

CHEMICAL



MODULAR CONTROL SYSTEMS

Bringing a 1940's era chemical complex into the 21st century using modular control systems

Background

In 2002, a major specialty chemical company took a hard look at one of its manufacturing complexes. Built in the 1940s, the facility had been a workhorse for decades – churning out resins, urethanes, commodity chemicals and polymer additives. But now the plant was losing money and the decision had to be made to close it or bring it into the 21st century. The client decided to turn the facility into a moneymaker and Avid Solutions was engaged for a six-phase automation project. Responsibilities included pre-engineering, complete electrical and instrumentation design, control panel fabrication, system configuration, checkout, and start-up.

Approach

In each phase, the first step was to provide expertise in the pre-engineering Front-End- Loading (FEL) portion of the project. Avid engineers helped identify automation opportunities and developed a project justification.

Control system flow charts, project implementation plans, system P&IDs, and estimates for the control hardware, E&I installation, and engineering efforts were developed. Once the FEL completed the focus moved on to electrical and instrumentation design including E&I contractor bid packages, instrumentation specification, and electrical schematics and loop sheets.

The Avid team also designed and fabricated all the control panels, configured the DeltaV™ system graphics, controllers, and batch recipes, and provided operator training simulators and training assistance.

The DeltaV system now includes a batch server and engineering development station, each on separate server class machines, as well as a system historian. When construction finished Avid performed on-site checkout and start-up services, and provided 24-hour post start-up support.

Results

The work was completed on schedule, and well below budget. By using a modular approach, the facility now operates with unprecedented flexibility. For example, with a small investment in new software and a few additional pieces of instrumentation, the company gained the ability to manufacture a completely new product. Plant shutdowns were kept to no more than a few days in each phase, and all operators were trained before the new systems were installed to assure smooth start-ups. The company reached its goals of maximized production capacity, a slimmer workforce, improved quality, and a significantly improved bottom line.

Applications

Batch Process

Distillation Columns

Historian

Technologies

Bar Code Scanners

Beckhoff Slice I/O

ControlLogix 5000

DeviceNet

EtherNet

Panelview Plus

RFID Tag System

RSView32

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