

innovations

IN PROCESS CONTROL



“Experienced, skilled workers are becoming harder to source. Process companies are increasingly turning to service and support suppliers to fill the resources gap.”

Erik Lapre Vice President, Service, Europe

Read the full story on pages 4 and 5

Making a difference for those in the know



“The modularity of Emerson’s Smart Wireless technology, the ease and reduced cost of implementation compared to wired devices, and its reliability once installed have encouraged us to expand its use into other applications.”

Alessandro Catani, Plant and Energy Manager, **Enomondo**

When Enomondo needed to monitor a complex fuel pre-treatment operation, an incineration process and a new boiler, it chose Emerson’s Smart Wireless technology to increase the efficiency and capacity of its 13.7 MW biomass power plant in Faenza, Italy. Wireless technology enabled additional measurement devices to be installed quickly and easily, helping to optimise control of the process and contributing to an estimated 5% increase in overall operational efficiency. The availability of diagnostic data also improved predictive maintenance procedures. www.EmersonProcess.com/IM054

“Our tests concluded that Micro Motion ELITE Coriolis flowmeters are the only meters that can successfully measure silicone feedstock flow with high density bubbles.”

Atila Bozkaya, Project Control and System Design Engineer, **Unilever**

Micro Motion Coriolis flowmeters help Unilever enhance quality and reduce costs at major production facility in Turkey.

www.EmersonProcess.com/IM059

“With Emerson’s integrated operations management and control systems, we can automate the reporting process as well as gain tighter process control for increased productivity.”

Lorenzo Zampini, Automation Project Manager, **UCB**

UCB chooses Emerson’s automation and operations management technologies for one of Europe’s largest biotech plants in Bulle, Switzerland.

www.EmersonProcess.com/IM072

“By implementing Emerson’s Rosemount vortex technology, we have been able to build electric arc furnace solutions that guarantee optimum furnace efficiency for users.”

Roberto Urbani, Purchasing Manager, **MORE s.r.l.**

The accuracy and reliability of Emerson’s vortex flowmeters help MORE s.r.l. reduce energy usage and optimise electric arc furnace efficiency.

www.EmersonProcess.com/IM067

“Emerson had the right technologies and an experienced service team to ensure that our upgrade was completed on schedule.”

Carlos González Costea, Plant Manager, **EnergyWorks Cartagena**

Emerson completes system migration project within challenging 10-day scheduled outage, without interrupting supply of steam to neighbouring plastics factory.

www.EmersonProcess.com/IM064

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Welcome to **innovations**.



Emerson's mission is to develop new products and applications that help our customers' to respond to changing market needs and manufacturing processes. Equally important to our continued success is our ability to provide the highest levels of service and support for these

products in the neighbourhood of our customers' operations. As requirements for support change due to demographic shifts, process manufacturers are increasingly turning to us for services to keep their assets performing at peak efficiency. We are committed to meeting these needs and our recently launched global support service programme is a major initiative that will further develop and strengthen our capabilities. For example, in 2012 eight full-service facilities were added to our expanding network and we significantly increased the number of global support staff.

With more than 1 billion total hours of operation across 10,000 systems, Emerson Smart Wireless solutions have proven their reliability and enabled significant cost and installation-time savings. More customers than ever have adopted wireless solutions to solve their toughest problems: from measuring process conditions in hard-to-reach, extreme locations, to critical, day-to-day process control and monitoring to reduce energy costs and improve plant reliability. Among the industries benefiting the most are refineries, chemical facilities and upstream oil and gas producers. One such example on page 6, describes how Smart Wireless is helping RWE Dolni to maximise gas storage capacity.

As we continue to expand our wireless offering, the recently introduced Mobile Worker: Voice and Video will help process manufacturers save time and money on plant maintenance. Details on page 8. Enjoy!

Roel Van Doren

President, Emerson Process Management Europe



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Expanded global service and **SUPPORT**



With skilled and experienced workers becoming

harder to source, process companies are increasingly turning to service and support suppliers to fill their resources gap. Erik Lapre, Vice President, Service, Europe, outlines how Emerson's recently launched global support service initiative is being implemented across Europe to meet changing customer needs.

The economic pressures and the loss of experienced personnel due to demographic shifts means that most process manufacturers have only the staff necessary to maintain efficient operations. This leads to a “capabilities gap” when substantial new capital investments are undertaken or when maintenance requirements spike, as during plant turnaround. Less maintenance staff means that more devices are running to failure at a time when spares inventories are being reduced. This translates into an increased need for services and support across our range of products.

Emerson's recently launched global support service initiative provides customers with prompt local service for their process operations. These strengthened and expanded service and support capabilities will help our customers meet the challenges they face today.

Supporting this initiative we can announce that three new service centres will be opened in Europe this year supporting our established Certified Repair and Quick Ship product manufacturing and service centres.

We are also addressing the increasing trend for process facilities to be commissioned in emerging markets where skilled workers are hard to find.

Process manufacturers can keep their assets performing at peak efficiency, with the support of local service centre facilities and skilled service teams.

As a result, process manufacturers are turning to us more and more for services to keep their assets performing at peak efficiency. Our commitment is to meet these needs with local service centre facilities and skilled service teams.

In 2012 Emerson extended its current footprint of 374 global service locations by opening eight full-service facilities staffed by trained, certified personnel. In the next few years the company expects to increase the number of service facilities by nine per year, while expanding its support staff at a pace roughly double the underlying automation market growth rate.

To address the challenge of shrinking plant maintenance budgets, Emerson has developed a family of reliability services including asset prioritisation, on-site or remote asset management, and turnaround planning and management. However, while process manufacturers realise that achieving best-in-class operations often requires adopting new technology, they are not necessarily staffed to implement major technology initiatives. By further augmenting customers' existing operating staff with Emerson service specialists to help plan the adoption of new technology and maintenance best practices, plant uptime can be improved more quickly and reliably.

Customers can also take advantage of Emerson's extensive online training capabilities to re-skill workers without travel costs or time away from their facility.

We are also responding to an unprecedented growth in the number of very large projects we are handling. With new projects growing at double-digit rates, we are adding engineering capacity to meet customers' needs for effective, timely project execution.

We're not just adding staff - we're making them more efficient and effective. For many years Emerson has been investing in standard practices and tools for project engineering and are taking advantage of global communications technology to be able to locate talent globally and then deploy our expertise anywhere it is needed. Our commitment is to meet our customers' demands for competitive, predictable, high-quality engineering services that get them into production and making money as quickly as possible.



MAXIMISE



To maximise storage capacity, we needed to upgrade our instrumentation but it was impossible to install a cabled solution within the scheduled downtime, explains Pavel Šilinger, Energy Manager, RWE Gas Storage s.r.o. Emerson's wireless solution took a quarter of the time to install, and saved around 20% of the cost of a cabled installation.

The RWE Dolní Dunajovice underground gas storage facility in the south of the Czech Republic has active operating reserves of 900 million cubic metres of gas, with a current maximum daily output of 15 million cubic metres. RWE is continually looking to improve the overall effectiveness of its storage facilities, as measured by the maximum daily input and output.

At RWE Dolní Dunajovice better control was needed, which required higher visibility into the process, however manually reading over 100 pressure and temperature measurements took roughly two hours per shift. It was essential to automate these measurements, which would provide the process visibility required and increase operator efficiency - enabling them to perform other more important activities.

New online pressure, temperature and level measurements were required, as well as access to diagnostic data from existing control valves. This would enable

operators to run the facility closer to capacity and also minimise downtime by detecting problems that would otherwise lead to unplanned maintenance.

The difficulty was installing the 100 new automated measurement points required during the two-week window available in the autumn and spring when neither injection nor withdrawal takes place. To add to this difficulty, there was no existing cabling infrastructure available to support the new digital measurement devices, and also a lack of available I/O cards in the control host. RWE investigated the possibility of installing new cabling but installation could not be accomplished in the two-week period. Increasing the shutdown period would cost RWE an estimated \$250,000/day in lost income.

RWE selected Smart Wireless technology from Emerson Process Management. Based on IEC 62591 (*WirelessHART*[®]) communications, the availability of HART[®] data,

including diagnostics from new and existing devices, was a significant reason for selecting this technology. Smart Wireless technology also enabled RWE to continue to operate injection/withdrawal even when wireless transmitters were being installed. This meant that the instrumentation upgrade could be split into manageable sections and implemented "live," with no concern about overrunning and affecting normal operations.

Five separate Smart Wireless networks were installed using five gateways to deliver data from the 50,000-square-metre facility to the control system. Over 100 new Smart Wireless devices were installed – mainly Rosemount wireless pressure and temperature transmitters, but a number of Rosemount Guided Wave Radar level transmitters and Fisher control valves were also connected using Emerson's THUM™ Adapters.

Benefits were realised almost immediately. For example, seven oil-fired boilers previously

gas storage capacity



only had local indicators of oil levels. With the new automated system they can monitor filling from the control room which, when combined with the other measurements, freed operators from almost two hours per shift in manual monitoring.

By implementing a wireless rather than a wired solution, RWE saved around 20% on the cost of installation and commissioning. There is also a saving of 10% per year on its maintenance costs. Remote online access to diagnostic information has enabled potential problems with instruments to be identified and corrected earlier, helping to improve plant safety for equipment and workers.

www.EmersonProcess.com/SmartWireless

Smart Wireless technology enabled RWE to continue to operate even when wireless transmitters were being installed.



Having experienced workers onsite is essential should a problem develop. But local teams may not always have the right knowledge to correct the issue and return a plant back to its optimum operating level. Neil Peterson, Senior Manager, Wireless Marketing, explains how the latest wireless technology and mobile equipment can bring the problem to the expert, saving cost, reducing plant downtime and enhancing efficiency.



Real-time audio/visual communication enables immediate assistance from an expert to guide you through a problematic situation, no matter where they are located.

Companies today are faced with a shortage of skilled and experienced operations personnel, making it important to get the maximum productivity from each worker. For companies with operations in remote areas, local highly-skilled labour is simply not available. This means that when problems occur, scheduling repairs or getting experts to a remote location can be both costly and time-consuming. The delays incurred can result in lost production and increased safety and environmental risks.

One approach to this problem is for companies to establish a centralised technical resource and staff it with experts - iOps. But how do you get the problem to the expert so they can investigate problems and guide the local team through the rectification process?

Many process companies are installing wireless networks to enable communications throughout their facilities. Taking advantage of this growing wireless network availability, Emerson has introduced a Mobile Worker kit, which allows an engineer in the field to wirelessly communicate in real-time, with experts located anywhere in the world. The kit comprises a wearable video conferencing tool with a headset consisting of a microphone, earpiece, and camera that is pointed at the problem that the wearer is focused on.

The video camera, headset, and noise-cancelling microphone attach to a hardhat. A small touch-screen interface straps to the chest and an additional video camera can be hand-held to zoom into areas too small for the headset camera to access. Secure, encrypted communication allows real-time conferencing over the plant network or the internet. This communication can take place over a local Wi-Fi network, on a cellular wireless network, or even through a satellite via a BGAN access point.

The mobile worker kit allows a field operator or maintenance person with limited experience and

munications

located in a remote area, to obtain real-time audio/video guidance from an expert, to diagnose, repair or replace critical pieces of equipment without the need to bring that expert to the site. In addition, the Mobile Worker kit is ATEX Zone 2 – suitable for use in hazardous areas.

In a plant emergency, first responders equipped with a live voice and video feed can be in direct contact with central operations – giving them a close-up of the emergency – whether that is rendering first aid to an injured worker, or shutting down failed equipment. A live high definition picture conveys instantly the exact situation the plant is dealing with.

With the growing popularity of virtualised classrooms, the mobile worker kit can also be used as a training tool. The voice and video capabilities of the mobile worker kit enhances the virtual classroom experience by allowing for bi-directional communication and close-up camera work on the equipment of interest, eliminating travelling expenses for trainer and trainees.

The kit enables workers to receive real-time information on how to avoid hazards, more quickly perform maintenance in hazardous environments, and report developing abnormal situations. It enhances productivity and enables fewer and less-experienced people to do work that previously required many more; in some cases it makes it possible for a single person to perform both operation and maintenance tasks.

www.EmersonProcess.com/IM073

Mobile Worker Kit:
a wearable video
conferencing tool.



Innovative technologies



Competitive markets and diverse product ranges place increasing demands on production processes, making them increasingly complex. Processing companies require their automation system to meet these demands by simplifying those complex operations, while increasing productivity and reducing costs.

The new version 12 of Emerson's DeltaV™ digital process automation system, offers significant technological innovations that will provide customers with greater levels of flexibility, predictability and security needed to achieve these aims.

For example, for users who produce in batches, the v12 release includes features and capabilities that help correct manufacturing problems before a batch becomes irreparably compromised. This includes an easy-to-use analytics application that provides real-time quality predictions while the batch is in process. Using sophisticated models, it can trace the causes of manufacturing variations that can render a product below specification or unmarketable.

For customers with security concerns, the new Emerson Smart Firewall product in v12 allows users to easily set up a safe and secure network for the automation system, locking down the control system network against unauthorised downloads and hacking without costly consulting from security or IT experts.

In addition to these operational improvements, v12 has key features to simplify the installation and commissioning tasks for system builders who are under constant pressure from tight project schedules and changing customer

requirements. They need an automation system that is flexible enough to enable designers and installers to make changes to set up, without delaying the plant build project.

The DeltaV system v12 expands Emerson's innovative Electronic Marshalling technology by making it available in the DeltaV safety instrumented system (DeltaV SIS™), combining the system's proven performance and reliability, with Electronic Marshalling's installation flexibility and space savings.

The v12 release also includes integrated virtualisation technology, which enables users to easily consolidate computer resources and reduce implementation and maintenance costs. DeltaV Virtual Studio makes it easy to create virtual DeltaV systems from pre-built templates and pre-configured virtual networks.

The new features and capabilities of DeltaV v12 are part of an on-going expansion of Emerson's focus on Human Centred Design (HCD). This design strategy integrates operator information and technology in ways that make it easier to recognise and respond to process variables with control solutions for better productivity, reduced error and operating cost.

www.EmersonProcess.com/IM078



Integrated reservoir engineering software suite

Reservoir operators need fast and accurate reservoir performance predictions, history matching, uncertainty quantification, and economic evaluations. Roxar Tempest™ 7.0 integrated reservoir engineering software suite helps operators make economic and field development decisions to mitigate risk, effectively and efficiently allocate of capital and resources, and increase oil and gas recovery. Roxar Tempest 7.0 provides a single, consistent interface to E&P reservoir engineers. Operating alongside Emerson's Roxar reservoir modelling solution, it builds on the previous versions of Emerson's simulation and history matching software.
www.EmersonProcess.com/IM081



FIELDVUE digital valve controller with PROFIBUS PA

PROFIBUS users can now experience the performance and reliability demanded in today's process control environment with the introduction of the FIELDVUE DVC6200p PROFIBUS PA digital positioner. Built on Emerson's highly successful and innovative linkage-less, non-contact sensor technology the DVC 6200p is certified to Profile 3.02 for PROFIBUS PA devices. The DVC6200p provides a wealth of alerts, trends, and diagnostics to allow for process visibility and control not previously available in a PROFIBUS PA digital valve controller.



Wireless vibration transmitter for machinery in hazardous areas

With many assets such as pumps and fans located in hazardous areas in chemical, petrochemical, and off-shore facilities, accessing data on the condition of machinery was previously only possible by installing expensive cabling. Now Emerson's CSI 9420 Wireless Vibration Transmitter with intrinsic safety ratings to European standards and ATEX Zone 0 and Class I, Div 1 ratings, can be installed directly in hazardous areas. The CSI 9420 connects quickly, easily and economically to any machine, extending the benefits of wireless technology across the plant.
www.EmersonProcess.com/IM080



Smart Wireless for intelligent well production

The constant demand for oil and gas has forced the upstream market to apply new unconventional methods of extracting hydrocarbon liquids. Emerson's new IEC 62591 compliant *WirelessHART*® Interface for use with its Remote Terminal Units (RTUs), directly integrates Smart Wireless networks with Emerson's family of remote terminal units and flow computers. The native interface saves commissioning and start-up time, since no external gateways, Modbus or data mapping are required. This reduces installation cost and time, and increases reliability and operating efficiency.
www.EmersonProcess.com/IM079

Further information

Emerson Process Management is always looking for new and innovative ways to enable customers to connect with them. These include local country websites, the award winning Emerson Process Experts blog – which includes an automatic translation tool, social media pages and twitter.

Web

www.EmersonProcess.com

Blogs

Emerson Process Experts

Connecting with the people behind the technologies and expertise. Site equipped with automatic translation.

www.EmersonProcessxperts.com

DeltaV News

DeltaV - Emerson's digital automation system for process control.

news.easydeltav.com

Modelling and Control

The dynamic world of process control, site equipped with automatic translation.

www.modelingandcontrol.com

The Emerson Global Life Sciences Blog

Timely, targeted and relevant information for professionals in the life sciences industry.

www.Emersonlifesciences.blogspot.com

Analytic Expert

Discussing the application of liquid and gas analysers.

www.analyticexpert.com

Micro Motion On-line Community

On-line resource for Coriolis flow & density measurement. Contains a blog and forums.

<http://community.micromotion.com>

Community

The Emerson Global Users Exchange is a unique opportunity to exchange ideas, best practices, and proven solutions with leaders in the process industry.

www.EmersonExchange.org

Emerson Exchange 365 is the global peer-to-peer on-line Emerson Users Exchange Community with a built-in translation facility.

www.EmersonExchange365.org

LinkedIn

Enter the following group names into the search bar in LinkedIn

DeltaV Digital Automation System

DeltaV SIS Process Safety System

Emerson Global User Exchange

Syncade suite

Micro Motion



Emerson Process Experts

www.facebook.com/EmersonProcessXperts

Micro Motion

www.facebook.com/micromotion

DeltaV

www.EmersonProcess.com/DeltaVFacebook

Emerson Process Management

www.facebook.com/EmersonProcessManagement

Rosemount Process Level

www.EmersonProcess.com/ProcessLevelFacebook



www.youtube.com/user/EmersonPlantWeb

www.youtube.com/user/DeltaVsystem

www.youtube.com/MicroMotionVideos

www.youtube.com/user/RosemountMeasurement



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