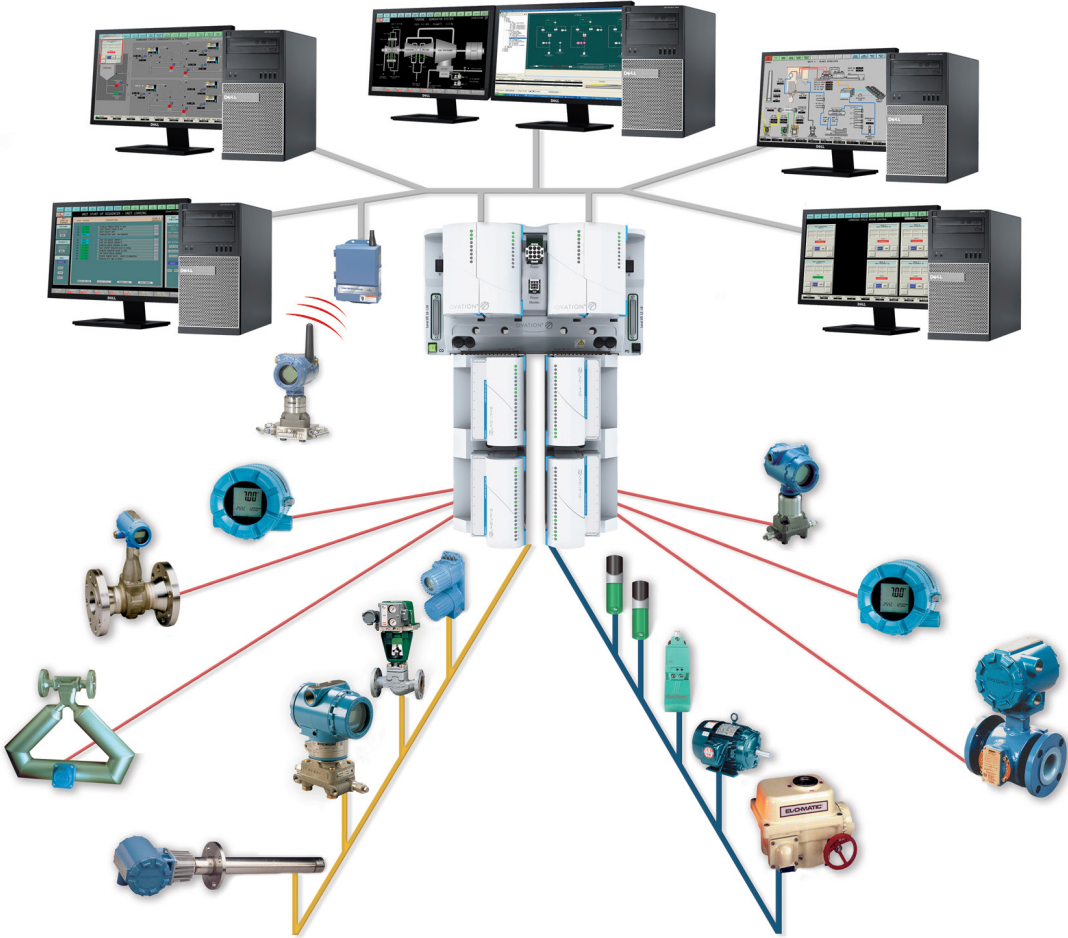


# The Ovation™ Control System

*Advanced technology for secure operations and best-in-class performance*



# Ovation

Precise Control

*A key component of Emerson's PlantWeb digital architecture, the Ovation™ distributed control and SCADA system gives users higher levels of plant availability, reliability, and environmental compliance. Optimized for the global power generation and water/wastewater industries, Ovation embodies Emerson's five decades of unsurpassed expertise in the control and management of these complex operations.*



## GAINING A COMPETITIVE ADVANTAGE

The Ovation system was designed from the ground up to help you achieve operational excellence and create a sustainable competitive advantage.

Ovation's field-proven control design techniques developed over the last five decades provide tighter, more precise and predictable control while a host of advanced control and process optimization software allows you to further enhance operations by automatically balancing the process for the optimum results.

From basic control and monitoring to fleet or district-wide integration, Ovation offers seamless communication with fieldbus networks, intelligent field devices and integrated asset management solutions to deliver the power of predictive intelligence to operations and management personnel.

## KEEP PACE WITH THE LATEST TECHNOLOGY

By incorporating commercial, off-the-shelf technology throughout the system, Ovation provides a powerful yet adaptable platform that gives you greater operational flexibility than other systems while also protecting your engineering investment by allowing you to continually modify and expand the system to meet new challenges.

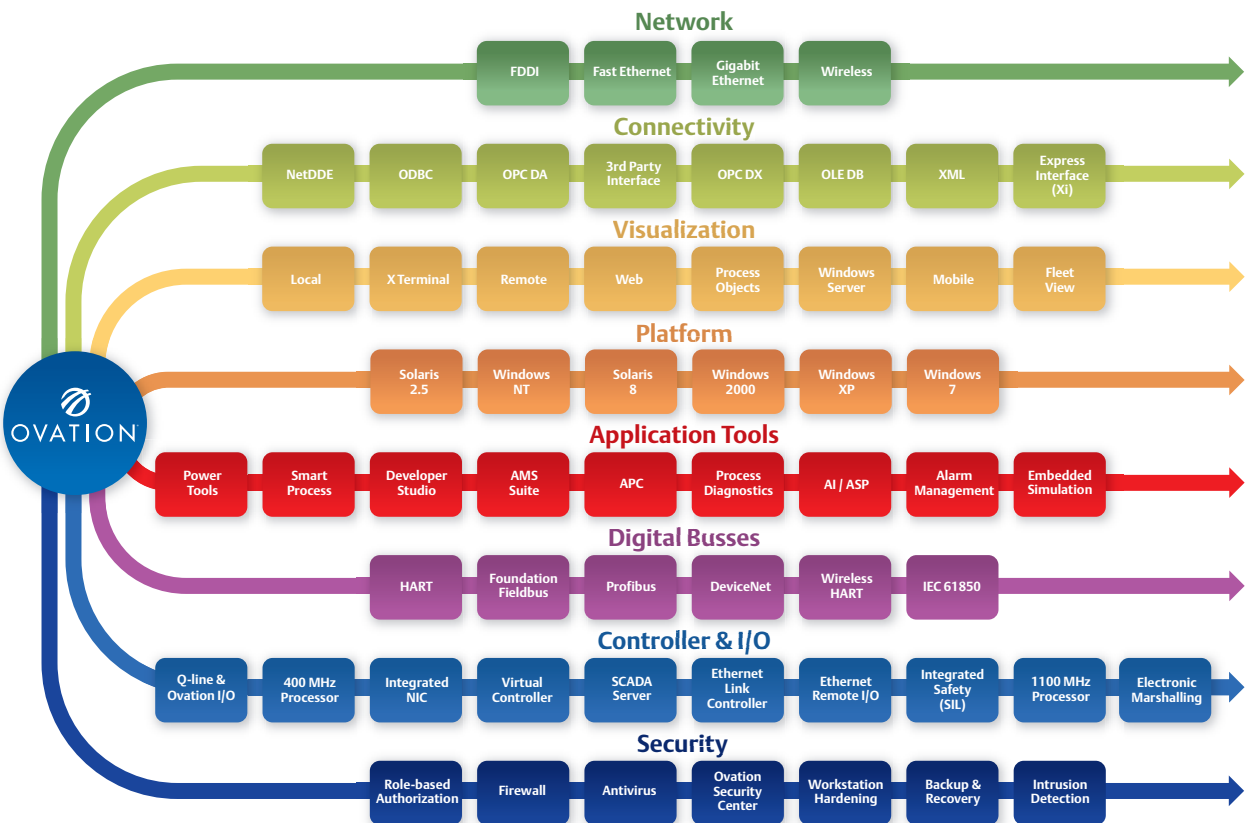
This means your Ovation system can evolve incrementally as your process grows or as technology progresses. Ovation eliminates fears of rapid system obsolescence by allowing you to stay current with state-of-the-art developments in communications, processing and advanced applications.

# Increased Reliability

## THE OVATION EVOLUTION

Built using industry standard hardware platforms, operating systems and network architectures, the Ovation system stays new in the face of rapidly advancing computing technology.

Ovation reduces maintenance costs and preserves your investment by incorporating industry-standard components as opposed to the proprietary structures of the other systems. Over time, your Ovation hardware can evolve incrementally, incorporating new operating systems, hardware platforms and network topologies while preserving your vital engineering investment in control logic, graphics and operator training.



*The Ovation system is optimized to meet the unique needs of the power generation and water/wastewater industries. More than five decades of Emerson experience covering thousands of power generation and water treatment projects allowed us to tailor the Ovation system exclusively for these demanding processes.*



Ovation includes embedded applications such as fully coordinated boiler/turbine control, emissions monitoring, economic dispatch and fleet management for power projects. For water, wastewater, and renewable applications, Ovation incorporates a SCADA interface for wide-area monitoring and control, seamless PLC integration, and comprehensive diagnostics programs.

Coupled with Emerson's PlantWeb™ digital architecture, the Ovation system provides powerful technology for secure operations and best-in-class performance.

## TIGHTER, MORE RELIABLE CONTROL

The Ovation system is renowned for delivering precision control with outstanding performance. That precision begins with the **Ovation Controller**. With an Intel-based processor at its heart, the Ovation Controller provides full-redundancy to assure the reliability and security necessary for even the most demanding application.

In addition to a comprehensive set of over 100 standard algorithms, Ovation also provides the ability to embed advanced control algorithms that leverage the ever expanding computing power of the Ovation Controller. This capability allows you to take control to a higher level by incorporating model predictive control and industry specific advanced applications to reduce process variability and optimize performance over the full range of plant operating conditions.

Ovation also provides seamless integration with intelligent field devices and widely adopted bus standards such as HART, Foundation Fieldbus, Profibus DP and DeviceNet.

Using the rich data provided by 'smart' devices, Ovation's native application of Emerson's **AMS Suite: Intelligent Device Manager** allows you to implement a predictive maintenance program that continually analyzes device health, identifying problems before they impact the process while avoiding costly and unnecessary maintenance on healthy devices.

## OVIATION PLANTWEB ALERTS

Ovation PlantWeb Alerts generate alarms notifying you of performance issues in field devices. **PlantWeb Alerts** include **Advisory Alerts** to assist in maintenance planning, **Maintenance Alerts** that indicate that immediate maintenance is required, and **Failure Alerts** that indicate a device has failed, allowing plant operators to react accordingly.

## CLEAR, CONCISE OPERATIONS

Providing plant operators with a clear, concise, easy to navigate window to the process is vital to successful operations. The **Ovation Operator Workstation** accomplishes that mission with crisp, high-resolution process graphics, built-in trending data, advanced system diagnostics displays, user-friendly help screens

and a sophisticated alarm management and analysis package that prioritizes alarms to quickly isolate and address problems.

## INTUITIVE PROGRAMMING TOOLS

The **Ovation Engineer Workstation** provides an intuitive, easy to use graphical interface that allows your personnel to focus on the plant or control process at hand, rather than the base program. It combines all of the functions of the operator workstation with the tools needed to create, configure and maintain Ovation control logic, graphics, point records, and system-wide configurations, including security.

The Engineer Workstation's **Developer Studio** is a graphical menu-driven interface using standard drag and drop functionality to easily move or copy elements from one application to another. The object-oriented approach to system configuration provides a familiar operating environment, thus reducing the learning curve, simplifying development, and ultimately saving significant engineering effort.

## LEVERAGING THE POWER OF INFORMATION

Ovation offers a host of capabilities that fully integrate field devices, third-party systems, and corporate networks, providing accurate process information when and where it is needed.

The **Ovation Network** is an unaltered Fast Ethernet that serves as both a control and information highway providing easy connectivity to virtually any Ethernet enabled device. Ovation also offers a multi-network capability allowing you to integrate multiple Ovation systems both within an individual plant site, or throughout a number of geographically disperse sites, streamlining the collection and correlation of information from various units.

The **Ovation Process Historian** collects and organizes the vast amount of process data from the system making it available via the Ovation Network to operators, engineers, maintenance personnel and plant management. The Process Historian is designed for interfacing with business databases and spreadsheet applications allowing raw process data to be easily converted to valuable information.

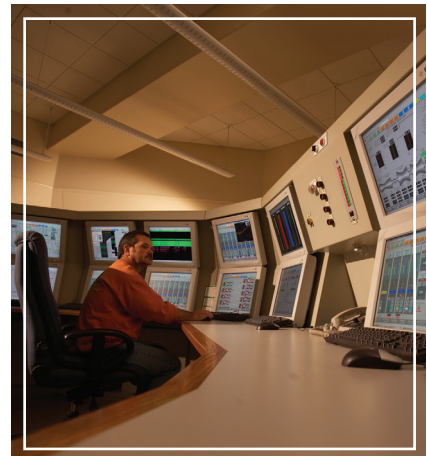
## CONNECTIVITY

The Ovation system also includes direct connectivity to PLCs and OEM control systems. Ovation incorporates many standard data exchange protocols such as OPC and its predecessors, NetDDE and ODBC. EDST™ offers a web viewer for remote visualization of real-time process graphics.

## OVATION SECURITY FEATURES

The Ovation system addresses security concerns such as machine authentication, password management, workstation hardening, and disabling prohibited activities. Antivirus software solutions complement Emerson's existing cyber-security measures allowing deployment of regularly updated virus definitions.

The **Ovation Security Center** offers additional security functions and services that have the ability to enhance and manage the cyber security of an Ovation system.



Fast,  
Powerful,  
Flexible



# Ovation

## DCS & SCADA

*The Ovation system is a product of our five decades of experience in process control for the power generation and water/wastewater industries. Ovation utilizes commercially available, off-the-shelf technology to provide a powerful and secure architecture while allowing your system to easily progress with rapidly advancing computer technologies. It provides a seamless interface with the most widely adopted bus-standards allowing you to incorporate smart device technologies into your process. And Ovation's embedded advanced algorithms and proven industry-specific control routines assure that you can optimize your operations to maximize efficiency, productivity and profitability.*

### AMS SUITE: INTELLIGENT DEVICE MANAGER

### OPERATORS WORKSTATION

Off-the-shelf desktop PC workstations with a standard Windows® operating system

### OVATION PROCESS HISTORIAN

### OVATION CONTROLLER AND I/O

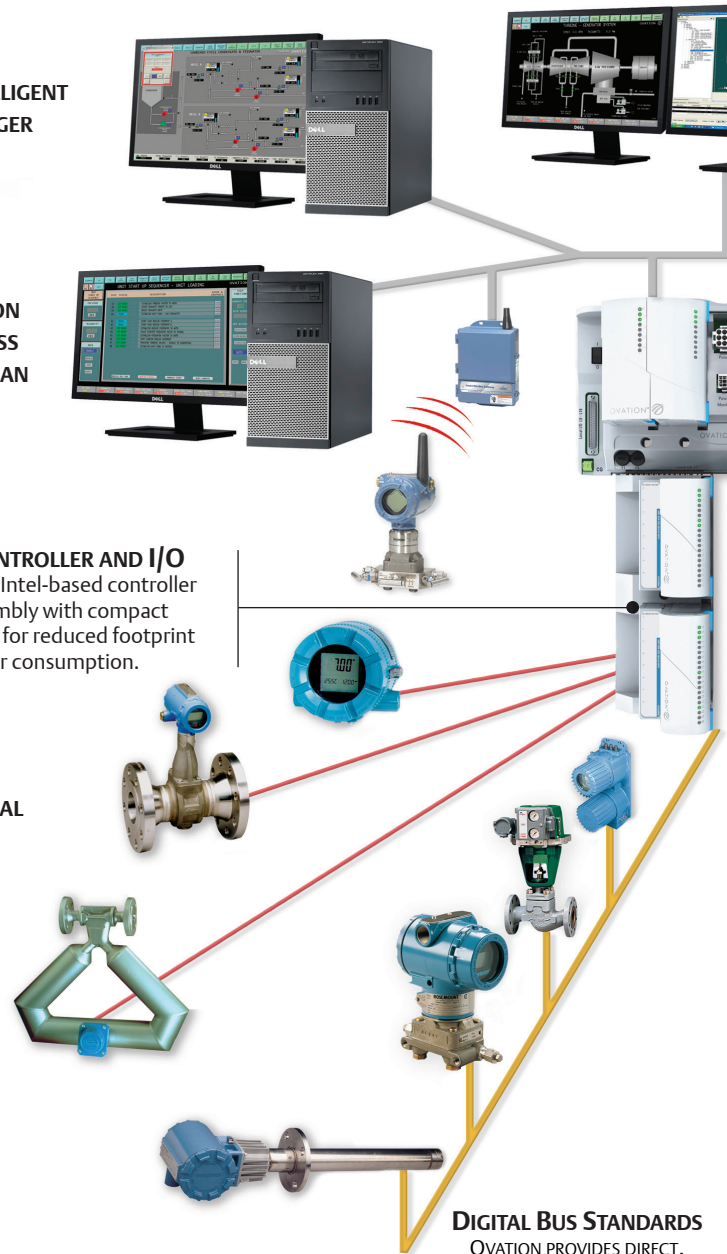
Fully redundant Intel-based controller and I/O assembly with compact modular design for reduced footprint and power consumption.

### CONVENTIONAL 4-20 MA

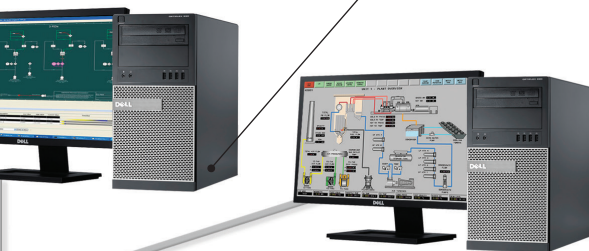
### FOUNDATION FIELDBUS

### DIGITAL BUS STANDARDS

OVATION PROVIDES DIRECT, SEAMLESS ACCESS TO THE MOST WIDELY ADOPTED DIGITAL DEVICE COMMUNICATION STANDARDS: HART, FOUNDATION FIELDBUS, PROFIBUS, DEVICENET.



**FAST ETHERNET**  
An unaltered Fast Ethernet  
control & information network



**OVATION  
SCADA MASTER**

**OVATION ENGINEER  
WORKSTATION/  
DEVELOPER STUDIO**

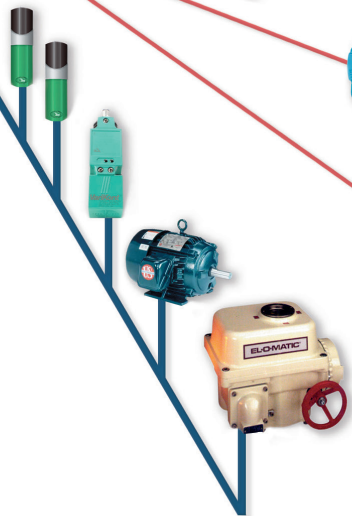


**EMBEDDED APPLICATIONS**

Ovation incorporates a host of applications to speed system engineering and maintenance, provide advanced diagnostics, facilitate communications, and optimize process operations.

- Easy-to-use Control Builder
- Highly flexible Graphics Builder
- Embedded Security Builder
- AMS Suite: Intelligent Device Manager for predictive maintenance
- OPC connectivity to business systems
- Industry specific advanced control algorithms to allow on-line process optimization

**HART**

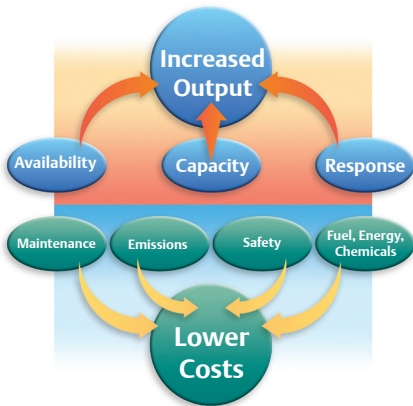


**PROFIBUS/DEVICENET**

*Widely adopted commercial technologies are the fundamental building blocks of the Ovation system. By incorporating these technologies Ovation provides an easy to use, easy to maintain system architecture that allows you to modify, expand and evolve the system as your needs change or as other, more advanced technologies are introduced.*

**Designed for your  
*unique* needs  
and applications**

*As a key component in Emerson's PlantWeb digital architecture, Ovation offers a growing and unequalled array of fully integrated products and capabilities to help you gain and maintain a competitive advantage for many years to come.*



Increased output. Lower costs. With PlantWeb, you can have both.

PlantWeb is an automation solution that delivers asset management, process control and management execution through intelligent field devices, industry standard platforms, and integrated modular software. It provides seamless connection to widely adopted digital 'smart' device communication protocols including HART, Foundation fieldbus, Profibus DP and DeviceNet.

## NEW PROJECT BENEFITS

An Ovation PlantWeb architecture can reduce project installation costs over 36% through significant savings in wiring and conduit requirements, reduced engineering expense during system configuration and commissioning, and earlier, more trouble-free plant startup. In fact, an independent study showed that on a new 2 x 1 combined cycle plant, the implementation of a PlantWeb architecture can result in \$7 million of savings in equipment, engineering and construction costs, plus a six week reduction in startup schedule.

## OPERATIONAL AND MAINTENANCE BENEFITS

These standard platforms in a PlantWeb architecture have been field-proven in hundreds

of applications to improve plant efficiency by as much as 2% by boosting plant availability, capacity and response while reducing operations and maintenance costs through the life of the plant.

## LEVERAGING DIGITAL INTELLIGENCE

The Ovation PlantWeb digital plant architecture begins with a strong foundation of intelligent field devices from industry leaders such as Fisher and Rosemount. With their digital capabilities — including onboard microprocessors, embedded software, and open-standard communications — these field devices can...

- Deliver precise measurement and control to reduce process variability.
- Handle multiple variables to reduce the number of devices required.
- Perform diagnostics to monitor device health, predict problems, and avoid downtime.

## CONNECTING YOUR PLANT

PlantWeb uses open communication standards to link field intelligence, systems and applications in a plant wide network that delivers information when and where it's needed. Open,



industry-proven communication standards let you select the best components to meet your needs, integrate them with other plant and business systems and add more products or capabilities in the future.

Besides supporting popular protocols from Fast Ethernet to DeviceNet, Profibus DP, and Modbus protocols, PlantWeb provides a single, integrated environment that delivers the full capabilities of HART, Foundation fieldbus and OPC.

From fully coordinated boiler-turbine control to wide area SCADA controls, Ovation controls are successfully employed in thousands of applications. Ovation also features fully automatic startup/shutdown sequencing, intelligent alarm management and automated loop tuning to align the process with current plant conditions.

## ADVANCED CONTROLS

A wide variety of advanced Ovation control software incorporating model predictive control, and other tools are available to meet the specific control challenges of power generation and water/wastewater facilities.

Advanced control solutions are available for Environmental Compliance to support NO<sub>x</sub>, SO<sub>2</sub> and CO<sub>2</sub> reduction and process efficiency including pump sequencing, combustion optimization, energy management and chemical usage optimization.

Other available Ovation advanced control packages include Sootblower, SCR and FGD optimization, Steam Temperature optimization, and Fleet Emissions optimization.

## OVATION SIMULATION

Emerson offers Ovation Simulation solutions using virtual technology that faithfully replicates the Ovation DCS within a simulator configuration by using a few desktop workstations. This approach reduces hardware costs and footprint, allows easy portability for use throughout the facility, and greatly simplifies ongoing simulator maintenance and upgrades to track ongoing control system modifications.

Ovation simulation is a valuable and flexible tool to improve plant operations. Typical applications include DCS validation prior to its installation, operator training programs, engineering upgrades, and control changes to improve plant performance.

*Ovation's field-proven control applications design techniques developed over five decades of experience in the power generation and water/wastewater industries provide tighter, more precise and predictable control.*



Fully  
integrated  
products

*Behind every Ovation system stands an array of service and support capabilities to ensure your system provides the utmost in performance and reliability.*



## COMPREHENSIVE SUPPORT FOR THE LIFE OF THE SYSTEM

That support begins with our customer training programs. Conducted by experienced engineers at your facility or ours, our training programs provide your operators, engineers, and technicians with the knowledge and skills they need to effectively operate and maintain your systems. Our training programs are tailored for your needs and can include custom-designed plant simulators that employ the same software and graphics used on the actual system.

We also understand the pressures to minimize plant staffs while maximizing plant performance. With that understanding, we have structured our service and support programs to provide the flexibility and responsiveness necessary to meet your needs.

Our SureService™ program allows you to customize a service and support program to meet your

specific needs. SureService includes 24-hour telephone support, remote systems diagnostics, software updates, antivirus updates, scheduled on-site visits, emergency service calls, and coverage for critical components. Packages can also include training programs as “refresher” courses for experienced personnel or introductory courses for new personnel. We also offer periodic audits and assessments of system configuration based on process requirements to identify opportunities for improvement.

As an additional service, our secure, Internet-based program provides off-site archiving of system software, online tutoring programs, remote system diagnostics, and custom application enhancements to increase the efficiency of your control software.

And our unique SureService Evergreen program is designed to provide scheduled, periodic hardware and software upgrades to keep your Ovation system current with rapidly advancing technology.

# Unparalleled service and support

**EMERSON. CONSIDER IT SOLVED.™**

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**[www.EmersonProcess-PowerWater.com](http://www.EmersonProcess-PowerWater.com)**

**Emerson Process Management  
Power & Water Solutions**

200 Beta Drive  
Pittsburgh, PA 15238  
USA  
T: 1-800-445-9723  
T: 1-412-963-4000  
F: 1-412-963-3644

**Emerson Process Management**

1 Pandan Crescent  
Singapore 128461

T: (65) 6777-8211  
F: (65) 6770-8015

**Emerson Process Management  
Power and Water Solutions Sp. z o.o.**

Szturmowa 2A  
02-678 Warszawa  
Poland  
T: +48 22 45 89 100/101  
F: +48 22 45 89 146