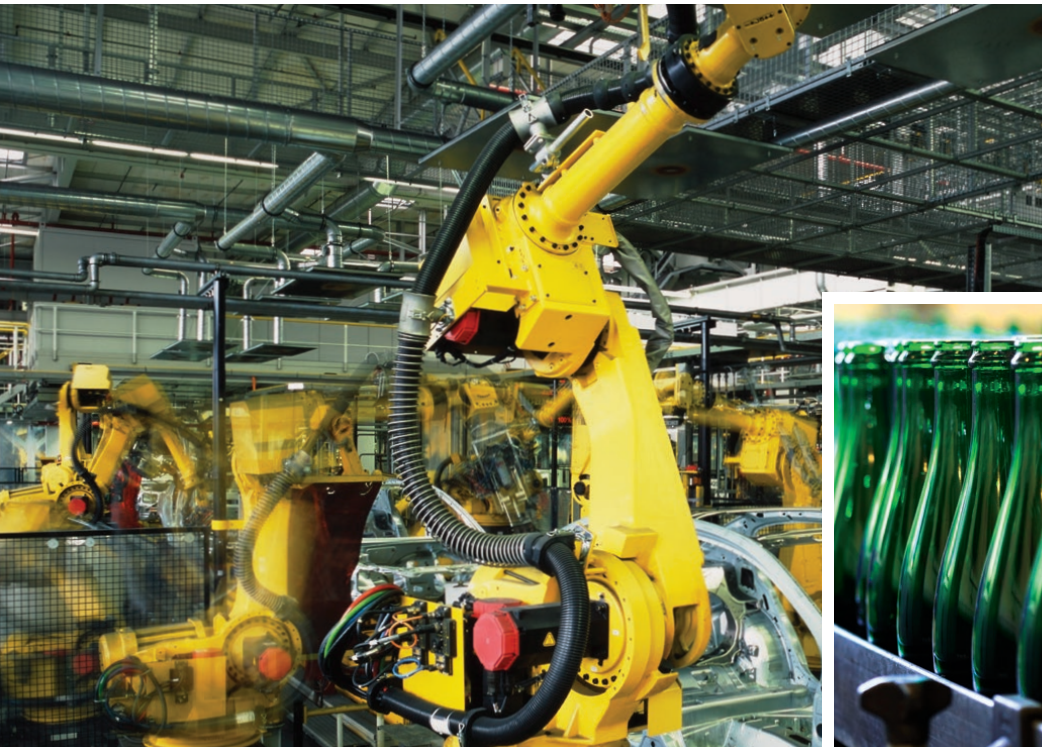


Integrated Architecture

Real-time control and information delivering smart manufacturing, machines and equipment

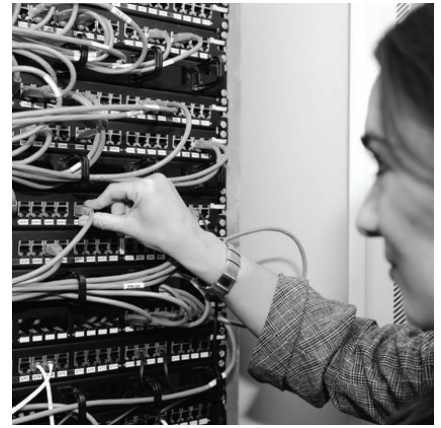


LISTEN.
THINK.
SOLVE.®

**Rockwell
Automation**

 Allen-Bradley • Rockwell Software

DELIVERING THE CONNECTED ENTERPRISE



The Connected Enterprise allows manufacturing and industrial operations to remain agile, to keep pace with the competition and to meet increasing demands.

Enabled by integrated control and information and enhanced by the Internet of Things (IoT), Rockwell Automation delivers The Connected Enterprise through three core platforms: Integrated Architecture, Services and Solutions and Intelligent Motor Control. Use the power of real-time data to make better, more informed business decisions, enabling you to attain and maintain profitability and a competitive edge.

The Connected Enterprise is reshaping the future of industrial automation by converging information technology (IT) and operations technology (OT) into a single, unified architecture. Combined with the Internet of Things (IoT), which connects the physical and virtual worlds, technology is now leveraged to better gather and analyze data, transforming it into actionable information delivered to the right people at the right place at the right time.

The Connected Enterprise provides:

- Faster time to market
- Lower total cost of ownership
- Improved asset utilization and optimization
- Enterprise risk management

Through The Connected Enterprise, a Rockwell Automation high performance architecture helps manufacturers and industrial operators capitalize on the promise of an ever more connected world.

To further enable The Connected Enterprise, the Integrated Architecture provides a multidiscipline common control platform and network via EtherNet/IP for scalability and a smarter, more productive, more secure system.

Our comprehensive services and solutions help you reduce risk and create value throughout your production lifecycle with global and local support, now and into the future. This helps reduce risk and creates value over the long-term.

Smarter technology

A truly connected enterprise has real-time control and information available across platforms and devices within the organization.

Enhanced productivity

New technologies, software and information help to increase productivity and improve overall business performance.

Secure environment

Technology that will help customers mitigate their enterprise risk and monetize their intellectual property.



Smarter technology

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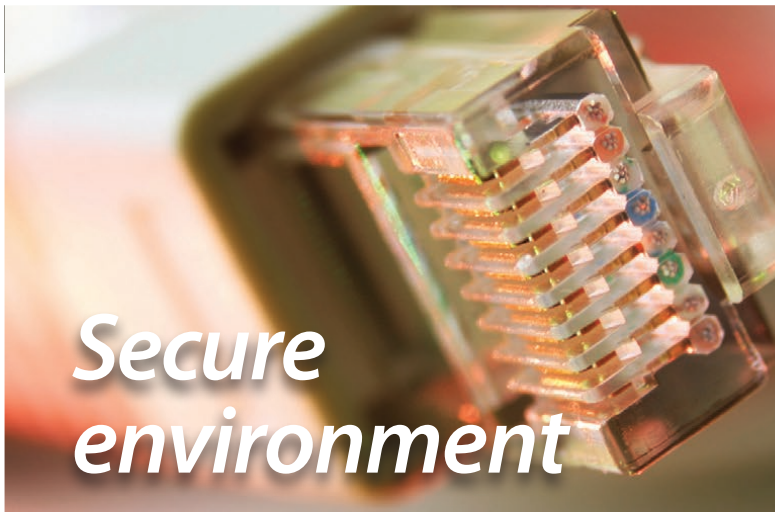
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Product portfolio

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Smart Manufacturing

Our Integrated Architecture® control and information portfolio helps break down barriers, securely providing access to data that has traditionally been trapped and contextualizing it to provide the right intelligence to the right people at the right time. This actionable information impacts key performance indicators such as production throughput, process quality, asset health and energy efficiency, delivering real business value.

The Connected Enterprise

Bringing **people, processes** and **technology** together.



Faster time to market

Design productivity, faster commissioning times with intelligent devices, quicker startup of Greenfields, proven technology around risk mitigation for operations and IT and the agility to respond to customer trends more quickly.



Lower total cost of ownership

Better lifecycle management, enabling more effective operations, improved energy management and easier technology migration.



Smart Machines and Equipment

Our Integrated Architecture control and information portfolio helps original equipment manufacturers (OEMs) to create intelligent manufacturing equipment that easily integrates into a facility, provides access to information and enables agile reaction to changing market demands. Rockwell Automation can help OEMs and their customers become connected, compliant and competitive.



Improved asset utilization and optimization

Better lifecycle management, enabling more effective operations, improved energy management and easier technology migration.



Enterprise risk management

Protection of intellectual property and brand image with a safe and secure operating environment; reduced exposure due to poor product quality and internal and external threats.

*Smarter
technology*



MULTIPLE DISCIPLINES FROM ONE AUTOMATION ARCHITECTURE

Harness the power of multiple disciplines with the Integrated Architecture system.

As technology continues to drive innovations, your production enterprise must stay ahead to remain competitive. By converging your production disciplines into an integrated plant-wide architecture, you can benefit from a single, future-proof network technology that helps you address production growth, as well as growth of the wider plant.

By integrating process, batch, discrete, drives, safety and motion into one connected and segmented plant-wide infrastructure, you increase efficiency and productivity across all layers of your operations. This removes the need for multiple, disparate control systems, replacing them with one common framework that's easier to install, operate and maintain.

Having real-time access to production data enables you to monitor and improve machine performance. Similarly, gaining insight into energy consumption helps you to predict demand and match it with cost-optimized supply, and to better manage peak usage patterns.

An Integrated Architecture can help you enhance your connected enterprise with:

- *Increased productivity with continuous improvements that provide better asset utilization and system performance*
- *Improved business agility through rapid and cost-effective response to changing markets*
- *Security risk mitigation to help protect important assets such as people, information and equipment*
- *Improved time to market through system design efficiencies and rapid asset integration*
- *Supported sustainability with extended product lifecycles, safer environments and reduced energy usage*



Challenge

Getting control systems that work isn't the problem – the problem is getting **control systems that work together seamlessly.**



Solution

The power of one – one common control platform, common network and common design environment that simplifies everything and helps reduce costs.

Case study

North American Tillage Tools (NATT)

North American Tillage Tools (NATT) produces 1.8 million steel discs each year for farm equipment manufacturers. To increase production, NATT installed a new metal press with a Rockwell Automation system that integrates safety and motion control. NATT met its production requirements and CSA / TÜV safety standards, while also helping to future-proof its production line.

Smarter technology



The power of one

With Logix technology, you can integrate process, batch, discrete, drives, safety and motion control into one infrastructure by using one control engine and one network technology across applications, operations and environments plant-wide.



Discrete control

Logix provides exceptional reliability and performance for discrete applications. Tight integration between the programming software, controller and I/O modules reduces development time and cost at commissioning and during normal operation.



Motor control

Configuring motor control devices in the Logix environment lets you consolidate controller programming and drive system configuration, operation and maintenance, reducing programming time, easing startup and commissioning and streamlining access to diagnostics.



Motion control

Logix provides complete support for motion control, from configuration, programming and commissioning to diagnostics and maintenance. True integration simplifies commissioning and data collection, speeding time to market and maximizing uptime.

Integrated Architecture



PROGRAMMABLE AUTOMATION CONTROLLERS

CompactLogix • ControlLogix
GuardLogix • Armor GuardLogix



OPERATOR INTERFACES & INDUSTRIAL COMPUTERS

PanelView • MobileView • VersaView



INDUSTRIAL NETWORK INFRASTRUCTURE & MEDIA

Stratix

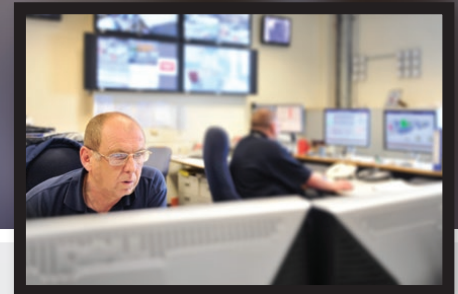
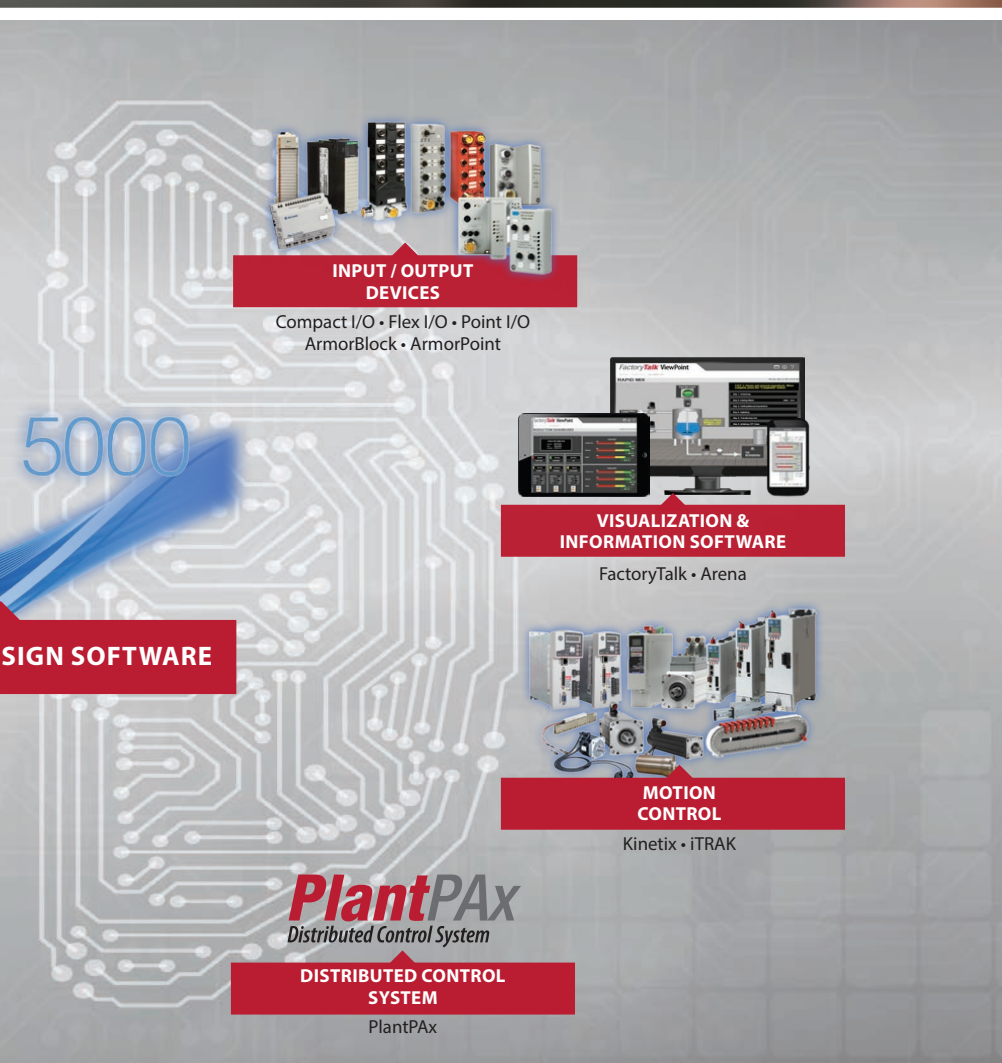


MOTOR CONTROL DEVICES

PowerFlex • IntelliCENTER

Studio

AUTOMATION DE



Integrated power and energy management

By integrating power and energy management, you can leverage existing investments to visualize and actively manage energy consumption without having to invest in or configure a stand-alone energy management solution.



Integrated safety

Focused on overall machine performance, Integrated Safety solutions use efficiency and design productivity to help machine builders deliver flexible, high-performance equipment at a more competitive price. Solutions like safe-speed and safe-direction can help to significantly reduce expensive shutdowns.



Continuous process control

PlantPax® Distributed Control System combines plant-wide control and unmatched scalability of the Integrated Architecture system with the core capabilities of a Modern DCS to help you gain a competitive advantage.

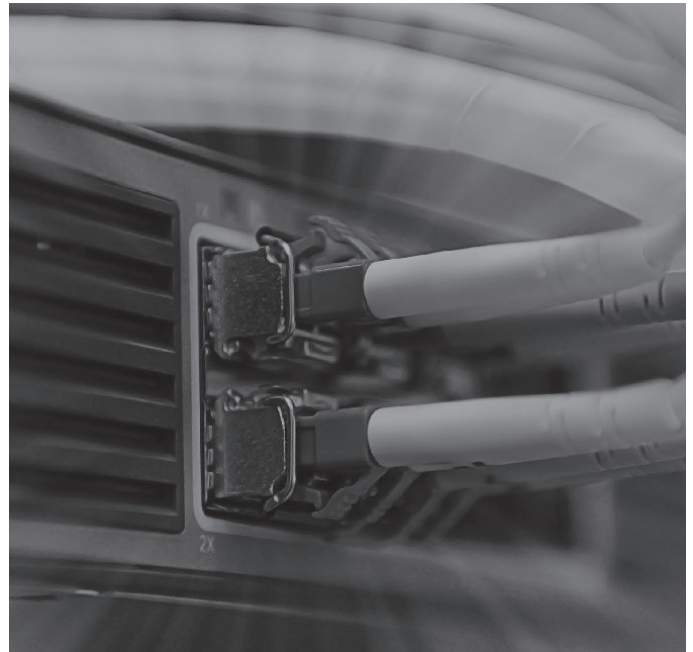


Batch process control

Logix provides the flexibility you need to deliver your product to market faster with efficient, predictable batch processing, consistency between batches, event information during batch runs, along with the ability to reuse code, recipes, phases and logic, powered by Logix Based Sequence Manager.

*Smarter
technology*

SCALABLE ARCHITECTURE



Implement a scalable automation architecture with the flexibility to meet a variety of applications at the most competitive cost, while offering the smallest possible footprint.

Delivering on these goals is a challenge, particularly when you're building a range of machines for a variety of customer requirements. Hardware solutions from a given automation vendor can appear to be scalable. In reality, often they use different networks and programming tools, making machine design and development more complex.

Our approach incorporates common automation components and tools across the spectrum of applications, regardless of size and complexity. Having this sort of scalability enables you to reduce total costs of ownership because you need to buy only what you need. This aids agility and helps to keep learning and deployment investments low.

Save time and money during your development cycle

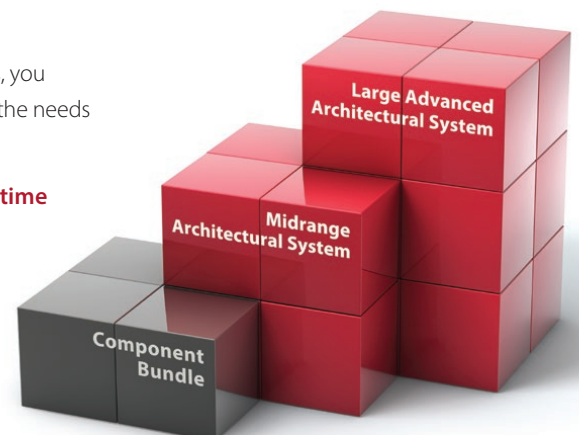
The ability to reuse control and visualization designs and practices helps you achieve faster startups, improves integration and optimizes your productivity.

Improve your flexibility

By using common components and tools, you can scale your hardware and software to the needs of your application.

Reduce maintenance costs and downtime

System components help reduce your maintenance costs by lowering your training requirements, spare parts inventory and Mean Time to Repair, all helping to increase your uptime.





Challenge

What appears to be scalable, integrated hardware operating smoothly on multiple networks by using different programming tools can actually be unnecessarily complex.



Solution

A scalable design environment, network technology and automation portfolio, fully integrated for the application in question.

Case study

Biopharmax Group

Biopharmax Group, a global pharmaceutical facilities company, needed an open and scalable system to allow future expansion, while maintaining a minimum footprint and high levels of cleanliness. The solution was a scalable, state-of-the-art Integrated Architecture system that enables fast reaction to manufacturing variables and provides remedial actions.

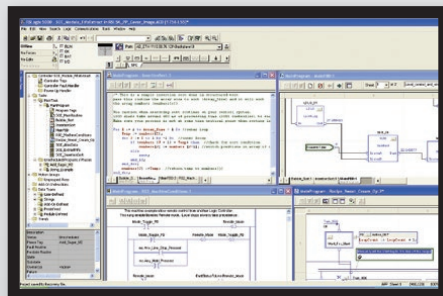
Smarter technology



Right-sized control and intelligence

From large control systems to small, we've developed a unique range of controller types and sizes to suit specific application needs – all with the same Logix control engine – all delivering world-leading performance and flexibility, leaner production and greater return on investment.

Scalable Architecture



One design environment

This simple approach can accommodate every application, from small machines to an entire plant. It can be specified with 'just enough' functionality for applications, while offering flexibility and scalability as required.



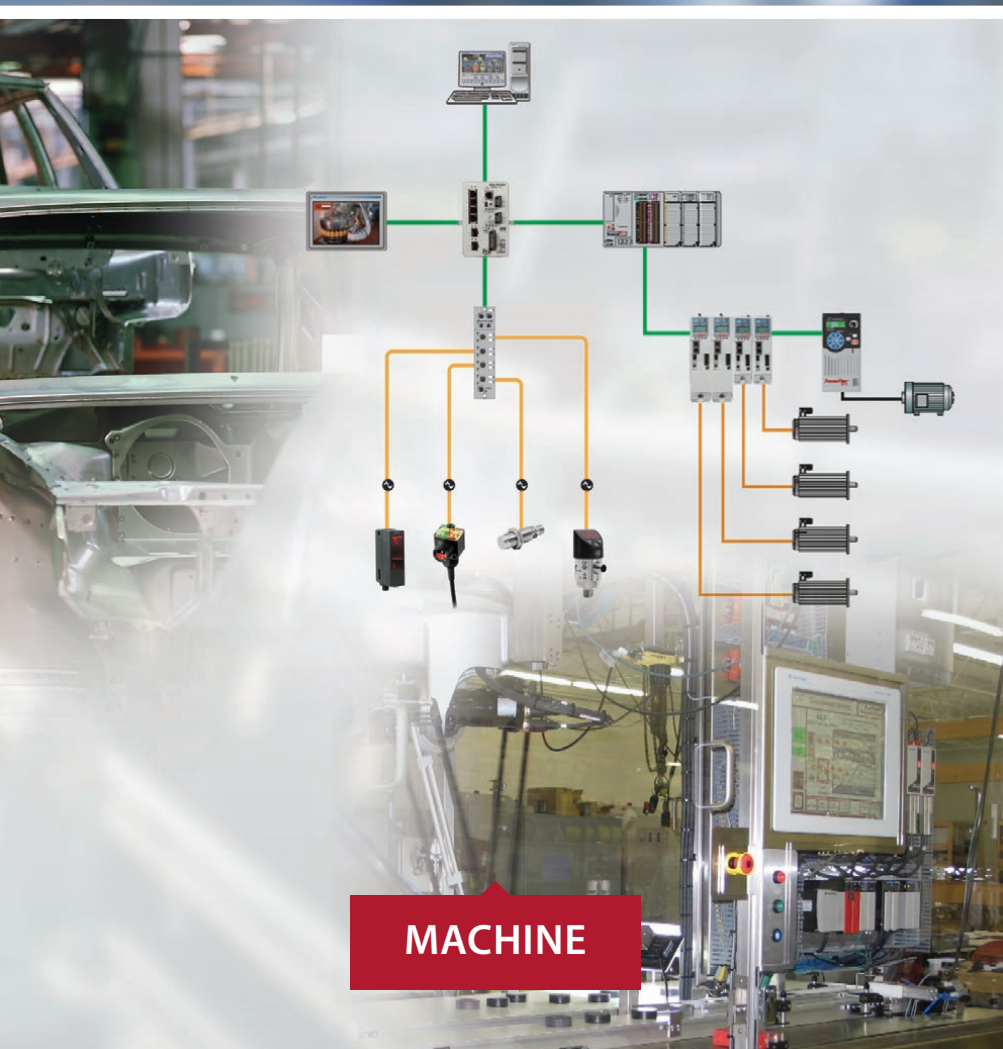
Single, scalable network

Our network solutions connect your automation control systems to each other and to the rest of your enterprise. We do this via a standard Ethernet network that scales from the simplest applications through to a plant-wide deployment.



Industrial safety solutions

Our expertise, experience and technologies have established us as the world leader in industrial safety. Our functional safety solutions for machine, process and electrical safety applications can be tailored to the required safety performance level (PL) and help to reduce injuries and costs, while they improve productivity.

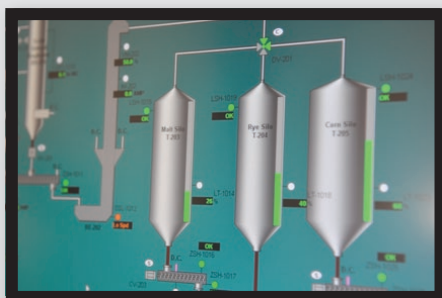


MACHINE



Integrated Architecture tools

We can help you to plan and configure an Integrated Architecture system, from the ability to create a simple bill of material to get started, to more advanced accelerator toolkits that maximize the time spent to create machine differentiation.



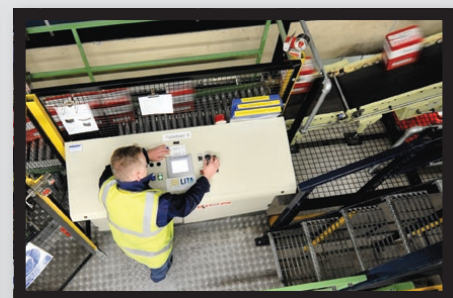
Manufacturing production intelligence

Our visualization products provide windows into critical production and process information and enterprise data. Across every type of industry, application and manufacturing environment, these products help to enhance decision-making and operational efficiency.



Increased I/O flexibility

Whether chassis-based or distributed, in-cabinet, on-machine or embedded, our I/O solutions help increase flexibility and reduce wiring and costs. For safety solutions, our Guard I/O™ products are TÜV-certified up to SIL 3, PL e, CAT 4.



Motor and motion control

Our portfolio extends from fixed speed starters, through compact standard drives for simple applications, to high-performance, multi-axis servo drives for the most demanding applications.

**Enhanced
productivity**

AUTOMATION DESIGN PRODUCTIVITY



Our Studio 5000 Automation Engineering & Design Environment® combines design and engineering elements into one standard framework with workflows that make it easy and intuitive to use.

The Integrated Architecture offers a unique approach to automation. It uses a common control engine and development environment designed to deliver world-class capabilities for all automation disciplines and industries.

The Studio 5000® development environment helps you respond quickly to changes in market and business needs and reduces total costs of ownership. New design capabilities can increase automation productivity and reduce costs during a project's lifecycle. Studio 5000 extends beyond one controller to be a system-wide development and design tool.

Key Features

- Scalable and flexible - use modular code to simplify your application
- Efficient project design - write code, organize it, test it and duplicate it
- Effective content management - create content, store it, share it and reuse it
- Quicker downtime recovery - logically find what you need to quickly troubleshoot code
- Collaborative engineering - enable multiple people to code, then compare and merge



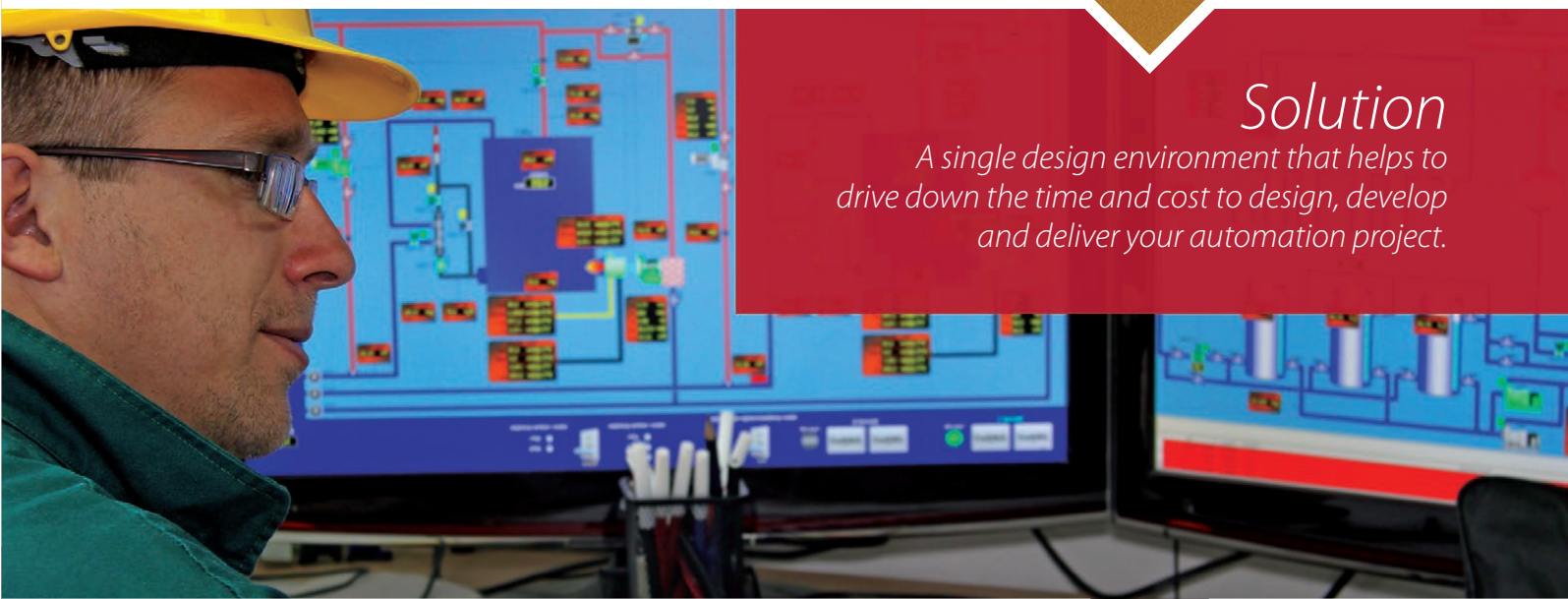
Challenge

The design process can be made complicated by using different tools for each task.



Solution

A single design environment that helps to drive down the time and cost to design, develop and deliver your automation project.



Case study

CKC Engineering

CKC Engineering was asked by one of the world's largest medical device companies to design and develop a custom microbore tubing spooler machine for a new extrusion plant. The Rockwell Automation solution helped reduce programming and commissioning time by 25 percent.

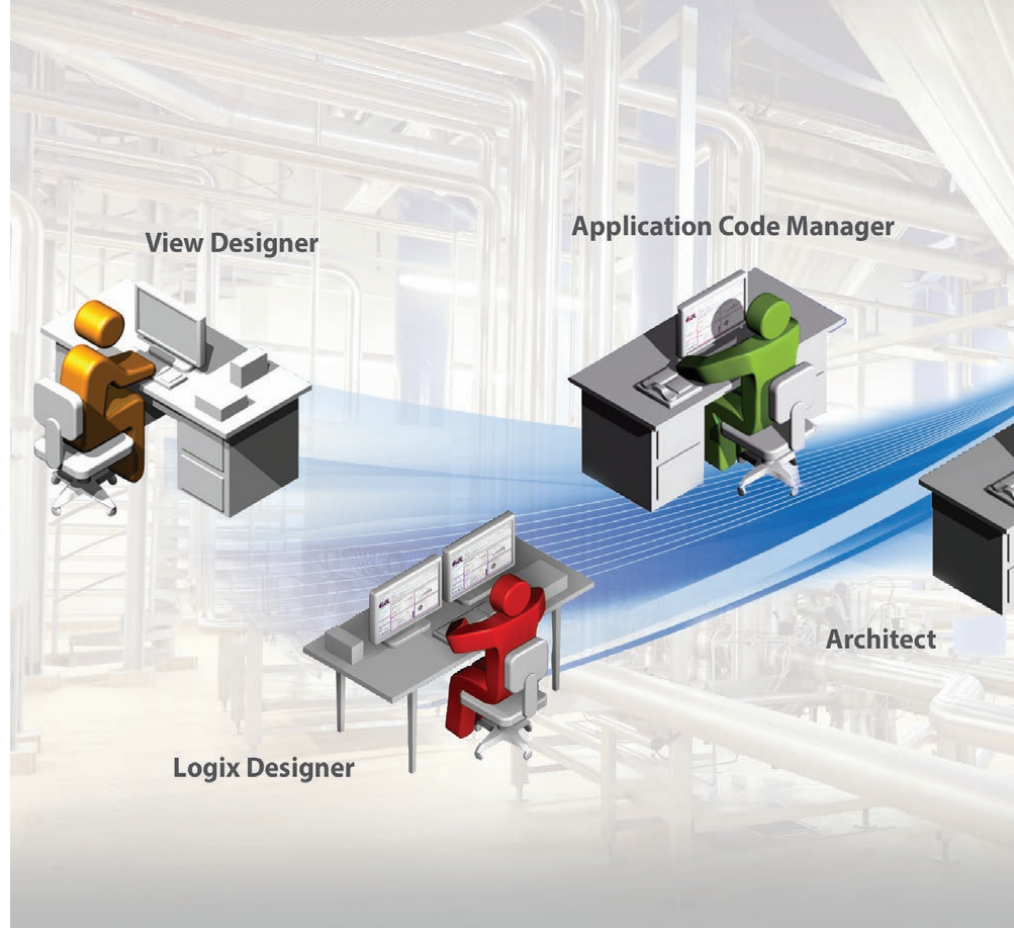
Enhanced productivity



System organization

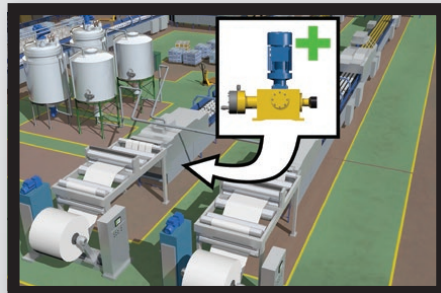
Organize your system in the way that's best for you to design, operate and maintain your application. Studio 5000 offers a central point for design work flows and is the primary means to delivering contextual information to the right user at the right time.

Automation Design Productivity



Library management

Simplifies the organization, accessibility and reuse of code, which helps establish best practices and standards. Efficiently managing reusable content speeds design time, especially when combined with the bulk engineering capabilities of Application Code Manager.



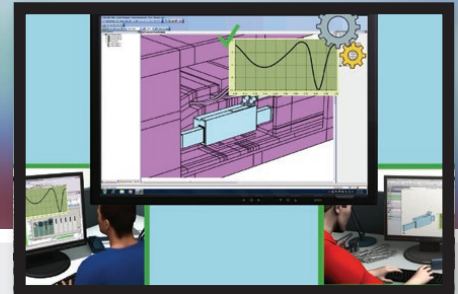
Modular automation

Enables design engineers to break complex processes into manageable tasks and logical groupings of functionality. This makes code easier to reuse and helps with troubleshooting.



Information-enabled

Device and system data structures make it easy to collect data across the enterprise, transform it into actionable information and make it available to the right person at the right time. This supports better decision making and improved overall performance.



Virtual design and engineering

Achieve savings and maintain a competitive edge with digital design, simulation and emulation. This helps shorten development cycles, reduce risk and optimize system designs.



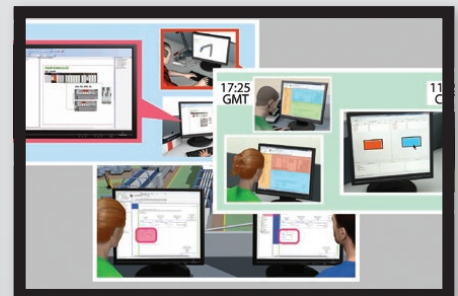
System Security

Help reduce risk and protect critical assets with a focus on infrastructure security, user access control, change detection and response and intellectual property management.



Device management

Providing named data structures and a common user experience for all device types makes it simpler to design applications, reuse code and replace faulty or aging devices quickly. This improves productivity and reduces design cycles for faster time to market.



Collaborative engineering

Speed development time by seamlessly sharing data between systems. This allows multiple people to work on the same project simultaneously anywhere in the world.

*Enhanced
productivity*

MANUFACTURING INTELLIGENCE AND OPERATIONS MANAGEMENT

Industrial enterprises worldwide are beginning to use emerging technologies to make sense of production data and turn it into actionable information that creates new business value. Seamless and secure connectivity between disparate production systems and processes throughout the entire enterprise is achievable and highly beneficial.

Modern operations management aims to enhance performance by making better use of data that already exists, using a combination of tools designed to deliver contextual, role-based information that can be acted on to improve systems or processes.

Our visualization, reporting and analytics solutions help to monitor the key factors affecting performance, efficiency, quality and

energy management, made visible throughout the enterprise on easy-to-read dashboards.

Our solutions can be deployed individually at a machine or line level to solve specific needs, and then scaled across multiple lines or plants to achieve enterprise-wide business objectives.



Challenge

There are numerous information systems available that gather production data, but is it actionable information that drives an increase in business value?



Solution

Enabling real-time access to critical production information for better and faster decision making, business agility and improved performance and productivity.

Case study

Trigg Technologies

Trigg Technologies sells, leases and services hydrocarbon transfers for oil and gas companies. The company cut an average of 20 days from billing cycles and reduced ticketing errors to virtually nil by using our control and information solution combined with a cloud platform. Trigg Technologies now has real-time visibility and historical trend data on transfers, overall oil quality and well productivity over time, improving maintenance and decision making.

Enhanced productivity



Choose an architecture that provides integrated control and information

Having a solid foundation is the key to building great solutions. Powering FactoryTalk® information software with Logix controllers connected with Stratix® switches helps to build more productive, more secure and more informed systems.

Manufacturing Intelligence and Operations Management



Performance management with enterprise manufacturing intelligence

Our solutions intuitively connect to your plant automation systems and present information on how your equipment is performing. Find out Key Performance Indicators (KPIs) such as OEE (overall equipment effectiveness), MTTR (Mean Time to Repair) and many more.



Manufacturing execution systems

Our MES solutions enable you to better provide standardized workflows, and manage procedures and execution to optimize production operations.



Put your information to work

Our systems make it easier to gather, analyze, contextualize and share intelligence. Using flexible, open-standard-supporting software tools, you can connect and organize your data into actionable information. Gain wisdom and insight from your manufacturing data.



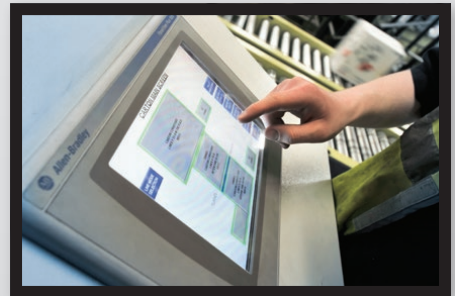
Collaboration

Use your information to make better decisions and to interact with others. Our solutions allow you to tailor the data from your control systems to meet your needs, and allow you to use today's most prevalent technologies to share that information with others.



Mobile solutions

Use your information to make better decisions by getting the right information to the right people at the right time on the right device. We have solutions for customers on all major mobile platforms. We focus on user enablement with intuitive workflows that untether you from desktop computers.



Visibility is everything

With the right information software in place, you can increase your visibility into your operations. Our software helps you measure and see what is actually happening. From panel to desktop to big screens to small mobile screens, having the right information infrastructure is vital to helping you see your data the way you want it.

INDUSTRIAL AUTOMATION SECURITY

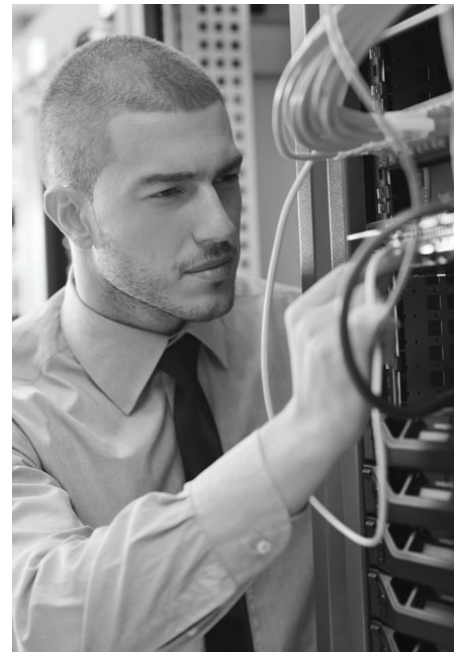
Control systems, networks and software can all help defend against security threats and risks. It's time to manage your risks and build the secure industrial control system that meets your needs.

Rockwell Automation recommends deploying a Defense-in-Depth approach to help protect against both internal and external security threats. This approach suggests the utilization of multiple layers of defense – physical, procedural and electronic – at separate levels of the architecture and plant.

The objectives of Defense-in-Depth include reducing the risk of an attack, identifying a potential attack as it tries to penetrate your assets, delaying the attack to increase the time you have to react and take action through

appropriate counter measures. Rockwell Automation offers products and services to help build a Defense-in-Depth strategy. These solutions include:

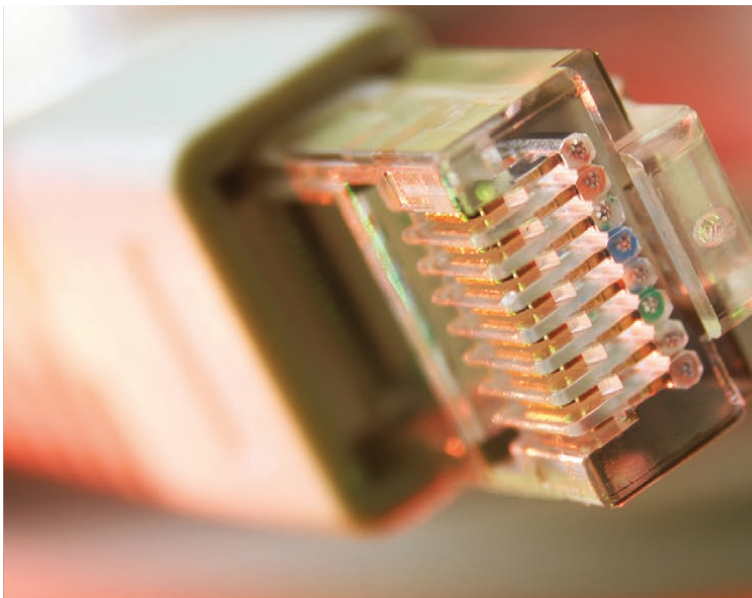
- **Securing the network infrastructure**
Creating a control system network resistant to outside attacks
- **Content protection**
Protect valuable control system content from unauthorized use and copying
- **Tamper detection**
Detect, document and provide notification for attacks on the control system
- **Access control and policy management**
Create a trusted environment by controlling who, what, where and when access is allowed





Challenge

Industrial organizations need to establish a seamless flow of information by connecting control systems to the enterprise; however, a complex, interconnected system doesn't come without challenges.



Solution

A consistent, comprehensive approach to industrial security that extends beyond the control system to include data, policies and procedures that address people, processes and technology-related risks.

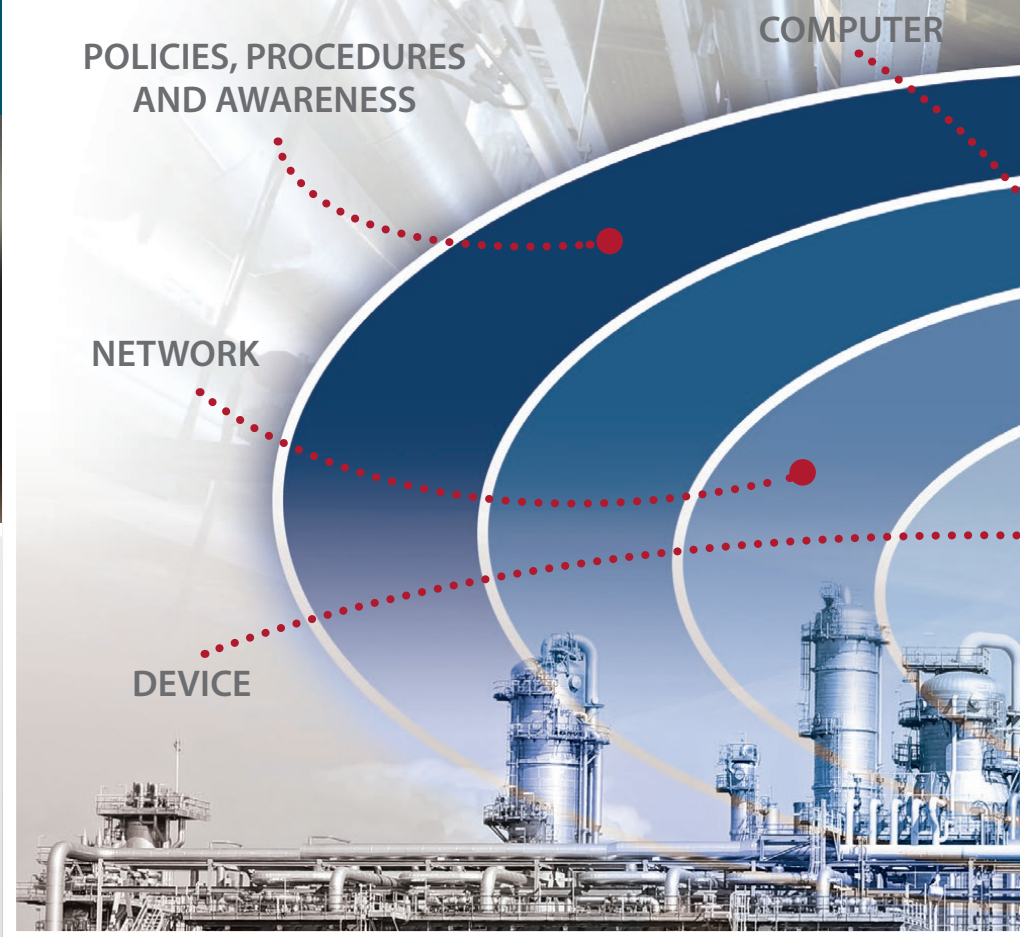
Case study

MG Bryan

MG Bryan is a manufacturer of heavy equipment and machinery for the Oil & Gas industry. The company adopted cloud computing for remote asset management of high-tech fracking equipment through secure access to real-time information, and is now able to monitor fracking truck use by the minute, hour and day. This has enabled the company to change its leasing agreement from the industry-standard monthly agreements to a pay-by-use model.

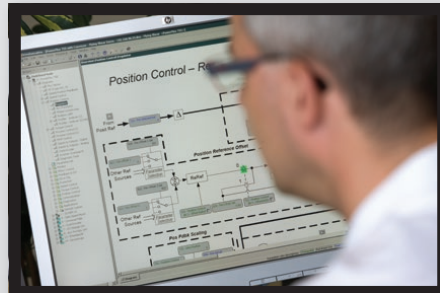
*Secure
environment*

Industrial Automation Security



Defense-in-Depth approach

A multi-layer approach for helping to protect industrial assets, at different levels, from security threats by applying the appropriate controls to address different types of risks.



Content protection

Helps protect valuable intellectual property such as production data, recipes, code from access and viewing by using Logix data protection services.



Securing the network infrastructure

Providing the ability to control access to the network and controlling unwanted activity relative to devices on your plant floor network.



Tamper detection

Detect changes using digitally signed firmware, Logix controller change detection and event logging features in Studio 5000 and FactoryTalk® AssetCentre.



Access control and policy management

Authentication and authorization of software and specific user roles and privileges can be controlled with FactoryTalk Security and further restricted using Security Authority Binding and Data Access Control.



Network and security services

Rockwell Automation Network and Security Services can help you assess, design, implement and audit your security program and architectures to align with global security standards.

**Secure
environment**

PROFITABLE PARTNERSHIP



The continual rise in global demand places more pressure on the global manufacturing industry to avoid downtime and improve productivity and delivery. As the world's largest company dedicated to industrial automation, we are able to help you meet this demand and optimize business profitability.

To achieve your defined goals, you have to assess, analyze and adapt production to overcome a number of challenges, including the increasing cost-per-hour of downtime and the ongoing challenge of finding skilled workers. In a sector where technology is constantly moving, you need to be able to trust in business partners who provide the solutions, services and support to help you stay ahead.

We understand that a profitable, safe and sustainable operation that minimizes downtime is your goal. To this end, we've developed a unique resource of industry and technology-specific expertise to help reduce project risk and provide solutions specific to your needs, executed globally and supported locally.

Maximizing productivity

If you're not successful, we're not successful. Our singular goal is to help you drive productivity year after year. Our specific, experience-tested services are designed to help you maximize your automation investment.

Meeting your needs

Every industrial production facility requires its basic needs to be met on a daily basis: local availability of parts, on-site support, training and world-class expertise in local languages. Our global reach meets these needs for you.

Defining strategies for improvement

While meeting your everyday needs is important, you also need consistent access to experts to uncover business improvement opportunities with an actionable improvement plan to deliver results.



Challenge

Technology moves fast, but some suppliers move too fast, leaving you stranded with obsolete equipment that causes ongoing production headaches.



Solution

A specialized supplier, committed to excellence in delivery and to the long-term future of your business and your automation investment.

Case study

ASARCO

ASARCO, an integrated copper mining, smelting and refining company, required a control system upgrade for the electrolyte purification system at its refinery. Working with Rockwell Automation, ASARCO improved overall system efficiency, maintainability and flexibility – and the new integrated solution can extend to other parts of the facility.

Secure environment



Optimize your operation

Across industries and processes, Rockwell Automation understands that a profitable, safe and sustainable operation is your goal. We offer you industry and technology-specific expertise to meet these goals and your unique challenges.

Profitable Partnership



Reducing Risk and Creating Value Throughout

Feasibility & Conceptual Studies

Front End Engineering & Design

Design & Engineering



Protect your investment

Beyond our solution delivery capabilities, our global infrastructure of support centers and subject matter experts all help protect your automation investment, optimize plant assets, increase productivity and improve your overall financial performance.



The support you need, when you need it

Guaranteed response for remote support, replacement parts and on-site services in one integrated support agreement for one flat fee that gives you one point of contact for all of your equipment and repair needs.



Scalable solutions

While we develop solutions to meet your needs today, we constantly have an eye on tomorrow. We take a collaborative approach to understanding your current state and how to design a solution that weighs scalability as a major factor.



80 Countries
 20 Languages
 18 ISO-certified Repair Centers
 9 Exchange Hubs
 6 Remote Support Centers
 Single-site or Multi-site Delivery
 Average 13+ Years Industry Experience



Your Production Lifecycle

Installation & Commissioning

Operation & Maintenance

Upgrades & Migrations



Migration support

As products age, we provide options to help you extend their life as long as possible, and give you enough advance notification to allow you to transition as seamlessly as possible to the next generation.



Strategic alliances

Our alliance partners work with us and you to develop capabilities that provide seamless solutions, giving you the strongest technological, competitive and strategic advantages within your enterprise and across your supply chain.



PartnerNetwork

Our PartnerNetwork™ framework comprises an integrated team of engineering specialists and best-in-class suppliers who work collaboratively to solve your manufacturing and automation challenges by streamlining your supply chain and simplifying project implementation.

HARDWARE PORTFOLIO



As the world's largest company dedicated to industrial automation, our extensive product portfolio, services and support help to improve your manufacturing cycle.



Programmable automation controllers

- Modular and scalable systems
- Process, batch, discrete, drives, safety and motion control
- High-availability
- SIL 2 and SIL 3 safety certified
- Embedded and Distributed I/O
- Extreme Environment (XT) and Conformal Coating



Input/Output devices

- Chassis-based, local, family-specific, distributable via communication networks
- Distributed, in-cabinet modular – flexible, customizable
- On-Machine™ modular – direct-mount, reduced wiring costs, easy maintenance
- Distributed, in-cabinet block – includes network adapter, analog, digital and specialty
- On-Machine direct mount, block – reduced wiring costs, easy maintenance
- Distributed/embedded – built-in DeviceNet™ or EtherNet/IP support, optional DeviceLogix™ Smart Component Technology
- Safety – POINT Guard I/O™, ArmorBlock®, CompactBlock™ Guard I/O™ – reduced wiring costs and startup time, available for in-cabinet and On-Machine applications



Condition and Energy monitoring

Condition Monitoring

- Integrated condition monitoring on the EtherNet/IP network
- Integrated machinery protection
- High performance portable data collectors
- Proven, comprehensive predictive maintenance software
- Sensors and accessories for a complete solution

Energy Monitoring

- Energy monitoring on the EtherNet/IP network
- Capture comprehensive information:
 - how much power you use
 - what your major loads are
 - when you use electric power the most
 - how much you pay for it
 - quality of the power you use

Intelligent Devices

Radio Frequency Identification (RFID) System

- Ideal for tracking and tracing products as they move through the manufacturing process
- 1- and 2-channel EtherNet/IP interface available
- Embedded switch, with Device Level Ring (DLR)
- Rugged for industrial locations

IO-Link Sensors

- Smart Sensors with IO-Link serve as an enabling technology for The Connected Enterprise
- IO-Link technology provides seamless integration of sensors through The Integrated Architecture
- Multiple master options and a wide range of IO-Link enabled smart sensors available

Safety Logic

- Ethernet connectivity for software configurable and GSR single-function safety relays
- The 440C-CR30 software configurable safety relay can share information with the control system through the optional EtherNet/IP plug-in module
- Intelligent Guardmaster® safety relays offer network connectivity via the optional 440R-ENETR EtherNet/IP Interface



Motor control devices

PowerFlex® AC Drives

- Designed for application flexibility
- Real-time information access for your power and control system
- Premier Integration with Studio 5000 software for seamless control system integration

PowerFlex Medium Voltage Drives

- Enable soft-starting and variable-speed control of processes with high power demands

- Help reduce energy costs, component count, maintenance and motor wear
- CENTERLINE® Motor Control Centers (MCCs) offer a rugged, high-performance packaging solution for all your motor control needs.
- SMC™ soft starters can be easily integrated into your intelligent motor control solution to offer higher productivity and shorter downtimes
- A full line of versatile and robust starters for both low and medium voltage, and IEC and NEMA applications



Kinetix® motion control

- Servo drives for a broad range of applications
- Rotary and linear servo motors
- Safety servo drives minimize downtime and reduce energy and production waste
- Linear actuators and stages for flexible servo control

- Absolute encoders for closed-loop control systems
- Incremental optical encoders provide low cost, small size, high frequency and high resolution



Operator interfaces and industrial computers

- Extreme environment computers
- ATEX and UL-rated for hazardous locations
- Industrial environment, non-display and integrated display computers

- Graphic terminals with support for various communication protocols
- Industrial flat panel, LCD monitors – Class 1, Division 2 locations



Stratix industrial networks infrastructure and Ethernet media

Stratix Switches

- Modular managed Ethernet switches use the Cisco® Catalyst® Operating System
- Variety of features for both IT and manufacturing environments
- Unmanaged Ethernet switches are ideal for small, isolated networks

Stratix Security Appliances

- Combine several modern security functions into a single appliance
- Help provide incident detection, prevention and response

Stratix Wireless Access Points

- Provides connectivity in hard-to-wire and remotely accessible areas
- Can be used as a Wireless Access Point or Work Group Bridge

Media and Connectors

- Complete portfolio of industrial-grade Ethernet physical media
- In-Cabinet (RJ45) Network Media
- On-Machine (M12 and Variant 1) Ethernet Media



SOFTWARE PORTFOLIO



Rockwell Software

Rockwell Software® offers a unified suite of software tools that help deliver efficiency across design, human machine interface, enterprise manufacturing intelligence, production management, process and manufacturing execution systems.



Design and Configuration

The Studio 5000® Automation Environment combines engineering and design elements into one standard framework that enables optimized productivity and reduced commissioning time. With the Studio 5000 environment. You can respond more quickly to changing market and business needs, while reducing total costs of ownership, including maintenance and training.

- Use one intuitive design and configuration software package
- Simplify development of complex control solutions
- Have greater access to real-time information
- Develop localized applications in a single control platform, in a collaborative engineering environment

Studio 5000 Architect

Studio 5000 Architect™ is an integrated engineering environment that allows you to streamline the time to build your Logix and FactoryTalk® View automation system, supports reuse of content and provides seamless exchange of data between with engineering tools.

Studio 5000 View Designer

Studio 5000 View Designer® is the design environment for the PanelView™ 5000 graphic terminals. As part of the Studio 5000 environment, View Designer offers enhanced integration with Logix to improve operator performance.

Studio 5000 Logix Designer

Studio 5000 Logix Designer®, the next progression of RSLogix 5000® software, delivers standardized framework for discrete, process, batch, motion, safety and drive-based systems, helping save programming time.

Studio 5000 Application Code Manager

Studio 5000® Application Code Manager is a new design tool that allows you to leverage your re-usable content, helping you to increase deployment efficiency, accuracy and overall cost savings.



Connected Components Workbench™ design and configuration software for standalone machine applications offers Micro800® family controller programming, device configuration and integration with the PanelView™ 800 HMI editor. Connected Components Workbench software is based on proven Rockwell Automation and Microsoft Visual Studio technology and can help to minimize your initial machine development time and cost.

Human Machine Interface (HMI)

FactoryTalk® View SE

A supervisory-level HMI software for monitoring and controlling distributed-server/multi-user applications.

FactoryTalk® View ME

A versatile HMI application that provides a dedicated and powerful solution for machine-level operator interface devices.

FactoryTalk® ViewPoint

On the road, at home or in the office, provides a secure interface with FactoryTalk® View's graphics, trending, and alarming applications through a web browser. Extends access to users anywhere for improved real-time decision making.



Enterprise Manufacturing Intelligence

FactoryTalk® VantagePoint EMI

Manufacturing information delivered when you need it, the way you want to see it to make informed decisions. Gain real insight into your production information via any mobile device or view web-based reports and KPI dashboards.

FactoryTalk® Historian

Captures the data you need to improve operations. Powerful reporting and trending tools provide critical insight into performance parameters and are available at high speed, reliably – from machine to enterprise.

FactoryTalk® Metrics

Generates accurate reporting of real plant floor activity, giving you important insights into overall

equipment effectiveness and downtime analysis for increased productivity and profitability.

FactoryTalk® EnergyMetrix™

A web-enabled management software package that gives you access to critical energy information from virtually any location, providing complete energy-management decision support.

FactoryTalk® Transaction Manager

Integrates the critical data from your shop-floor with enterprise IT and other manufacturing applications. This helps you establish an end-to-end link, giving you reliability to support enterprise-wide integration.



Manufacturing Execution Systems (MES)

MES software provides standardized workflows to operators to help ensure the highest possible production quality as well as regulatory compliance. We offer standard application library suites for pharmaceutical, consumer packaged goods and automotive industries.

FactoryTalk® ProductionCentre®

Integrates quality management and business analytics with paperless shop floor and repair

execution. This improves operational efficiencies while helping ensure regulatory compliance and the highest levels of quality.

ERP Integration Gateway

A cost-effective application that aligns manufacturing operations with the business processes and information housed in Enterprise Resource Planning (ERP) and other business systems.



Process

PlantPax®

PlantPax is the Modern DCS from Rockwell Automation with all the core capabilities expected in a world-class distributed control system. The system is built on a scalable architecture platform using Integrated Architecture that enables Plantwide control and Premier Integration with the Rockwell Automation Intelligent Motor Control portfolio.

FactoryTalk® Batch

Provides efficient, consistent predictable batch processing and supports the re-use of code, recipes, phases and logic. FactoryTalk® Batch combines the ISA S88 standard with proven technology that provides the flexibility you need to supply your product to market faster.

Pavilion8®

Model predictive control software that provides the tools to improve the agility of your operation, giving you the capability to more quickly adapt to changing business priorities and customer demands. Leveraging a powerful modeling engine, Pavilion8® software includes modules to control, analyze, monitor, visualize, warehouse, and integrate, and combine them into high-value applications.



Programmable Automation Controllers At-A-Glance



Micro800

CompactLogix 5370

	Micro800	CompactLogix 5370
Overview	Micro800 controllers are designed for low-cost, standalone machines. These economical small-size PLCs are available in different form factors based on the number of I/O points embedded in the base, with a range of features intended to address different requirements. The Micro800 family shares Connected Components Workbench (CCW) Software programming environment, accessories and plug-ins that allow machine builders to personalize the controller for specific capabilities.	Logix programmable automation controllers use a common control engine with a common development environment to provide high performance in an easy-to-use environment. Tight integration between the programming software, controller and I/O modules reduces development time and cost at commissioning and during normal operation. CompactLogix™ controllers are ideal for small to mid-size machines and provide the benefits of Integrated Architecture for lower-cost machines.
Key Features	<ul style="list-style-type: none"> • Suitable for low cost, standalone, discrete, process and PTO motion applications • Plug-in modules to customize the Micro800 to specific application needs • Built-in 100kHz high speed counter • EtherNet/IP and DeviceNet • Supports Modbus TCP, Modbus RTU, ASCII and Open socket capability for communication with 3rd party devices • Micro820™: microSD™ slot for data-logging and recipe management 	<ul style="list-style-type: none"> • Suitable for process, motion, discrete and safety applications • Integrated Motion on EtherNet/IP • Distributed I/O via EtherNet/IP • Robot kinematics • Open socket capability for devices such as printers and barcode readers • Internal energy storage solution removes the need for battery
Built-in Memory	Up to 140kB	L1: Up to 1MB, L2: Up to 1MB, L3: Up to 3MB
Motion Control	Up to 3 axes of 100 kHz Pulse Train Outputs (PTO) for Motion control	Up to 16 axes of Integrated Motion on EtherNet/IP
Safety Level	N/A	CompactLogix 5370: N/A Compact GuardLogix® 5370: SIL 3, PLe, CAT 4
On-Machine	N/A	Armor™ CompactLogix™: IP67 rated Armor Compact Guardlogix: IP67 rated
Language Support	<ul style="list-style-type: none"> • Ladder Logic • Structured Text • Function Block 	<ul style="list-style-type: none"> • Ladder Logic • Structured Text • Function Block • Sequential function chart
Communications	Embedded USB, RS232/485 and Ethernet	Embedded USB and Ethernet with DLR
Standards	cULus, CE, RCM, KC, EtherNet/IP, Marine	cULus, CE, C-Tick, ATEX, EtherNet/IP, KC, GOST-R, Marine
Environmental	Micro810®: 0°...55°C Micro820/830/850: -20°...65°C	L1: -20-60 °C (-4-140 °F) L2/L3: 0-60 °C (32-140 °F) Armor®: 0-60 °C (32-140 °F)
More Information	To see our full range of micro PLCs and for more information on these products visit: http://ab.rockwellautomation.com/Programmable-Controllers/Micro-and-Nano	For the most up to date information on our full range of programmable automation controllers and accessories, visit: ab.rockwellautomation.com/Programmable-Controllers



CompactLogix 5380

ControlLogix 5570

ControlLogix 5580

Logix programmable automation controllers use a common control engine with a common development environment to provide high performance in an easy-to-use environment. Tight integration between the programming software, controller and I/O modules reduces development time and cost at commissioning and during normal operation. CompactLogix™ controllers are ideal for small to mid-size machines and provide the benefits of Integrated Architecture for lower-cost machines.

Logix programmable automation controllers use a common control engine with a common development environment to provide high performance in an easy-to-use environment. Tight integration between the programming software, controller, and I/O modules reduces development time and cost at commissioning and during normal operation. ControlLogix® controllers are ideal for more demanding applications and can perform standard and safety control in the same chassis for a truly integrated system. Leverage the high-availability and extreme environment capabilities to meet your application needs.

- Suitable for high performance discrete and motion applications
- Integrated Motion on EtherNet/IP
- Two Ethernet ports each with individually configurable IP addresses and adjustable speed up to 1 Gb
- Designed for high performance with 5069 Compact I/O, either local or on EtherNet/IP

- Suitable for process, motion, discrete, safety and high-availability applications
- GuardLogix® has TÜV certification for functional safety
- Integrated Motion and Safety on EtherNet/IP
- Multiple controllers in the same chassis, with each one operating independently

- Suitable for high performance discrete and motion applications
- Integrated Motion on EtherNet/IP
- Multiple controllers in the same chassis, with each one operating independently
- Built in 1Gb Ethernet port
- Designed for high performance with 5069 Compact I/O

Up to 4 MB

ControlLogix: Up to 32 MB
GuardLogix®: 8 MB standard / 3.75 MB safety

Up to 40 MB

Up to 20 axes of Integrated Motion on EtherNet/IP
Typical performance 20 axes / ms

Up to 100 axes of Integrated Motion on EtherNet/IP
Typical controller performance 6 axes / ms

Up to 256 axes of Integrated Motion on EtherNet/IP
Typical controller performance 32 axes / ms

CompactLogix 5380: N/A

ControlLogix: SIL 2 when following ControlLogix SIL 2 Safety Reference Manual
GuardLogix: SIL 3, PLe, CAT 4

ControlLogix 5580: N/A

N/A

Armor™ ControlLogix®: IP67 rated
Armor™ GuardLogix®: IP67 rated

N/A

- Ladder Logic
- Structured Text
- Function Block
- Sequential function chart

Embedded USB and Ethernet with DLR/Dual IP (selectable)

Embedded USB

Embedded 1 Gb Ethernet port

cULus, CE, C-Tick, ATEX, IECEx, EtherNet/IP, KC, GOST-R, Marine

cULus, CE, KC, FM, RCM, IECEx, EAC, Marine
In addition GuardLogix®: FM, TÜV

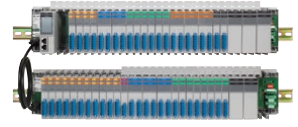
cULus, CE, IECEx, KC, EtherNet/IP, FM, CSA, RCM, Ex, EAC, Marine Pending

0-60 °C (32-140 °F)

0-60 °C (32-140 °F)
XT versions rated -25-70 °C (-13-158 °F)

0-60 °C (32-140 °F)

Input/Output (I/O) Modules At-A-Glance



	1715 Redundant I/O	1719 EX I/O
Overview	Provides fault tolerance and redundancy for critical processes by using a pair of redundant Ethernet adapters and multiple I/O modules. I/O modules provide diagnostics and are interchangeable with no interruption to the control system.	Intrinsically safe distributed I/O solution that enables customers to integrate devices in hazardous areas via EtherNet/IP.
Key Features	<ul style="list-style-type: none"> • Supports several network topologies, including Device Level Ring for enhanced resiliency • Flexible, modular construction for user-configurable I/O applications • I/O redundancy for systems requiring high availability • Suitable for simplex and duplex connections and fault tolerant applications • Supports online module removal and replacement with no interruption of the signal inputs 	<ul style="list-style-type: none"> • I/O modules for intrinsic safety field connections, rated for Zone 2 or Class I, Division 2 mounting • EtherNet/IP DLR Adapter • Optional N+1 Power Supply Redundancy • Removal and Insertion Under Power (RIUP) lets you replace modules and make connections while the system is in operation (in absence of hazardous atmosphere) • Modularity and several chassis options provide scalability for larger applications • HART 7 support standard on all analog modules
I/O Types Offered	<p>Digital Input Module</p> <ul style="list-style-type: none"> • 16 Channel <p>Analog Input Module</p> <ul style="list-style-type: none"> • 16 Channel <p>Digital Output Module</p> <ul style="list-style-type: none"> • 8 Channel <p>Analog Output Module</p> <ul style="list-style-type: none"> • 8 Channel 	<p>EX Digital I/O Modules</p> <ul style="list-style-type: none"> • 8 Channel NAMUR Digital Input module • 2 Channel Digital Output modules to support nearly any solenoid requirement <p>EX Analog I/O Modules</p> <ul style="list-style-type: none"> • Configurable 4 channel Analog Input/Output module • 4 Channel Analog Input, Thermocouple, and RTD Modules <p>EX Specialty I/O Modules</p> <ul style="list-style-type: none"> • Single channel frequency counter module
Communications	EtherNet/IP: Supports several network topologies, including Device Level Ring (DLR) for enhanced network resiliency	EtherNet/IP
More Information	For the most up to date information on our full range of I/O modules and accessories visit: ab.rockwellautomation.com/IO	



1732 ArmorBlock I/O	1734 POINT I/O
<p>ArmorBlock® I/O Modules provide low-cost, hardened I/O suitable for On-Machine use. Mount anywhere on a machine, instead of housing in a cabinet, and connect using EtherNet/IP.</p>	<p>Ideal for applications requiring flexibility and low cost of ownership. Granularity of one to eight points lets you buy only the I/O you need. The compact design makes installation easier in limited panel space.</p>
<ul style="list-style-type: none"> • IP67/69K-rated water- and corrosion-resistant housing reduces enclosure costs • Industry-standard connectors simplify wiring and improve Mean Time to Repair • Embedded switch with Device Level Ring (DLR) • Rotary switch to set IP address • Self-configuring blocks with both input and output functionality 	<ul style="list-style-type: none"> • Independently select the I/O, termination style and network interface • Install easily by sliding together; pull apart easily for maintenance • Removable wiring system saves time and money during installation and troubleshooting • Comprehensive diagnostics and configurable features • Removal and insertion under power for ease of maintenance • Mount horizontally or vertically, with no derating required • Also available 1738 ArmorPOINT® I/O for On-Machine applications
<p>ArmorBlock®</p> <ul style="list-style-type: none"> • 8 or 16 point digital I/O blocks • Available with CIP Sync on some blocks • 4 point analog I/O blocks • Supports connection to IO-Link enabled devices with the IO-Link master module • Available with Quick Connect on some blocks • IP69K and NEMA 4X (when marked) <p>Armor WeldBlock</p> <ul style="list-style-type: none"> • 16 I/O points • Resists the effects of weld slag and magnetic fields found in close proximity to weld heads • Light-weight nickel-plated aluminum metal housing <p>ArmorBlock Guard safety-rated modules</p> <ul style="list-style-type: none"> • 16 point combined I/O blocks • PLd-rated, single channel safety inputs • PLe-rated, dual channel, safety inputs • Safety outputs rated up to PLe (use with GuardLogix® family) • IP65 for wash down protection 	<p>I/O Digital Modules</p> <ul style="list-style-type: none"> • Input, output, and relay output modules • Wide variety of voltages <p>I/O Analog Modules</p> <ul style="list-style-type: none"> • Up to eight single-ended inputs or outputs per module • Thermocouple and RTD modules <p>I/O Speciality Modules</p> <ul style="list-style-type: none"> • Counter and encoder modules • Serial synchronous interface Absolute Encoder module • Serial interface modules • Address Reserve (ARM) module • IO-Link master module <p>POINT Guard I/O™ safety-rated modules</p> <ul style="list-style-type: none"> • Digital input, digital output and analog input modules • TUV-certified for functional safety up to and including SIL 3, CAT 4, PLe • Can be used side-by-side in a standard POINT I/O™ system
<p>DeviceNet or EtherNet/IP</p>	<p>DeviceNet, ControlNet, EtherNet/IP, PROFIBUS DP</p>

Input/Output (I/O) Modules At-A-Glance



	1756 ControlLogix I/O	1769 CompactLogix I/O
Overview	A full range of digital, diagnostic digital, analog, motion control, and specialty I/O. Modules can be used in the local chassis of a ControlLogix® controller or in a chassis linked to a ControlLogix controller across EtherNet/IP.	Can be used as local and distributed I/O with CompactLogix™ family of controllers. Rack-type features in a rack-less design lower costs and reduce replacement parts inventory.
Key Features	<ul style="list-style-type: none"> • Comprehensive diagnostics for detection of both system and field-side failures • Inherent time-stamping capabilities for Sequence Of Events applications • Electronic keying to help prevent replacement errors • Available with conformal coating to help protect in harsh environments • Removable terminal block or wiring interface module to connect all field-side wiring 	<ul style="list-style-type: none"> • Provides flexibility with DIN rail or panel mounting options • Includes individual point diagnostic status indicators to ease troubleshooting • Prevents incorrect positioning of module with software keying • Connects as many as three banks of Compact I/O™ to a controller (requires use of a communication adapter module and power supply)
I/O Types Offered	<p>I/O Digital Modules</p> <ul style="list-style-type: none"> • 8 to 32 points module • Offers a variety of voltages • Isolated and non-isolated module types <p>I/O Analog Modules</p> <ul style="list-style-type: none"> • Input, output and combination modules • Thermocouple and RTD modules <p>I/O Speciality Modules</p> <ul style="list-style-type: none"> • Configurable flowmeter modules • High-speed counter modules • Programmable limit switch modules <p>HART Analog Isolated I/O Modules</p> <ul style="list-style-type: none"> • Channel-to-channel isolation • HART modem per channel for faster HART data update <p>Enhanced Analog I/O Modules</p> <ul style="list-style-type: none"> • Isolated 8-channel and non-isolated 12- and 16-channel modules with stability over the entire temperature operating range 	<p>Digital I/O Modules</p> <ul style="list-style-type: none"> • 8 to 32 points per module • Offer a variety of AC and DC voltages • Include contact output modules • Include high speed input modules <p>Analog I/O Modules</p> <ul style="list-style-type: none"> • Analog, thermocouple and RTD modules <p>Speciality I/O Modules</p> <ul style="list-style-type: none"> • Address reserve, ASCII, Boolean control and high-speed counter modules available • Direct 1769 platform connection to PowerFlex® drives and other devices through Compact I/O™ to DPI/SCANport™ and Compact I/O to DSI/Modbus modules
Communications	Local chassis or in a chassis linked to a ControlLogix controller across ControlNet or EtherNet/IP	Local to controller or distributed on EtherNet/IP
More Information	For the most up to date information on our full range of I/O modules and accessories visit: ab.rockwellautomation.com/IO	



1794 FLEX I/O

Functionality of larger rack-based I/O without the space requirements. FLEX™ I/O offers cost-effectiveness, flexibility, modularity, and reliability.

- Modular design lets you independently select the I/O, termination style and network interface
- Assembles without tools – all components snap into DIN rail and plug together to form the I/O system
- Mounts horizontally or vertically
- Removal and Insertion Under Power

- FLEX Digital I/O Modules**
- 8 to 32 points per module
 - Isolated inputs or outputs
 - Protected outputs, electronic fusing or diagnostics available on some modules
- FLEX Analog I/O Modules**
- Individually configurable channels, selectable input filters on many modules
 - Single-ended or differential inputs
 - Thermocouple, RTD, and HART modules available
- FLEX Speciality I/O Modules**
- Frequency
 - Very High Speed counter
 - Pulse counter
- FLEX XT Extreme Environment Modules**
- Rated for -20-70 °C (-4-185 °F) and are compatible with ControlLogix-XT™ extreme environment system
 - Analog input with HART support
 - Thermocouple, RTD and Combination I/O modules

EtherNet/IP, ControlNet, DeviceNet, PROFIBUS DP

5069 Compact I/O

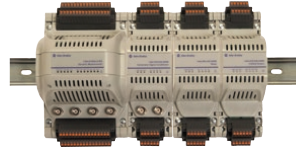
Our newest generation I/O platform offering high performance in a compact design

- Install easily by sliding together; pull apart easily for maintenance
- Comprehensive diagnostics for detection of both system and field-side failures
- Inherent time-stamping capabilities for sequence of events applications
- Electronic keying to help prevent replacement errors
- Removable terminal block to connect all field-side wiring
- Different termination style available

- Digital I/O Modules**
- 8 to 16 points per module
 - Offer a variety of AC and DC voltages
 - Include Contact Output modules
 - Isolated and non-isolated module types
 - Enhanced built-in capabilities; event triggers, simple counter, time stamping, schedule output
 - Enhanced protection capability
- Analog I/O Modules**
- Universal Analog input modules
 - Analog output modules
 - High resolution - fast conversion rates
 - Speciality I/O Modules
 - Address Reserve, High Speed Counter, Field Power Distribution

Local to controller or distributed on EtherNet/IP

Condition and Energy Monitoring At-A-Glance



Dynamix 1444 Series Integrated Machinery Monitoring System

Overview	Rotating and reciprocating machinery protection within your standard control system. Configured with Studio 5000 and connected on EtherNet/IP providing a single architecture to control and protect.
Key Features	<ul style="list-style-type: none"> • Configured from Studio 5000 for CompactLogix or ControlLogix controllers with Logix v24+ or V20 firmware • Allows machinery protection to API-670 5th Edition • Power using single or redundant 18-32V DC SELV supplies • Temperature rated for -25 to 70 °C • Hazardous area certifications – IECEx Conformity; ATEX Zone 2; UL Class 1 Div 2; Groups A, B, C, D • Spring or screw style removable plug connectors • Circuit cards are conformal coated • Certified to Marine standards for shock and vibration
Option Modules	<p>Tachometer Signal Conditioner Expansion Module</p> <ul style="list-style-type: none"> • Two-channel monitor that converts the signal from common speed sensing transducers into a once-per-rev TTL class signal suitable for use by up to six dynamic measurement modules <p>Relay Expansion Module</p> <ul style="list-style-type: none"> • Four-relay expansion module. Up to three relay expansion modules may be used with each dynamic measurement module <p>Analog Output Expansion Module</p> <ul style="list-style-type: none"> • Four-channel module that outputs 4-20 mA analog signals that are proportional to measured values provided by the dynamic measurement module
Main Module Inputs	4 channels dynamic, 2 tachometer (TTL)
Frequency Range	11.5 Hz to 40 kHz
Tracking Filters	4 per channel
Alarms	23 Measurement alarms, 13 Voted alarms
Communications	EtherNet/IP, dual port or Device Level Ring
More Information	To see our full range of condition monitoring products and for more information on these products visit: http://ab.rockwellautomation.com/Condition-Monitoring



	1408 PowerMonitor 1000	1426 PowerMonitor 5000
Overview	A compact power monitor for load profiling, cost allocation, or energy control. Integrates with existing energy monitoring systems to provide sub-metering. Communicates easily with Logix controllers to use energy data in automation systems.	Next generation high-end, power-quality metering product. Building on core power and energy metering capabilities, the PowerMonitor™ 5000 takes energy monitoring to the next level.
Key Features	<ul style="list-style-type: none"> • Compact size • Integrated LCD display • Panel or DIN rail mounting • Provides wiring diagnostics • Time of use (On-Peak, Off-Peak) • Energy, min/max, status and load factor logs • Ability to view data and configure through the integrated web page 	<ul style="list-style-type: none"> • Monitors 4 voltage and 4 current channels for every electrical cycle – 1024 data points across 8 channels every 12-17 milliseconds • Calculates over 6,000 parameters every cycle • Includes 4 digital inputs for WAGES data collection • Includes 4 outputs for connection to SCADA or control systems • Offers configurable alarms for up to 20 events • Provides virtual wiring correction capability
Options	<p>1408-BC3A-ENT</p> <ul style="list-style-type: none"> • Basic consumption meter <p>1408-TS3A-ENT</p> <ul style="list-style-type: none"> • Consumption + Volt/Current <p>1408-EM3A-ENT</p> <ul style="list-style-type: none"> • Energy management meter 	<p>M5 – base model</p> <p>M6 – includes base model features, plus:</p> <ul style="list-style-type: none"> • Harmonics • Oscillography • Event Sync <p>M8 – includes base model features, plus:</p> <ul style="list-style-type: none"> • Harmonics • Oscillography • Event Sync • Flicker • Interharmonics • Transient Detect
Accuracy levels (per standard EN62053-22)	Class 1, 1% energy accuracy	Class 0.2, 0.2% energy accuracy
Outputs	<ul style="list-style-type: none"> • Modbus RTU • EtherNet/IP • KYZ signal 	<ul style="list-style-type: none"> • Digital signal • EtherNet/IP • DeviceNet • ControlNet • KYZ signal
Communications	Available with EtherNet/IP, Serial DF1, Modbus RTU, Modbus TCP communications	Includes native EtherNet/IP port Provides a second communication port
More Information	To see our full range of energy monitoring products and for more information on these products visit: http://ab.rockwellautomation.com/Energy-Monitoring	

Intelligent Devices At-A-Glance



	56RF Radio Frequency Identification (RFID) System	IO-Link Sensors
Overview	Ideal for tracking and documenting products as they move through the manufacturing process in light-duty industrial applications. The RFID system tags, transceivers and interfaces are designed to the ISO 15693 open standard for high frequency.	IO-Link Technology is a worldwide open-standard protocol that integrates sensors into our Connected Enterprise by connecting the IO-Link enabled device into an IO-Link master module. You can deliver data from the sensor directly into a control system in a very efficient manner. The flexibility of IO-Link capable sensors allows machines to operate more effectively by providing the controller with diagnostics. In addition to product detection, sensors provide detailed and accurate machine health status to improve uptime.
Key Features	<ul style="list-style-type: none"> • Rugged transceiver styles for industrial locations • 13.56 MHz high frequency technology for light industrial applications • ISO 15693 / ISO 18000-3 M1 • Tag memory options: 64 B, 128 B, 256 B and 2 KB • Read/write speeds up to 625 B/s • Different tag styles with sensing distances of up to 7.3 in. (185 mm) • Reusable Rislun® tags • Programmed in Studio 5000® (AOP and Add-On Instruction available) 	<ul style="list-style-type: none"> • IO-Link technology provides seamless integration of sensors through The Integrated Architecture® • Enabled sensors offer advanced features and diagnostics • In addition to product detection, sensors provide detailed and accurate machine health status to improve uptime • Point I/O master module and a wide range of IO-Link enabled smart sensors available
Options	<p>EtherNet/IP Interface Blocks</p> <ul style="list-style-type: none"> • 1-2 RFID ports plus I/O <p>Transceivers</p> <ul style="list-style-type: none"> • Rectangular 80 x 90 • Square 40 x 40 • Cylindrical M30 • Cylindrical M18 <p>Tags</p> <ul style="list-style-type: none"> • Disc – 128 Byte SLI (8 – 50 mm Dia) • Disc – High-Impact Resistant (Extreme Durability) • Disc – Mount on Metal • Disc – Large Memory FRAM (2 or 8 kb) • Disc – High Temperature 	<p>IO-Link is currently available on the following sensors</p> <ul style="list-style-type: none"> • 42EF RightSight™ General Purpose Sensors designed for light- to medium-level industrial use • 42JS and 42JT VisiSight™ Sensors offer a small rectangular package with visible light beam for ease of alignment and industry standard mounting • 45CRM Color Registration Mark Sensors have a high-speed response time and discern the difference in color between the mark and background • 45LMS Laser Measurement Sensors offer an excellent mid- to long-range measurement solution • 871C Mini Tubular Sensors are general purpose, solid-state devices that sense ferrous and nonferrous metal objects without touching them • 871TM Tubular Stainless Steel Sensors are ideal for harsh or extremely demanding environments
Communications	1 and 2 channel EtherNet/IP interface available Embedded switch, with Device Level Ring (DLR)	Devices connect to POINT IO-Link master module
More Information	For the most up to date information on our full range of RFID offering visit: http://ab.rockwellautomation.com/Sensors-Switches/RFID/High-Frequency-RFID	For the most up to date information on our full IO-Link offering visit: http://ab.rockwellautomation.com/Networks-and-Communications/IO-Link



Guardmaster 440C-CR30 Software Configurable Safety Relay

Flexible, cost-effective, and easy to use. This relay is ideal for applications requiring as many as ten dual-channel safety circuits and controlling as many as five output zones. You can configure this relay by selecting certified safety function blocks to rapidly build your applications. This relay is integrated with Logix controllers and can be configured using the Studio 5000 Logix Designer application.

- Suitable for applications up to PLe, Cat. 4 per ISO 13849-1 and SIL CL3 per IEC 62061
- Offers 22-point embedded safety I/O
- Supports as many as two Micro800® Plug-in modules
- Includes two single-wire safety input/output points for interlocking between Guardmaster® safety relays
- Can communicate diagnostic data to a Logix controller with optional Ethernet communications module

- 2080-IQ4OB4**
 - 8-pt Combo: 4-pt Digital Input, 12/24V DC, Sink/Source, Type3, and 4-pt Digital Output, 12/24V DC, Source
 - 2080-IQ4**
 - 4-pt Digital Input, 12/24V DC, Sink/Source, Type3
 - 2080-OB4**
 - 4-pt Digital Output, 12/24V DC, Source
 - 2080-OW4I**
 - 4-pt Relay Output, Individually Isolated, 2 A
 - 2080-MEMBAK-RTC**
 - Project Backup and Restore module
 - 440C-ENET**
 - Ethernet Plug-in Module, Slot 1 only
- Provides embedded communication via USB programming port and non-isolated serial port for RS-232 communications
 - Offers optional Ethernet plug-in module

Guardmaster Safety Relays

Monitor a broad range of safety devices in a variety of applications. These single-function relays can achieve most of the functions safety systems require, to help simplify purchasing and parts management. These relays offer key functions to simplify installation and system complexity. In addition, information gathered from the GSR intelligent safety relays via the optional EtherNet/IP Interface helps minimize unplanned downtime, increase efficiencies and enables The Connected Enterprise.

- Offers a broad range of safety functions
- Designed to meet new functional safety standards, such as ISO 13849-1 or IEC 62061
- Provides versatility through simple logic, reset and timing configurations
- Includes single wire safety relay connection, which allows for ease of installation and system flexibility
- Terminals are grouped together by power inputs and outputs for clear connection
- Offers compact solution, which saves energy and space on DIN rail
- Provides consistent terminal layouts and configuration, which allows simplified installation

- Guardmaster® DI/DIS**
- Consolidates functionality of two safety relays into a single electromechanical relay (DI) or solid-state (DIS) outputs
- Guardmaster® SI/CI**
- Ideal for safety functions using one dual or single channel safety device. Ideally suited for global E-stop function in combination with another GSR relay
- Guardmaster® EM/EMD**
- Easily add 4 N.C. instantaneous (EM) or delayed (EMD) outputs to a system
- Guardmaster® GLT/GLP**
- Developed for applications requiring access control monitoring the stop time, standstill or safe limited speed to unlock guards when equipment reaches a safe condition.

Optional Guardmaster® EtherNet/IP Network Interface

For the most up to date information on our full range of safety relays visit:
<http://ab.rockwellautomation.com/Relays-and-Timers/Safety-Relays>

Servo Drives At-A-Glance



	Kinetix 300	Kinetix 350	Kinetix 5500
Overview	Kinetix® 300 EtherNet/IP Indexing servo drives provide cost-effective, co-ordinated motion control. EtherNet/IP™ communications are used for commissioning, configuration and start up via standalone operation.	Kinetix® 350 Single-axis EtherNet/IP servo drives provide scalability of Integrated Motion. Leveraging a single network, EtherNet/IP simplifies the integration of the entire system including HMI, programmable automation controller, I/O and motion.	Kinetix® 5500 servo drives connect to and operate with Logix controllers, supporting Integrated Motion on EtherNet/IP™. With its innovative, compact design, the Kinetix 5500 drive helps minimize machine footprint and simplifies system wiring.
Key Features	<ul style="list-style-type: none"> • Supports five different index types and as many as 32 indices • Analog input control and step and direction control • Memory module for automatic device replacement • Programmable in Studio 5000 Logix Designer • Integrates with Logix controllers as part of The Integrated Architecture® system • Integrates seamlessly with MP-Series™ and TL-Series™ servo motors and actuators <p>Hardwired Safety – Safe Torque Off</p> <ul style="list-style-type: none"> • Safe Torque Off is certified at ISO 13849-1 PLe, SIL 2, and requires an external safety relay to meet EN954-1, Cat 3 • Prevents drive restarts after the safety circuit is tripped 	<ul style="list-style-type: none"> • Studio 5000® motion instruction set including kinematics • Convenient compact size makes it easy to connect • Integrates seamlessly with MP-Series™ and TL-Series™ servo motors and actuators <p>Hardwired Safety – Safe Torque Off</p> <ul style="list-style-type: none"> • ISO 13849-1 Safety Performance Level d • IEC 61508 SIL 2 	<ul style="list-style-type: none"> • Innovative common AC/DC bus helps reduce hardware, installation time and cost • Fewer terminations and simpler wiring. 60% less wiring with single cable feedback. • Compact with optimized power density • Drive power ratings optimized to match VP • Low Inertia motor family • Supports servo and induction motors • Supports optional encoder output module <p>Integrated Safety - Safe Torque Off</p> <ul style="list-style-type: none"> • PLe, Cat 3 (ISO 13849) • SIL CL 3 (IEC 61508, EN 61800-5-2, EN 62061) <p>Hardwired Safety - Safe Torque Off</p> <ul style="list-style-type: none"> • PLd, Cat 3 (ISO 13849) • SIL CL 2 (IEC 61508, EN 61800-5-2, EN 62061)
Continuous Power	<ul style="list-style-type: none"> • 0.4-0.8 kW (115V single phase) • 0.4-1.7 kW (230V single phase) • 0.5-3 kW (230V 3 phase) • 1-3 kW (460V 3 phase) 	<ul style="list-style-type: none"> • 0.4-0.8 kW (115V single phase) • 0.4-1.7 kW (230V single phase) • 0.5-3 kW (230V 3 phase) • 1-3 kW (460V 3 phase) 	0.5 - 15kW
Supply Voltage	<ul style="list-style-type: none"> • 115-240V AC single phase • 230-480V AC 3 phase 	<ul style="list-style-type: none"> • 115-240V AC single phase • 230-480V AC 3 phase 	<ul style="list-style-type: none"> • 195-528V AC single phase (H003-H015) • 195-528V AC 3 phase all models
Communications	EtherNet/IP network	Integrated Motion on EtherNet/IP	<ul style="list-style-type: none"> • Integrated Motion on EtherNet/IP • Dual-port Ethernet connector allows for both line and Device Level Ring (DLR) topologies
More Information	For the most up to date information on our full range of servo drives visit: http://ab.rockwellautomation.com/Motion-Control/Servo-Drives		



Kinetix 5700	Kinetix 6500
<p>Kinetix® 5700 servo drives help expand the value of Integrated Motion on EtherNet/IP to large machine builder applications. The Kinetix® 5700 servo drive can help reduce commissioning time and improve machine performance. It offers the simplicity, power and space savings you need to help get your machine up and running faster.</p>	<p>Kinetix® 6500 EtherNet/IP servo drives combine high-performance Integrated Motion with an open EtherNet/IP network. This drive provides safety features to help improve operator safety and enhance machine efficiency. Its modular structure provides an adaptable platform for future machine enhancements.</p>
<ul style="list-style-type: none"> • Features dual axis modules • Controls servo and induction motors • Supports a wide range of feedback types • Reduces wiring with single cable technology • Allows for tuning-less commissioning for most axes • Delivers 40% to 70% cabinet space savings • Innovative common DC bus helps reduce hardware, installation time and cost • Large power range and high performance motion control • Drive power ratings optimized to match VP Low Inertia motor family • Supports optional encoder output module <p>Integrated Safety - Safe Torque Off</p> <ul style="list-style-type: none"> • PLe, Cat 3 (ISO 13849) • SIL CL 3 (IEC 61508, EN 61800-5-2, EN 62061) <p>Hardwired Safety - Safe Torque Off</p> <ul style="list-style-type: none"> • PLe, Cat 3 • SIL CL 3 	<p>Hardwired Safety – Safe Torque Off</p> <ul style="list-style-type: none"> • S0 version: ISO 13849 PLe, IEC61508 SIL 3 Safe Off • Safe Torque Off is certified at ISO 13849-1 PLe/SIL 3. No external relay required to meet EN954-1 Cat 3. Prevents drive restarts after the safety circuit is tripped. <p>Hardwired Safety – Advanced Safety Functions</p> <ul style="list-style-type: none"> • S1 version: ISO 13849 PLe, IEC61508 SIL 3 • Safe Speed Monitor combines the Safe Torque Off capability and an embedded safety relay with the Rockwell Automation® Safe-Speed Control core technology in one hardware option embedded in the drive. Certified PLe/SIL 3 • Advanced safety features: safe door monitor, enable switching, safe speed monitor
1.6-60 kW	1.8-22 kW
325-528V AC	324-528V AC 3 phase
<ul style="list-style-type: none"> • Integrated Motion on EtherNet/IP • Dual-port Ethernet connector allows for both line and Device Level Ring (DLR) topologies 	<ul style="list-style-type: none"> • Integrated Motion on EtherNet/IP • Dual-port Ethernet connector allows for both line and Device Level Ring (DLR) topologies

Servo Motors At-A-Glance



	Kinetix VP Rotary Servo Motors	Kinetix MP Rotary Servo Motors
Overview	Optimized to operate with the Kinetix 5500 family of servo drives, supporting Integrated Motion on EtherNet/IP. Based on proven MP technology for dynamic performance, these motors offer the many benefits of a single cable for feedback, brake and power.	Low-Inertia, high-output brushless servo motors. These compact and highly dynamic brushless servo motors are designed to meet the demanding requirements of high-performance motion systems. Typically used with the Kinetix® 5700, Kinetix® 6000, Kinetix® 6200, Kinetix® 6500, Kinetix® 300, and Kinetix® 350 servo drive families.
Key Features	<ul style="list-style-type: none"> • Based on proven magnetic core MP technology • Provides real-time motor performance information to the control system via digital feedback device • Provides feedback, motor brake, and motor power through a single cable • Optimized to match drive ratings allowing for efficient system sizing • Integrated 24-volt holding brake option <p>Model variants</p> <ul style="list-style-type: none"> • VPL – Standard low inertia • VPF – Food grade <ul style="list-style-type: none"> Stainless steel shaft and fasteners Food grade and REACH compliant shaft seal grease Offers improved food grade white paint Food grade shaft seal IP66- and IP67-rated connectors can be rotated without the use of tools • VPC – Continuous torque <ul style="list-style-type: none"> High continuous power applications up to 30 Kw Field replaceable fan kit 	<ul style="list-style-type: none"> • High-energy rare-earth magnets for quicker acceleration • Standard IEC 72-1 mounting dimensions • SpeedTEC DIN connectors allow flexible orientation of connectors • Integrated 24-volt holding brake option <p>Model variants</p> <ul style="list-style-type: none"> • MPL – Low Inertia • MPM – Medium inertia • MPF – Food grade <ul style="list-style-type: none"> Stainless steel shaft and fasteners Food-grade grease on shaft seal Durable two-part food-grade epoxy coating Hardened shaft wear sleeve for long-lasting shaft seal and shaft IP66- and IP67-rated connectors can be rotated without the use of tools • MPS – Stainless steel <ul style="list-style-type: none"> Tightly sealed for maximum protection and corrosion resistance Hardened shaft wear sleeve for long-lasting shaft seal and shaft Meets requirements for IP66, IP67 and IP69K for 1200 psi wash-down
Torque/Force Rating	<ul style="list-style-type: none"> • VPL continuous 0.46 to 32 Nm (4 to 283 lb-in) • VPF continuous 0.93 to 19 Nm (8 to 172 lb-in) • VPC continuous up to 191 Nm (1,593 lb-in) 	<ul style="list-style-type: none"> • MPL continuous 0.26 to 163 Nm (2 to 1440 lb-in) • MPM continuous 2 to 62 Nm (19 to 556 lb-in) • MPF continuous 2 to 19 Nm (14 to 172 lb-in) • MPS continuous 4 to 21 Nm (32 to 190 lb-in)
Feedback Options	<ul style="list-style-type: none"> • Single-turn, digital, absolute encoder • Multi-turn, digital, absolute encoder • Heidenhain encoder (option on VPC only) 	<ul style="list-style-type: none"> • Single-turn, 1024 sin/cos, absolute encoder • Multi-turn, 1024 sin/cos, absolute encoder
Winding Voltage	400V Class Windings	200V and 400V Class Windings
More Information	For the most up to date information on our full range of servo motors visit: www.ab.rockwellautomation.com/Motion-Control/Servo-Motors	

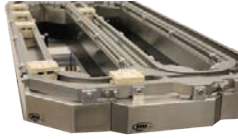


TL-Series Compact Rotary Servo Motors	LDC & LDL Linear Servo Motors
<p>Low-inertia, high-performance servo motors for lighter industrial applications. Substantial power in a small footprint, with a high-torque density. Available with absolute encoder or 2000-line incremental encoder.</p>	<p>Linear motors provide you with the ability to increase your throughput and reliability as a result of their high speed and accelerations capabilities and the reduction in mechanical transmission parts commonly found in applications that convert rotary to linear motion.</p>
<ul style="list-style-type: none"> • Multi-turn feedback with battery backup available • Controls high load-to-motor rotor inertia ratios while maintaining a stable system • Onboard memory retains motor identity • Serial communication automatically reports identity to the drive • 46 mm, 70 mm, 90 mm and 100 mm frame sizes • Integral 24V brake option <p>Model Variants</p> <ul style="list-style-type: none"> • TL – equipped with rectangular plastic connectors, intended for use only with Kinetix 3 servo drives • TLY – equipped with circular plastic connectors, intended for use with Kinetix 2000/6000 servo drives 	<ul style="list-style-type: none"> • Velocities up to 10 m/s and accelerations as high as 10 g • Precise linear positioning • No-wear parts such as bearings, gears, and belts • Full setup and programming support through Studio 5000 environments
<p>Continuous 0.086-5.42 Nm (0.85 to 48 lb-in)</p>	<ul style="list-style-type: none"> • LDL Continuous 63 to 596 N or 14 to 134 lbf Peak 209 to 1977 N or 47 to 444 lbf • LDC Continuous 74 to 1922 N or 17 to 432 lbf Peak 188 to 5246 N or 42 to 1179 lbf
<p>N/A</p>	<p>User-supplied</p>
<p>200V Class Windings</p>	<p>200V and 400V Class Windings</p>

Actuators At-A-Glance



	MP-Series/TL-Series Electric Cylinders	LDAT-Series Linear Thruster
Overview	Electric Cylinders are compact, lightweight, high force actuators that serve as an alternative to pneumatic and hydraulic solutions. Our ready-to-install electric cylinders are energy efficient and help provide machine flexibility, including precise, multi-point positioning. Industry-standard mountings and end effector attachments help simplify your assembly and reduce mechanical design engineering, wiring, and commissioning time.	LDAT Integrated Linear Thrusters provide high-speed, load-bearing linear motion out-of-the-box and are capable of pushing, pulling, or carrying a load. They use reliable direct drive technology to help maximize performance and reliability.
Key Features	<ul style="list-style-type: none"> • Flexible, efficient servo controlled rod actuation • Extend and retract with precise positioning, velocity or force • Fully assembled, ready to install • Clean, energy efficient alternative to fluid power • Flexible positioning for parts, tools, set works, etc. • Dynamic, precise response for a wide range of linear motion applications • Available in multiple frame sizes 	<ul style="list-style-type: none"> • Linear actuator with an integrated linear bearing capable of pushing, pulling or carrying a load • Direct Drive™ technology for dynamic performance combining high velocity, acceleration, and peak thrust forces • Standard rotating SpeedTec DIN Connectors • Multiple mounting surfaces and methods • Ability to have a moving slider or moving stator • Availability as a modified standard product with an integral brake or with a boot that provides IP66 protection
Force Rating	<ul style="list-style-type: none"> • Continuous force 240-7784 N (54-1750 lbs) • Peak force to 14500 N (3300 lbs) 	Peak force to 5469 N (1229 lbs)
Speed Rating	Up to 1 ms	Up to 5 m/s
Feedback Options	Absolute high-resolution multi-turn feedback	Incremental TTL or Absolute Hiperface
Winding Voltage	200V and 400V Class Windings	200V and 400V Class Windings
More Information	For the most up to date information on our full range of actuators visit: http://ab.rockwellautomation.com/Motion-Control/Actuator	



MagneMotion

iTRAK Intelligent Mover System

The MagneMotion® line of intelligent conveyors provide a scalable technology that allows for independent movement of each carrier. This flexible interface features automatic routing which gives the operator the freedom to focus on the application.

The iTRAK® independent mover system is a modular, scalable linear motor system that allows for independent control of multiple movers on straight or curvilinear paths. The iTRAK system frees the machine designer from the constraints of mechanical cam design so that they can focus on the process, the programming and game-changing innovation.

- Allows bi-directional movement
- Fire & Forget controls
- Automatic collision avoidance
- Modular design
- Reduces energy consumption
- Built-in track and trace
- Moves multiple products simultaneously
- Integrates easily into new or existing systems

- iTRAK® Series Assembled Systems**
- Minimize maintenance
 - Change between products at the push of a button
 - Simplify mechanical designs
 - Upgrade easily by reducing complex tooling
 - Operate faster with less downtime
 - Reduce energy consumption through direct drive
- iTRAK® Series System Components**
- Straight and 90° curve linear motor sections available in standard 400 mm lengths
 - Different force ratings available with various coil sizes, including 50 mm, 100 mm and 150 mm
 - Combine for racetrack, square or rectangle configurations to any length
 - Each motor section contains a multiphase drive and absolute encoder

- MagneMover LITE: 6 N per magnet array
- QuickStick 100: 15.9 N per magnet array
- QuickStick HT: Over 2500 N Single Wide, Over 5000N Double Wide

- 50 mm: 264 N
- 100 mm: 529 N
- 150 mm: 793 N

- MagneMover LITE: 2m per second
- QuickStick 100: 2.5m per second
- QuickStick HT: 2.5m per second

- 50 mm: > 5 ms
- 100 mm: 4 ms
- 150 mm: 2.75 ms

- Absolute feedback
- Feedback resolution < 10 µm

- Absolute feedback
- Feedback Resolution < 10 µm

- MagneMover LITE 36V
- QuickStick 100 48V
- QuickStick HT 400V

400V Class Windings

For the most up to date information on intelligent conveyors visit: www.magnemotion.com

For the most up to date information on iTrak® visit: <http://ab.rockwellautomation.com/global/solutions-services/capabilities/motion/itrak>

AC Drives At-A-Glance



	PowerFlex 520-Series AC Drives	PowerFlex 750-Series AC Drives
Overview	Combine innovation and ease of use to provide solutions designed to maximize your system performance. This series offers USB programming, built-in EtherNet/IP™ communications, and standard hardwired and networked safety features. Each of the three drives, the PowerFlex® 523, PowerFlex 525 and PowerFlex 527 offers a unique set of features to distinctively match the needs of your application.	Designed for flexibility, connectivity and productivity. Provides an exceptional user experience, from initial programming through operation and maintenance. Offering more selection for control, communications, safety and supporting hardware options than any other drives in their class, PowerFlex® 750-Series AC drives provide the features you need to help maximize your productivity.
Key Features	<ul style="list-style-type: none"> • Offers a wide range of motor control, including volts per hertz, sensorless vector control, and closed loop velocity vector control • Work exclusively with Logix controllers and integrated motion instructions for the same programming experience as Kinetix servo drives • Offers compact footprint Zero Stacking™ mounting with 50 mm airflow gap • Provides permanent magnet motor control to help improve energy efficiency and reduce related costs • Features Safe Torque Off that can be applied through either hardwired safety or networked with EtherNet/IP. Both are certified to SIL 3 / PLe Cat 3 	<ul style="list-style-type: none"> • Multiple motor control modes and support for induction and permanent magnet motors • Predictive diagnostics to extend the life of the drive • Flexible slot-based hardware architecture allows you to select option modules for safety, feedback, communications and I/O • Automatic Device Configuration (ADC) allows Logix controllers to detect a replaced drive and download all configuration parameters automatically • PowerFlex 755 drives have the option to be programmed using embedded motion instructions in the Studio 5000 Logix Designer application
Ratings	<ul style="list-style-type: none"> • 100...115V: 0.2...1.1 kW / 0.25...1.5 Hp / 1.6...6 A • 200...240V: 0.2...1.15 kW / 0.25...2.0 Hp / 1.6...6.21 A • 400...480V: 0.4...2.2 kW / 0.5...3.0 Hp / 1.4...4.3 A • 600...600V: 0.4...2.2 kW / 0.5...3.0 Hp / 0.9...3.2 A 	<ul style="list-style-type: none"> • 380...480V: 0.75...1.4 kW / 1.0...2.0 Hp / 2.1...2.330 A • 600V: 1.0...1.5 kW / 1.7...1.530 A • 690V: 7.5...1.5 kW / 12...1.485 A
Safety	<ul style="list-style-type: none"> • Safe Torque Off - hardwired or networked built-in 	<ul style="list-style-type: none"> • Safe Speed Monitor • Safe Torque Off – hardwired or network options
Logix Integration	<ul style="list-style-type: none"> • Premier Integration into Logix control environment • PowerFlex 527 uses Studio 5000 motion instructions only 	<ul style="list-style-type: none"> • Premier Integration into Logix control environment • PowerFlex 755 drives can be programmed using Studio 5000 motion instructions
Communications	Built-in single & dual port for EtherNet/IP; options for dual port EtherNet/IP, additional option for DeviceNet	Built-in single port for EtherNet/IP; options for dual port EtherNet/IP, support for additional industrial networks
More Information	To see our full range of PowerFlex AC drives and for more information on these products visit: www.ab.rockwellautomation.com/Drives	



PowerFlex 755T	PowerFlex 7000 Medium Voltage Drives
<p>Precise motor control along with solutions for regeneration (PowerFlex 755TR), harmonic mitigation (PowerFlex 755TL) and flexible common DC bus configurations (PowerFlex 755TM). TotalFORCE™ technology, our patented field oriented control for accurate torque control, deliver fast, precise, responsive control of position, velocity and torque. The highly differentiated control technology is complemented with innovative power control elements that help deliver valuable solutions for a wide range of applications.</p>	<p>Flexibility and highly efficient performance in a single solution for motor control. Soft-starting and variable-speed control of processes with high power demands reduce energy costs and motor wear and tear. The drive's component count is the lowest of any medium voltage drive available resulting in increased reliability, less downtime and fewer spare parts. To achieve even more efficiency, choose a configuration with Direct-to-Drive™ technology and connect a motor directly to the drive without an isolation transformer.</p>
<ul style="list-style-type: none"> • Active front end (AFE) technology and internal harmonic filter mitigates harmonics • Reduce energy costs with regeneration and return energy back to the incoming power source • AFE technology regulates active current and reactive power to correct power factor • Designed to meet the IEEE 519 standard • Keep your equipment running through most power quality disturbances with active front end ride-through control • Reduce commissioning time and mechanical wear with Load Observer and Adaptive Tuning • Flexible slot-based hardware architecture allows you to select option modules for safety, feedback, communications and I/O • Modular design provides a faster way to install and maintain drives • Predictive diagnostics help reduce unplanned downtime and improve productivity • Compact foot print reduces floor space requirements with built-in components necessary for reducing harmonics and providing regeneration 	<ul style="list-style-type: none"> • Air-cooled and liquid-cooled drives available • Digital sensorless control, direct vector control or full vector control with tachometer feedback (optional) • Direct-to-Drive™, AFE rectifier, and 18-pulse rectifier configuration • Soft starting and variable speed control for high power applications • Delivers virtually perfect current and voltage waveforms allowing use of standard motors • PowerCage™ inverter and rectifier modules allow SGCT replacement in under 10 minutes • ArcShield options provides arc resistant enclosure • Extends power range to 34,000 Hp / 25,400 kW with addition of synchronized drives
<ul style="list-style-type: none"> • 400... 480V: 160...2000 kW / 250... 3000 Hp • 600...690V 250...2500 Hp / 200...2300 kW 	<ul style="list-style-type: none"> • 2.3...2.4 kV: 150...1500 kW / 200...2000 Hp • 3.3 kV: 187...3600 kW / 250...4750 Hp • 4...4.16 kV: 261...4400 kW / 350... 5750 Hp • 6.6 kV: 400...6000 kW / 500 ... 8000 Hp
<ul style="list-style-type: none"> • Safe Speed Monitor • Safe Torque Off – hardwired or network options 	<ul style="list-style-type: none"> • Safe Torque Off option • ArcShield arc resistant enclosure option
<ul style="list-style-type: none"> • Premier Integration into Logix control environment 	<ul style="list-style-type: none"> • Premier Integration into Logix control environment
<p>Built-in dual port for EtherNet/IP, support for additional industrial networks</p>	<p>Options for EtherNet/IP and additional industrial networks</p>

Motor Control Devices At-A-Glance



CENTERLINE Motor Control Centers

Overview	Allen-Bradley CENTERLINE low and medium voltage motor control centers offer optimal safety, performance and reliability to meet your global needs. Select the right motor control center for your application from the portfolio of low and medium voltage CENTERLINE MCCs. Designed to meet your application requirements, this portfolio is available as standard, networked and with ArcShield™ technology – IEEE certified arc resistant enclosures.
Key Features	<ul style="list-style-type: none"> • Offers proven technology for high quality and years of dependable service • Select the motor control center that meets standards for NEMA and IEC applications • Select the intelligent motor control and protection devices to meet your application needs • ArcShield technology helps to reduce arc flash hazards and provide increased protection against internal electrical arcing faults • CENTERLINE 2100 with SecureConnect™ units helps reduce electrical shock and exposure to electrical hazards
Safety	<ul style="list-style-type: none"> • ArcShield arc resistance • SecureConnect™ Units (2100 only)
Rating	<ul style="list-style-type: none"> • 2100: Up to 600V, 600-3000 A • 2500: Up to 600V, 800-4000 A • 1500: Up to 6900V, 200-800 A
Communications	<ul style="list-style-type: none"> • EtherNet/IP • DeviceNet
Standards	<ul style="list-style-type: none"> • NEMA • IEC • IEEE C37.20.7
More Information	To see our full range of motor control devices and for more information on these products visit: http://ab.rockwellautomation.com/Motor-Control



	E1 Plus Electronic Overload Relay	E300 Electronic Overload Relay	857 Motor/Feeder Protection Relay	SMC Flex	SMC-50
Rating	0.1-800 A	0.5-65000 A	10-20000 A	1-1250 A	90-520 A
Motor Control	<ul style="list-style-type: none"> • Solid-state • Standard Starter 	<ul style="list-style-type: none"> • Microprocessor Based • Standard Starter • Reversing Starter • Wye/Delta (Star/Delta) Starter • Two Speed Starter 	<ul style="list-style-type: none"> • Motor and Feeder Protection • Low Voltage and Medium Voltage control • 12 Channel Digital Recorder • Remote RTD Sensing • Analog Input/Output Capabilities 	<ul style="list-style-type: none"> • Soft Start • Seven standard start modes • Options include pump control and braking control • Built-in SCR bypass/run contactor 	<ul style="list-style-type: none"> • Soft Start • Nine standard start modes • Three expansion ports to install option modules • Built-in electronic motor overload protection • Current and voltage sensing on each phase • DPI communication (standard)
I/O	<ul style="list-style-type: none"> • 2 Inputs • 1 Output 	4/3 (AC), 6/3 (DC), 2/2 (AC with Protection), 4/2 (DC with Protection), 16/8 Extra (with optional Digital Expansion Modules)	<ul style="list-style-type: none"> • Configurable inputs and outputs 	Four functionally programmable on-board output contacts (N.O. or N.C.)	Two fully programmable contacts as: normal, UTS, fault, alarm, external brake, auxiliary control, network or external bypass
Communications	EtherNet/IP Communication Module	EtherNet/IP network (DRL)		EtherNet/IP network	
Technical Documentation	EC-CA001	193-SG010A	857-SR001	150-SG009	150-SG010
More Information	For the most up to date information on our full range of motor protectors visit: http://ab.rockwellautomation.com/circuit-and-load-protection				

Operator Interfaces At-A-Glance



PanelView Plus 7

Overview	Available in Standard and Performance versions with display sizes from 4-19 in. with widescreen options. Use FactoryTalk® View Machine Edition to build your application and help simplify configuration and strengthen your Integrated Architecture® solution. These terminals include Ethernet connectivity and enable you to monitor applications from remote locations with VNC connectivity.	
Key Features	Standard version <ul style="list-style-type: none"> • Ideal for small and mid-size machine applications requiring basic features • Connectivity to one controller and up to 25 screens and 200 alarm messages • Single, embedded Ethernet port for network connectivity • ATEX Zone 2/22 certification 	Performance models <ul style="list-style-type: none"> • Designed for all applications, ranging from small to large, complex machines • High performing processors and embedded Ethernet ports that support Device Level Ring, linear or star network topologies • Video playback support for advanced user help • View maintenance manuals and other documents directly on terminal
Display Options and Viewing Area Dimensions	<ul style="list-style-type: none"> • 4 inch display (95 x 54 mm) • 6 inch display (115 x 86 mm) • 7 inch display (132 x 99 mm) • 9 inch display (196 x 118 mm) • 10 inch display (211 x 158 mm) • 12 inch display (261 x 163 mm) • 15 inch display (304 x 228 mm) 	<ul style="list-style-type: none"> • 7 inch display (132 x 99 mm) • 9 inch display (196 x 118 mm) • 10 inch display (211 x 158 mm) • 12 inch display (261 x 163 mm) • 15 inch display (304 x 228 mm) • 19 inch display (376 x 301 mm)
Display Type	Color TFT LCD, 18-Bit Color Graphics	
Internal Storage	512 MB storage	
Input Power Options	DC (18-30V DC)	DC (18-30V DC) and AC (100-240V AC)
Communications	<ul style="list-style-type: none"> • One 10/100Base-T, Auto MDI/MDI-X Ethernet port with IEEE1588 support • Two 10/100Base-T, Auto MDI/MDI-X Ethernet ports supporting star, linear, or DLR network topology 	<ul style="list-style-type: none"> • Two 10/100Base-T, Auto MDI/MDI-X Ethernet ports that support DLR (Device Level Ring), linear, or star network topologies • 2 USB-A and 1 USB-B (v2.0 high speed)
Certifications	Standard model certifications: ATEX Zone 2, ATEX Zone 22; cULus listed; Class I, Div 2, Groups A,B,C,D, T4; Class II, Div 2, Groups F, G; Class III; Class I, Zone 2, Groups 11C T4; KCC; CE (EMC); CE (LVD); RoHS; EAC; INMETRO	Performance model certifications: cULus listed; Class I, Div 2, Groups A,B,C,D, T4; Class I, Zone 2, Groups 11C T4; KCC; CE (EMC); CE (LVD); RoHS
Environmental	NEMA 12, 13, 4X, IP54, IP66 0-55 °C (32-131 °F)	
More Information	For the most up to date information on our full range of operator interfaces visit: http://ab.rockwellautomation.com/Graphic-Terminals	



PanelView 800	PanelView 5500	MobileView
<p>Graphic terminals that leverage a high-speed processor, high-resolution display with LED backlight and internal memory to help improve productivity and maintenance, while enjoying the convenience and efficiencies of single-source buying.</p>	<p>With an intuitive, modern design, the PanelView™ 5500 terminal provides enhanced Logix integration using Studio 5000 View Designer software. This integration allows engineers to enter configuration information once and use it for the entire automation design.</p>	<p>Mobile graphic terminals that help increase operator productivity and provide a safe production environment. This mobile operator interface runs the Windows Embedded Standard 7 operating system, but allows reuse of FactoryTalk® View ME and FactoryTalk® View Studio applications to help reduce development costs.</p>
<ul style="list-style-type: none"> • High-resolution display with LED backlight supporting 65K colors • High performance 800MHz CPU processor with 128 MB/256 MB memory • USB host port and microSD™ support file transfer or updating firmware • Alerts operators with alarm messages that include embedded variables • Ability to upload and download groups of data or parameter settings with recipe capabilities 	<ul style="list-style-type: none"> • Modern design with display sizes from 7-19 in. with wide screen, touch, and keypad options • Logix-based alarms to eliminate need for additional configuration • High-speed HMI button which provides <100 ms response for jogging applications • Navigation button display alarms, diagnostic and setting information • Ability to automatically share tags, alarms and other data using Studio 5000 View Designer™ 	<ul style="list-style-type: none"> • Offered in 5 m, 10 m, or 15 m cables with quick connect and mounting bracket options • Software assignable function keys with either a hardwired momentary push button or key switch • Features 3-position enabling switch • 10 in. wide display (1280 x 800) with resistive touch screen for easy viewing • Internal SD card for application and data log storage
<ul style="list-style-type: none"> • 4 in. (95 x 53.9 mm) • 7 in. (153.6 x 86.6 mm) • 10 in. (211.2 x 158.4 mm) 	<ul style="list-style-type: none"> • 7 inch display (132 x 99 mm) • 9 inch display (196 x 118 mm) • 10 inch display (211 x 158 mm) • 12 inch display (261 x 163 mm) • 15 inch display (304 x 228 mm) • 19 inch display (376 x 301 mm) 	<ul style="list-style-type: none"> • Screen size: 10.1" • Diameter of product: 349 mm (13.74 in.) • Depth w/o handle: 70 mm (2.75 in.) • Depth with handle: 110 mm (4.33 in.)
<p>TFT touch screen, wide LCD</p>	<p>Color TFT LCD, 18-bit Color Graphics (262,144 colors), LED backlight</p>	<p>Color/resolution: WXGA/1280 x 800 pixels, Resistive Touch Screen</p>
<p>128 MB (4" terminal), 256 MB (7" and 10")</p>	<p>250 MB internal storage</p>	<p>4 GB DRAM / 32 GB Flash / 2 GB SD Card</p>
<p>24V DC</p>	<p>DC models: 24V DC nom (18-30V DC); AC models: 100-240V AC</p>	<p>24V DC</p>
<ul style="list-style-type: none"> • 1- Ethernet 10/100 Mbps • Separate RS-232 and RS422/RS485 connectors 	<p>Two 10/100 Base-T, Auto MDI/MDI-X Ethernet ports that support (Device Level Ring) DLR, linear or star network topologies</p>	<p>10/100 Ethernet</p>
<p>cULus listed; Class 1 Div 2, Groups A,B,C,D, T4A, CE, RCM, KC, RoHS</p>	<p>cULus listed; Class 1, Div 2, Groups A, B, C, D; KCC; CE (EMC); CE (LVD); RoHS; RCM</p>	<p>cULus Listed; CSA Certified; CE Marked; RoHS; RCM (formerly C-Tick);</p>
<p>IP65, NEMA 4X, 12, 13</p>	<p>NEMA and UL Type 12, 13, 4X, also rated IP66 as Classified by UL</p>	<p>IP65; 0-45 °C (32-113 °F)</p>

Operator Interfaces At-A-Glance



VersaView 5000 Open Architecture Operator Interface

Overview	Integrated Display The VersaView 5400® open architecture integrated display computers and thin client versions include a modern, edgeless glass display and provide versatility with the ability to load different software applications.	Non-Display The VersaView 5400 Non-display computers and VersaView 5200 versions offer a modern, small footprint with multiple mounting options. Additionally, it provides flexibility with the ability to load a variety of software applications.	Monitors With a modern, edgeless glass display, the VersaView 5100 Monitors include full HD versions and multiple display inputs.
Key Features	Integrated Display Computers <ul style="list-style-type: none"> • Screen sizes: 12-in., 15-in., 19-in., 22-in. (all wide screen) • Projected capacitive multi-touch • Performance: Quadcore Intel atom • Storage: 128 GB SSD • Operating Systems: 64-bit Windows • Full HD 1080P options • DC Power Integrated Display Thin Client <ul style="list-style-type: none"> • ACP Thin Manager™ ready • Screen sizes: 12, 15, 19, 22 (all wide screen) • Projected capacitive multi-touch • Full HD 1080P options 	Non-Display computer <ul style="list-style-type: none"> • Dual external display support • Performance: Quadcore Intel atom • Storage: 128 GB SSD • Operating Systems: 64-bit Windows • DC Power Non-Display Thin Client <ul style="list-style-type: none"> • ACP Thin Manager™ ready • Dual external display support 	<ul style="list-style-type: none"> • Screen sizes: 12-in., 15-in., 19-, 22-in. (all wide screen) • Projected capacitive multi-touch • Display inputs: VGA, DVI, DisplayPort • Full HD 1080P options • DC Power
Software	Ideal platform for use with FactoryTalk® View Site Edition		
Standards & Enviroment	<ul style="list-style-type: none"> • Operates in 0-50 °C (32-122 °F) • NEMA 4, IP65 • cULus listed, CE, EAC, KC 	<ul style="list-style-type: none"> • Operates in 0-55 °C • cULus listed, CE, EAC, KC 	<ul style="list-style-type: none"> • Operates in 0-50 °C (32-122 °F) • NEMA 4, IP65 • cULus listed, CE, EAC, KC
More Information	To see our full range of open architecture operator interface options and for more information on these products visit: http://ab.rockwellautomation.com/Computers		



Computers, Industrial Environment

Industrial Environment Computers offer solutions for the physical limitations and requirements of your environment. Non-display Computers provide a variety of options in form factors, RAM, storage, and performance. Integrated Display Computers are available with a variety of options.

6181 Integrated Display Computers

- Available in 12-in., 15-in., 15.6-in., 17-in., 18.5-in., and 19-in. display models
- Widescreen and projected capacitive multi-touch options
- Stainless steel bezel to meet food and beverage industry equipment regulations
- Support dual external monitor video output

6181P Non-Display Computers

- Versatile mounting options ideal for control cabinet use
- Windows Server 2008 R2 option with RAID support
- Field replaceable integrated AC and DC power supply

6177R Non-display Computers

- Multiple performance packages for every application
- Front-removable, shock-mounted, hot-swappable, 24/7 hard disk drives with RAID
- Available with Windows 8.1 Industry Pro (64 bit), Windows 7 Professional SP1 (64 Bit), Windows XP Pro SP3, Windows Server 2012 R2 (64 bit), and Windows Server 2008 R2 SP1 (64 bit)
- 100-240V AC, autoranging power requirements

Ideal platform for use with FactoryTalk® View Site Edition

- Operates in 0-50 °C (32-122 °F)
- CE, ULus listed, RCM/C-Tick, EAC, WEEE, RoHS, KC (Korean)
- NEMA 1/12/4/4x (stainless), IP66

Industrial Monitors

Industrial Monitors deliver LCD flat panel technology for rugged industrial environments. Bulletin 6186M Industrial Monitors are better suited for special purpose environments such as Class I Division 2, and Food & Beverage areas. Bulletin 6176M Industrial Monitors are designed for environments that are less demanding.

6176M Standard Monitors

- Available in 15-in., 17-in., and 19-in. models
- Rated to 45 °C (113 °F)

6186M Performance Monitors

- Available in 12-, 15-, 17-, and 19-in. models
- Class I Division 2 rated
- Aluminum and stainless steel bezel options
- 12- and 15-in. models are rated to 55 °C (131 °F)
- 17- and 19-in. models are rated to 50 °C (122 °F)

6176M: C-UL certified, UL Listed component, CE, C-Tick; and NEMA Types 1/12/4, IP66

6186M: cULus Listed, CE marking, C-Tick, Class 1 Div 2; and NEMA Types 1/12/4/4x, IP66

Computers, Extreme Environment

Extreme Environment Computers combine Hazardous Location certifications along with the capacity to withstand more extreme temperatures than any other offering on the market. Industries such as Oil & Gas, chemicals, and mining involve potentially explosive materials in locations where hardware often takes a beating.

6181X Hazardous Location Integrated Display Computers

- 12.1 in. TFT color display offers resistive touch and readability in sunlight

6181X Hazardous Location Non-display Computers

- Wall mountable
- Combines with Bulletin 6186M Performance Industrial Monitor to form a Class I Division 2 certified system

- Operates in -20-70 °C (-4-158 °F) temperature range without requiring a heater
- Rated ATEX Zone 2/22, IECEx, and UL Listed for Class I Div 2 hazardous locations



Stratix Industrial Networks Infrastructure At-A-Glance



	1783-NATR Network Address Translation (NAT) Router	Stratix 2000 Unmanaged Switch	Stratix 5700 Managed Switch	ArmorStratix 5700 Managed Switch
Overview	NAT devices enable multiple machines on a single line to have identical network settings, support through VPN connection.	Unmanaged Ethernet switches are ideal for small control networks. These industrial-grade switches do not require any configuration and use simple cable connections.	Designed to meet your switching capability needs, from smaller applications to IT-ready integration with plant-wide infrastructure.	A dependable, rugged, on-machine solution for networks in extreme environments. This layer 2 managed switch is IP67-rated for dust and wash-down protection.
Key Features	<ul style="list-style-type: none"> • 1:1 NAT maps IP addresses on the machine subnet to IP addresses on the control network (support for up to 32 translation mappings) • Supports both Linear and Device Level Ring (DLR) topologies • Enable redirection of selected protocols, such as CIP, ICMP, HTTP, DNS for stable network connection 	<ul style="list-style-type: none"> • Offers a low-cost, compact solution • Includes ability to automatically negotiate speed and duplex settings • Operates on 20V AC or 24V DC power • Includes automatic cable cross-over detection 	<ul style="list-style-type: none"> • Optional Integrated Device Level Ring (DLR) connectivity, which helps optimize the network architecture • Optional Network Address Translation (NAT) maps local, machine-level IP addresses, to the broader plant network • Power over Ethernet (PoE), gigabit ports and IEEE 1588 support • Includes security features such as access control lists, which help ensure that only authorized devices, users and traffic can access the network <p>ArmorStratix 5700</p> <ul style="list-style-type: none"> • Minimizes hardware in the control cabinet for a compact solution • IP67-rating for protection in extreme conditions 	
Ports	2 ports at 100 M	<ul style="list-style-type: none"> • 5 to 16 ports • 6 support 1 Gb • 2 SFP slots 	<ul style="list-style-type: none"> • 6, 10, 18 and 20 port versions • 2 ports up to 1 Gb • Up to 4 SFP slots • Up to 4 PoE ports 	<ul style="list-style-type: none"> • 8, 10, 16, 18, 24 port versions • 2 ports support 1 Gb • Up to 8 PoE ports
NAT	Yes	–	Yes	
Security Features	–	–	<ul style="list-style-type: none"> • Port control in Logix • Access Control List (ACL) • IEEE 802.1x Security • Centralized Authentication Capable (RADIUS, TACACS+) • MAC ID port security • Encrypted Administrative Traffic 	
Logix Integration	Configurable via web page or Electronic Data Sheet (EDS) Add-on Profile (AOP)	None required	<p>Premier integration to integrated architecture including:</p> <ul style="list-style-type: none"> • Studio 5000 Add-on Profile for configuration and monitoring • Predefined Logix tags for monitoring and port control • FactoryTalk View Faceplates for status monitoring and alarming 	
Cisco IOS	–	–	Yes	
Backup / Restore	SD card (included)	–	SD card (optional)	



Stratix 8000 and Stratix 8300 Managed Switch	Stratix 5400 Managed Switch	Stratix 5410 Distribution Switch	Stratix 5950 Security Appliance	Stratix 5100 Wireless Access Point
<p>Modular managed switch line using Cisco® Catalyst® switch architecture. Powerful configuration tools, familiar to IT professionals, help provide secure integration with the enterprise network.</p>	<p>Managed switches that support layer 2 switching and layer 3 routing with additional gigabit, Power over Ethernet and gigabit fiber ports.</p>	<p>Offers a 19" rack mount design for increased port density. These switches offer four 10-gigabit Ethernet ports and Network Address Translation capabilities for networks where high performance is critical.</p>	<p>Combines several enhanced security functions into a single appliance to help protect your industrial automation infrastructure.</p>	<p>Stratix 5100™ can be used in an autonomous or a Cisco-Unified network. This device is ideal for providing connectivity in hard-to-wire and remotely accessible areas.</p>
<ul style="list-style-type: none"> Copper, fiber, SFP, and Power over Ethernet (PoE) expansion modules Default configurations for industrial automation and EtherNet/IP devices <p>Stratix 8300 Layer 3 routing</p> <ul style="list-style-type: none"> Static, dynamic, multicast, redundant, IPv6 and policy-based routing and VFR-Lite virtualization 	<ul style="list-style-type: none"> Layer 2 access switching and layer 3 routing for flexibility to create multiple network configurations All-gigabit platform for high performance network support Dual Gigabit ring configuration for high performance network resiliency 	<ul style="list-style-type: none"> 19" rack mount design for increased port density Four 10-gigabit uplinks and 24-gigabit downlinks for high performance network requirements Access switching and distribution layer routing capabilities for flexibility in network architectures Supports multiple high performance network resiliency protocols 	<ul style="list-style-type: none"> Visibility and control at the Cell/Area Zone level Cisco ASA firewall and FirePower technology provide threat detection and prevention capabilities based on configured security policies Deep Packet Inspection technology helps to detect, prevent and/or respond to potentially malicious traffic between devices Maintain your protection against threats and control your assets with subscription based licensing Subscription license offering provides a term-based solution for threat and application control updates with 24/7 TechConnect® Support 	<ul style="list-style-type: none"> Up to 19 IP addresses can be connected via Stratix 5100 in Work Group Bridge mode Multiple-Input/Multiple-Output (MIMO) feature with three spatial streams for improved latency and jitter performance Up to 450 Mbps data rate for networks where high bandwidth support is required Can be Power over Ethernet (PoE) powered device
<ul style="list-style-type: none"> 6 and 10 port base switches Up to 26 copper, 14 SFP slots and 8 PoE ports with expansion modules 2 ports support 1 Gb 	<ul style="list-style-type: none"> 8, 12, 16 and 20 port versions Up to 12 SFP slots Up to 8 PoE ports All support 1 Gb 	<ul style="list-style-type: none"> 28 ports total 12 copper 16 SFP slots Up to 12 PoE ports All support 1 Gb, 4 support 10 Gb 	<ul style="list-style-type: none"> 4 ports total Four 1 Gigabit copper ports Two SFP-capable ports 1 Console 	<ul style="list-style-type: none"> 1 port supports 1 Gb 1 Console
-	Yes	Yes	Yes	-
<ul style="list-style-type: none"> Port control in Logix Access Control List (ACL) IEEE 802.1x Security Centralized Authentication Capable (RADIUS, TACACS+) MAC ID port security Encrypted Administrative Traffic 			<ul style="list-style-type: none"> Access Control List (ACL) Firewall for Stateful Inspection <ul style="list-style-type: none"> - Inline Transparent mode - Inline Routed mode - Passive Monitor - only mode FirePower services for threat detection and prevention Network Address Translation (NAT) Remote Access 	<ul style="list-style-type: none"> Access Control List (ACL) IEEE 802.1x Security IEEE 802.11i WPA2 Centralized Authentication Capable (RADIUS, TACACS+)
<p>Premier integration to integrated architecture including:</p> <ul style="list-style-type: none"> Studio 5000 Add-on Profile for configuration and monitoring Predefined Logix tags for monitoring and port control FactoryTalk View Faceplates for status monitoring and alarming 			-	
Yes				15.3 with Device Manager
SD card (included)	SD card (included)	SD card (included)	SD card (included)	32 MB non-volatile memory

Ethernet Media At-A-Glance



	Ethernet Cable Spools	In-cabinet Connectivity	On-Machine Connectivity
Overview	Ethernet Cable Spools helps supply a reliable network connection in harsh surroundings. We offer unshielded twisted pair, shielded twisted pair, and 600V cables.	Products include patch cords and cord sets, field attachable connectors, crimp connectors and bulkhead adapters.	Our On-Machine™ cables have an IP67 over molded connector and twisted pair cable designed for high flex applications and provide better performance in applications with noise and vibration.
Key Features	<ul style="list-style-type: none"> • Four- and eight-conductor styles • Shielded or Unshielded • Twisted pairs maintain signal balance through cable to provide high noise immunity and return loss • Riser polyvinylchloride (PVC) cables used for general-purpose environments • Red cable jacket option to identify safety networks • 600V variant On-Machine™ rated cable for use in a cable tray shared with high voltage power cables 	<ul style="list-style-type: none"> • Unshielded Twisted Pair (UTP) and Shielded Twisted Pair (STP) options • Robotic high flex TPE cable (two and four pair); tested to 10 million flexing cycles • Polyvinylchloride (PVC) riser cable (four pair) for general-purpose applications • Plenum cable (four pair) for air duct applications • Red cable jacket option to identify safety networks • 600V PVC rated cable available (two and four pair) • Red cable jackets identify safety networks on your machines • Gigabit Cat 6 options available 	<ul style="list-style-type: none"> • Over molded housing helps protect the integrity of the signal • Over molded patch cords • Field attachable connectors • Red cable jacket option to identify safety networks • M12 X-code patch cords available with Cat 6 Gigabit cable • Variant 1 Ethernet cables include RJ45 connectors with protective thermoplastic housings, providing an IP67 solution
More Information	To see our full range of Ethernet network media and for more information on these products visit: http://ab.rockwellautomation.com/Connection-Devices/EtherNet-Media		

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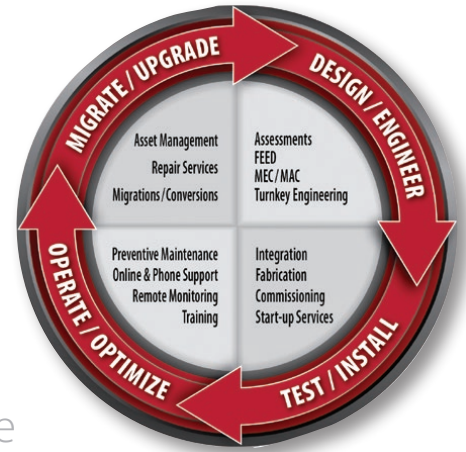
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- Full MES & Compliance
- Formulation & Filling
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- Modular Process Build



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- Scheduling & ERP Integration



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- Batch Processing
- Mixing & Blending
- Material Tracking
- Tank Farm Control



Tire & Rubber

- Safety Wind-up & Let-off (WULO)
- Calenders
- Mixing/TSR Systems & Curing
- Extruders



Oil & Gas

- Integrated Control & Safety Systems
- Production & Pipeline SCADA
- Rotating Equipment Control
- Engineer, Procure & Construct



Power Generation

- Combustion Controls/Burner Management
- Fuel Handling/Energy Conversion
- Electrical Protection & Control
- Balance of Plant Automation / Integration



Metals

- Melt Shop & Continuous Casting
- Strip Processing & Finishing
- Rod & Bar Mills
- Material Tracking



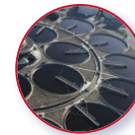
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- Burner Management & Digesters
- Stock Prep/On-Machine DCS
- Paper & Tissue Machine Systems
- Winder & Sheeter Safety



Mining & Cement

- Ventilation on Demand
- Ore Beneficiation/Processing
- Loadout Systems
- Crushers & Conveyors



Water/Wastewater

- Process Control
- Power Control
- SCADA - Data Collection
- Remote Terminal Units



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