Inside

Vector Gas: Control under pressure

Use Energy as a Resource to Be Managed

Australia & New Zealand to heed safety standard deadline

Rockwell Automation® busy with upgrades

TechConnect” Helps to Keep Automation Systems Running

Kumho Tyres Contains Costs with Service Agreements

Companies Benefit from Selecting the Right Automation Solutions Provider

See page 6
Delivering Global Solutions and Services to Help Manufacturers Succeed

The business challenges facing discrete and process manufacturers as well as OEMs are immense. Companies must contend with cutting costs, reducing time to market, evolving products, increasing productivity and reducing the costs of quality and compliance, among others. Rockwell Automation® works with many integrators, partners and OEMs to help our customers overcome these challenges.

However, there are many customers who want Rockwell Automation to take key responsibility for design, delivery and execution of the total system. In particular, complex process and motion projects or projects for global roll-out are good examples of how major customers seek our direct solution expertise. Through their Global Solutions team, Rockwell Automation applies the right team, technology and delivery methods to support customers’ strategic business requirements. Rockwell Automation Global Solutions complement the service provided by our partners, and quite often we utilise products and specific services from those partners.

Whether you have a need for a stand-alone application or an enterprise-wide engineering initiative, we deliver solutions globally while providing local expertise. We draw on the depth of experience and domain expertise of our worldwide team to collaborate with you in-country. We use proven project management technologies and leverage our extensive application knowledge, skills, tools and techniques. Our delivery capabilities encompass the entire project life cycle, from consulting on project and planning solutions to automation technology through completion and maintenance of turnkey plants.

The Rockwell Automation Integrated Architecture™ provides multiple control disciplines in a scalable and information-enabled architecture. Along with a product technology platform that includes drives, motors, power and energy management equipment, safety systems, sensors and components, our process solutions, information solutions and Integrated Architecture help companies to maximise their system performance, plant-wide information, life cycle optimisation and asset utilisation.

Examples of how Rockwell Automation leverages their strengths on the behalf of customers can be found in this issue of Automation Today Asia Pacific. We invite you to learn about the strengths of our global solutions and services and to contact us – so that Rockwell Automation’s global team can empower you to exceed your business goals.

Keiran Coulton, President
Rockwell Automation, Asia Pacific Region
NEWS & EVENTS

Automation Fair Event Showcases Smart, Safe, Sustainable Manufacturing

Nearly 8,000 customers, Rockwell Automation® PartnerNetwork™ members, industry analysts and media from around the world gathered in the United States in Anaheim, California, last November for the 18th annual Automation Fair® event.

The event provided attendees with an opportunity to see the latest technologies and solutions available to help improve plant-wide optimisation, machine-builder performance and sustainable production. The global Rockwell Automation event included workshops, technical sessions, industry forums, hands-on labs and more than 100 exhibitors.

The company announced a range of products and services including the launch of the FactoryTalk® VantagePoint EMI and FactoryTalk Historian Machine Edition (ME) software; a portfolio of integrated motion solutions over EtherNet/IP; and an industrial energy management “greenprint” that helps manufacturers take an “inside-out” approach to energy management.

Prior to the start of the Automation Fair event, Rockwell Automation hosted the Process Solutions Users Group (PSUG) and Safety Automation Forum. More than 300 customers representing 186 companies from nearly 30 countries participated in PSUG sessions.

The 2nd Annual Safety Automation Forum drew more than 200 people, who learned about changing standards, industry trends and safe machine design. The Safety Automation Forum utilised social media—Twitter, Facebook and LinkedIn—to encourage discussion, and comments continued a week after the event.

BRIEFS

Rockwell Automation Responds to Haiti Disaster

In light of the devastation associated with a series of earthquakes in Haiti, Rockwell Automation® made a donation in the amount of US$150,000 to the Red Cross for disaster relief. The company encourages others to consider making a personal gift to the relief organisation of their choice.

Rockwell Automation on the Receiving End of Awards

Rockwell Automation recently garnered awards from the following publications:

- Readers of Control magazine ranked Rockwell Automation the highest in 34 “Best in Control” industry and product categories. The company took home more first-place finishes than any other supplier.
- Rockwell Automation won or tied for first place in 19 hardware and software categories in Control Design's 2009 Reader’s Choice Awards. Readers of Control Engineering magazine selected five Rockwell Automation® products for the publication’s annual “Engineers’ Choice Awards.” In addition, Rockwell Automation North American Solution Providers, Stone Technologies and Interstates Control Systems, received the System Integrators of the Year award from Control Engineering magazine.

White Paper Examines Innovations in Robotics

A new white paper from Rockwell Automation ® shares insights on major technological advances and governing international guidelines on robotics and evolving safety standards. International Safety Standards Keep Pace with Advances in Robotic Technology and Applications examines the major advances in robotics and robotic systems that the new safety standards will address for the first time and explains how these technologies will help industries better protect workers while helping increase plant efficiency and productivity. It also details the important role of integration technology in helping safeguard robotic systems and provides insight on future trends in robotic applications and associated safety issues.

To register to receive the white paper, visit: http://discover.rockwellautomation.com/Safetywp/robotics.
RSTechEd 2010 – A Game Plan for Success

With more than 30 unique technical sessions, hands-on labs and customer presentations, this year's RSTechED conference hosted by Rockwell Automation will provide attendees with a detailed look at how manufacturing intelligence is helping companies reduce costs and achieve plantwide optimisation. The annual event attracts a diverse group of attendees, including end users, system integrators, OEMs, distributors, industry analysts and media.

“Manufacturers are continuously challenged to increase production yields, drive down costs, improve quality and reduce raw material use, especially in today's economic climate,” said Steve Eisenbrown, Rockwell Automation senior vice president, Architecture and Software. “Manufacturing intelligence leverages powerful reporting and analysis tools, interfaces and dashboards to aggregate critical, real-time metrics and turn them into readily accessible information visible across the enterprise. This empowers individuals at all levels to make informed decisions that lead to increased operational efficiency, improved business agility, and more sustainable productivity.”

In this unique venue, you will learn how to leverage your automation investments and create the architecture for continuous optimisation, competitive differentiation and sustainable production. RSTechED gives you a full understanding of the latest manufacturing software and technology solutions.

What’s in It for You? Premium Education.

RSTechED is as an advanced education in manufacturing and production. Only RSTechED serves up a curriculum this broad, with specific sessions appealing to users and managers at all levels within an organisation. The event provides an interactive classroom-style environment set up for people working in manufacturing, process and OEM industries. Hear from subject matter experts as they share their experiences and discuss current and emerging technologies.

Save The Date
- September 14-16, 2010, at the Brisbane Convention & Exhibition Centre in Brisbane, Australia
- November 16-18, 2010, at the Novotel Auckland Ellerslie in Auckland, New Zealand

Continuous improvement accelerates performance. Only one event can help you develop strategies to grow your manufacturing and production businesses – RSTechED. For more information please contact Anne Ward e-mail: award@ra.rockwell.com.

Behind-the-scenes insight into engineered systems expertise

Industry was recently granted a rare opportunity to get a behind-the-scenes look at some of the projects currently in the manufacture and testing stages at the Rockwell Automation engineering, manufacture and test centre at Lane Cove, Sydney. The open day—hosted by the company's System and Solutions Business South Pacific—comprised a tour of the factory, supported by presentations from both end-users and in-house subject matter experts.

The focus of the day's activities concentrated on the company's engineered systems capabilities. Taking centre-stage was a solution provided to Victoria's largest energy producer, Loy Yang Power, which involved a 1MW variable speed conveyor drive being used to extend an existing coal haulage conveyor.

The 80 attendees were also able to view a number of current projects in their various manufacturing or testing phases on a tour through the factory. These included an in-progress project for Malaysia-based OEM Scomi, for which Rockwell Automation is supplying 68 IP65 packaged PowerFlex 700 liquid-cooled drives to run the monorail traction motors for the Mumbai Monorail.

Other projects on view were:
- A skip-hoist upgrade for OneSteel at its steelworks at Whyalla. This project entails upgrading the site's obsolete Automax hardware, and bringing the safety system up to current standards;
- A project for Indonesian aluminium foil mill, P T Starmas, comprising the upgrade of an obsolete analogue DC drive to a current digital DC drive, and the subsequent upgrades to the on-site drive control system;
- An upgrade to the men and materials drift winder at Westcliff Coal Mine NSW, where the existing ASEA drive control system is being replaced to meet the Department of Primary Industries guidelines for winder certification.

“Our guests were impressed with the varied nature of the solutions on show—all designed and manufactured under one roof—demonstrating the diversity of industrial applications that the System and Solutions Business is involved in,” said Rockwell Automation Solution Consultant for the Systems and Solutions Business, Peter Tomazic.
The Zenith Awards have been running since 2004 and reward companies that show leadership in engineering and technological excellence and innovation across eight industries. The awards program gives recognition to entire projects in these industries and are the only awards program specific to process, control and automation in Australia.

The 2010 Awards Presentation evening was held on 18th June in Melbourne and celebrated many remarkable and diverse achievements. Rockwell Automation, once again, has been pleased to be involved with the PACE Zenith Awards, sponsoring the Power & Energy Management and Transport, Power & Infrastructure categories. We congratulate all the finalists, winners and those who submitted nominations. These projects are testament to the high achievements being accomplished on a world leading scale and acknowledge our engineering and solution providers attaining global recognition.

The Winners and Highly Commended awards for each category were:

### Automotive & Manufacturing
- **Winner:** CPE Systems: Automated Testing of Smart SCADA Multipoint Radios
- **Highly Commended:** BJH Controls: Mixing Room Optimisation Project
  - Hilustre Coatings: Robotic Joinery Painting System

### Food & Beverage
- **Winner:** Sage Automation: Fire Recovery Project, Mildura Fruit Juices
- **Highly Commended:** Robotic Automation: Robotic Packing & Distribution centre, Cooranbong

### Metal Products Manufacturing
- **Winner:** AC Mobility: Atigra Mid-Wheel Drive Power Wheelchair
- **Highly Commended:** Sentient Computing & Torq Software: MVX 3D Visualisation

### Oil, Gas & Hydrocarbons
- **Winner:** Parasyn: ESG Narrabri Gas Field SCADA System
- **Highly Commended:** Vector Gas: Control Systems Upgrade

### Mining, Minerals & Exploration
- **Winner:** Sigma NSW: BHP Billiton Mitsubishi Alliance Gregory Mine CHPP Control System
  - CRCMinning: SmartCap Fatigue Management System
  - Rio Tinto Iron Ore: Further Fines Processing Plant Upgrade (FFPP)

### Transport, Power & Infrastructure
- **Winner:** Sage Automation: Port River Expressway
- **Highly Commended:** Aurecon Hatch: Abbot Point Coal Terminal – X25 Expansion
  - Patrick Stevedores and CrispTech: AutoStand Terminal Remote Control Operator Station

### Power & Energy Management
- **Winner:** Aurecon: Power Station Control System Upgrade
- **Highly Commended:** Yokogawa Australia and Eraring Energy: Power Station Turbine Control & Protection Systems

### Water & Wastewater
- **Winner:** UGL Infrastructure: Protecting the Barrier Reef – The Cairns Cleaner Seas Alliance Project
- **Highly Commended:** BlueWater JV and Endress+Hauser: Sydney Desalination Plant
  - UGL Infrastructure: North Head Sewage Treatment Plant

### Overall Project Winner
- Sigma, NSW
In today’s business environment, companies face a range of challenges. They must do more with less, yet maintain a competitive advantage – while simultaneously embracing new technology, evolving new products and reducing costs and time to market.

Automation solutions providers can help companies address these challenges. But not all automation solution providers are created equally. Some are simply interested in learning about a company’s needs and demands. They do not take that extra step—helping to determine that the solutions they offer will support a company’s strategic business goals.

What differentiates an effective automation solutions provider from the rest of the pack? And, what capabilities are important in selecting a solutions provider? We examine the factors in this article.

Overall Adaptability

In general, a successful automation provider offers a range of capabilities to design, manage and implement technical solutions across various industries. Chris Barber, Rockwell Automation® Global Solutions project manager based in Australia, explains that the provider may draw on in-house resources or collaborate with system integrators, contractors or other partners to put together a solution that best meets a customer’s overall requirements.

The provider will also have a broad technology platform including scalable automation controllers, general industrial control, motion control and drives products, a rich software suite and open network offerings. The provider’s technology must conform to industry standards and meet in-country regulatory requirements making it straight-forward to implement solutions into local or offshore plants, such as required for OEM businesses.

In addition, the provider should demonstrate expertise in program and project delivery underpinned by proven methodologies. The delivery capabilities should encompass the entire project life cycle, from consulting on project and planning solutions through design and implementation followed by commissioning and system handover.

“An effective automation provider,” says Barber, “applies the right team, technology and delivery methods to support a customer’s requirements. At Rockwell Automation, for example, we take onboard a customer’s issues, develop a solution and put a detailed proposal together. We agree on the terms and conditions of engagement and deliver in line with our project management and delivery methodology. That is our time-proven mechanism for successful projects.”

A Framework for Success

According to Barber, Rockwell Automation adheres to an integrated project management (iPM) methodology that provides clients with confidence in its ability to understand projects and execute them successfully. The common, global iPM methodology is integrated with Rockwell Automation business systems, programs and policies.

There are methodologies for proposals/estimating, project management and project delivery. Each includes phases of execution. For example, both the proposals/estimating and project management methodologies include phases for initiating, planning, executing, controlling and closing tasks. The project delivery methodology includes phases for designing, implementing and commissioning.

These methodologies are implemented by a project manager working closely with a project delivery team. Typically the team comprises one or more technical leads, designers, developers and other team members, the composition of which will vary as the project progresses from inception through implementation, testing, commissioning and close-out.

Whether the team members are in Australia, Hong Kong or Brazil, they have common tools and templates.
available at each stage. These include global tools to manage projects, estimation tools, databases, quality assurance documentation, reports and code libraries, among others.

From a high-level perspective, team members draw on best practices based on previous projects to tailor solutions. They may even apply solution experience from other industries. Having standardised design, engineering, documentation and support approaches for globally delivered projects promotes consistency and quality – as well as mitigates risks – to help deliver solutions on time and on budget.

**Leveraging Strengths**

Barber explains that as an automation solutions provider, Rockwell Automation draws on particular strengths. These include:

- **Resources.** The company delivers solutions globally while providing local application expertise. In addition to internal team members – such as project managers, automation engineers and information engineers – Rockwell Automation may engage system integrators and domain knowledge experts on behalf of clients.

- **Technology.** The Rockwell Automation Integrated Architecture™, based on the Logix control platform and the FactoryTalk® suite, provides multiple control disciplines in a scalable and information-enabled architecture. Integrated Architecture – along with a product platform including drives, motors, power and energy management equipment, safety systems, sensors and components, among others – helps companies to maximise their system performance, plant-wide information, life cycle optimisation and asset utilisation.

- **Domain Expertise.** Rockwell Automation offers a range of experience in a multitude of industries. In Asia Pacific, for example, the company is collaborating with customers in industries such as waste water, metals, mining, cement and power, among others. Such experience helps companies to increase productivity, lower manufacturing risk, speed time to market and reduce costs of quality and compliance.

- **Services.** Rockwell Automation offers services covering a project’s complete life cycle. Integrated project teams provide global design and support resources. And, local resources are available after project completion. In addition, standard service offerings include extended warranties, callout service contracts, training and TechConnect℠ (see page 16). Customised services such as parts management agreements, preventive maintenance, remote services, training vouchers and industrial networking services also are available.

One customer that can attest to the strengths that Rockwell Automation brings to providing automation solutions is Snowy Hydro Limited, owner and operator of the Snowy Mountains Hydroelectric Scheme in Australia. The company is undertaking a multimillion dollar, seven-year project to upgrade the controls and information systems at seven different power stations. It has established a Relationship Master Agreement with Rockwell Automation to tackle the control systems’ overhaul.

According to Barber, Rockwell Automation has drawn on its strengths in collaborating with Snowy Hydro. “From the project’s inception there has been a focus on problem solving, whether that be in performing value engineering analysis to determine best use of project budgets, through to resolving the many technical challenges arising in a complex brown-field upgrade environment. There is a high degree of openness and interaction that has established trust between the teams, contributing to a smooth implementation of the solutions.”

Darryl Eager, Snowy Hydro manager of Controls Technology, explains that Rockwell Automation went to great lengths to establish and maintain a close working relationship with Snowy. “The project engineering group really impressed our management with their professionalism, knowledge and understanding of our requirements.”

The right team, methodologies and tools, in conjunction with the depth and breadth of Rockwell Automation solutions, translate into a winning proposition for Snowy Hydro and other customers, according to Barber.

**Key Questions to Pose**

Companies that want to collaborate with an automation solutions provider will want to consider asking vendors the following questions – and weighing their responses carefully:

1. What is the automation company’s track record of project deliveries? Are there grounds for confidence based on past successes?
2. Can the company demonstrate robust methodologies applicable to the whole gamut of project activities?
3. Can the company assemble the right team – and domain experts – for the project?
4. Is the automation supplier’s approach to projects rigid and contractual or open and collaborative?
5. If there are unexpected problems on a project, what resources can the automation supplier bring to bear to help the company get out of a jam?
6. Can the automation supplier work with your team? Does it demonstrate understanding of your company culture?
7. What sort of local support does the automation supplier offer? For example, will it have to fly in an engineer to help solve a problem?
8. How much of what is being offered by the solutions provider is core to the company? If little is core to the company, what risks does this introduce?

In summary, Barber advises that many companies also consider an automation solutions provider’s demonstration of innovation: “As well as having the discipline of methodologies, along with resources, technology, domain expertise and services, automation solutions providers must have creativity and thought processes to deliver solutions that companies will want to embrace – and that will support their business goals.”

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**THE ASIA PACIFIC CONNECTION**

In Asia Pacific, the Rockwell Automation Global Solutions team includes more than 500 employees in more than 50 locations. They are part of a worldwide group of 2,500 collaborative professionals with critical domain expertise.

The Global Solutions Asia Pacific headquarters, which opened in January 2009, is based in Shanghai. In addition to Global Solutions, it houses sales, distribution, R&D, management, customer support and maintenance operations.
Natural gas is the most versatile of all the fossil fuels, although industrial, commercial and residential users alike tend to take its benefits and its supply infrastructure for granted. The transportation structure alone comprises a complex network of pipelines, valves and compressor stations, which require skilled management and maintenance to ensure end-users receive an adequate supply of natural gas at the correct pressure to meet their needs.

A major player in New Zealand’s high-pressure gas transmission industry is Vector Gas Limited. With a network over 2,500km in length, Vector Gas annually delivers 100PJ of gas to industrial, commercial and residential consumers across New Zealand’s North Island. Vector Gas also operates and maintains third-party-owned pipelines such as the Maui Pipeline. The 307km-long Maui Pipeline is the largest-capacity high-pressure gas transmission line in New Zealand, and this is pressurised by a single compressor station—the Mokau Compressor Station.

When the station controls required upgrading in the Mokau Compressor Station, Vector Gas turned to long-standing systems integrator partner, Engineering Control Limited (ECL). In keeping with Vector Gas’s decision to standardise control across its compressor stations, ECL founded the new system on the powerful Allen-Bradley ControlLogix platform from Rockwell Automation.

**Safety is everything**

The primary function of the Mokau Compressor Station is to receive gas from the south and ‘line-pack’ it to the north. Line-packing involves pressurising the gas to allow a greater quantity to be ‘packed-in’ to the pipe, effectively utilising the pipeline itself as a large pressurised gas reservoir.

The Mokau Station comprises two centrifugal compressor-sets, each powered by a gas turbine engine. “The compressors are designed to increase the gas pressure—in excess of 50bar, if required,” says Vector Gas Instrument and Electrical Engineer, Alan Taylor. “This enables it to flow north by pressure differential alone, without need for additional pumping stations.”

The station has five operating modes—Run; Ready; Inhibit; Emergency Shut Down (ESD) and Backflow, and is designed to operate in Run mode for extended periods. ESD mode is activated in the event of an emergency, to put the station into a safe condition—stopping the compressors, depressurising the station pipework through emergency venting, and allowing the gas in the Maui...
Pipeline to bypass the station.

Three controllers are needed to operate the station—one each for the gas turbines, and one known as the ‘station controller’. The station controller supervises the entire station, communicating with the gas turbine controllers, safely administering the valves of the compressor station, and managing the operating modes. In the event of an incident, the station controller initiates ESD mode in order to mitigate damage to the Mokau Station and the Maui Pipeline.

Having previously upgraded the gas turbine controllers to Allen-Bradley ControlLogix, Vector Gas followed suit with the station controller. “Replacing the station controller with a ControlLogix programmable automation controller (PAC) made sense to enhance the automation control functionality and to improve the communications between controllers,” says Taylor. “We have extremely good support for Rockwell Automation solutions, so this was another driver for upgrading the station controller to ControlLogix.”

Enhanced functionality

The primary brief given to ECL from Vector Gas was to replicate the base functionality of the legacy station controller. “The main problem with the legacy station controller was that it had reached the end of its design life,” explains ECL senior control systems engineer, Peter Huitema. “It was tough to get spares, and licensing issues made it difficult to get on-line to diagnose problems.”

In addition to replacing the station controller, the project also entailed upgrades to the onsite Motor Control Centre. This incorporated the replacement of the legacy drives for the gas and oil coolers with six Allen-Bradley PowerFlex 40 variable speed drives. These VSDs increase operational efficiencies through greater refinement of motor speed, and by improving the ability to achieve optimal temperature settings for both the compressor oil and the natural gas under compression.

Allen-Bradley E3 Plus overload relays replaced the legacy overload relays fitted to the turbine enclosure fans. These feature advanced protective and control capabilities, and facilitate the transmission of increased operational status information back to the controller.

“The upgrades have provided several additional capabilities over the legacy system,” says Taylor. “The station controller communicates with the gas turbine controllers via ControlNet, and with the VSDs and overload relays over DeviceNet. This unprecedented level of communication enhances both diagnostics capabilities and trend monitoring.”

The implementation of an advanced HMI was key for improving the diagnostics capabilities of the system. “We used FactoryTalk View 5.0 with faceplate-driven control to develop a DCS-type feel,” Huitema explains. “This improves the operator interface and enables personnel relatively unfamiliar with the system to access information far more easily—an important consideration for a station with no full-time staff.”

A safe future

The project also enabled Vector Gas to increase the safety integrity level (SIL) of the control system to SIL2. A SIL study had found there was a potential for SIL2 events on site, and these needed to be properly addressed to mitigate the risk to site personnel and the station itself.

“The adoption of ControlLogix across the board simplified the implementation of SIL2 for the station controls,” says Huitema. “We used RSLogix 5000 version 16 with function block code for configuring the new ControlLogix station controller and this proved to be a straightforward process. We now have the perfect foundation to bring the whole station to a SIL2 rating in the future.”

The project was completed on time with no operational impact, and has significantly improved the smooth running of the Mokau Compressor Station. “The Integrated Architecture solution from Rockwell Automation has enhanced our levels of communications,” says Taylor. “When a fault occurs now, it is far easier to remotely interrogate the system to pinpoint the cause of the problem. The success of the Mokau Compressor Station project means we are now using this Rockwell Automation solution as a template for future upgrades to numerous other compressor stations across the North Island.”
Use Energy as a Resource to Be Managed

Forward-thinking manufacturers treat energy as an input to production, tracking precisely where and how it is used.

Manufacturers around the world have put forth commendable efforts to reduce their energy consumption. Despite their efforts, the world’s consumption of fossil fuels continues to grow, and recent reports indicate that world manufacturing energy consumption is projected to increase by 44 percent from 2006 to 2030.

Energy has become one of the most elusive and hard-to-manage costs in manufacturing, with high levels of cost variability and supply volatility. In fact, manufacturers today face the very real possibility that water, gas, fuel oil or electricity may simply not be available when they need them.

The prospects of energy uncertainty can wreak havoc on a company’s operations, ability to deliver and, ultimately, their bottom line. That is why it is critical for manufacturers to better understand and manage energy consumption across the company, so that they can better defend themselves against these threats.

Unfortunately, some manufacturers have a one-dimensional view that industrial energy consumption is an unavoidable, fixed cost of doing business. Progressive manufacturers, on the other hand, are actively searching for answers to managing energy, viewing it from the perspective of a three-dimensional challenge: less, cheaper and optimal.

The first dimension centers on manufacturing using less energy through scheduling production intelligently and taking advantage of more efficient equipment or design improvements. The second dimension focuses on using more cost-effective energy by managing where, how and when energy is used in order to harness it when it is least expensive, such as during off-peak times. The third dimension involves manufacturing optimising energy use so as to achieve production goals in the least expensive, most profitable ways while balancing the many variables inherent in operations.

By addressing these challenges, manufacturers can make the transformation from passive energy users to strategic managers of their energy resources. Such an “inside-out” approach enables manufacturers to use their existing automation and power control investments to begin saving energy more effectively.

A “Greenprint” for Energy Optimisation

Rockwell Automation® authors Phil Kaufman, business manager, Power & Energy Management, and Marcia Walker, market development manager, Sustainable Production, identify several steps manufacturers can take to help optimise their energy use in the white paper titled Industrial Energy Optimization: Managing Energy Consumption for Higher Profitability. They describe a methodology for energy management comprised of seven pillars of capability – facility monitoring, production monitoring, capturing energy on the production bills of material (BOMs), modeling, controlling, responding and “scorecarding.”

A manufacturer can begin to build its energy foundation with any of the pillars, either independently or simultaneously, and the pillars do not have to be addressed sequentially. As with any structure, it becomes increasingly stable with additional pillars of support that are incorporated into the overall energy management program.

Before embarking on the road to energy optimisation, Kaufman and Walker recommend establishing an ongoing program of audits and assessments to provide a strong foundation to each of the individual pillars. Energy assessments and audits can help companies identify a range of changes that they can make to help reduce energy consumption.

Such assessments can help to establish the scope of an energy-savings effort, define key metrics and put resources in place who can take a holistic view of energy for the organisation. Evaluation and prioritisation of capital improvement opportunities can also be included in the analyses.

Understanding Your Facility and Equipment

Before a manufacturer can begin to manage its energy consumption, it first has to gain visibility into facility energy usage and quality patterns. At the facility monitoring level, building management personnel monitor the facility’s metering infrastructure to collect data about all the energy resources – water, air, gas, electricity and steam – in relation to equipment usage and environmental conditions. This data is logged and time-stamped in an energy historian program to establish trends or discrepancies in energy quality and consumption as
well as to establish benchmarks for future improvement.

With a picture of a facility's overall energy use, management can make operational changes to help reduce energy consumption and costs, such as shedding loads or lowering power levels for a few minutes when the facility is approaching peak use. Management also can identify power quality issues such as voltage sags or harmonics that can cause damage to equipment inside the plant and cause power factor problems on the energy grid.

Within the pillar of production monitoring, manufacturers extend data collection and analysis practices down to the plant floor, where plant managers can collect information about energy consumption and its relation to the machines, lines and production units involved in the process. Many companies already are collecting data that is useful for energy management in their control and information systems, often for regulatory reasons. However, most do not leverage this data for energy management purposes.

Kaufman and Walker explain that once a system is in place that extracts energy information from the plant floor, companies gain the capability to separate plant floor consumption data from facility consumption data. The information can be viewed in a reporting dashboard where a plant manager can pinpoint variable energy costs on the plant floor and begin to consider ways to improve profitability. Manufacturers also can influence machine design practices to improve energy management, such as specifying motors in different power ranges or attaching monitoring devices to assist with data collection.

**Capturing Energy Use**

Once manufacturing energy consumption data is stored and analysed in the information system, plant managers can begin to see clear trends in how energy has been used among various historical events such as specific product cycles or batches. They can also begin to project in advance how much energy will be required for similar loads or batches. In doing so, they move to a new pillar of the energy management architecture in which energy requirements are included in resource planning and scheduling decisions in the same way that the availability of raw materials or other inputs are considered an element on the production BOMs.

Empirically tying energy consumption requirement to the production BOMs enables a plant manager to make proactive production decisions and better manage energy investments in a way that can generate a greater return.

At this stage, energy no longer is regarded as a set allocation that is simply part of unavoidable overhead. Manufacturers that add energy to the production BOMs can actively manage it as an input to achieve higher profitability.

**Modeling and Controlling**

According to Kaufman and Walker, the pillar of modeling is the step in which production scheduling managers can leverage production simulation software tools to input variables – such as peak and off-peak energy costs, raw material costs, labor and projected emissions – and pre-test “what-if” scenarios to see how production outputs and costs will change as a result of modifications.

Within this pillar, manufacturers can optimise production assets and forecast the most economical way to manufacture their products, using energy as one of the variables. They can also forecast the full sequence of production scheduling to optimise overall production.

In the fifth pillar, controlling, companies drive all data sets into a single automation solution that can identify, model, visualise and present control options, or automatically control production changes. The modeling capability would automatically implement decisions without unnecessary management intervention.

Manufacturers gain a better understanding of how the source of energy can affect production. With the advanced control and optimisation capabilities, companies can tie information about the cost of energy resources and the quantity needed for production and make better decisions about which resources to consume.

**Responding and Scorecarding**

Within the responding pillar of the architecture, companies are able to make external market and regulatory influences part of their energy management strategy. With a strong understanding of the energy consumption within their own plants, manufacturers can establish effective programs to achieve plant-wide energy optimisation.

What’s more, companies also can begin to focus on how to make intelligent economic decisions based on altering energy consumption in response to market fluctuation and regulatory demands. For example, the open market for electricity on the grid may require manufacturers to commit to certain blocks of time of energy use. By modeling production and correlating it to energy consumption needs, manufacturers can predict whether or not they will reach production targets using less energy than the permit allows. If so, the company can contact other plants on the industrial complex and sell remaining time blocks or kilowatt hours.

The final pillar, scorecarding, relates to manufacturers’ readiness to comply with requests from governments, power retailers and even consumers to share sustainability scorecards, such as carbon or energy labels, on products. With the ongoing convergence of information from multiple sources, companies also recognise that it may be possible to better optimise their full supply chain to enhance their sustainability and energy programs.

This is a time of unprecedented complexity for manufacturing, which must manage production operations while balancing supply, pricing, retailer requirements, consumer demands, operational efficiencies, corporate image, compliance with regulations and other demands. Kaufman and Walker point out that the automation, control and information solutions necessary to conquer the energy challenges exist today and can be applied to achieve measurable results.

**Energy has become one of the most elusive and hard-to-manage costs in manufacturing, with high levels of cost variability and supply volatility.**

Australia and New Zealand to heed safety standard deadline

The European Commission has extended the deadline for the transition from standard EN 954-1 to standards EN ISO 13849-1 and EN/IEC 62061. Rockwell Automation Area Manager – Safety, Gary Milburn, explores the implications to the Australian and New Zealand industrial communities.

In recent times, the functionality of industrial machinery has advanced considerably. Industrial processes are being continually enhanced with more sophisticated PLC-based technologies capable of driving throughputs and product quality to levels never thought to be possible. As a result, the functional safety standards that govern the manufacture and safety-rating of such machinery and their components are evolving to accommodate the latest technological advancements. Machine builders and component manufacturers must be vigilant, and remain up to speed with changes to performance requirements, and the standards that specify them.

For Australian and New Zealand companies—especially those with export activities—of particular interest, is the impending transition from EN 954-1: 1996 'Safety of Machinery, Safety related parts of control systems', to the newer EN/ISO 13849-1: 2008 'Safety of Machinery – Safety related parts of control systems', and EN/IEC 62061: 2008 ‘Safety of machinery – Functional safety of electrical, electronic and programmable electric control systems’. Recently, the European Commission extended the three-year transition period to five years, revising the deadline to conform to EN/ISO 13849-1 to 31 December 2011.

With the complete withdrawal of EN 954-1 now inevitable, its continued use alone is destined to become problematic in Europe and closer to home. The soon-to-be-superseded standard is not suitable for some of the more advanced technologies commonly used in modern machine-control applications and safety products. In fact, the impact of the impending switchover is now being felt, with many machine-specific (C type) standards already calling for compliance with EN/ISO 13849-1 and EN/IEC 62061, with no reference to EN 954-1. Importantly, this transition has implications reaching farther than in Europe alone—Australian and New Zealand machine builders and component manufacturers must also prepare.

Setting the standard

In order to plan a logical course through the transition to these new standards, it is important to realise that the change affects two fundamentally different user types: the designer of safety-related subsystems, such as controller and component manufacturers; and the designers of safety related systems, such as machine builders. Soon—if not already—working to EN 954-1 will be considered unacceptable by both groups.

In contrast to EN 954-1, EN/ISO 13849-1 and EN/IEC 62061 have been structured to accommodate the design of more sophisticated safety control system applications. In fact, EN/ISO 13849-1 is fated to become the most commonly used standard for all machine safety control systems, including complete systems, subsystems or individual components.
Both EN/ISO 13849-1 and EN/IEC 62061 incorporate a ‘probability of failure’ assessment calculation—a feature lacking in EN 954-1. Here, a performance level (PL) is assigned once a range of requirements are satisfied. These include: reliability data for all system components; Diagnostic Coverage (DC) of the system; software requirements; and protection against common-cause failure and systematic faults. It’s important to note that the Category rating system will be retained.

The new standards require control system designers to calculate the performance level of their safety circuits so that the safety rated control systems provide adequate integrity. Product-specific functional data from component suppliers may then be used in conjunction with tools such as the SISTEMA Performance Level calculation tool from IFA (formerly BGIA) (Institute for Occupational Safety and Health of the German Social Accident Insurance) to confirm that the PL rating has been achieved. For Australian and New Zealand machine builders and component providers, the early adoption of these newer functional safety standards is likely to yield long-term benefits.

Attention exporters

Even though compliance with EN 954-1 is technically acceptable until the end of 2011, overseas purchasers of New Zealand- and Australia-made machinery are more likely to demand compliance with EN/ISO 13849-1 in order to future-proof their investments. If local machine builders and component manufacturers haven’t already implemented internal systems to comply with EN/ISO 13849-1, or begun this process, then international purchase orders may be lost.

Interestingly, ISO 13849-1 was published in 2006, which means machine builders and component manufacturers have already had four years to bring their systems up to speed. The recent time-extension to comply with the new standards indicates that a significant number of industrial businesses and machine type C standards were not yet in a position to comply by the original 31 December 2009 deadline.

Anecdotal evidence has suggested that complying with the new standard comprised more work on its initial implementation than first anticipated—especially for small- and medium-sized machine builders with limited resources. Here, machine builders are potentially required to change their processes and designs to satisfy the new requirements. As a result, it would be prudent of New Zealand- and Australia-based businesses to learn from the oversight of some of their European colleagues and begin the process of complying with EN/ISO 13849-1 sooner rather than later.

Global opportunities

There is real potential for the requirements outlined in standard EN/ISO 13849-1 to become those specified in the Australian and New Zealand marketplace. Furthermore, with electro-mechanical and electronic control systems converging at a rapid rate, and the adoption of a quantifiable methodology, it makes sense for such a global harmonisation of functional safety standards to take place.

However, in the ever-changing field of functional safety standards, many businesses don’t have the resources to keep abreast of new requirements, let alone execute them in a systematic way. While the adoption of EN/ISO 13849-1 and EN/IEC 62061 will throw up some challenges, it will also present a number of opportunities for enterprising Australian New Zealand companies.

As it becomes more difficult and time-consuming for end-users to comply, it is likely that they will look to outside contractors and experts. This presents a business opportunity for system integrators in particular. By skill-up and positioning themselves as experts in EN/ISO 13849-1 and EN/IEC 62061, system integrators can relieve the work load from machine builders and end-users.

Additionally, enterprising solution providers will develop tools to enable Australian and New Zealand machine builders to comply with these newer standards as soon as possible. Early adopters will not only move ahead of the competition and gain a competitive advantage, but also help better protect workers and machinery.

ROCKWELL AUTOMATION
STREAMLINES SAFETY CALCUATIONS

Rockwell Automation has created a library of its safety products and their associated functional safety data. Users can simply drag the product model number into the SISTEMA Performance Level calculation tool and verify PL ratings automatically—a real time- and labour-saving innovation. Additionally, documentation produced by this calculation tool proves proof of due diligence of the safety rated control system design.

To access this library of functional safety data, as well as other safety standard information and tools visit Rockwell Automation Safety Solutions Portal at:

http://discover.rockwellautomation.com/EN_Safety_Solutions.aspx
Rockwell Automation busy with upgrades

With more and more sophisticated systems in use, newspaper press controls, computers and software now frequently become obsolete well before the press hardware reaches its ‘use-by’ date.

Often older presses still print as well (or even better) than newer equivalents but lack the control automation and safety features needed in today’s competitive workplace. An upgrade might provide a new configuration, the benefits of ‘shaftless’ drives... or simply upgrade PCs from an out-of-date operating system.

“The Rockwell Automation Systems and Solutions business has been involved with a number of such projects from its local South Pacific base, and has extensive experience in press control and drive systems,” says solutions consultant Peter Tomazic. “Very often we would have supplied the original control equipment when a press was installed, perhaps 25 years ago.”

That’s the case in two recent projects for News Limited at its Australian print sites in Adelaide and Melbourne, where Rockwell Automation/Reliance Automation drive controls were specified as part of the installation of the18 manroland Newsman presses installed through the 1990s. Recently, extra printing couples from Sydney have been relocated to the three Adelaide presses, adding additional colour capacity. Rockwell Automation undertook all the software and electrical hardware changes required to interface the new units to the existing press controls, and upgrade the press control desk. Similar requirements applied in Melbourne, where an additional printing unit was added to one of the Newsman presses.

Another big press installation of similar vintage to be upgraded by Rockwell Automation is at APN Print Ellerslie, printers of the ‘New Zealand Herald’ and various other publications in Auckland. Rockwell Automation (UK) supplied the original press control and drive systems for the Goss HT presses which were commissioned in 1994. Now the newspaper – part of the APN News & Media group – is to benefit from an upgrade which modernises the system and addresses component obsolescence.

“With daily deadlines to be met, we will be undertaking the upgrade on a staged basis to ensure the presses are available to meet day-today production requirements,” says Peter Tomazic. Rockwell Automation has followed a complex upgrade project at Victoria’s Shepparton Newspapers – where twin systems now provide control capacity for an eight-tower, three-folder Goss Community press – with a recent project for Fairfax Media in Tamworth, NSW. Here a six-tower, two-folder Community configuration was assembled from plant relocated from Wagga Wagga and elsewhere. Four drive motors and their controls are networked and controlled from two desks, all of which are overlaid by a PLC-based GuardLogix safety system.

With a number of other improvements on the press, the outcome is a flexible installation which meets best-of-class standards for productivity, usability and safety. Motorised sidelay and circumferential register are controlled from the new consoles. On the mechanical front, Fairfax replaced bushes and bearings, scored ink film rollers, rebuilt folders and matched a sixth tower to the rest with new plate and blanket cylinders “To all intents and purposes it’s like a new machine,” says Anthony Payne, who adds that the cost of the project was “significantly less” than installing a new press.

Tomazic says that on both the Tamworth and Shepparton lines, numerous combinations of folder and units can be achieved with press clutch selection. “But it’s extremely important from a safety aspect that ‘unit safe’ stops work when they are meant to, and that the system is engineered to ensure that the failure of a device does not compromise an operator’s safety,” he says.

Elsewhere in the Asia-Pacific region, Rockwell Automation has just brought the control systems of a recently-acquired manroland Uniman press up-to-date at Thailand’s Rung Silp Printing. New press controls, folder and colour desks, new DC drives and a host PC for ink-key presetting have been installed at the privately-owned Bangkok contract printer, and are currently being commissioned.

All of these projects deliver value by extending the useful life of newspaper press equipment and introducing the latest control and safety systems. They are testament of the local Rockwell Automation team’s understanding and ability to deliver the best possible outcomes.

For further information please contact Peter Tomazic e-mail ptomazic@ra.rockwell.com.

Acknowledgement and thanks to GXPress Newsleaders for allowing Rockwell Automation to reprint this article.
Some things fit... just naturally

Rockwell Automation is a world leader in automation control. We provide the technologies that automate the production and delivery of solutions, products and services you use every day. Whatever your automation requirements, you can be assured that our solutions will focus on your success.


www.RockwellAutomation.co.nz
TechConnect Helps to Keep Automation Systems Up and Running

Get answers to your technical questions quickly via the Web and phone.

Manufacturers and machine builders understand that time to market is a critical factor in gaining a competitive edge in the global economy. Ensuring that their operations remain up and running enables them to meet time to market demands as well as other key project, production and business goals.

Given the sophisticated nature of manufacturing equipment and systems, forward-thinking companies also know that it is important to have access to prompt and comprehensive support for all of their components. That is why they have chosen to subscribe to the Rockwell Automation TechConnect℠ Support programme, which provides a range of real-time electronic and phone support to meet business needs.

**Staying in Touch**

TechConnect Support offers tools and solutions to help manufacturers with installing, configuring and maintaining equipment and software; obtaining software updates; diagnosing and fixing operator problems; or performing basic programming tasks. The newest of these tools include Live Chat, Ask a Question and the Rockwell Automation Support Forum.

Live Chat offers technical assistance in real time without having to pick up the phone. Via the Rockwell Automation Knowledgebase—an online database of technical notes covering Rockwell Automation products, software and services—Live Chat enables engineers to connect and chat online with Rockwell Automation support engineers for troubleshooting and issue resolution.

Live Chat provides complete logs of support conversations, stored in the Knowledgebase, available for review or printing at any time. Live Chat also enables support on the plant floor when it is loud or difficult to get to a phone. In addition, it enables time to perform multiple tasks at once.

With a TechConnect Support Authorisation Number in a Knowledgebase profile, the Live Chat tab appears at the top of users’ computer screens. Users click on this tab to initiate a real-time support session with a Rockwell Automation technical support engineer.

In Asia Pacific, support engineers are available to chat in the English, Chinese, Hindi, Indonesian, Japanese, Korean, Malay, Tamil, Thai and Vietnamese languages. Support is available for hardware, software, drives/motion and ICM/Entek systems between 8:00 a.m. and 5:00 p.m. local time Monday through Friday. A Knowledgebase account is required to log in.

Ask A Question is another new electronic support option available to TechConnect customers. It links them to a Rockwell Automation network of more than 350 automation specialists, who can field their queries.

In addition, TechConnect Support Agreement holders have access to the Rockwell Automation Support Forum. This peer-to-peer community enables customers to discuss products, ask for help and help others.

The Asia Pacific Technical Support Center (TSC) is part of a network of several Rockwell Automation global facilities delivering the tools and answers to keep customers’ operations up and running. With locations in Melbourne, Australia, and Shanghai, China, the TSC is based on a follow-the-sun service model: Global customers need only dial one number, and their call is routed to centres in Asia, Europe or North America, depending upon the time of the day. A common database enables engineers around the world to work on cases.

The Shanghai TSC began operations in January 2010. It provides telephone, Live Chat and Ask a Question support in Chinese and English and is staffed with experienced engineers from Rockwell Automation China and the United States.

Cathy Langlois, service director of Rockwell Automation, Asia Pacific, says, “I am confident that with Shanghai TSC’s opening, Rockwell Automation can help meet the requirements of Chinese customers in a more comprehensive way to enhance our service capabilities with consolidated resources of technical support for the business development of Chinese customers.”
Rockwell Automation offers a range of service levels in its global TechConnect Support programme. Review the PriorityConnect, DirectConnect and eConnect options, and select the one that best meets your business needs.

**Scalable Service**
Companies have different support needs depending on the number of shifts they run, the staffing on those shifts and the type of manufacturing process. TechConnect Support offers three levels of service:

- **PriorityConnect** – Under this highest level of support, customer calls are routed to a select group of engineers experienced in supporting Rockwell Automation systems. The group — experts in discrete automation systems and process automation systems — will own a case from the initial call to the final resolution of an issue.

- **DirectConnect** – DirectConnect support is designed for companies that need to supplement internal technical resources with real-time phone support (unlimited number of calls) from product specialists at Rockwell Automation.

- **eConnect** – The eConnect solution provides online resources for manufacturers that have noncritical support issues, few planned process improvements or significant internal troubleshooting capabilities across all shifts. It includes unlimited online access to Rockwell Automation support specialists and software updates downloadable via the Web.

**Making a Difference**
TechConnect Support offers manufacturers numerous advantages. First, it is simple to manage, with a single agreement that carries one expiration date for easy renewal. A universal authorisation number helps eliminate the need to manage individual contract numbers to access support at each plant. Complete coverage for all sites and software is provided. What’s more, product coverage is based on eight product families, not thousands of individual products.

Second, TechConnect Support helps promote efficiency. It does so by helping to decrease time to market through faster integration of new equipment. It also helps to meet design, delivery, installation, start-up and other project requirements by leveraging Rockwell Automation technical resources throughout the project cycle.

Finally, TechConnect offers peace of mind. Manufacturers reduce their risk of wasting unnecessary time on debugging automation systems. The time can be used more effectively in pursuing business objectives.

<table>
<thead>
<tr>
<th>TechConnect Features</th>
<th>PriorityConnect</th>
<th>DirectConnect</th>
<th>eConnect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority Case Management by Senior Support Staff</td>
<td>Yes</td>
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<tr>
<td>Proactive Case Resolution Follow-up</td>
<td>Yes</td>
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<tr>
<td>Interactive Case Management Web Site</td>
<td>Yes</td>
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<tr>
<td>Unlimited Real-time Phone Support 8–5, M–F</td>
<td>Unlimited Cases; Routed to Systems Support Specialists</td>
<td>Unlimited Cases; Routed to First Available Support Specialists</td>
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<td>Live Chat</td>
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<td>Software Media Shipments</td>
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<td>---</td>
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Kumho Tyres, one of the nine largest corporations in South Korea, has established a plant in the high-tech development zone of Nanjing, China. The Nanjing plant is the fourth Kumho Tyres facility in China and has an annual production capacity of 300,000 truck/bus radial tyres.

Company management has set high standards and requirements to contain overall plant operating costs. One of the areas on which management has focused is maintenance. To ensure the continuity and stability of the production process, Kumho scientifically manages the types and quantities of spare parts – and has achieved an optimised balance between parts inventory and costs.

In July and August 2007, the Rockwell Automation ® Services & Support team performed an installed base evaluation onsite at the Kumho plant. The team created a record of the entire parts list and quantities on hand. After further compilation and statistical analysis of the data, the team provided the company with a complete report on part conditions.

The Rockwell Automation team recommended that Kumho enter into agreements for Parts Management and Extended Warranty.

The Parts Management Agreement is a vendor-managed inventory program. Under this agreement, companies have access to the Rockwell Automation spare parts they need while Rockwell Automation owns and manages their spare parts inventories.

A Parts Management Agreement can help manufacturers realise several benefits. The first is asset control. Plants can avoid unnecessary build-up of parts inventory over time. When the Parts Management Agreement ends, the inventory can be removed or modified to meet current needs.

Improved cash management is another benefit. Under this agreement, companies can eliminate large capital outlays of purchasing spare inventory. This frees up cash for other areas of spending. In addition, agreement costs can be deferred over three- or five-year terms. Also, companies can minimise inventory-carrying expenses.

Other benefits include increasing uptime and maximising production. Uptime improves because critical parts inventory can be maintained onsite at each facility for immediate availability during emergency breakdown situations. As material is consumed, it can be replenished quickly upon reorder.

An Extended Parts Warranty agreement provides targeted coverage of repairable Rockwell Automation electrical equipment. The parts-only warranty extends the standard, one-year Rockwell Automation equipment warranty on an annual basis for up to an additional four years.

This service can be ordered anytime within the original warranty of the new and/or remanufactured product. Extended Parts Warranty is backed by the Rockwell Automation remanufacturing and exchange services. It can be purchased as a stand-alone offering or bundled with other offerings from Rockwell Automation.

An extended warranty can become an integral part of a company’s maintenance strategy, providing valuable protection and peace of mind. It can also drive down unplanned repair and MRO expenses, as well as reduce the duration of unscheduled downtime events.

After careful consideration, Kumho Tyres signed a Parts Management Agreement and Extended Warranty contract in 2008 for a period of five years. As part of the agreement, Rockwell Automation has established and is managing a self-owned spare parts warehouse within the Kumho Nanjing plant.

Over time, Kumho Tyres has come to understand the benefits of these agreements, especially with regard to controlling cash flow and maintenance costs. In fact, Kumho headquarters is considering adopting the services in their other Chinese plants.
Integrated Architecture on EtherNet/IP

Rockwell Automation® offers an array of systems, solutions and services that help companies meet the critical need of integrating their factories. These offerings bridge islands of automation and carry information throughout plants, helping users make better decisions and, ultimately, increase profitability.

Over the past few months, Rockwell Automation announced a portfolio of products and enhancements that further helps customers leverage a network infrastructure based on standard, unmodified EtherNet/IP technology. The portfolio’s products and enhancements – many of which are part of the Integrated Architecture™ solution – extend the benefits of Integrated Motion into applications using servo and variable frequency AC drives on EtherNet/IP. Rockwell Automation Integrated Motion on EtherNet/IP uses Common Industrial Protocol (CIP) Motion and CIP Synchronisation protocols from the Open Device Vendors Association. Read below to learn how these Integrated Architecture and other Rockwell Automation products can help address challenges associated with productivity, innovation, globalisation and sustainability.

Improve Performance with New Allen-Bradley ControlLogix PACs

The Allen–Bradley® ControlLogix® 1756–L73 and 1756–L75 Programmable Automation Controllers (PACs) use the same programming software, network protocol and information capabilities as ControlLogix L6x controllers, providing companies with a common control engine and development environment for multiple control disciplines.

In process applications, the controllers improve the amount of information that can be exchanged between the control and supervisory layers, offering improvement in the performance of redundant control applications. The 1756–L73 and 1756–L75 also provide high-speed motion command and axis trajectory planner execution; they’ve been optimised for control of high-performance motion drives on EtherNet/IP or SERCOS interfaces and are capable of supporting as many as 100 axes. In discrete applications, the PACs improve controller scan times using a faster, dual–core, custom CPU.

Specifically, the new PACs provide the following performance enhancements over the L6x controllers:

- 2.2X average ladder logic scan time improvement
- 2X average improved communications performance
- Faster backplane communications
- Reduced scan time impact in redundant applications

For more information, visit:
www.ab.com/programmablecontrol/pac/controllogix/index.html

Rockwell Software RSLogix 5000 Version 18 Adds 30+ Capabilities

With new features such as integrated motion on EtherNet/IP and high–integrity Add–On instructions (AOIs), the RSLogix™ 5000 Version 18 software can give manufacturers a higher level of design flexibility and help machine builders save engineering time. Highlights of the capabilities include:

- Rockwell Automation Integrated Motion on EtherNet/IP.
- High–Integrity Add-On Instructions. Now included for standard and safety controllers to help maintain consistency and instruction–definition revision control, fulfill regulatory requirements and protect intellectual property.
- EtherNet/IP Unicast I/O. Reduces inefficiencies in networking and IT requirements by allowing one-to-one transmission of EtherNet/IP I/O data. Tag communications produced and consumed by EtherNet/IP can now span multiple subnets.
- Improved Data Access Control Capabilities. Protects against inadvertent data changes and speeds HMI creation by reducing the number of tags visible while browsing the controller from the HMI development environment.

For more information, visit:

Reduce the Risk of Machine Downtime

Rockwell Automation® FactoryTalk® Historian Machine Edition (ME) is an embedded, solid-state module hardened for on–machine data collection. It features a limited software footprint, no moving parts and reduced risk of data loss due to network or other system interruption.

The software leverages real–time production data to improve product quality, speed time to market and support regulatory compliance. It allows employees in different locations and at different operational levels to view and analyse role–appropriate historical data. FactoryTalk Historian ME, with its stand–alone design, can capture data remotely in challenging environments such as drilling rigs, wells and other previously inaccessible locations.

It also allows machine builders to pre–qualify the data collection of their machines to speed up on–site installation, configuration and validation efforts. Data capture produces historical information that helps provide effective sequence of events analysis.

For more information, visit:
http://discover.rockwellautomation.com/historian
FactoryTalk VantagePoint EMI Helps Users Make Informed Business Decisions

FactoryTalk® VantagePoint EMI business intelligence software helps manufacturers better monitor and manage productivity in real time and make more insightful decisions about business priorities such as product quality, equipment utilization and global supply chain management. The software connects to multiple data sources — real-time, historical, relational and transactional — to create a single resource that can access, aggregate and correlate information via a Web browser.

The new application is based on a unified production model (UPM) that provides a unified view of seemingly disparate manufacturing data and gives a context for relationships among equipment, products, materials and people. It can be used to address a single or multiple manufacturing problems on a manufacturing line or across a global enterprise. The software addresses specific needs, like downtime reporting, status tracking or multiple control—system reporting.

FactoryTalk VantagePoint EMI allows users to report data through a variety of tools including Microsoft Excel, Trend and SAP Business Objects Dashboard Builder. Data can be viewed through FactoryTalk VantagePoint, Microsoft SharePoint portals or other portals.

For more information, visit:
www.rockwellautomation.com/rockwellsoftware/performance/vantagepoint

The Allen-Bradley Stratix 8300 Switch for Designing Segmented Networks

The Allen—Bradley® Stratix 8300™ Layer 3 managed switch extends the Stratix 8000™ industrial switch family to provide virtual local—area network (VLAN) and subnet routing capabilities, reducing the need to run long cables back to an enterprise switch.

As a full—featured Layer 3 switch, the new Stratix 8300 offers static, dynamic, multicast and policy—based routing. This allows for maximum flexibility in providing secure segmented architectures for industrial Ethernet applications.

Segmenting a network provides ease of maintenance as large, flat networks are difficult to manage and troubleshoot. It also simplifies security management by segregating different traffic types. In addition, it improves performance, distributing traffic loading for efficient bandwidth utilization.

Both the Stratix 8300 and Stratix 8000 switches use the Cisco Catalyst operating system, feature set and user interface, providing seamless integration to the enterprise network — and making IT professionals feel at home. Simultaneously, the switches provide comprehensive diagnostic information from within the Rockwell Automation Integrated Architecture™ system.

For more information, visit:
www.ab.com/networks/switches

Servo Drive Combines Integrated Motion and EtherNet/IP

The new Kinetix® 6500 servo drive is a high—performance, modular servo drive with embedded EtherNet/IP. When used with the ControlLogix® PAC, the Kinetix 6500 servo drive provides an integrated drive solution on EtherNet/IP.

With the addition of the Kinetix 6500 drive, EtherNet/IP can integrate high—performance drive control, I/O, smart actuators and any other EtherNet/IP—connected device, helping to lower system cost — and improve system performance and ease of use. Linear and Device Level Ring (DLR) topologies are fully supported with the embedded switch technology.

The Kinetix 6500 supports Motion over EtherNet/IP, eliminating the need for separate networks for device—level, motion control and message control. It provides data availability, troubleshooting capability, fault—time stamping and data logging.

In addition, the servo drive protects personnel with safety options embedded into the drive. For example, Safe Speed Control technology can help maximize physical protection by providing safe access to guarded areas while a machine or process is allowed to continue operating under limited conditions. The safety features will help get a line up in production faster than a full restart, reducing wear on motor and power equipment.

For more information, visit:
www.ab.com/motion
Distributed I/O Modules Leverage EtherNet/IP

Dual Port ArmorBlock® EtherNet/IP modules make use of linear and ring network topologies, enabling users to connect devices directly to each other. This capability helps to eliminate the need for external switches and the added wiring costs associated with home–running all devices to a central switch.

Module features include:
- Use of EtherNet/IP messages encapsulated within standard TCP/UDP/IP protocol
- Common application layer with ControlNet and DeviceNet
- Interfacing via Category 5 rated twisted pair cable
- Half/full duplex 10 Mbit or 100 Mbit operation
- Communication supported by RSLinx® software
- I/O configuration via RSLogix™ 5000 software

Modules can be mounted on a wall or panel. There is no network scheduling required or routing tables. I/O configuration includes 16 inputs, 16 outputs, 8 in and 8 out. The modules, measuring 179 x 65 x 43.25 mm, have an operating temperature range of -20° to 60° C.

For more information, visit: www.ab.com/io/onmachine/1732.html

KwikLink Lite Media & Configuration Terminal Simplifies DeviceNet Connectivity, Commissioning & Troubleshooting

The Allen–Bradley KwikLink™ Lite flat cable system, together with enhancements to the 193–DNCT DeviceNet Configuration Terminal, help make DeviceNet an ideal media for in–cabinet applications.

The KwikLink Lite cable system is the new, ODVA–approved solution for wiring DeviceNet networks that adds to our already comprehensive DeviceNet offering. This new physical media makes DeviceNet wiring and cable installation both quick and easy, and extends the network into light–duty, IP20–rated applications.

Users will see a dramatic reduction in the installation time of a DeviceNet network as the time–consuming process of stripping wire insulation, separating conductors and screwing individual wires onto terminals is now replaced with a colour–coded cabling system that makes DeviceNet wiring quick, easy and reliable.

Commissioning with the 193–DNCT DeviceNet Configuration Terminal is made simple with the capability to upload, store and later download complete device configurations through the network. The 193–DNCT, combined with the KwikLink Lite cable system, will help DeviceNet users reduce costs and focus on the solution not the problem.

These solutions help make DeviceNet even more suitable for your application. Combining new cabling options with existing, proven products puts the power of DeviceNet in easy reach.

For more information, visit: www.ab.com/sensors/devicenet/media/kwiklinklite.html

Pendant Line Offers Quick Installation

We have introduced our new and exciting line of 800FC Pendant Stations, designed for quick and easy installation.

This new pendant line utilises the same time–saving benefits found in our Bulletin 800F 22.5 mm push buttons, helping users to maximize efficiency with quick installation. Multiple options and customizations are available to fit unique application needs.

800FC Pendant Stations utilise the standard 800F operators and contact blocks, allowing distributors to minimize their inventory. Wiring time can be drastically reduced as contact blocks have been spaced for using 1492 jumpers. 800FC Pendant Station enclosures are available with 3, 5, 7, or 9–holes, giving customers with the ability to have up to 18 functions within one pendant when using multi–operator devices. All pendants meet IP65/66, NEMA Type4/4X/13 degree of protection rating.

New 1–, 2– and 3–speed operators have been released for use with the pendants and feature the same high quality design of our existing 800F 22.5mm Push Button line. A new mechanical interlock latch for use with the 1–, 2– and 3–Speed operators allows for optional protection against inadvertent operation. Mechanical interlock prevents two functions [e.g. Up/Down] to be pushed at the same time and prevents the system from unwanted actions and potential damage.

Additionally, there is electrical interlock capability for the 1– and 2–speed operators simply by wiring an additional N.C. contact block to each operator/function. The operators are marked with standard symbols and text using epoxy pad printing or two color molded technology.

Legend plates designed for pendant enclosures offer standard and custom engraving options.

800FC Pendant Stations represent an ideal solution for a large variety of applications. Pendants are typically found in hoists, overhead cranes and remote/portable control stations.

For more information, visit: www.ab.com/en/epub/catalogs/12768/229240/229244/2531089/
Ethernet Physical Media is Designed for Rugged Industrial Environments

To complement its suite of Ethernet-enabled products, Rockwell Automation® provides a portfolio of industrial-grade Ethernet physical media. It is specifically designed for use in harsh industrial environments, combining a specially designed cable with rugged connector construction to help ensure reliability and flexibility. The portfolio includes:

- **RJ45 Patchcords and Cordsets.** They have been mechanically and electrically tested using category 5e cables with category 6 connectors. The design allows for more terminations in a single channel and stronger signal strength with reduced internal noise.

- **Allen-Bradley® M12 Connectivity.** These Ethernet cables have an IP67 overmolded connector with a twisted–pair cable, which is durable for flex applications and provides better performance in applications with noise and vibration. The overmolded housing protects the integrity of the signal, providing a reliable connection.

- **RJ45 Accessories.** These include a traditional crimp connector, rated to category 5e with a ruggedized boot, and an Insulation Displacement RJ45 connector (IDC) rated to category 6. The RJ45 IDC allows users to simply remove the cable jacket and place the conductors into the proper location.

For more information, visit:
www.ab.com/networks/media/ethernet/

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Single Controller Provides Integrated Safety and Motion for Midrange Applications

Rockwell Automation® has introduced two new controllers to provide machine builders and manufacturers with integrated safety, motion, discrete and drive control capabilities in a single controller for midrange applications. The Allen–Bradley® L43S and L45S Compact GuardLogix® programmable automation controllers (PACs) extend capabilities previously available only in the larger Allen–Bradley ControlLogix® platform.

These include diagnostics and information capabilities that help reduce nuisance shutdowns and prolonged restarts as well as a single programming environment for enhanced design and development productivity.

As part of the Rockwell Automation Scalable Integrated Architecture system, the Compact GuardLogix controllers use the same configuration, networking and visualisation environment as the company’s larger–scale systems. This helps provide machine builders and end users with cost–effective integration of a machine or safety application into the plant–wide control system. The scalability means that manufacturers and machine builders can design their applications using a single control engine and a single development environment, regardless of the application size.

The Compact GuardLogix PACs can control as many as eight axes of integrated motion over the SERCOS communication network. When used in combination with the Allen–Bradley® Kinetix® 6200 servo drive, machine builders have advanced safety options, including safe speed and safe direction.

The controllers also support the use of the Allen–Bradley CompactBlock™ Guard I/O™ modules and Allen–Bradley POINT Guard I/O™ modules on EtherNet/IP, enabling fast system configuration and improved sharing of information. Featuring a 1oo2 safety architecture, the Compact GuardLogix controllers are rated up to Safety Integrity Level 3 (SIL 3) and Performance Level e (PL e) – the highest level of machine safety.

When used with the latest version of Rockwell Software® RSLogix™ 5000 programming software (V18), the Compact GuardLogix controllers can leverage high–integrity Add–On instructions (AOIs) for faster commissioning. AOIs encapsulate code for common routines into pre–validated modules that can be easily reused, helping to save time and lower the risk of coding errors.

For more information, visit:
www.ab.com/programmablecontrol/pac/compactlogix

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840E Solid-State Level Switch

The Allen–Bradley Condition Sensing family introduces the compact 840E solid–state level switch which is based on piezoelectric vibrating fork technology. The level switch monitors resonance frequency and indicates whether the tuning fork is freely vibrating or covered by liquid. With its IP66/67 rating, the 840E performs reliably in the harshest of environments, including turbulence, vibration, content build–up, changing media, and bubbles and foam.

Housed in rugged, corrosion–resistant 316L stainless steel enclosure, this cost–effective compact level switch is suitable for most fluid applications.

Utilised primarily for liquid level detection in industries such as factory automation, oil and gas, chemical, food and beverage and automotive this solid–state level switch is easy to install and has no moving parts, so it is virtually maintenance–free. Plus, the 840E can be mounted in any orientation – top, bottom, sideways, or even in pipe work.

The 840E is available in a DC PNP version with a M12 connector or an AC version with a DIN valve connector.

For more information, visit:
Energy Management Accelerator Toolkit Speeds Monitoring and Analysis

Users can rapidly develop and deploy energy monitoring and analysis systems using system design, programming and analysis tools along with Rockwell Automation® Powermonitor™ and CompactLogix™ energy collection devices and RS EnergyMetrix® energy management software.

The toolkit includes the fundamentals of creating an energy management plan, an overall energy system configuration guide and CAD drawings. It also provides energy data collector and software configuration steps as well as local HMI monitoring and diagnostic faceplates.

For more information, visit: www.rockwellautomation.com/solutions/integratedarchitecture/resources5.html
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