

Visualization and Information

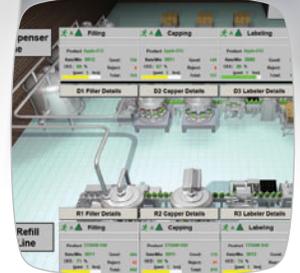
Informed Decisions. Optimized Plant.



Performance Current Shift

Material	Used (kg)	Target (kg)	Quality (%)
Water	100.00	100.00	100.00
Sanitizer	100.00	100.00	100.00
Recovered Water	100.00	100.00	100.00
Fresh Water	100.00	100.00	100.00

OEE %



LISTEN.
THINK.
SOLVE.

Visualization: HMI and Information

Open a Window Into Your Process and Equipment

Access Data at Every Level of the Enterprise

Your control system continually produces valuable system and production data. Seeing that information – on an operator interface display or a desktop dashboard – helps you and your team make informed decisions that can minimize costs and improve response time. With the right visualization system in place, you achieve enterprise-wide integration of data vital to management, operations and engineering functions.

Rockwell Automation® helps you realize your automation investment with a scalable visualization solution that spans production operations, from stand-alone machines, primary process and discrete manufacturing through secondary operations. We can extract production data and transform it into information that provides an enterprise-wide view.



Transform raw data from your control systems into a strategic asset.

Creating Value

Unlock Hidden Data. The Rockwell Automation information-enabled architecture, **allows you to extract, share and use information directly from the source – your automation control system.** You gain the ability to track critical assets and analyze production at multiple layers in an organization, all drawing from the same data source. Now you see, in context, ways to rearrange resources to increase throughput. You predict more than react.

Design Productivity. Efficient asset utilization improves system performance. Think about the advantages of using a **standard set of engineering objects** across all your human machine interface (HMI) applications. Imagine the efficiencies gained in sharing the most efficient development methods and standards from anywhere in the world.

Scalability. Rockwell Automation offers a comprehensive visualization solution that starts at the machine-level, on the plant floor. Our operator tools use a **common software platform that tightly integrates with the control system** and delivers strategic insight through the entire global enterprise.

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Plant-wide Optimization

Starting with the equipment on your production floor, maintenance and control engineers can now **more easily access and utilize information** to efficiently maintain production and processes.

Plant-wide optimization means that individuals closest to the equipment see information most relevant to their day-to-day jobs. This data can also be given context, along with data from other systems to make the information meaningful to individuals in other roles.

Dashboards display key production line data for operators, for example, while plant managers have the ability to use this same information to isolate line performance, track scrap costs, and monitor downtime.

Machine Builder Performance

Visualization options help machine builders design, develop and deliver systems that can scale to user demands. By leveraging industry standards and global support infrastructures **machine builders lower their transaction costs** through efficient **programming tools standardization.**

The information-enabled attributes open up new opportunities for machine builders. Visualization solutions enable them to offer **enhanced remote support, maintenance and performance management** of their equipment.

The scalability, ease of integration, and end-user preference of Rockwell Automation allows machine builders to deploy systems anywhere in the world.

Unlock the Strategic Value of Your Control System

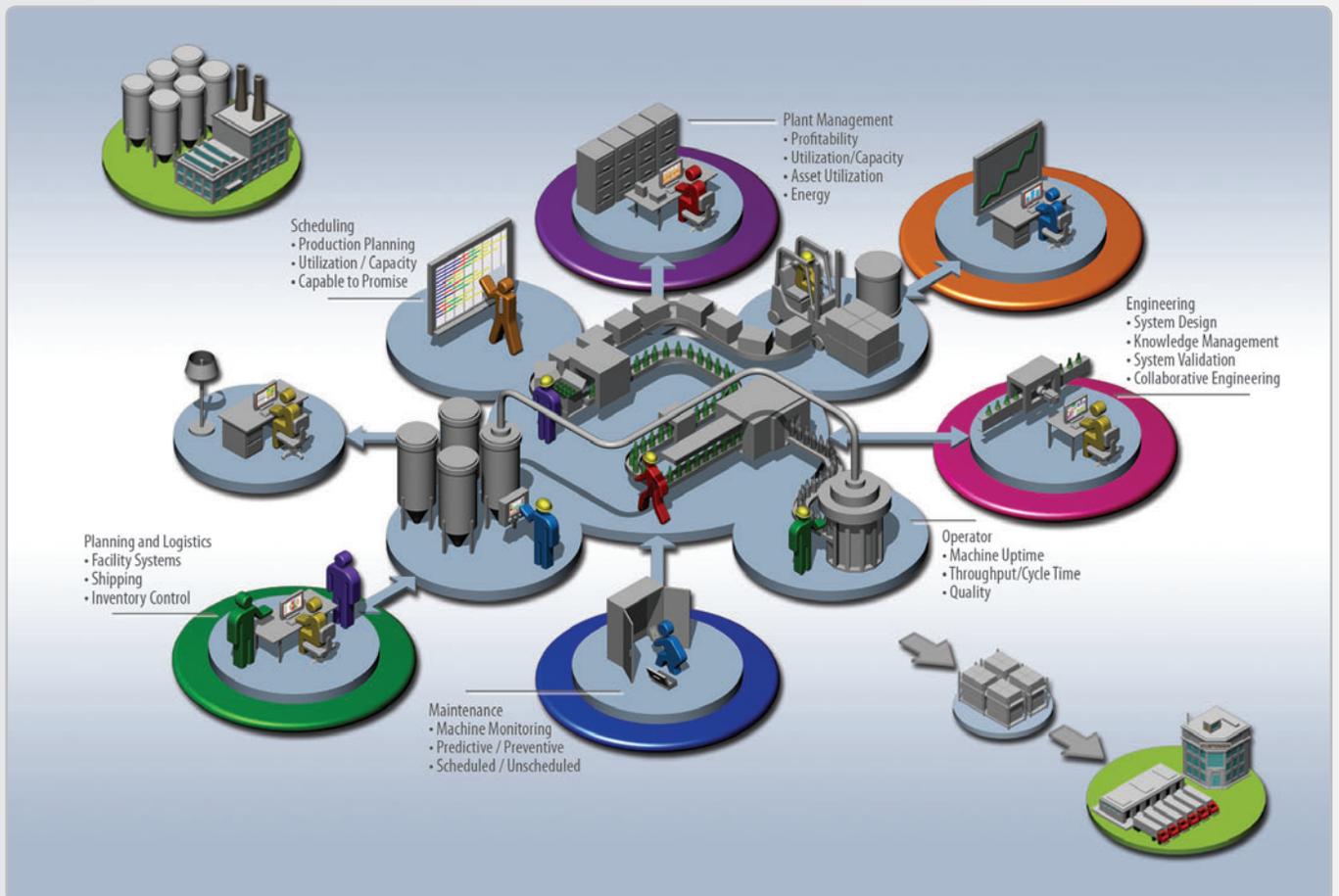
Manufacturing Intelligence Empowers Decision Making Across the Plant

Data, in Context, Transformed into Insight

Manufacturing Intelligence is a strategy to access critical, real-time data and turn it into insightful information that's visible and useful to people at every level of the organization, from a machine-based HMI panel to an executive's dashboard.

Manufacturing Intelligence tools reduce costs and increase productivity by enabling employees to make informed decisions faster than ever before.

Decision-makers now see data in the context of their jobs. They can access that vital information beyond the plant floor. Think of the power users gain by, for example, they can check production rates at an office terminal, or reviewing Key Performance Indicators (KPIs) while on the road using a common Internet browser, or even checking capacity from a mobile device.



Data served up in role-based context empowers employees to make informed decisions.

Data Connected

As technology steadily advances, many manufacturers have accumulated numerous operation and business systems. While these systems are crucial to the areas they serve, they are essentially data silos that isolate information from other employees who may need that data. This gap costs money because it prevents people throughout the plant from accessing the common information they need to address issues such as quality lapses, inventory losses and equipment availability in a timely manner.

Bridging this knowledge-sharing gap with a common data warehouse or a single-vendor solution can be an expensive proposition that seldom reaps adequate return on investment.

Similarly, “rip-and-replace” is not a cost-effective choice for most manufacturers. Manufacturing Intelligence can work across a wide range of control platforms and networks from other manufacturers, so you can start gaining insight while working with your existing systems.



Manufacturing Intelligence lets you create enterprise-wide dashboards for a strategic view of critical issues.

Information: When – and How – You Need It

Manufacturing Intelligence solutions present critical production information in the proper business context, correlating your disparate data sources, and aggregating that information across multiple manufacturing lines and plants.

It delivers relevant reports, dashboards and KPIs to users, supervisors and management through a simple Web browser, empowering them with information they need to help solve manufacturing problems before they impact the bottom line. For example:

- **Production** managers can easily **check selected work cells and further drill down into events** and details, enabling them to track first pass yield and first pass quality.
- **Engineering and maintenance** managers can **view efficiency data** from areas of the operation to conduct root cause analysis and equipment availability.
- Right at the machine, **equipment operators** are able to **study cycle times and scrap rate**.
- **Plant managers and operational vice presidents** can **view plant-wide data and metrics** for individual areas, such as yield.

Decision-Making Simplified: Do the Key Roles have the Information They Need?

- Operations: How are we doing against plan?
- Production Manager: What are my bottlenecks?
- Quality: What is my rejection rate?
- Plant Manager: What is my response time to a new order?
- Engineering: What is my equipment utilization?
- Maintenance: What are my downtime causes?

The answers to these questions are found through the implementation of the Rockwell Software® FactoryTalk® Suite. With modules like Historian, Asset Centre, Metrics and VantagePoint you can deliver the right information to the right person at the right time.

A Clear View of Development

Common Tools Speed and Simplify Implementation

A Comprehensive Suite to Visualize and Inform

Using a standard set of engineering objects across all human machine interface gains efficiencies and enables sharing the most effective development methods and standards from anywhere in the world. Imagine the possibilities.

The data source, delivery network and presentation, all work in concert to make this a reality. A simplified development environment speeds time to value.

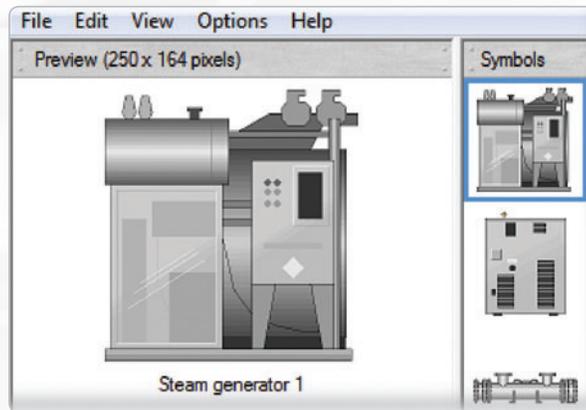


Common HMI development tools speeds time to value.

Common Tools Mean Better Applications, Faster

As part of a comprehensive, integrated suite, Rockwell Automation provides a **common development environment** for operator interface in the plant. Between commonality and integration with control platforms, this approach can offer substantial cost savings in development, while enhancing the operator's experience. These HMI applications can be run on PanelView™ Plus graphic terminals or industrial computers providing the same development environment for everything from a stand-alone machine application all the way to a large, distributed HMI.

Extending from stand-alone machine level HMI to site-level, server-based visualization platforms, FactoryTalk View Machine Edition and FactoryTalk Site Edition presents information for decision making, efficiency, maximum asset use and availability.



Complete Symbol Factory Library to enable users to create more effective and compelling displays, in less time.

Real World Solutions for Machine Builders and the Global Enterprise

- Efficient, integrated development tools **reduce the costs of developing effective HMI applications** that enhance operator performance
- Hardware/software solution supply enables **global support** for the entire system from the touch screen to the controller – including the design and runtime software
- Built-in fonts cover nearly every Unicode language family, enabling a **single application to support multiple languages**
- Built-in capability for **remote monitoring and diagnostics** over Ethernet connections

Tools to Jump-Start Development

- Configure devices in a single project file that you can download to your controller and use for easy replacement or restoration.
- Use **rich content libraries** to guide you in commissioning your devices and their associated parameters, saving time and improving accuracy.
- **Speed Control, Status and Diagnostic Tasks:** Pre-configured, pre-programmed, pre-tested, faceplates and Add-On Instruction (AOI) sets allow you to **quickly and easily program and operate devices.**
- Faceplates and AOI sets **automatically create tags** to provide code for your controller and graphics for your HMI when you add a device into a project.
- **Ease maintenance with an integrated software package** (RSLogix™ 5000 with Add-On Profiles) that saves the entire controller/device system in a single project file. Take advantage of reference architecture, tested designs, system characterization, accelerator toolkits, migration enablers and building blocks to further streamline engineering efforts.

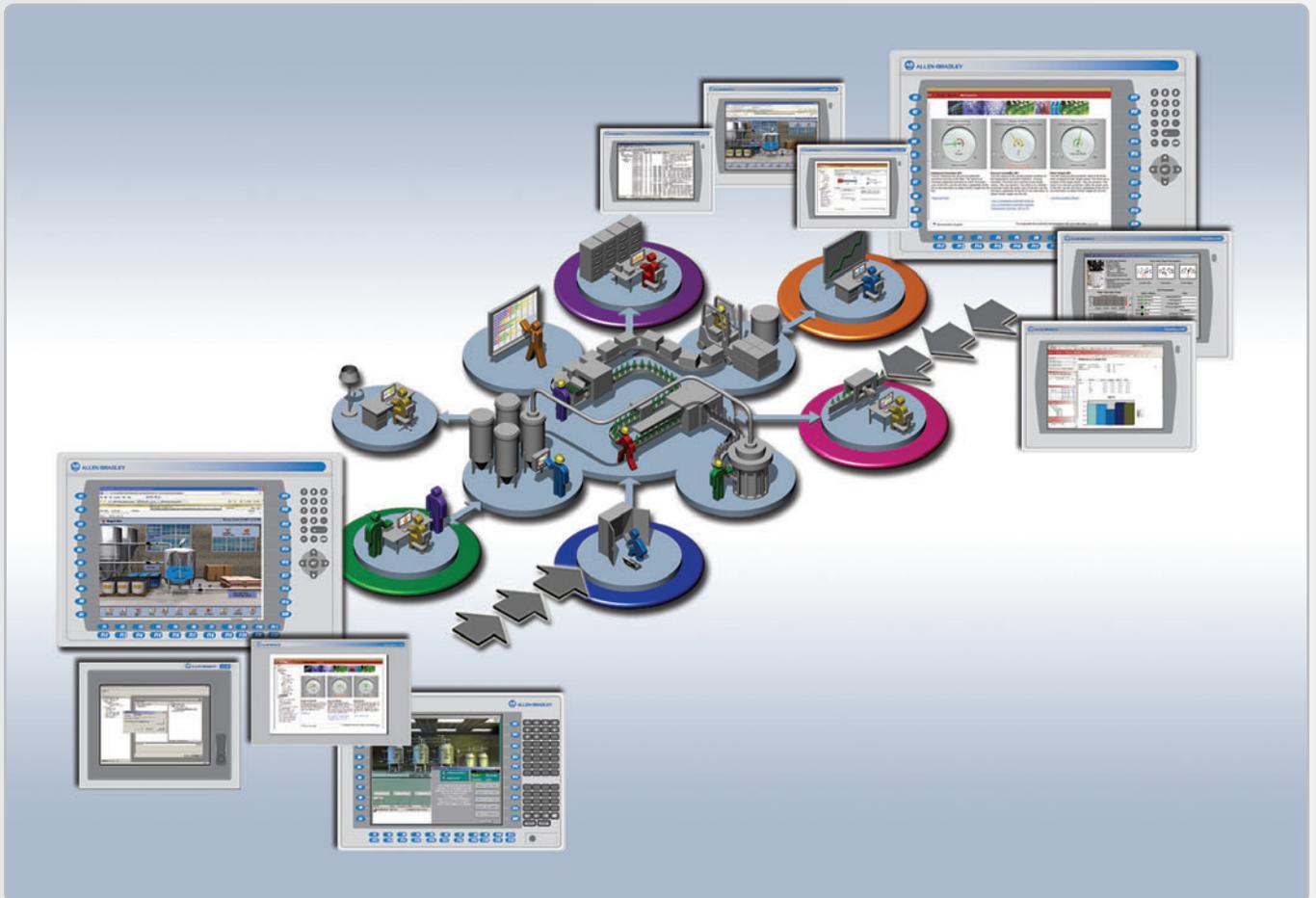
Better Visualization Starts on the Plant Floor

Versatile and Durable HMI Hardware Has Your Application Covered

Bringing in Hardware that can Handle Your Factory

A reliable operator interface terminal provides the platform to perform in the production environment, with crisp displays giving operators a clear view of vital information. Allen-Bradley® visualization hardware is built to withstand the demands of manufacturing environments, including hazardous, corrosive or extreme temperatures.

Allen-Bradley operator interface terminals offer rugged solutions in a variety of sizes and configurations. These robust devices are fully packaged (hardware, software, and communications) and tested for plant-floor operation. Simply download your configured application file, set appropriate communication parameters, and connect the communication cable. The PanelView Plus line of graphic terminals offers solutions for stand-alone machine control from 4- to 15-inch color terminals that can provide operators with high-quality information, complete with on-board, context-sensitive documentation.



Allen-Bradley PanelView operator terminals and industrial computers support your operators with better visualization of the process.

PanelView Plus 6 Graphic Terminals

- Premium display quality with enhanced vector graphic library
- Instant access to help (PDF, HTML, MPEG)
- Modular design allows for easy upgrades and flexible parts replacement
- Remote data and recipe management
- Remote access and control via web browser interface
- Stand alone application file transfers
- Minimize down time with built-in backup & restore
- Multiple Languages available on board



Bridging Control and Information Across Your Enterprise

Ethernet has been the de facto standard for business enterprise systems for many years, and the industry adoption of EtherNet/IP for control and information has acted as the enabler of network convergence between manufacturing and the enterprise.

The convergence of technologies between traditional information technology systems and manufacturing operations provides manufacturers with substantial opportunities to reduce risk and costs, provides secure access to information, and improves agility and overall business performance.

A Hardware Solution that Doesn't (Just) Stand Alone

Our visualization strategy starts on the plant floor, at the machine level, where it is embedded in our PanelView Plus 6 operator interface terminals. This robust family comes with FactoryTalk View Machine Edition built in. That means it easily integrates into an enterprise-wide, global information network, while providing plenty of power on its own terms.

It means that you use the same development environment (FactoryTalk View Studio) as our site-level software. It also means that each terminal can be remotely monitored and controlled over a built-in Ethernet connection. Of course you can control the level of remote access security and functionality.

Visualizing Across the Operation

FactoryTalk View Site Edition HMI software is well suited for mission-critical applications. Critical functions and assets gain the security of redundant alarms and events. Real world solutions for machine builders and the global enterprise:

- Monitor and analyze operation and product quality in accord with specifications and operations and product constraints.
- Reduce time to execute upgrade or product changes.
- Server redundancy of alarms & events.
- Easily monitor effective equipment usage and performance conditions.
- Identify sources of operation and product quality issues.

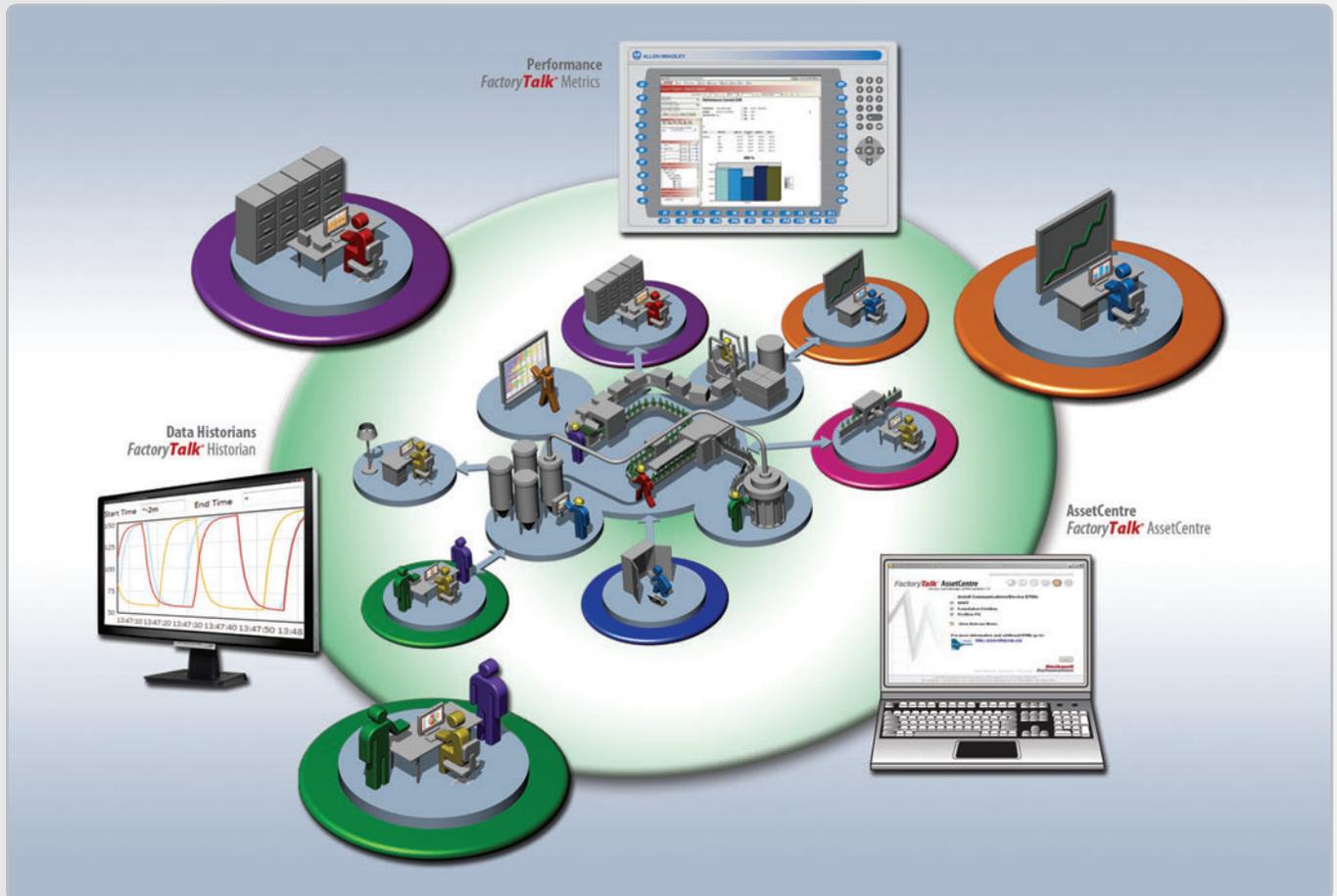
Data to Do More

Software Applications that Drive Productivity

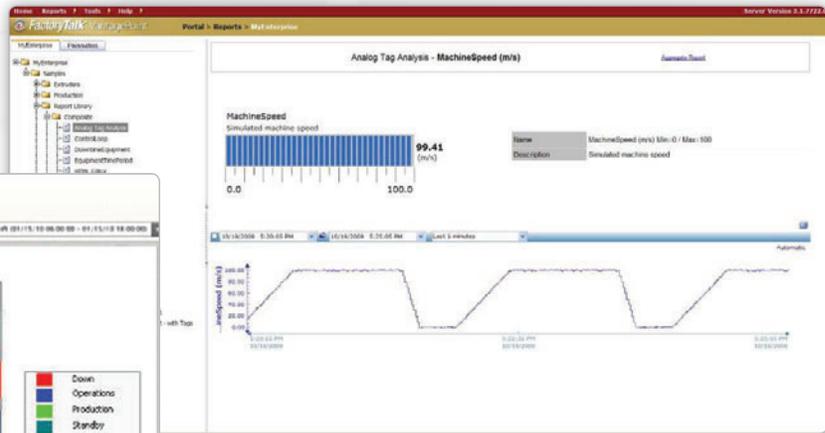
A Modular Suite Allows You to Add Exactly the Functionality You Need.

Information from your control system gives you an advantage: analyze production, improve equipment performance and product quality. The data source, delivery via network and presentation all work in concert to make this a reality.

FactoryTalk allows you to incrementally extend the capability of your control systems by adding modules to provide specific functionality to maximize your automation and process investments. These modules can help manage your assets, understand your risk mitigation options and assess equipment or network health, all toward helping improve your overall security, intelligence and the predictability of your plant resources.



The FactoryTalk Suite ties into control systems to provide data to maximize production performance.



The FactoryTalk Suite lets you access the data you need from your control system to improve plant performance.

Monitor Plant Operations from Virtually Anywhere

On the road, at home or in the office, FactoryTalk ViewPoint® lets you view real-time plant floor operations data simply by logging on through an Internet browser. As a Web-enabled HMI application, it extends the access to FactoryTalk View displays and dashboards to users anywhere for improved real-time decision making.

Included with PanelView Plus and available as an add-on to FactoryTalk View SE, FactoryTalk ViewPoint delivers a rich, interactive experience. You gain the simplicity of standard browser navigation and new degrees of access to critical FactoryTalk View information all in a web browser. The thin-client configuration means no client software to install and maintain, lowering total cost of ownership.

FactoryTalk Suite

FactoryTalk applications are built on a flexible services platform that incorporates a standards-based data model. Our modular system design supports incremental solution deployments, allowing you to maximize legacy technology investments while improving your ability to incorporate newer technologies.

Use the Embedded Intelligence from Your Controller System

The valuable data stored in your control system is delivered as live actionable information used to:

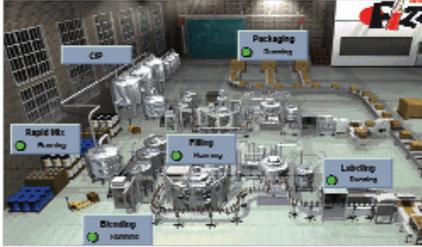
- Analyze complex, historical process data easily.
- Increase quality, reduce waste and improve your control by harnessing volumes of data into a usable format.
- Improve fault detection and process sequencing using time-stamped data.

Easily Move Data Throughout Your Architecture

The networks in our Integrated Architecture™ system – EtherNet/IP, DeviceNet, ControlNet – all share a common protocol, the Common Industrial Protocol, so you gain immediate, open access to real-time information with no additional programming or routing. Integrated Architecture networks share characteristics that support real-time control, device configuration, and data collection and bridge power to help deliver actionable information when and where it is needed.

Software At-A-Glance

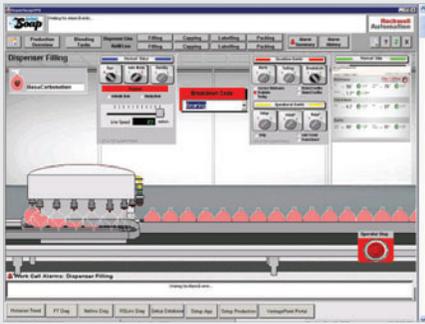
FactoryTalk View



FactoryTalk View performance and visibility software is part of the scalable and unified suite of monitoring and control solutions. It includes:

- FactoryTalk View Site Edition (SE) for large supervisory-level multi-server, multi-client and multi-user HMI applications.
- FactoryTalk View Machine Edition (ME) for small stand-alone machine-level applications
- Both are designed with common look, feel and navigation and offer premier integration with Logix-based controllers, providing faster and more accurate system implementation
- Included on all PanelView Plus operator terminals

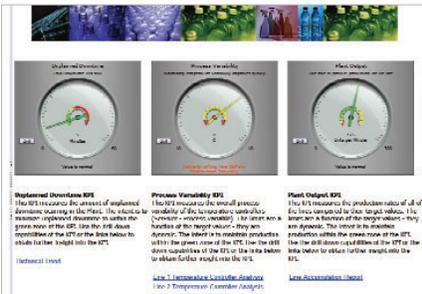
FactoryTalk ViewPoint



FactoryTalk ViewPoint is a thin client solution for FactoryTalk View SE and PanelView Plus, which adds the ability for FactoryTalk View projects to be used in a web browser.

- Allows managers, OEMs and system integrators to view and control real-time plant floor operations data simply by logging onto an Internet browser
- Connect to customer sites, perform diagnostics, or provide remote support without having to actually be at the end user's site.
- Users can actuate push-buttons and enter values from a remote browser – security settings allow appropriate levels of access.
- Thin client configuration requires no client software to install or maintain, helping to lower total cost of ownership
- Delivers crisp, sharp images and a rich user experience resulting from advanced visualization technology that displays current values or operational states in real time.

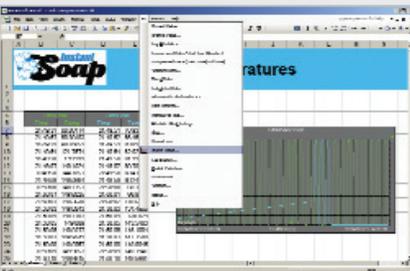
FactoryTalk VantagePoint



FactoryTalk® VantagePoint is Business Intelligence for Manufacturing. It allows access to database and transaction systems that provide business context for manufacturing data. FactoryTalk VantagePoint scales to multiple manufacturing sites and thousands of users, enabling manufacturing and business users to gain better insight into manufacturing issues with greater IT agility.

- Provides premier connectivity to tags inside of Logix or FactoryTalk View SE
- Unprecedented access to historian data: premier connectivity to FactoryTalk Historian and direct connections to a host of other Historians
- Generic drivers supporting virtually any 3rd Party with OPD-DA (for PLCs) and OPC-HDA (for Historians)
- Additional connectivity to databases (e.g. SQL Server, Oracle) and business systems
- Scalable across multiple sites to the enterprise
- Customizable interface, can use corporate standards to apply “themes” to portal and reports

FactoryTalk Historian



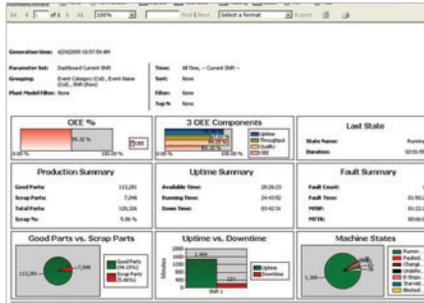
FactoryTalk Historian is a multi-tiered solution for machine, plant and enterprise-wide data collection and analysis

- Helps increase quality, reduce waste and improve control by harnessing volumes of control data and presenting it in a usable format
- Eases regulatory compliance by enabling quick access to online production records
- Simple data configuration, data discovery wizards allow you to put tags on scan in a few clicks
- Historian on the plant floor, in the Logix rack! Historian Machine Edition allows you to gather data across the backplane, as either a stand alone module or send data up to Historian Site Edition
- FactoryTalk Historian & FactoryTalk VantagePoint are bundled together for a great “gather data, analyze data” solution, all via Web-based tools!

Find product information at www.ab.com

Software At-A-Glance

FactoryTalk Metrics



Provides the basis for understanding root causes of downtime, waste and scrap, and lost capacity through simple drill-down reports and dashboards

- Creates a window into production processes to help improve efficiencies, decrease cycle time and increase overall production
- Provides baseline information to help you make continuous operational improvements using existing machinery and labor resources more effectively

FactoryTalk AssetCentre

The screenshot shows the FactoryTalk AssetCentre interface, which provides a detailed log of system events and maintenance actions. The main table lists the following information:

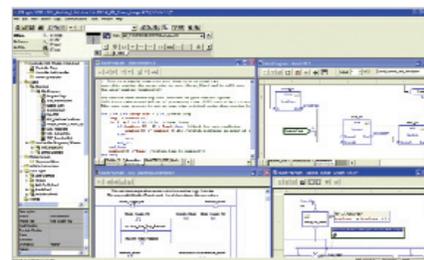
Time	Event	Source	Message	Severity
3/20/2007 9:16:2	3/20/2007 9:16:18	PLCLog-9800	20030204RSPF	System Address
3/20/2007 9:16:3	3/20/2007 9:16:18	PLCLog-9800	20030204RSPF	System Address
3/20/2007 9:16:1	3/20/2007 9:16:18	PLCLog-9800	20030204RSPF	System Address
3/20/2007 9:16:0	3/20/2007 9:16:18	PLCLog-9800	20030204RSPF	System Address
3/20/2007 9:15:5	3/20/2007 9:16:18	PLCLog-9800	20030204RSPF	System Address
3/20/2007 9:15:4	3/20/2007 9:16:18	PLCLog-9800	20030204RSPF	System Address
3/20/2007 9:15:3	3/20/2007 9:16:18	PLCLog-9800	20030204RSPF	System Address
3/20/2007 9:15:2	3/20/2007 9:16:18	PLCLog-9800	20030204RSPF	System Address
3/20/2007 9:15:1	3/20/2007 9:16:18	PLCLog-9800	20030204RSPF	System Address
3/20/2007 9:15:0	3/20/2007 9:16:18	PLCLog-9800	20030204RSPF	System Address

Below the table, there are sections for 'Logfile Details' and 'Logfile Summary', providing further context and statistics for the logged events.

Provides a single point of access for gathering, analyzing and managing maintenance information across an enterprise

- Enables staff to proactively and centrally manage automated production environments
- Creates a foundation for optimizing maintenance and plant operations through risk mitigation procedures across discrete, drives and process applications
- Scalable design allows for easy expansion of device count and adaptability to a variety of applications from small line to enterprise-wide installations

RSLogix 5000



RSLogix 5000 is the common design and configuration tool you use to program all Logix controllers and all control disciplines. Maximize productivity and reduce training:

- Single software package for discrete, process, batch, motion, safety and drive-based applications
- Ladder logic, Structured Text, Function Block Diagram and Sequential Function Chart editors share same development environment and tag database
- Improve code readability and simplify documentation using tag-based programming that eliminates physical memory addresses
- Augment extensive, built-in instruction set by creating your own Add-On Instructions to protect intellectual property and ease programming
- Share data with other Rockwell Automation software products to reduce data entry time, provide auditing and simplify code reuse and handling

PanelView Plus Operator Terminals At-A-Glance

	PanelView Plus 6 700	PanelView Plus 6 1000	PanelView Plus 6 1250	PanelView Plus 6 1500
				
Display Size	• 6.5" (132 x 99 mm)	• 10.4" (211 x 158 mm)	• 12.1" (246 x 184 mm)	• 15" (304 x 228 mm)
Resolution	• 640 x 480	• 640 x 480	• 800 x 600	• 1024 x 768
Display Type	• Color Active Matrix (TFT 18 bit color)			
Operator Input	• Keypad • Touch Screen • Keypad and Touch Screen			
Operating System	• Microsoft Windows CE 6.0 R3			
Open Architecture	• Yes (SDK available)			
CPU	• x86 - 1.0 GHz			
Memory Flash/RAM	• 512 MB • 512 MB			
Development Software	• FactoryTalk View Studio			
Real Time Clock	• Battery-backed time clock timestamps critical data. Accuracy +/-2 minutes per month			
Environmental Temperature Operating	• 0 - 55°C (32 - 131°F)			
Ratings	• NEMA 12, 13, 4X, IP54, IP65			
Certifications	<ul style="list-style-type: none"> • cUL certified • UL listed • Class I, Div 2, Groups A,B,C,D • Class II, Div 2, Groups F, G, Class III, T4, Class I Zone 2 • Group IIC • Conformal Coating and Marine Certification available on select models 			
Interfaces	• 1 x SD, 2xUSB-A (v2.0), 1 x USB Mini-B, 1xPCI			
Communication Interfaces	<ul style="list-style-type: none"> • Ethernet • RS-232 • ControlNet Available via add-on module • DH+ Available via add-on module • DH485 Available via add-on module 			
Input Power	• 18-30V DC (isolated) or 85-264V AC @ 47-63 Hz			
Standard Software	• FactoryTalk Machine Edition, FactoryTalk Viewpoint, PDF viewer, ActiveX controls, remote terminal control, FTP server			
Extended Feature Option	• Windows Media Player, Internet Explorer, Microsoft Office viewers & Wordpad			

Find product information at www.ab.com

PanelView Plus Operator Terminals At-A-Glance

	PanelView Plus 400	PanelView Plus 600
		
Display Size	<ul style="list-style-type: none"> • Grayscale: 3.8" (77 x 58 mm) • Color: 3.5" (71 x 53 mm) 	<ul style="list-style-type: none"> • 5.5" (111 x 84 mm)
Resolution		<ul style="list-style-type: none"> • 320 x 240
Display Type		<ul style="list-style-type: none"> • Grayscale Passive Matrix (FSTN 32 level grayscale) • Color Active Matrix (TFT 18 bit color)
Operator Input	<ul style="list-style-type: none"> • Keypad (Grayscale or Color) • Keypad and Touch Screen (Color only) 	<ul style="list-style-type: none"> • Keypad • Touch Screen • Keypad and Touch Screen
Operating System		<ul style="list-style-type: none"> • Microsoft Windows CE 4.1
Open Architecture		<ul style="list-style-type: none"> • No
CPU		<ul style="list-style-type: none"> • MIPS64 FP 208 MHz
Memory Flash/RAM		<ul style="list-style-type: none"> • 64 MB/64 MB • Not Expandable
Development Software		<ul style="list-style-type: none"> • FactoryTalk View Studio
Real Time Clock		<ul style="list-style-type: none"> • Battery-backed time clock timestamps critical data. Accuracy +/-2 minutes per month
Environmental Temperature Operating		<ul style="list-style-type: none"> • 0 - 55°C (32 - 131°F)
Ratings		<ul style="list-style-type: none"> • NEMA 12, 13, 4X, IP54, IP65
Certifications		<ul style="list-style-type: none"> • cUL certified • UL listed • Class I, Div 2, Groups A,B,C,D • Class II, Div 2, Groups F, G, Class III, T4, Class I Zone 2 • Group IIC
Interfaces		<ul style="list-style-type: none"> • 1 x USB-A (v1.1) • 1 x CF (Type I)
Communication Interfaces		<ul style="list-style-type: none"> • Ethernet • RS-232 • Available via add-on module • DH+ Available via add-on module • DH485 Available via add-on module
Input Power		<ul style="list-style-type: none"> • 18-30V DC or 85-264V AC @ 47-63 Hz

Find product information at www.ab.com

PanelView Plus Compact Specifications

	PanelView Plus Compact 400		PanelView Plus Compact 600		PanelView Plus Compact 1000
					
Catalog Number	• 2711PC-K4M20D	• 2711PC-B4C20D	• 2711PC-T6M20D	• 2711PC-T6C20D	• 2711PC-T10C4D1
Display Size	• Grayscale: 77 x 58 mm 320 x 240 resolution	• Color: 71x53 mm 320 x 240 resolution	• 112 x 84 mm 320 x 240 resolution		• 211 x 158 mm 640 x 480 resolution
Display Type	• Grayscale Passive Matrix, (FSTN 32 level grayscale) or Color Active Matrix (TFT 18 bit color)				• Color Active Matrix (TFT 18 bit color)
Operator Input	• Keypad (Grayscale) or Keypad /Touch Combination (Color only)		• Touch Screen		
Real-time Clock	• Battery-backed time clock timestamps critical data. Accuracy +/-2 minutes per month				
Network Communications	• Ethernet, RS-232, (1) USB				• Ethernet, RS-232, (2) USB
Power Requirements	• 18-30V DC				
Programming Software	• FactoryTalk View Machine Edition				
Environmental Operating Temperature	• 0 - 55°C (32 - 131°F)				
Ratings	• NEMA 12, 13, 4X, IP54, IP65				
Certifications	• cUL certified; UL listed; Class I, Div 2, Groups A,B,C,D; Class II, Div 2, Groups F, G, Class III, T4, Class I Zone 2 Group IIC				

Find product information at www.ab.com

Industrial Computers At-A-Glance

	6181X Extreme Environment Industrial Computer	6181P Industrial computer with flat panel display	6180P Integrated Display with Keypad
			
Display Type	<ul style="list-style-type: none"> • 12" (300 mm) Class Color Active Matrix TFT • Non-display option 	<ul style="list-style-type: none"> • 12" (300 mm), 15" (380 mm) & 17" (430 mm) Class Color Active Matrix TFT 	<ul style="list-style-type: none"> • 12" (300 mm) & 15" (380 mm) Class Color Active Matrix TFT
Touch Screen Option	<ul style="list-style-type: none"> • Resistive touch • Sunlight readable 	<ul style="list-style-type: none"> • Resistive Anti-glare 	<ul style="list-style-type: none"> • Resistive Anti-glare
Bezel Type	<ul style="list-style-type: none"> • Aluminum 	<ul style="list-style-type: none"> • Aluminum and Stainless Steel 	<ul style="list-style-type: none"> • Aluminum
Expansion Slots	<ul style="list-style-type: none"> • One half-length PCI • One Compact Flash 	<ul style="list-style-type: none"> • 1 or 2 half-length PCI • 1 compact flash (none on standard models) 	<ul style="list-style-type: none"> • 2 full length PCI • 1 half length PCI • 1 full length ISA
Processor Types	<ul style="list-style-type: none"> • Core Duo U2500, 1.2 GHz 	<ul style="list-style-type: none"> • Core Duo U2500 1.2 GHz or Celeron M 1.06 GHz 	<ul style="list-style-type: none"> • 2.0 GHz Core Duo or 1.86 GHz Celeron M
RAM	<ul style="list-style-type: none"> • 2 GB DDR2 	<ul style="list-style-type: none"> • 4 GB DDR2 or 2 GB DDR2 	<ul style="list-style-type: none"> • 2 GB (expansion up to 4 GB) or 1 GB
Hard Drive	<ul style="list-style-type: none"> • 8 GB Compact-Flash (1) 	<ul style="list-style-type: none"> • 100 GB (rotating media) or 16 GB Compact Flash (solid state) 	<ul style="list-style-type: none"> • 160 GB Hard Disk Drive HDD • 3.5" SATA (ability to add secondary drive)
Removable Media	<ul style="list-style-type: none"> • CompactFlash Type 2 Slot 	<ul style="list-style-type: none"> • DVD-RW/CD-RW 	<ul style="list-style-type: none"> • 3.5" floppy drive • DVD/CD-RW
I/O	<ul style="list-style-type: none"> • 2 Serial COM ports • 2 Ethernet ports (RJ-45) • 4 USB ports • DVI 	<p><i>Varies by model, up to:</i></p> <ul style="list-style-type: none"> • 2 PS/2 (keyboard/mouse) • 4 USB 2.0 (rear accessible¹) • 1 USB 2.0 (front accessible¹) • 2 10/100/1000 Ethernet • 1 parallel port • 2 serial ports • 1 DVI-I • audio in/out • microphone 	<ul style="list-style-type: none"> • 2 serial ports • 1 parallel port • 6 USB 2.0 ports • 2 10/100/1000 M Ethernet port • 1 DVI-1
Operating Systems	<ul style="list-style-type: none"> • Windows XP 	<ul style="list-style-type: none"> • Windows® XP Professional • Windows Embedded Standard 2009 	<ul style="list-style-type: none"> • Windows® XP Professional
Power Requirements	<ul style="list-style-type: none"> • 18-32V DC 	<ul style="list-style-type: none"> • 100-240V AC, autoranging • 47-63 Hz 18...32V DC Option 	<ul style="list-style-type: none"> • 90...264V AC • 18...32V DC Option
Operating Temperature	<ul style="list-style-type: none"> • Display side: -20-55 °C (-4-131 °F) • Backside: -20-70 °C(-4-158 °F) 	<ul style="list-style-type: none"> • 0-55 °C (32-131 °F) or 0-50 °C (32-122 °F) 	<ul style="list-style-type: none"> • 0-55 °C (32-131 °F)
Vibration-Operating	<ul style="list-style-type: none"> • 0.012 in. p-p, (10...57 Hz) • 2 g peak, (57...640 Hz) 	<ul style="list-style-type: none"> • 1.0 g (rotating media) 1.5 g (SSD) 	<ul style="list-style-type: none"> • 1 g peak, 10...500 Hz
Shock Operating	<ul style="list-style-type: none"> • 15g 		<ul style="list-style-type: none"> • 15 g (1/2 sine, 11 ms)
Certifications	<ul style="list-style-type: none"> • UL listed, CE marked, C-tick • Class I Division 2, Groups A, B, C, DT4 • Class I Zone 2, IIC, T4 • ATEX II 3 GD, Ex nA nC IIC T4 Gc, Ex tc IIIC T135 Dc (display) • ATEX II 3 GD, Ex nA IIC Gc, Ex tc IIIC Dc (non-display) 	<ul style="list-style-type: none"> • UL/C-UL listed • CE Mark • C-Tick • RoHS 	<ul style="list-style-type: none"> • UL/C-UL listed • CE Mark • C-Tick • RoHS
Ratings	<ul style="list-style-type: none"> • NEMA 1/12/4/4X (stainless) • IP66 		<ul style="list-style-type: none"> • NEMA Type 1/4/12, IP66

¹Aluminum bezel only

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Industrial Monitors At-A-Glance

	Performance Industrial Monitors 6186M	Standard Monitors 6176M
		
Display Type	<ul style="list-style-type: none"> • 12" (307mm), 15" (381mm), 17" (432mm) and 19" (483mm) Class Color Active Matrix TFT, 262K colors (12"), (16.2M colors (15"), 16.7M colors (17" & 19") 	<ul style="list-style-type: none"> • 15" (381mm), 17" (432mm) & 19" (483mm) Class Color Active Matrix TFT, 16.7M colors
Resolution	<ul style="list-style-type: none"> • 800 x 600 (12"), 1024 x 768 (15") or 1280 x 1024 (17" & 19") 	<ul style="list-style-type: none"> • 1024 x 768 (15") or 1280 x 1024 (17" & 19")
Bezel Type	<ul style="list-style-type: none"> • Aluminum and Stainless Steel (15-19" models only) 	<ul style="list-style-type: none"> • Panel Mount: Aluminum Alloy • Vesa Mount: Plastic (steel reinforced)
Touch Screen Option	<ul style="list-style-type: none"> • Resistive Antiglare screen 	<ul style="list-style-type: none"> • Resistive Touchscreen
USB Hub	<ul style="list-style-type: none"> • 2 USB 2.0 • 1-front accessible (Aluminum only) 	<ul style="list-style-type: none"> • 2 USB 2.0
Video Input	<ul style="list-style-type: none"> • VGA • DVI-1 	
Network Communications	<ul style="list-style-type: none"> • AC: 90...264V AC, autoranging • 47...63Hz • DC: 9V DC or 360V DC 	<ul style="list-style-type: none"> • 90...264V AC, autoranging • 47...63H
Operating Temperature	<ul style="list-style-type: none"> • 0-55°C (32 – 131°F) or 0-50°C (32 – 122°F) 	<ul style="list-style-type: none"> • 0 - 45°C (32 - 113°F)
Ratings	<ul style="list-style-type: none"> • NEMA Types 1/12/4/4X • IP66 	<ul style="list-style-type: none"> • NEMA Types 12/4 • IP66
Certifications	<ul style="list-style-type: none"> • cULus Listed • CE Mark • C-Tick • Class 1 Div 2 • Class I Division 2 ratings for hazardous locations 	<ul style="list-style-type: none"> • ccULus listed • CE Mark • C-Tick
Vibration-Operating	<ul style="list-style-type: none"> • 2 g, swept sine 10...640Hz 	<ul style="list-style-type: none"> • 1 g peak, swept sine 53...640Hz

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Non-display Industrial Computers At-A-Glance

	6155R Compact Non-Display Industrial Computer	6177R-M3 Non-Display Industrial Computer	6177R-M4 and 6177-R4 Non-Display Industrial Computer
			
Expansion Slots	<ul style="list-style-type: none"> • 1 compact flash (Type 2) 	<ul style="list-style-type: none"> • 2 full-length PCI, 1 half-length PCI, 1 full-length ISA 	<ul style="list-style-type: none"> • 1 full-length PCI • 1 PCI Express (M4) • 1 full-length PCI • 4 half-length PCI • 1 PCI Express (R4)
Processor Types	<ul style="list-style-type: none"> • 1 GHz Celeron M Processor 	<ul style="list-style-type: none"> • Core Duo 2.0 GHz 	<ul style="list-style-type: none"> • Pentium 4 3.0 GHz or Celeron 2.66 GHz
RAM	<ul style="list-style-type: none"> • 2 GB SODIMM DDR2 	<ul style="list-style-type: none"> • 4 GB (DDR2) or 2 GB (DDR2) 	<ul style="list-style-type: none"> • 1, 2 or 4 GB (DDR2)
Storage Drive	<ul style="list-style-type: none"> • 40 GB HDD, 2.5" SATA or 16 GB SSD, Compact Flash 	<ul style="list-style-type: none"> • 2-160 GB, 3.5" SATA or 160 GB, 3.5" SATA 	<ul style="list-style-type: none"> • 160 GB, 3.5 SATA
Removable Media	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Slim CD/DVD-RW drive 	<ul style="list-style-type: none"> • Slim CD/DVD-RW or CD RW drive
I/O	<ul style="list-style-type: none"> • 1 serial port (Standard) • 2 serial ports (Performance) • 2 PS/2 Ports • 1 VGA port • 1 10/100/1000 Ethernet port (Standard) • 2 10/100/1000 Ethernet ports (Performance) • 4 USB 2.0 ports • audio line out 	<ul style="list-style-type: none"> • 4 USB ports, 2 serial ports • 1 PS2 keyboard • 1 PS2 mouse • 2 Ethernet 10/100/1000T ports • 1 parallel port, 1 VGA port • 4 USB 2.0 ports • audio line in/out • mic • DVI-I 	<ul style="list-style-type: none"> • 2 serial ports • 1 PS2 keyboard • 1 PS2 mouse • 2 Ethernet 10/100/1000M ports • 1 parallel port • 1 VGA port • 6 USB 2.0 ports • audio line in/out • mic
Operating Systems	<ul style="list-style-type: none"> • Windows XP Professional • Windows Embedded Standard 2009 	<ul style="list-style-type: none"> • Windows XP Pro • Windows 2003 Server R2 - Pre-configured with RAID 1 	
Power Requirements	<ul style="list-style-type: none"> • 9...36V DC • ACPI Power Supply 100 • 240V AC, autoranging 		<ul style="list-style-type: none"> • 90...264V AC, autoranging • 47...63 Hz
Operating Temperature	<ul style="list-style-type: none"> • 0-55 °C (32-131 °F) Fanless 	<ul style="list-style-type: none"> • 0 - 55 °C (32 - 131 °F) 	<ul style="list-style-type: none"> • 0 - 45 °C (32 - 113 °F)
Vibration-Operating	<ul style="list-style-type: none"> • 1 g peak, 57...640 Hz or 2 g peak, 57...640 Hz (SSHD) 		<ul style="list-style-type: none"> • 1 g peak, swept sine 10...640 Hz
Shock-Operating	<ul style="list-style-type: none"> • 15 g (1/2 sine, 11 ms) 		<ul style="list-style-type: none"> • 15 g (1/2 sine, 11 ms)
Ratings	<ul style="list-style-type: none"> • NEMA Type 1 		<ul style="list-style-type: none"> • NEMA Type 1
Certifications	<ul style="list-style-type: none"> • cULus • CE Mark • C-Tick • RoHS 		<ul style="list-style-type: none"> • cULus Listed • CE Mark • C-Tick

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Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846