTouch is used as a View client, and SmartSymbols have been implemented to allow for complete IAS objects to be replicated easily.



Technology

IAS was selected for two main reasons. The first was its ability to easily replicate similar machines at a data level. The second reason was for redundancy. This project uses three servers loaded with IAS software, IndustrialSQL, Active Factory, and TopServer for communications. Either of the two servers can be shut down and the View clients will continue to function, and data will not be lost.

IAS communicates with five devices per machine. These devices are an AB Compactlogix PLC, three Eurotherm controllers and one power meter. Each of the Eurotherm controllers were purchased with the Modbus TCP option. The power meter uses the Modbus protocol, and communicates to a Lantronix UDS-10-IAP which converts the Modbus protocol to Modbus TCP over Ethernet. All of these devices communicate directly with TopServer and then to IAS via OPC.

V5.00

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