

Honeywell tilts more I/O points into smaller, cooler space

To give users more I/O and control functions in less space, Honeywell Process Solutions recently launched its first new hardware platform in 15 years.

Experion R300 Process Knowledge System (PKS) features a redesign of Honeywell's automation and control platform hardware, while its Experion portion includes embedded cyber-security technology to help prevent denial of service attacks and message flooding at the control level.

Experion R300 also has automated backup-and-restore software. To improve system uptime, R300 includes automates complex procedures to improve user efficiency.

On the hardware side, Experion R300 introduces the company's Series C optionally redundant process input-output (I/O) family. Honeywell says Series C I/O uses a new vertically designed rack to deliver wiring, maintenance, construction, and other cost savings, mainly because competing systems are 5% to 75% larger. Besides its I/O capabilities, Series C's vertical-packing concept extends to the controller and the fieldbus interface module, which gives both a smaller, higher-performance package.

Series C's controllers, I/O modules, fieldbus interfaces, and firewalls are slanted at an 18° angle, which directs heat flow more evenly through the cabinet. This prevents one module's heat from transferring directly into the one above it, which is what happens to modules on horizontal racks in conventional control cabinets.

"We recently compared Experion R300 to older technology at a customer site, and found that we can increase flexibility and functionality and reduce the customer's footprint by 34%, which is a very significant savings," says Jack Bolick, Honeywell Process Solutions' president.

Architecture, security

Honeywell adds that R300 has no backplane. An internal Ethernet connects its controllers and fieldbus interface modules, while its I/O modules are linked together on an "I/O link" bus. Field wiring from sensors and actuators comes in on the left side of the I/O modules, and is limited to two tiers, unlike the four tiers often used in control cabinets. These yellow and green (redundant) Ethernet cables connect on the right side of the vertical channel. System power is pro-

vided by bus bars that run behind the I/O modules. It takes only two screws to attach any module to the power.

Each of R300's C300 controllers has two I/O link ports. It can handle up to 64 I/O modules, and I/O modules have either 16 or 32 channels, which means one C300 controller could potentially handle up to 2,048 I/O channels. C300 reportedly can run hundreds of control blocks, and can set execution cycle individually for each control loop.

To make sure hackers can't access the control system, C300 installations are equipped with a "control firewall," or two firewalls in redundant systems, which protects them from cyber-security breaches. Only messages dedicated to control are passed down to the controller, preventing it from slowing down or shutting down completely. As a result, Honeywell says, no PC attached to the company's Ethernet can communicate with the controllers. Besides protecting controllers from outside influences, the firewalls are designed to isolate a faulty controller from sending out meaningless "jabber" signals, which can arise from a faulty communications chip.

For even more security, Honeywell's system also is built on its existing Process Manager (PM) distributed control architecture, which has features, such as "receiver beware," that reportedly make its operation almost impenetrable and add safety to its I/O communications.

Meanwhile, software features added to R300 include "Backup and Restore," which protects PC system data with online backups, and allows restoration in less than one hour with minimal user intervention.

Michael Babb, editor, Control Engineering Europe; Jim Montague, news editor



Robert Bristow, Honeywell Process Solutions' product manager, adjusts Experion PKS R300's Series C optionally redundant process input-output (I/O) hardware, which uses a new vertical design to deliver wiring, maintenance, and cost savings.