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PLC support helps pump OEM create application-specific water pressure boosting systems

The easy configurability of ABB's AC500 PLC range is helping the specialist pump OEM, Plad Equipment, to rapidly produce application-specific pump systems for boosting water pressure in high-rise buildings.

Plad's dual- and triple-pump systems are widely used for pressure boosting. However, virtually every application in the buildings market demands a degree of customization, both operationally, and in form factor - to fit into the spaces available and interface to pre-determined inlet and outlet piping. To simplify the operational configuration of pump control, Plad decided to standardise on ABB PLC control for water pressure boosting systems.

Before the switch, Plad had used ABB drives for a long time, but tended to buy its PLCs from different suppliers, and to integrate the control system in house. This multi-supplier approach had led to the occasional system integration problem in the past. So, when ABB approached Plad to talk about its ongoing development of a new modular 'water library' of PLC software - which features a large range of relevant pump control and data collection functions - Plad became interested.

ABB proposed a new pump control solution based on the continued use of ABB's ACS550 variable-speed drives, but with control provided by the AC500 PLC. To demonstrate the effectiveness of the drive and PLC combination, ABB developed a flexible control program, which utilised many pump control functions from the development version of its water library software.

It was clear to the OEM that this proposed solution offered a great deal of flexibility, allowing Plad to configure one master software package for dual or triple pump systems, as well as select other operational parameters required for different types of high-rise building water pressure boosting.

ABB's example design also provided a number of technical advances over Plad's own previous control system arrangements. The use of Modbus RTU networking eliminated equipment cabling and simplified system assembly. The ABB PLC's high level function block library for communications also simplified data exchange with the ABB drives, speeding control development and simplifying maintenance tasks on Plad systems.

The proposed control solution, combined with ABB's obvious willingness to provide in-depth support on control matters, proved very attractive for Plad. So, Plad made the switch and now specifies ABB PLC and drive systems for all of its pumping systems for the building market.

"We are pumping specialists first," says Robert Delisle, director of Plad Equipment, "so, standardisation on a single control systems supplier makes a lot of sense. It means that we sidestep any potential system integration problems. However, the key deciding factor in choosing ABB as our supplier was its willingness to act as a technical partner and provide in-depth support. If a user needs new functionality we can always call on ABB experts to discuss or help us implement a change. This partnership becomes very attractive for a mid-sized OEM like us - allowing us to focus most of our technical resources on our core pumping technology and applications know-how - and I believe it will help us to expand our business."

"Having a strong relationship with a customer makes it easy for us to invest our own time - to ensure that our products are used in the most efficient way, and to use our control systems expertise to help clients meet new challenges," adds Patrice Bélec, a PLC Product Specialist with ABB Canada.

The pumping systems that are used for water pressure boosting in high rise buildings can be configured in many different ways depending on factors including the water pressure available, the size of the building, the spaces available for risers and equipment such as valves and break tanks on higher floor levels. To deal with this complexity and match the solution to the application, Plad offers a broad range of pumping systems with many configuration choices such as the ability to have dual or triple pumps to meet varying demand levels and for reliability, variable speed operation, local or remote instrumentation. Systems are also typically assembled on small skids, which allow a great deal of flexibility over the size and shape of the finished system. The pumping action required from each system can also vary greatly in complexity depending on the application and the needs of the user, and custom-made control panels are fitted to almost every system shipped.

The combination of the proven ACS550 drives and AC500 PLC in this application adds - on top of energy efficient operation - flexibility and connectivity to Plad's pump product lines. This facilitates simple maintainability and ensures that future requirements can be incorporated with minimal engineering efforts by a PLC engineer. The AC500 also acts as the central interface for several pumps or ACS550 drives to the system's CP600 HMI panel, enabling open interaction, monitoring and visualization of single pumps, as well as the whole pump-set configuration.

ABB (ABBN: SIX Swiss Ex) is a pioneering technology leader in power grids, electrification products, industrial automation and robotics and motion, serving customers in utilities, industry and transport & infrastructure globally. Continuing a history of innovation spanning more than 130 years, ABB today is writing the future of industrial digitalization with two clear value propositions: bringing electricity from any power plant to any plug and automating industries from natural resources to finished products. As title partner in ABB Formula E, the fully electric international FIA motorsport class, ABB is pushing the boundaries of e-mobility to contribute to a sustainable future. ABB operates in more than 100 countries with about 147,000 employees. www.abb.com

About Plad Equipment

Founded in 1959, Plad Equipment today offers a very broad range of specialist pumps for applications including water pressure boosting, irrigation, sewage pumping, fire pumps, and condensate pumping. The company employs 65 people, and has a network of offices across Canada, with manufacturing in three locations: Montreal, Quebec and Vancouver. For more information please contact Robert Delisle, Plad Equipment Ltd., 680 de la sabliere, Bois des fillions, Quebec J6Z 4T7, Canada. t:+1 450 965 0224; f:+1 450 965 1571; www.Plad.com



Caption: A typical skid mounted booster pump installation from Plad Equipment, with dual pumps and a custom made control panel based on a combination of ABB drives and PLC.



Caption: The configuration flexibility built into the control system software that ABB provides makes it easy for Plad Equipment to optimise the pumping systems for each individual action, with variable speed drive, PLC, HMI, Pilot device and protection circuit.

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