SAFETY: A Good Investment for Manufacturers

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Safety Solutions Help to Get the Most Out of Your Equipment

Manufacturers that are successful in business focus on three key tenets: plant-wide optimisation, sustainability and machine performance. Equipment operating at top efficiency is at the heart of these initiatives – and Rockwell Automation® provides an array of solutions that optimise equipment operation and functionality.

For example, our safety solutions, designed to help protect workers and equipment, center on overall machine performance including safety, efficiency and design productivity. This, in turn, helps machine builders design, develop and deliver flexible, high-performance machines at a competitive price.

In recent years, there has been a move towards globalising safety standards. As a result, many safety specifications have been changed. The ISO 13849-1 standard, for instance, has become the recognised international standard for machine safety. It uses a functional approach, looking at the equipment, materials and people that interact with the machine to determine the functional safety requirements for the system. Each safety function is then evaluated by a risk assessment exercise.

As part of our safety offerings, we provide risk assessment services and hazard analyses as well as arc flash analysis. Our company employs more than 135 functional safety experts (including TÜV-certified assessors) that perform many roles, including assisting machine/equipment suppliers to meet requirements of various international standards.

Recently, we released the Safety Automation Builder (SAB) e-tool, which facilitates planning of safety systems and helps users select products to achieve the required safety performance level as outlined in ISO 13849-1. The software compiles product selections, generates bills of material and compiles necessary data to populate SISTEMA, used for analysis of safety functions.

Safety products in the Integrated Architecture™ solution use a common programming environment, common networks and a common control engine to provide integrated safety functionality. Whether your application is a large or mid-sized one, Rockwell Automation provides an integrated safety solution with unmatched design productivity to reduce your training costs while speeding your programming, commissioning and analysis of safety functions.

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Rockwell Automation Named One of World’s Most Ethical Companies

For the fifth time, the Ethisphere Institute – an organisation dedicated to the creation, advancement and sharing of best practices in business ethics, governance, anti-corruption and sustainability – has named Rockwell Automation® as one of the “World’s Most Ethical Companies.” This recognition highlights companies that outperform industry peers when it comes to business ethics.

Keith D. Nosbusch, Rockwell Automation chairman and CEO, says, “Integrity is a core company value and a critical part of who we are as a company. It’s as important as delivering quality products and providing excellent customer service.”

Automation Fair® 2013

Come to Houston, November 13-14, for the premier event in industrial automation technology and education. Automation Fair event will be hosted in Houston, Texas, the largest city in the state and one of the world’s energy capitals. This highly-regarded industry event features technology exhibits and educational opportunities to help you expand your understanding of the latest control, safety, power and information technologies that can help improve production performance, leverage your automation investments and increase profitability.

Through eight industry forums, 83 technical sessions, 16 workshops and 19 hands-on labs, Rockwell Automation® experts, partners, customers and other industry professionals will share insights on smart, safe, sustainable solutions that can help you optimise your facility and improve operations performance. You also can discover the latest automation technology from Rockwell Automation and more than 100 of its PartnerNetwork™ member companies at the events exposition.

These educational events provide an incredible learning experience — and all for free. The week also features the highly popular Process Solutions User Group (PSUG) November 11-12 (http://psug.rockwellautomation.com) at the George R. Brown Convention Centre before the Automation Fair event.

The Safety Automation Forum will not be held this year. However, as part of the 2013 Automation Fair event’s educational activities, Rockwell Automation will offer an expansion of the Safety & Compliance track to include 19 workshops, technical sessions and hands-on labs.

Rockwell Automation Opens New Office in Vietnam

Rockwell Automation® recently opened a new office in Vietnam. The new accommodations are larger, offering more collaboration space and a strategic location near customers in key industries such as power generation, oil and gas, household and personal care, and automotive and tire.

Bob Buttermore, regional director of Rockwell Automation Southeast Asia, says, “The opening of our new office in Vietnam will allow us to provide our customers here with a higher level of service and support while also providing a more efficient and productive environment for our employees. By opening this new office, we are confirming our commitment to work in this country and region.”
China – Australia Mining Forum showcases the latest global advances in smart, safe and sustainable mining

Rockwell Automation® recently hosted the China - Australia Mining Forum at the Brisbane Convention Centre to showcase the latest advances in smart, safe and sustainable mining. Building on the success of the Forum held in 2011, more than 200 people attended this year’s event. A key focus of the Forum was on streamlining the supply chain from the pit to port and strengthening mining collaborations between Australia and China.

A significant representation of locally based Chinese companies with an interest in Australia’s resources industry attended the Forum. Australian attendees were representing a diverse range of multinational companies including, Adani, Anglo American, BHP Billiton, Rio Tinto, Glencore/Xstrata and Arrium Mining.

The Forum was opened with an insightful overview of Queensland’s Mineral and Coal Industries and the opportunities for investment by Mr Brad John, Chief Government Geologist of the Geological Survey of Queensland from the Department of Natural Resources and Mines.

As the mining industry faces many new challenges due to the current global economic uncertainty and fluctuating commodity prices, improving productivity has become an increasingly critical item on the agenda of Australian mining businesses.

Franz Wentzel, Director at PricewaterhouseCoopers delivered an informative keynote presentation titled, ‘Productivity not Austerity – the Mining Industry Productivity scorecard’ which detailed the importance of improving productivity during these challenging economic times.

According to Geoff Irvine, Industry Manager-Mining at Rockwell Automation, “The focus is on getting more out of what you have. Leading companies are investing in technology to “sweat their assets” or get more from the existing operations rather than invest in new greenfields projects.”

Attendees were also provided with a valuable insider’s view into the current status of China’s coal industry by Li Mingwu from the China National Coal Association. It’s apparent that a key focus for China’s mining industry— which is currently dominated by smaller companies—is to improve the safety, sustainability and productivity of their mining operations.

Over the next five to ten years, China will be looking to change the landscape of their industry by having a greater proportion of their coal production stemming from large mining companies with improved safety and sustainability parameters.

The third keynote presentation was delivered by Jonathon Dehao from Arrium Mining and highlighted the iconic ‘Project Magnet’. This project has converted the Whyalla Steelworks to magnetite iron ore feed, creating a new revenue stream for the company by making available hematite iron ore for export sales. To achieve this, a completely integrated pit to port process control system was implemented that has successfully extended the life of the Whyalla Mining and Steelworks.

The afternoon session of the Forum was divided into two concurrent streams—one focussing on automation and the second on power. Attendees had the opportunity to hear about the latest advances in autonomous mining, remote operations, automation, networks, power and safety.

Industry experts discussed how companies can reduce inefficiencies and energy costs in mining operations. Chinese Mining End Users and OEM’s have much to offer the Australian Mining Industry to assist in reducing the operating costs of their plants and the Forum provided an ideal venue for networking between the two countries.

In a presentation about ‘Optimising Materials Handling Plant Automation’ by Doug Lithgow, Director, MRA, the question was posed that assuming all aspects of automation is working, ‘how do we make things better?’ Doug’s methods and discussion centred on the fact that utilising the control system’s processing power today, allows end users to address key issues such as System modelling within the DCS/PLC for materials handling, control tuning for conveyors, monitoring via vision systems and sensing.

Also in the materials handling area, Tim Sheehy, Manager of Electrical Instrumentation and Controls at Sedgman presented an innovative global solution that was applied to a Relocatable Modular Coal Handling and Preparation Plant (CHPP). This presentation highlighted a new, packaged and modular CHPP that gives flexibility to Coal Miners, with particular relevance to the Chinese delegates attending the Forum.

Dalrymple Bay Coal Terminal (DBCT) is one of the largest coal ship loading facilities in Queensland which has implemented an Asset Management tool to assist in monitoring and auditing of control system assets. This presentation included a ‘live on-line’ demo, delivered by Allan Doherty, Senior Control Systems Engineer at DBCT. It demonstrated the implementation of the Asset Centre software from Rockwell Automation and highlighted the need for comprehensive asset control, from the logging and tracking of program changes in the Control System, to keeping version controls of their PLC’s and software.

Anglo American presented ‘Increasing the safety and productivity Yard Machines via an Ethernet GPS.’ Who would have thought that our satellite network would solve drifting issues on large yard machines and enable exact positioning information using GPS Ethernet technology? Anthony Manousoff from Anglo American showed the impressive simulation of Yard machines 3D graphics revealing the safety, accuracy and efficiency of the system.

Gavin Strack, Manager Process Control, Barrick Australia Pacific presented an interesting presentation remotely via a
Rockwell Automation is committed to continuing to provide specialised training in the TÜV Rheinland Functional Safety Program throughout Australia in the coming months.

The TÜV Rheinland Functional Safety Program is the only worldwide extended vocational training program in this area where knowledge and competencies are approved by a third neutral party and certificates are issued.

Wayne Pearse, Consulting Services Team Leader and Safety Consultant at Rockwell Automation, is a TÜV Rheinland Functional Safety Program trainer and will provide the TÜV Functional Safety for Machinery program in Sydney, Melbourne and Brisbane.

Pearse is one of only 100 internationally approved Functional Safety Experts, having more than 10 years of expertise and long-term experience in the area of Functional Safety.

“Through my certification as a Functional Safety Expert, Rockwell Automation is able to provide regional expertise and training as an authorised certified training facility,” said Pearse.

The training targets a broad group of engineers working in various machinery applications such as the food and beverage, steel, aluminum, manufacturing and mining industries.

Rockwell Automation is offering the following training sessions in Australia:

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<thead>
<tr>
<th>Location</th>
<th>TÜV Functional Safety for Machinery (4 days)</th>
<th>TÜV Functional Safety Certification Training (5 days)</th>
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<tbody>
<tr>
<td>Sydney</td>
<td>September 2-5</td>
<td>September 6</td>
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<tr>
<td>Melbourne</td>
<td>October 28-31</td>
<td>November 1</td>
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<tr>
<td>Brisbane</td>
<td>November 25-26</td>
<td>November 29</td>
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Additionally, Rockwell Automation will also be rolling out a new entry-level TÜV Rheinland course in North America later this year and in Australia in early 2014.
SAFETY: A Good Investment for Manufacturers

Technology allows safety and standard control to be integrated, particularly in discrete applications.

Is safety a good business investment for manufacturers? Today, top-performing manufacturers around the globe are proving that with contemporary safety automation technology, protection of workers on the plant floor boosts productivity – and the bottom line.

A study released in 2011 by the U.S.-based Aberdeen Group and sponsored by Rockwell Automation® showed that best-in-class manufacturers have five percent higher overall equipment efficiency (OEE), four percent less unscheduled downtime and significantly fewer injuries (1/2,000 vs. 1/111 employees annually) than average manufacturers. Safety and productivity are complementary objectives.

Standards: A Driving Force

Though safety standards have continued to change throughout manufacturing history, the most recent wave of revisions redefines the way manufacturers design safety automation systems. In addition, they are changing the way manufacturers specify and purchase safety solutions. Global and multinational manufacturers are specifying the use of updated global standards to minimise costs, improve flexibility and achieve consistency. Two of the most rigorous machine safety standards are the International Organisation for Standardisation (EN ISO 13849-1/2) and the International Electrotechnical Commission (IEC 62061), which the European Union standards bodies (CEN and CENELEC) elected to mandate. This means that machines shipped into or out of Europe must comply with one of the two standards.

The standards require companies to identify and document the potential hazards associated with a machine and the risk levels the hazards present to users. They also now require companies to document the mean time to probable failure. The safety system is then designed to the level of risk associated with the hazards present on the machine. Because appropriate documentation is required to prove a machine’s level of safety, designers can better justify a need for a safety system upgrade, and operators can be more confident in the reliability of a machine’s safety system.

Safety and Standard Control

Traditionally, plants kept safety technology separate from their standard automation control systems. Many manufacturers still embrace this approach, employing workers whose main responsibility is to monitor and control safety systems. However, this approach generally costs more and creates numerous design and integration challenges. Manufacturers that leverage integrated safety technologies can more effectively manage manufacturing risks and streamline standards compliance without compromising productivity. The Aberdeen Group study found that although a majority of manufacturers continue to separate the two systems, 47 percent of the best-in-class companies are integrating safety with standard control systems. Many find it increasingly more efficient to merge safety and standard control systems into a single platform, especially for discrete applications.

Rockwell Automation is very well known for its automation, motion and process solutions. What’s more, the company is also a worldwide leader in machine safeguarding solutions.

It has seen the emergence of lots of safety specialists who will explain to customers how to stop their machines, but there are not many who can offer fully integrated solutions, those which integrate the safety infrastructure into the rest of the machine solution. Rockwell Automation can even providesolutions that will keep the machine running at a reduced speed while helping to keep the operators safe as they perform set-up operations where the machine has to be running. Complete shutdowns are not always necessary.

Core Competency

Customers are not just interested in solutions and products. They seek good advice, too. That is why Rockwell Automation invests in staff when it comes to safety. Worldwide, the company employs 137 Certified TÜV Rheinland Functional Safety experts covering machinery, safety instrumented systems (SISs) and hardware/software.

The engineers are employed in various roles within Rockwell Automation. On the commercial side, they are deployed in the design of new products, machines and lines, fostering functional safety and making data available for safety-related design exercises.
Others work as consultants within the safety services department, assisting machine/equipment suppliers to meet directive requirements, overseeing the correct application of standards and checking designs (with an eye on functional safety).

End users of such equipment also require assistance from the safety consultants. For example, some customers operate plants that require the necessary safety control measures to be brought up to date. In this instance, safety engineers audit the equipment, highlighting issues and shortfalls as well as formulating the appropriate remedial action. This allows the operator to go straight to the source of the problem, repair it and put the machine back into production. Customers want to minimise downtime, and good diagnostics from the safety-related control system improves the OEE of the machine and reduces the mean time to repair.

System Design

In addition to its hardware safety solutions, Rockwell Automation addresses the software side of safety with a number of e-tool packages. The recently released Safety Automation Builder (SAB), for example, facilitates planning of safety systems and helps users select products to achieve the required safety performance level (PL) as outlined in EN ISO 13849-1. Furthermore, SAB creates SISTEMA projects – Safety Integrity Software Tool for Evaluation of Machine Applications – for analysis of safety functions.

SAB can be used to lay out machine hazards and access points, define safety functions and select safety products for each, and export data to SISTEMA for analysis. With the SAB tool, users import an image of the machinery they wish to safeguard and answer questions using a drop-down menu as well as help screens to identify and select the necessary safeguards. The software then compiles product selections, generates a bill of materials and compiles necessary data to populate SISTEMA. SISTEMA indicates the attained PL of the safety system through an automatic calculation. As part of the process, users also receive a SISTEMA project file.

In addition to SAB, Rockwell Automation continues to update its free SISTEMA-compatible data library containing functional safety information covering its comprehensive range of safety products. SISTEMA has been developed to help simplify the calculation of the PL of the safety-related parts of a machine’s control system in the context of EN ISO 13849-1.

The combination of the SISTEMA tool, SAB and the Rockwell Automation data library will provide machinery and system designers with comprehensive support in the evaluation of safety in the context of EN ISO 13849-1.

Increasingly, manufacturers around the world are recognising that safety not only helps protect workers but also increases productivity and boosts the bottom line. The future of safety automation points to even more options and flexibility in applying safety technology to meet specific needs.
Protection from Arc Flash

Arc resistant equipment can help protect employees working on or near energised equipment.

An electric arc flash is the result of an arc fault that superheats the air around it, expanding and creating a pressure wave within an electrical enclosure. This arc plasma vaporises everything it comes in contact with, such as copper, insulating materials, bolts and even steel enclosures. This massive heat and energy wave can inflict serious injuries, including severe burns, damaged hearing from the powerful sound waves, impalement from projectiles and impaired eyesight from the high-intensity flash.

Arc resistant equipment can help protect employees working on or near energised equipment. IEEE codes set standards for protective equipment and “limits of approach” focused on withstanding an arc flash. These and other guidelines include technical specifications to help companies choose appropriately rated equipment with proper protection levels.

Arc Resistant Equipment and Accessibility

Arc resistant equipment is electrical equipment designed for controlling the exposure and/or release of the dynamic elements associated with an internal arc flash. The equipment is defined by the level to which these elements are extinguished or controlled, or prevented from seriously injuring personnel or from propagating. Generally, the protection applies only when all equipment doors are closed and latched; the manufacturer must test the equipment to validate the level of protection.

A fundamental approach to arc flash safety must include all personnel, whether electrically qualified or not. For equipment to meet the IEEE C37.20.7 arc resistant standard, all doors and covers must remain closed during an arc flash incident. No parts can be ejected from the equipment, and the arc does not burn any holes in the exterior of the test structure. The grounding connections must remain effective through the entire test cycle.

Per IEEE C37.20.7, levels of arc resistant accessibility are defined in three types. Type 1 equipment shields personnel from arc exhaust materials only when in front of the equipment. This equipment does not provide any specific level of protection outside the protected zone, and all doors must be closed and latched.

Type 2 equipment shields personnel from the arc dynamic components on the front, sides and rear of the equipment. Doors must also be closed and latched. A third level of protection, Type 2B, shields personnel from arc exhaust materials on the front, sides and rear of the equipment, even when the low-voltage control compartment door is open.

Rating Choice and Selection

Equipment is determined to be arc resistant based on applied voltage, source impedance and the duration of the arc event. The duration of the arc can be specified in time or by relying on a specified upstream protective device.

A duration rating is strictly based on quenching the arc in a maximum amount of time. This rating is independent of other protective devices. Device limited ratings use a tested protective device to limit the duration of an arcing fault. In device limited rating, no specific time duration is stated.

In arc resistant equipment that has been duration rated, the vendor nameplate will include accessibility type, the standard or guide used for validation testing, and the maximum short circuit current and duration. The vendor nameplate for equipment that has a device limited rating includes accessibility type, maximum short circuit current and a list of tested, protective devices.

When buying arc resistant equipment, it is important to consider the overall system requirements to purchase exactly what the system needs. The system short circuit current at the point of the equipment’s use can help determine the correct rating for the system. Operators will also need to consider how long their system can sustain an arcing fault. The longer the time, the greater amount of energy released and the higher degree of internal damage sustained to equipment.

Further Information

For further assistance on issues concerning Arc Flash, please contact Helder Paulini, Rockwell Automation Email: hcpaulini@ra.rockwell.com
Data moves quickly with ProSoft’s **FAST ROAMING TECHNOLOGY**

- 300 Mbps RF Rates
- Fast Roaming ensures seamless, high speed connections on moving equipment
- Extreme -40° to 75°C operating temperature

![Diagram of ProSoft's Fast Roaming Technology]

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Where Automation Connects™
www.prosoft-technology.com
A re you prepared to meet the challenges of the future? Many plants are full of a myriad of incompatible technologies, obsolete systems and competing standards. There’s a lack of communication between suppliers, the plant floor and those upstream in the business.

All of this impedes integration and information flow across the organisation and slows reaction to changes in consumer demand. There is a better way, and it requires collaboration.

Control-system architectures are evolving to be more integrated and scalable, based on open standards, and more flexibly incorporate new technologies as they emerge. Technology itself, both hardware and software, is more collaborative. Code is developed by multiple people or teams across sites and continents. Devices are networked to communicate directly. Common tools exist to help OEMs and manufacturers build better machines, plants and enterprises, and we examine them here.

Build a Better Machine

Competition now and in the future extends beyond company versus company. It’s about one company’s network versus another company’s network. OEM partners are key nodes within a manufacturer’s network.

Manufacturers continue to challenge their machine and equipment suppliers to deliver systems that produce more quickly and precisely, are integrated quickly into the production line or plant, and can change or grow with variations in consumer demand. OEMs succeeding in these goals are collaborating with their customers to deliver scalable and integrated systems.

Multidisciplined control systems — managing high-performance integrated motion, process and safety control — have been around for years, helping users converge large-scale applications. Yet OEMs have traditionally used multiple control platforms and networking architectures to accommodate the range of applications and machine sizes within their portfolios. This has created unnecessary complexity for both the OEM and the end user because each platform and network has a unique design environment, user interface and vendor support model.

The new, modern approach to control offers broad scalability to accommodate the full range of applications and machine complexity. Today, OEMs can use a common design and user environment for applications with as few as two motion axes and under 200 I/O to those with 100 motion axes and 10,000 I/O.

Using EtherNet/IP connectivity and features, such as integrated motion, safety and standard control, allows OEMs to use one network architecture across all equipment and machines. Using standard TCP/IP network technology, EtherNet/IP also offers the best pathway to a converged network architecture, helping OEMs and their customers streamline control and information flow.

OEMs are finding that standardisation helps improve design flexibility, allowing them and their customers to quickly scale the control system up, down or across...
applications to meet a range of needs. Additionally, it reduces machine cost and commissioning time, allowing OEMs to dedicate more engineering resources to machine innovation.

Build a Better Plant

At the production-site level, machines are enabling more collaborative, scalable lines and plants. King’s Hawaiian, makers of distinctively sweet bread, expanded production to meet customer demand with a new automated 125,000-sq.-ft. facility in Oakwood, Ga. The company set a short timeline to complete the new facility: just 10 months.

The entire bread-baking process required 11 specialised machines manufactured by different OEMs. But the team didn’t have time to learn several types of programmable logic controllers (PLCs) and human-machine interfaces (HMIs), and the company wanted a plant that its own staff could easily maintain and troubleshoot. “I’m a big supporter of ensuring a plant can support itself as much as possible,” says Mike Williams, director of engineering for King’s Hawaiian.

Williams worked with his team and Bachelor Controls Inc., a Solution Partner in the Rockwell Automation® PartnerNetwork™ program, to create an architecture that would enable King’s Hawaiian to get the equipment up and running to open the plant on time, while laying the groundwork for information gathering and sharing throughout the enterprise.

BCI directed all the OEMs to use the Logix control platform for scalable motion and machine control in a single programming environment. This gives King’s Hawaiian fewer spare parts to maintain, while the control platform’s openness helps ensure easy integration with third-party components.

The entire plant communicates via EtherNet/IP, allowing King’s Hawaiian engineers to remotely access, diagnose and service their machines from two redundant VMware servers located in a central control room.

“The common control and network architecture enabled us to get this plant up and operational in a matter of weeks instead of months,” Williams notes.

Common design and user environments are becoming even more unified and collaborative, which will only provide more benefits on the plant floor and up through the enterprise.

Build a Better Enterprise

The collaborative and standard configuration King’s Hawaiian set for OEMs also took into account the bigger picture: the company needed to monitor its process across the enterprise and make intelligent decisions to increase production efficiency.

Specifications required a standardised approach to the visualisation and information software used on each machine. Stage two of the project — developing the centralised data collection and control system — was completed in the months after the plant went live.

Manufacturers are seeing tremendous gains when they have the right architecture and infrastructure in place to tap information from a device on a single machine up through the enterprise.

The future requires collaboration. The systems to facilitate this exist today. It’s time to tap into them.
Traditionally, adding a drive to a control system meant learning to work with a new software tool and managing separate drive configuration files. By using programming software that integrates the drives and the controller, however, users have less of a learning curve and can more easily manage the drive and the control system since there is only one software package to purchase and learn.

Greg Meers, product manager, Drives Software, Rockwell Automation®, explains that drives configuration software is experiencing rapid evolution, making such software easier to use and more powerful. He says that with simplified programming software, engineers can say goodbye to the complicated world of drive-controller integration and hours of grueling tagging and coding validation.

**Resolving I/O Issues**

When installing drives, a major complexity is configuring the settings to sync up between two programming environments. For example, a conflict in the I/O configuration setting can arise when the controller and drive are configured at different times with different tools. In other words, the controller expects one size of I/O while the drive is configured for a different size. The mismatch creates an I/O connection error in the program and can become a nuisance for programmers, particularly during system start-up, when time can be limited.

In the past, the first phone call to tech support involved troubleshooting to remedy these communication gaps. With integrated drives configuration, users can now configure both sides of the network connection at the same time with one tool, reducing the potential for errors. This capability can be beneficial in applications involving a large number of drives, where managing the various configurations can consume an inordinate amount of engineering time and resources.

**Parameter Descriptors**

Individually programming parameters and tags when configuring drives can be a major challenge. Many controllers store drive information in memory as a contiguous block, where each drive parameter is represented by a physical address or number rather than a descriptive name. Typical tags might read “.data3” or “.data4,” forcing users to constantly refer to user manuals to interpret and document the control program. This tedious task is time-consuming and often must be repeated for each drive in a system.

Engineers installing drives should look for programming software in which a device-specific data structure is created automatically, says Meers. These data structures can now be represented with descriptive names rather than generic, numeric-based, parameter-addressing schemes used in the past. The data structures also use the proper data types – integer, real, Boolean, etc. – for each parameter, so no manual data type conversion is required by the programmer.

Engineers also should seek software options that provide network I/O drop-down boxes containing all the parameter names. This minimises the potential for errors when defining various network I/O. Tags can then be created in the control development environment and accessed via a human-machine interface (HMI), reducing set-up and configuration time. A copy-and-paste programming feature can quickly create additional duplicate drives.

**Simplify Coding**

A common problem in many drives installation projects is that multiple engineers are developing different versions of the same code. With numerous code variations, installation and start-up become more tedious and complex. That’s because engineers must check and verify each version – and the specific set of errors used with each code – to confirm a smooth installation.

Programming software capabilities, such as user-defined add-on instruction, encapsulate drive-specific operations into a reusable module of code. This reduces the development and validation effort; it also promotes consistency among projects since there’s no need to reinvent commonly used control algorithms.

Some software packages further simplify the programming of networked drives with tag generator tools. Users no longer have to worry about I/O mapping and correlating the I/O image with device user manuals. Tag generating tools help save users a significant amount of programming time per device, depending on the complexity of the device.

Start-up wizards for drive commissioning are another key advancement in drives configuration software, explains Meers. Instead of using a linear list editor to navigate through hundreds of parameters, start-up wizards provide a simple step-by-step process. Graphs, images and descriptive text assist the user through the remaining commissioning process. Besides dramatically reducing drive start-up and commissioning time,
Wizards can improve set-up accuracy by significantly reducing manual configuration with the end device.

Engineers also can enjoy the benefits that device configuration software can offer to simple, hardwired or stand-alone applications. Drives are just one of many components in a system. For these applications, device configuration software can take what once required several different software configuration tools and wrap it into a single software package with a simple catalog of devices available at the engineer’s fingertips.

In addition, combining a controller with a full suite of compatible components and application development tools – application profile, quick starts, wiring diagrams and pre-developed HMI screens – can provide engineers with a simplified way to implement common control tasks as part of the machine design. This dramatically improves end user experience and reduces the risk of potential engineering programming, training and maintenance nightmares.

To ease maintenance and improve access to information, some software saves drive configuration data as part of the controller’s project file and also stores it in the controller. As a result, there is no need to store and maintain multiple files. Users only need one file for both the controller and all drive configurations.

Meers explains that in the event of a failure, it is an easy process to replace and restore the original drive configuration. In some cases, the controller can automatically download the configuration to a replacement drive, further reducing downtime.

Advancements in programming software capabilities are just the start of integration and interconnectivity capabilities to come. Meers sums up and says that by examining the whole drives package, especially the configuration software, engineers can make a more informed decision that enables them to achieve optimised productivity, quicker response to market and business needs, reduced commissioning time and lower cost of ownership.

For more information on drives configuration software, visit: http://ab.rockwellautomation.com/Drives/Software/Studios-5000-Logix-Designer/#tab6
Soft Starter Motor Control Technology Improves Energy Efficiency and Performance

By selecting the proper starting method, users can reduce the amount of energy consumed and match the start/stop profile to the load, enabling the greatest savings.
Industrial engineers are well aware of the electrical consumption burden their motors – especially those running pumps, compressors, and fans – put on their operating budgets. In response, they’ve turned to efficient motor control technologies that use just enough energy to start motors, provide diagnostics data and reduce downtime.

As motor starter adoption has widened over the years, motor starter technology has also become more sophisticated. Maximising efficiencies requires engineers to take a fresh look at motor control options.

Common motor starter technologies include across-the-line contactors, soft starters and variable frequency drives (VFDs). Each of these technologies represents a different set of cost and performance attributes that can vary between applications.

Contactors offer the most basic motor starting capabilities. Traditional Direct On Line (DOL) starting is accomplished with a contactor and simple or advanced overload relay.

VFD technology has advanced rapidly over the past 20 years and has been the default starting solution for torque control or linear speed applications. It uses advanced techniques to control voltage and frequency for exacting control during starting, running and stopping a motor.

For applications requiring motor control only when starting and stopping, soft starters can offer a more economical alternative to VFDs and more advanced control than contactor options.

Assessing Soft Starters

Many soft starters feature multiple start functions, such as soft start, current limit, pump control, slow speed and full-voltage starting. For stopping, many perform pump stop, motor braking and soft stop.

But the need for true torque and speed control to start centrifugal pumps and high-inertia loads has led to the development of a new generation of soft starters, of which the most advanced leverages solid-state-based power structures. This new generation features a bevy of control functions and application options, forcing engineers to reassess what a soft starter device is now capable of. Feature considerations include the following:

- **Soft Start**: Soft Start ramps up the voltage linearly to start the motor. Starting torque is proportional to the square of the applied voltage.
- **Linear Speed**: Regardless of the load type, a Linear Speed starting method will start the motor in the given time without using an external tachometer. The controller uses just enough energy for both starting and stopping loads, regardless of size.
- **Torque Ramp**: This feature allows adjustability of both the initial and maximum torque of a defined ramp time to provide precise control when starting the motor. Compared to a Soft Start mode – which uses a voltage ramp – Torque Ramp control is much more linear and potentially will result in less stress on the system's mechanics when providing the proper torque to start the motor.
- **Full Voltage**: This starting method allows engineers to use the motor controller as a solid-state contactor, perhaps for high-duty cycles, as a troubleshooting aid or to utilise the diagnostics of the controller versus a traditional electromechanical starter.
- **Current Limit**: Limiting the current can assist in meeting utility demand requirements, limiting line disturbances and meeting internal plant distribution limitations.
- **Pump Control**: Unlike actual torque control found with a Torque Ramp feature, Pump Control manages the accelerating/decelerating torque of the pump motor. Stopping control is just as important as starting, especially in a pumping application where proper stopping control reduces the surges created in a fluid piping system and minimises water hammer and pump cavitation.
- **Metering**: Metering features are essential for accurately monitoring performance and making timely process adjustments to improve performance and energy efficiency.

**Energy Effectiveness**

After assessing and understanding soft starter features, the next step to improving energy savings is to understand the starting method that best matches the start/stop control profile for a particular load.

For example, when starting a typical NEMA Design B motor, the energy used can be viewed using common torque/speed curves of a pump system using DOL starting and the Allen-Bradley SMC™-50 Smart Motor Controller soft starter with Soft Start, Pump Control and Torque Control methods. The goal is to have the smallest difference between applied torque and load, or acceleration torque, to achieve the most energy-efficient start.

Taking a fresh look reveals new soft starters – including the SMC-50 – that can now package multiple starting methods in one device. This means that one SMC can now perform most of the starting functions for a given motor, whether linear acceleration is needed or just a soft start. This gives users the ability to start and control a range of load types with one controller.

Engineers can match the start/stop profile to the load with a simple control parameter change instead of swapping out control modules. The improved performance and energy savings will lighten the burden motors put on their operating budgets.

For more information on the Allen-Bradley SMC-50 Smart Motor Controllers, visit: http://ab.rockwellautomation.com/Motor-Control/Soft-Starters/SMC-50
Imel, based in San Fermo della Battaglia, a little town near the Province of Como, Italy, is a flexible, small-sized system integrator working with worldwide machine builders.

The company designs and installs industrial and domestic electrical systems. Since 1980, Imel has been widening its business to become a system integrator, manufacturing control panels for machines operating mainly in textile, food and cosmetic industries.

Andrea Guarisco, Imel project manager, says, “Thanks to its 10-person team and its external partners, Imel can design control panels for industrial machinery and provide maintenance and reconditioning services for different industrial applications, from industrial conditioning systems to chemical-textile production lines processing granular polymers, flakes and synthetic chips.”

Imel recently cooperated with Rockwell Automation® to develop control panels for a synthetic yarn production line installed in the United States by VB-S&T (Soluzioni & Tecnologie), an Italian company based in Vanzaghello, in the Province of Milan.

**A Multi-Component Control Solution**

The VB-S&T line converts raw polymer into synthetic yarn for geotextile applications.

In designing and manufacturing the control panel, Imel had to pay particular attention to its complex layout – as it included components from many different providers – and to the final destination country of the production line, the United States.

“The real challenge was providing a control solution that could combine the different components in a unique panel and a unique process, while being perfectly compliant to U.S. standards,” Guarisco explains.

The VB-S&T project started in December 2011 with a feasibility study. The study’s aim was to properly size electronic equipment, PLCs, boards and the Ethernet network, starting from specific motors and applications requirements.

“We selected Rockwell Automation components as we considered them the best solution for our VB-S&T customer, a leading company in the North American market. The choice satisfied the VB-S&T project requests and allowed us to realise a unique automation solution to control the line and to deliver to VB-S&T a UL-508-compliant control panel.”

**A Single Supplier**

The VB-S&T line is equipped with several Rockwell Automation components, both in the control panel and on the machine. The hardware configuration of the control system includes one Allen-Bradley® ControlLogix® programmable automation controller (PAC) in the main panel; two Allen-Bradley CompactLogix™ PACs in the extrusion lines; three Allen-Bradley FLEX™ I/O modules in the three slave stations in the spinning, drawing field and winding lines; and an Allen-Bradley PanelView™ Plus 1000 HMI in the extruder’s panels.

The FactoryTalk® software is dedicated to the production line supervision. For this application Imel developed specific functions, which can be displayed from the different standard and/or remote PCs installed across the line.

Rockwell Automation also provided Imel with 141A busbars, 140U moulded circuit breakers, Allen-Bradley PowerFlex® 40 and 755 inverters, power-feeders/suppliers and coordinated motor starters as well as emergency modules and safety counters, push buttons, sensors and connectors.

**Automation Advantages**

Working with a single provider for automation components, data acquisition and communication systems was a key benefit for Imel. Thanks to the Rockwell Automation architecture selected, the VB-S&T customer improved the ease of use for its line operators and was able to reduce installation time by about 20%.

“We prefer the Rockwell Automation platform as we intended to deliver to our end-user the chance to build an historical database of production data and to remotely control machine operations,” explains Guarisco. He adds, “We gave VB-S&T a solution for long-term traceability of its production batches. Remote assistance is simple, too, as VB-S&T is now able to monitor the components (PACs, panels, drives, etc.) as they are connected to the network through using Ethernet.”
The industrial landscape is rapidly evolving to address the challenging economic environment facing Australia today. Organisations need to become more efficient and flexible to maintain competitiveness and improve productivity.

This evolution has seen a significant increase of Industrial Ethernet technologies being applied to control systems, and used to connect plant to business systems, helping industry achieve operational improvements.

Industrial Ethernet is based on existing commercial technology, however the components used are typically optimised for use in harsh industrial environments where temperature extremes, humidity and vibration exceed the ranges in controlled commercial environments.

Ethernet adoption across a plant or factory provides for easier information sharing and reduces network complexity. A single Ethernet network can be used for standard control, as well as safety, motion, process, visualisation, and asset management. This allows a reduction in the costs and time associated with the traditional approach using multiple fieldbuses.

By providing a scalable platform that can accommodate multiple applications, Ethernet-based automation systems can increase flexibility and accelerate deployment of new applications, providing companies with a future proof network that can help them achieve their productivity goals.

Additionally, major improvements in wireless Ethernet’s speed and reliability, now bring a new realm of capabilities to controlling plants. Wireless obviously eliminates the need to run network cables across obstacles, further reducing the cost and complexity of installing traditional networks. This allows for great flexibility in an installation, where a combination of wireless and wired solutions may be used where conditions dictate.

Ethernet networks also allow for easy access to critically important, real time data. A well designed, robust, secure Ethernet network, can now allow real time data to be accessed securely from anywhere in the world. Operational dashboards and reports provide increased visibility into current plant operations.

Exposing process networks to a wider audience raises valid security concerns. Due to their isolation, traditional fieldbuses inherently brought some level of security; although accessing data on these networks can be difficult. As industry moves toward a converged Ethernet network, security becomes a prime concern. However, commercial Ethernet technologies have for the past two decades, been working on mitigating risks associated with viruses, unauthorised access, remote access and external attacks. Leading control system vendors are increasingly partnering with traditional IT companies to design reference industrial Ethernet architectures utilising current best practices.

This has led to a cultural change where IT and engineering are becoming closely aligned. In the past, industrial applications were maintained solely by engineers, but now the line between traditionally separate IT and engineering departments is becoming less defined. Engineers are becoming more familiar with IT technologies, and conversely, IT is fast learning the intricacies of industrial Ethernet.

Researchers are predicting an explosion of end devices connected to Ethernet, and as Power over Ethernet becomes accepted within industry, more and more devices are expected to be shipped ‘Ethernet ready’.

Manufacturers and automation vendors will continue to take advantage of investment and innovation in compatible commercial Ethernet technologies, and adapt these innovations to the industrial environment.

Robert Hicks, Product Manager, Rockwell Automation has been involved with the automation industry for more than 22 years, ten years of which was spent commissioning plants internationally. More recently, as Product Manager for Controllers and Networks at Rockwell Automation®, he advises customers on product selection and best practices.
Automated VFFS Machine Maximises Productivity

The Micro850 programmable controller solution for intermittent VFFS machines is packed with performance at an exceptional value.

From liquids to solids, granules to powders and produce to perishables, vertical form, fill and seal (VFFS) machines play an important role in packaging applications, keeping items fresh for use and consumption.

Machine builders that design, develop and deliver such equipment are faced with various challenges. They must design equipment that is modular and scalable, with machine functions that are suited for specific customer applications and localised to market demands. They must also reduce machine design and development time. In addition, their machines must be cost-effective.

That is because end users expect VFFS machines to achieve maximum possible machine speed and throughput with the highest quality. They demand strict accuracy requirements at high machine speeds and variable bag lengths. And, in spite of complexity, they say the machines must be easy to maintain and operate. What’s more, the machines must offer flexibility.

To address these challenges, machine builders can optimise performance by configuring their VFFS systems with micro programmable controllers and other solutions that help automate and improve operations.

**Intermittent Motion Machines**

VFFS machines are automated assembly line packaging systems available in intermittent or continuous motion configurations. They funnel products into formed pouches and then seal the contents. The pouch packaging material is flexible and typically heat-sealable plastic; paper is also used and sealed by glue.

In operation, the product enters the VFFS system through a forming tube. The forming collar shapes the flat film to a round film tube while low-friction rollers guide the film to the forming area. Vertical sealing bars seal the edges of the film tube together.

Film transport belts then pull the film through the forming area. If the film is preprinted, a registration sensor is added to the system to correct the film position in order to maintain the correct print position relative to the end of the pouch. Cross sealing jaws create top and bottom seals in the pouches and cut the filled pouch from the empty pouch.

Intermittent motion machines operate on the principle that vertical bag seals are made when the container film is moving, and horizontal seals occur when the film stops. Intermittent motion machines offer a suitable solution for applications where speed is not absolutely paramount.

Continuous motion machines, on the other hand, operate on the principle that both vertical and horizontal bag seals are made when the film is in motion. These machines operate at the highest attainable speeds and require a reciprocating sealing jaw motion format.

**Competing Profitably**

The Micro850™ programmable controller from Rockwell Automation®— in addition to software, drives and a human-machine interface (HMI)— offers machine builders a cost-effective control solution in developing VFFS machines, explains Shuqing Yuan, Rockwell Automation engineering manager, Machine Applications.

Yuan says that the Micro850 enables users to optimise machine cost by choosing performance and functionality specific to their machine needs. The controller supports up to 6 high-speed counter inputs and up to 3 pulse train outputs (PTOs) over embedded digital I/O. The equipment is scalable in that it supports up to 5 plug-ins (analogue and digital I/O, back-up memory, isolated serial port, SMS, weigh scales, etc.). In addition, machine builders can add up to
4 expansion I/O modules and up to 132 digital I/O points, including high-density digital I/O and high-accuracy analogue I/O.

Furthermore, a Touch Probe function block has special hardware to achieve exact-position registration. This is useful for applications like VFFS, where precise positioning is required at high speeds. In comparison to capturing registration in servo drives, Touch Probe provides flexibility in post-registration distance adjustment, tighter and direct control, better diagnostics and monitoring.

Yuan adds that the interfaces of the Micro850 are versatile. The controller features an embedded USB programming port, serial port (RS232/485) and 10/100 Base-T Ethernet; Modbus RTU and CIP serial protocol support on both the embedded serial port and the serial port plug-in; the EtherNet/IP protocol with CIP Symbolic support for simplified PanelView™ Component HMI connectivity; and Modbus TCP protocol for connectivity to other HMIs and RTU applications such as data collection from a supervisory controller.

A single programming software called Connected Components Workbench™ (CCW) simplifies the installation, configuration, connectivity and maintenance of machine devices, including the Micro850 controller; PowerFlex® drives and PanelView Component HMIs, as well as other Allen-Bradley® devices. CCW supports built-in instructions with the choice of programming in ladder diagram, function block diagram or structured text. User Defined Function Blocks (UDFBs) are also supported to implement a modular code structure for enhanced code reusability. For example, there is a PowerFlex drive UDFB available that provides an intuitive interface to control the drive using RS485 without having to understand the details of Modbus RTU communications.

For advanced motion control, graphical axis configuration screens are provided in the CCW software to aid in configuration. Yuan explains that the axis is defined in user-defined units for position (e.g. mm, cm). Motion control programming is easy with intuitive PLC open-based Motion Control Function Blocks (MCFBs), including Home, Move Velocity, Move Absolute and Move Relative.

CCW software is easy to acquire and install, as it is free. In addition, machine builders can leverage the Connected Component Accelerator Toolkit, which provides users with information needed to implement common control tasks in machine design. These tools include lists of compatible materials; panel layout and wiring drawings (usable in CAD software); pre-written control programs; sample HMI screens, including diagnostics; quick-start guides; and best practice examples.

The Micro850, in conjunction with other Rockwell Automation solutions, helps to lower the total cost to design, develop and deliver VFFS machines. According to Yuan, the Micro850 enables a 6-lane intermittent VFFS test machine to achieve throughput of 360 pouches per minute.

“The Micro850 improves machine performance by using built-in functions such as fast print mark registration,” summarises Yuan. “It reduces machine development time by utilising pre-existing tools and templates and a powerful instruction set. In addition, machine functionality is scalable, as users have the option to choose from various expansion and plug-in modules. Overall, this solution enables machine builders to greatly enhance business performance.”

AT
Industrial Data Center

Virtualisation has become widely adopted as a standard in the information technology industry and is now becoming a growing trend in the manufacturing and production industries. By adopting virtualisation today, you can discover such benefits as:

- Reduced server footprint
- Extended application longevity
- Improved infrastructure reliability with management and recovery features

All of these benefits boil down to cost savings for your business, so isn’t it time for virtualisation?

The Industrial Data Center from Rockwell Automation® can help your business realise these cost savings through a pre-engineered, scalable infrastructure offering. All of the hardware you need to run multiple operating systems and multiple applications off of virtualised servers are included in the cost.

As a pre-engineered solution, the Industrial Data Center is designed to ease the transition to a virtualised environment for your business, saving you time and money. Instead of ordering five different pieces of equipment with five purchase orders, in addition to hiring the correct certified installation professionals to get you up and running, the Industrial Data Center combines equipment from industry leaders that are pre-configured specifically for the manufacturing and production industries. All equipment is shipped pre-assembled and a Rockwell Automation professional will come to your site and commission the system.


PowerFlex 525 AC Drive

Designed for flexibility, the Allen-Bradley® PowerFlex® 525 AC drive can help machine builders and end users simplify equipment design and operation, and speed installation and configuration. Representing the first in the next generation of compact drives, the PowerFlex 525 AC drive features a modular design in power ranges from 0.5 to 30 hp or 0.4 to 22 kW at 100 to 600 volt input. Its embedded EtherNet/IP, safety, USB programming, energy savings and a variety of motor control options are ideally suited for machine-level and stand-alone applications or simple system integration.

For more information, visit: http://ab.rockwellautomation.com/Drives/PowerFlex-525

Micro800 Control Systems

Micro800™ Control Systems are easy to install and maintain. One software package applies to the entire family. These systems offer just enough control for your lower-cost, stand-alone machines. You can buy only the functionality you need, and use plug-in modules to personalise your system for specific application needs.

For more information, visit: http://ab.rockwellautomation.com/Programmable-Controllers/Micro800

Personal contact is more than phone calls and e-mail. It’s people working together to develop unique solutions.

Take the guesswork and risk out of choosing your extended automation team. Selecting a qualified Rockwell Automation Authorised Distributor brings you resources closely matched to your industry or application need.

Go to http://www.rockwellautomation.com/distributor/
PanelView Plus 6 Operator Interface Display

The PanelView™ Plus 6 (400 and 600) terminals run human-machine interface (HMI) applications as well as provide the ability to access the desktop. Terminals feature a screen refresh rate up to 70 percent faster, 4 times the RAM and 8 times the storage of the prior generation product. In addition, there is a 2 GB Secure Digital card slot for file transfers, data logging or system upgrades.

PanelView Plus 600 and 600 units have selective features optimised for connectivity to CompactLogix™ programmable automation controllers (PACs):

- **Bright displays** – 18-bit color graphics work together to show the advanced functionality and pre-engineered faceplates that are built into each terminal;
- **Alarm systems** – Support embedded variables, multi-language, trigger and message filtering, using three built-in alarm display objects to deliver critical system and machine information to operators;
- **RecipePlus** – Capable of managing thousands of ingredients to meet the needs of the most complex machine set-up configurations, yet simple enough for building the smallest applications;
- **Multi-language** – Supports localised development, firmware and run-time language switching to meet global requirements and help reduce maintenance and development cost;
- **Data log and trending** – Log historical data and display it as a trend for convenient analysis.

For more information, visit:

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Visibility When and Where You Need It

FactoryTalk® View Site Edition (SE) 7.0 human-machine interface (HMI) software meets the demands of multiple stakeholders including engineering and maintenance, operations and production information technology. FactoryTalk View SE improves process-system capabilities, information integration and usability.

The visualisation software supports larger numbers of HMI clients and servers in a single system, increasing the size of systems that can support the FactoryTalk View SE alarming subsystem. This subsystem has been enhanced to align with ISA’s Alarming Standard 18.2 and will now support the shelving state. The subsystem also allows users to configure remote-alarming commands on display faceplates, saving crucial time when an operator needs to react to device alarm situations.

Advantages to using FactoryTalk View SE include continuous system visibility provided through FactoryTalk and redundancy-enabled HMI, alarm and data servers; the use of FactoryTalk Live Data to optimise connections between FactoryTalk View SE and other FactoryTalk-enabled products; and enhanced graphic capabilities that provide operators with a more realistic view of a process, with gradient shading and support for the .PNG graphic type. Features including global objects, pre-engineered faceplates and tag-less HMI servers help to reduce application development time.

With FactoryTalk View SE, there is fast and reliable data access to the Logix family of controllers as well as connectivity options for non-Logix and third-party controllers.

For more information, visit:
http://discover.rockwellautomation.com/IS_EN_Performance_Performance_Visibility.aspx

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Modules Monitor and Protect Machines

The XM® Series of DIN rail-mounted measurement and relay modules can be combined and deployed as necessary to service machine condition monitoring or protection applications.

As a protection monitor, XM modules provide the real-time measurement performance, alarm logic, relay solutions and reliability necessary for API-670-capable protection monitors. As a condition monitoring solution, the modules can process fault-indicating parameters used in assessing the current health – and predicting the future health – of industrial machinery. Because they can be installed at the machine near the actual measurement locations, their use can reduce wiring cost and intricacy of installation.

XM Series modules may be applied as a stand-alone system or be integrated with existing automation and control systems. They are certified through the Open DeviceNet Vendors Association (ODVA); this allows for seamless integration with Rockwell Software® products, Allen-Bradley® controllers and display products.

For more information, visit:

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Redundant, Distributed I/O

The 1715 Redundant I/O System allows a ControlLogix® programmable automation controller (PAC) to communicate to remote, redundant I/O via an EtherNet/IP network without requiring additional programming or wiring. Modules, which are certified to SIL 2, provide fault tolerance and redundancy for critical processes by using a pair of redundant Ethernet adapters and multiple I/O modules. Applications include protecting plant personnel, production operations, product quality, critical equipment and assets, and the environment and surrounding community.

The system features redundant power supply, termination assemblies, input and output modules, and Ethernet adapters; three-slot I/O backplanes; two-slot adapter backplane; and Device Level Ring (DLR) ports. The 1715 platform requires no user programming code or additional hardware to operate. In addition, the modules offer native device intelligence in that they can perform multiple samples of a single signal using different criteria to alert users to issues such as open and short circuits, unexpected rate-of-change and thresholds.

For more information, visit:
http://ab.rockwellautomation.com/ia/1715-redundant-io#/tab2
Medium Voltage MCC Portfolio Includes EtherNet/IP

The Allen-Bradley® medium-voltage CENTERLINE® Motor Control Centers (MCCs) are now available with EtherNet/IP as one of their factory-validated and tested embedded systems. With an integrated EtherNet/IP network, manufacturers can access production information throughout the enterprise and can take advantage of device-level information.

The EtherNet/IP helps enhance integration, reduces MCC set-up time and increases the network speed. It also allows users to monitor, troubleshoot and diagnose their MCC remotely. It saves time by minimising the need for maintenance personnel to enter the MCC.

For more information, visit: http://www.ab.com/en/epub/catalogs/12768/229240/229896/8497159/Introduction.html#

High-Power Drive for Advanced Power Control

Rockwell Automation® has extended the ratings of its Allen-Bradley® PowerFlex® 755 AC drives to 1500 kW/2000 hp.

The PowerFlex 755 drive is well-suited for applications ranging from simple variable speed and variable torque control to demanding systems requiring constant torque control. Target applications include fans, pumps, mixers, compressors, conveyors and extruders as well as applications for the oil and gas, tire and rubber, refining, metals and mining industries.

The latest frame size includes an embedded Ethernet port and multiple option slots so users can tailor the drive to their application. Option modules include I/O, feedback, safety, additional communications and auxiliary power supply.

For more information, visit: http://ab.rockwellautomation.com/drives/PowerFlex-755

Delivering the Right-Sized Machine Control on EtherNet/IP

The 842E is an ultra-high resolution, multi-turn encoder with EtherNet/IP interface.

It provides 18-bit single-turn resolution and 30-bit multi-turn resolution. The EtherNet/IP encoder is suited for use in harsh industrial environments where high performance and reliability are important. This encoder includes an embedded EtherNet/IP switch to connect additional EtherNet/IP-capable product in series and/or support a Device Level Ring (DLR) for Ethernet media redundancy.

These encoders support the standard motion instruction set in the Studio 5000™ Logix Designer application. By providing auxiliary feedback directly through an EtherNet/IP network, they eliminate the need for point-to-point wiring.

For more information, visit: http://ab.rockwellautomation.com/motion-control/integrated-motion-on-ethernet-ipabsolute-encoder
Wide-Angle, Miniature Safety Laser Scanner

The SafeZone™ Mini Safety Laser Scanner is designed for stationary and mobile applications with a scanning angle of 270°.

It shares the same functionality as the other SafeZone safety laser scanners in terms of configurable resolutions and response times, multiple samplings, restart delay up to 60 seconds and restart interlock. A configuration wizard is available to guide the programmer through simple or complex system configurations.

Designed to meet international safety standards such as EN ISO 13849-1, EN 62061 and EN IEC 61496, the SafeZone Mini Laser features an eight-pin integrated M12 QD connector, which makes for a simple connection of the device. Common uses include personnel detection in front of a machine or equipment hazards, particularly when a safety mat solution would require a non-standard or irregularly shaped configuration.

For more information, visit: http://ab.rockwellautomation.com/Sensors-Switches/Operator-Safety/SafeZone-Mini-Laser-Scanners

Managed Switch Designed to Meet Your Needs

The Allen-Bradley® Stratix 5700™ Layer 2 managed switch with embedded Cisco® technology can be used in applications ranging from small isolated to large complex networks; it helps to monitor and control distributed devices and to integrate the plant floor to enterprise systems. Now available with Network Address Translation (NAT), end users and machine builders can take advantage of standard machines, flexible IP addressing and isolate machine devices from the plant network.

Users can create identical machines, with identical IP addresses. When the machine is integrated into the larger plant infrastructure, NAT can be used to assign a different IP address without disrupting the machine. If two machines from two different machine builders need to be integrated into the same plant infrastructure, the end user can simply place NAT above the machine and let it convert the IP addresses accordingly.

By using NAT, machine or equipment builders can create machines with less IP address restrictions, and the end users can manage their IP address models with more ease.

For more information, visit: http://www.ab.com/en/epub/catalogs/12762/2181376/214372/9142990/Stratix-5700-Managed-Switches.html

Guardlocking Switches with RFID

The TLS-ZR GD2 and TLS-ZL GD2 are additions to the existing TLS GD2 range of guard locking switches.

The TLS-ZR GD2 is a power-to-release unit, and the TLS-ZL GD2 is a power-to-lock unit. They may be used as part of a guard unit locking system to achieve performance Level “e” to EN/ISO 13849-1. They are certified by the TÜV as meeting EN/ISO 13849-1.

In mechanical configuration they are identical to the existing TLS-GD2 range with the exception that they include an additional RFID door target, which is mounted close coupled with the supplied fully flexible actuator.

For more information, visit: http://ab.rockwellautomation.com/sensors-switches/safety-interlock-switches/tls-z-gd2-guard-locking-switches

Optical Communication For ROCKWELL / ALLEN-BRADLEY
ControlNet®, EtherCAT, Ethernet, EtherCAT IP, Data Highway Plus, Remote I/O, DH-485, DF1, Modbus, Modbus Plus, and RS-232/485 Communication Networks

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Integrated Architecture Tools: Connected Components Accelerator

The Connected Components Accelerator Toolkit provides the information you need to quickly and easily implement common control tasks into your machine design. With pre-configured Building Blocks, you can focus on machine design and performance, not programming and validation. As an OEM, you can leverage the automation engineering design tools for application development - helping you to differentiate your intellectual property and machines from the competition.

Accelerators are available on the IA Tools site: www.ab.com/go/iatools