

EZ-ZONE™ ST Creates Efficiencies for Pharmaceutical Manufacturer

In the never-ending push to manufacture and operate in as lean an environment as possible, today's manufacturers are on the hunt for products that are smaller, faster, use fewer materials and increase efficiency, while at the same time maintaining or improving quality.



Sometimes those improvements are driven by product need and other times a “lean” manufacturing opportunity is born from innovation. Such was the case when Watlow introduced EZ-ZONE™ ST technology to Minnesota-based Central Research Laboratories (CRL) in early 2006.

CRL researches, designs and manufactures machines and systems that allow human operators to safely perform dexterous maneuvers in hazardous, “unfriendly,” or

sterile environments through tele-operation. Some CRL products are used by pharmaceutical manufacturers utilizing isolator technology.

One of CRL's core product lines is the sterilization of pharmaceutical transfer equipment. A beta flange gasket for their 190 mm Rapid Transfer Port is sterilized by dry heat before transferring items from a beta bag or container into a sterile isolator. A heater control system is required to ensure that the dry heat sterilizing temperature is maintained for the selected soak time.

Lethality rate (Fh) is a measure of a system's sterilization process. Typically, a programmable logic controller (PLC) system had been used to control the sterilization process to ensure a repeatable lethality rate. For CRL, the control elements that made up the system included a process controller, limit controller, solid state relay, mechanical contactor, control thermocouples, limit thermocouples, temperature transmitters and a heater assembly.

Watlow's new EZ-ZONE ST integrated control loop combines the functions of a PID process controller, over-temperature limit protection, solid state relay power switching, heat sinking, mechanical contactor power disconnect, profile ramp and soak in one easy-to-use package.

“It was pretty exciting to see what the EZ-ZONE ST prototype could do,” says CRL chief engineer, Rick Adams, P.E. “It had immediate and obvious value to us, not only from its performance, but also as a feature-rich package in a compact size.”

PLC process controllers, while being very flexible, require extensive software validation in the pharmaceutical market. The FDA validation process requires significant resources from both CRL and its customers. “By purchasing a standard controller with embedded code, this troublesome process can be greatly reduced, if not eliminated altogether,” explains Watlow's Craig Dennis, controller product manager.

EZ-ZONE ST offers CRL many other benefits including multiple program ramp and soak capabilities for differing time and temperature profile sterilization needs; a reduction in installation time, particularly wiring and termination time; and a hardware controller that reduces the size of the control enclosure and reduces assembly cost.

EZ-ZONE ST's multiple machine control inputs help ensure correct processing such as event input detecting the proximity sensor, event input to reset limit, event output indicating successful completion of the sterilization profile and diagnostics to detect input errors.

Another benefit for CRL is the addition of a remote user interface, a lower-cost method than using a PLC.



“CRL is currently testing the technology to ensure that it is an appropriate solution for our needs. Although we are still at the early stages of testing the EZ-ZONE ST, we are very encouraged by what we see,” Adams concluded.