

Emerson Unveils Plant Studies Supporting Use of Wireless as a Key Component in all Capital Projects

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Studies confirm that all three technologies - HART, FF and Wireless - should be in the design toolbox for capital projects.

Emerson Process Management has unveiled quantified results and other findings of two independent real-world Greenfield projects that recommend wireless infrastructure be a key component of all new projects. In one use case, JDI Contracts applied Smart Wireless technology to applications in a new process plant for a major U.S. chemical manufacturer; in the other, Emerson modeled a hydrotreater capital project. Economics, efficiency and advantages made the case for wireless with both JDI and Emerson.

“Our recommendations regarding “best practices” are centered around procedures and technology required to meet owner objectives and deliver expected project outcomes to our clients, including scope, schedule, budget, and less tangible outcomes such as maintainability and ease of use,” commented Roger Hoyum, principal engineer, JDI Contracts. “With wireless technology we can deliver a better plant.”

JDI worked with a major EPC and end user to study the project impact of wireless. They compared engineering, construction, startup, and overhead costs for approaches using wired HART, wired bus technologies, wireless, and combinations of each. Wireless was used for non-safety, low speed control and monitoring, amounting to about 25 percent of the total points.

With each paradigm shift - wireless being the latest - plants realized savings and became smarter through simpler engineering and construction, flexible start-up, faster deployment and project completion, and changing automation needs. For the use of Smart Wireless on 25 percent of points, overall plant engineering, construction and startup savings were about 10 percent of considered costs as compared with wired HART; for the bus installation, wireless savings were on a par with wired busing. Although not quantified, other considerations of flexibility and schedule impact were deemed very important in each approach.

“Wireless is an important new tool for use with HART and FOUNDATION Fieldbus in capital projects,” concluded Hoyum. “It delivers savings, flexibility, and speed of implementation.”

In their own study, Emerson used real data from a near-6000 point Greenfield hydrotreater project. Wireless was applied to 44 percent of all points. Similar to the JDI study, Smart Wireless showed significant savings of 36 percent in automation and installation as compared with a completely wired HART solution; FOUNDATION fieldbus was slightly less expensive than wireless due to use of high density temperature measurement, although as mentioned, wireless combines its relative low cost with the advantages of ease of use for difficult monitoring locations, flexibility and future growth.

In combination with its extensive experience in hundreds of wireless brownfield installations, Emerson conclusions from the Greenfield project studies is that Smart Wireless gives maximum cost advantage where installations are difficult, remote monitoring is required, and auxiliary systems are involved. Wireless eliminates the need for and cost of building in spare I/O capacity. Wireless devices are greatly flexible when it comes to making changes late in a project, and for temporary installations for start-up and troubleshooting. And, it's very easy to add incremental wireless points compared to wired bus points. Training and engineering are simplified with the inherently easy wireless technology. And wireless delivers larger, long-term operational benefits due to its easy, low cost expandability.

“Our takeaway from these studies is that all three technologies - HART, FF and Wireless - should be in the design toolbox for capital projects,” summarized Peter Zornio, chief strategic officer of Emerson Process Management. “The studies confirm that FF offers the lowest cost component for process control points. For monitoring points, both FF and wireless offer good alternatives and similar installation savings. Over the plant lifecycle, wireless adds significant benefits with simplified training, flexibility and allows very easy incremental expansion.”

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Emerson Process Management (www.emersonprocess.com), an Emerson business, is a leader in helping businesses automate their production, processing and distribution in the chemical, oil and gas, refining, pulp and paper, power, water and wastewater treatment, mining and metals, food and beverage, pharmaceutical and other industries. The company combines superior products and technology with industry-specific engineering, consulting, project management and maintenance services. Its brands include PlantWeb®, Fisher®, Rosemount®, Micro Motion®, Rosemount Analytical®, Bristol®, Daniel®, DeltaV™, Ovation®, and AMS® Suite.

About Emerson

Emerson (NYSE: EMR), based in St. Louis, Missouri (USA), is a global leader in bringing technology and engineering together to create innovative solutions for customers through its network power, process management, industrial automation, climate technologies, and appliance and tools businesses. Sales in fiscal 2008 were \$24.8 billion. For more information, visit www.Emerson.com.

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Acting as a strategic partner or a gap resource, through all or part of a project life cycle, the JDI team is committed to work with clients to identify clear business and technical objectives, supplying appropriately skilled personnel to work independently or embedded in a client team to develop comprehensive solutions. For additional information, please contact JDI at 218-328-0040.

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