

ARC Advisory Group Ranks Rockwell Automation First in Global Safety

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Rockwell Automation ranked first as the global leader in machine safety solutions in the ARC Advisory Group report, "Machine Safeguarding Solutions Worldwide Outlook," released in July 2009. The report highlights how Rockwell Automation helps customers achieve business goals through its global industry leadership, product innovation and strategic investments. This top ranking, combined with Rockwell Automation being ranked second in ARC Advisory Group's "Process Safety Systems Worldwide Outlook" released in July 2008, establishes Rockwell Automation as the overall global leader for Safety solutions.

The top ranking coincides with the Rockwell Automation 10-year anniversary of providing comprehensive safety solutions to manufacturers around the world. Rockwell Automation takes a holistic approach to safety, providing innovative safety solutions to improve the functional operation of a machine – simultaneously helping to increase safety, efficiency and productivity while reducing waste.

This article summarizes the key findings in ARC's "Machine Safeguarding Solutions Worldwide Outlook" and their relation to Rockwell Automation. For access to the complete ARC report, please visit www.arcweb.com.

Machine Safeguarding Solutions Worldwide Outlook

According to the ARC report, manufacturers are moving strategic safety initiatives to the forefront due to an increased awareness of total return on investment. In addition to helping ensure worker safety, manufacturers are leveraging intelligent safety strategy as a competitive advantage.

Machine safeguarding is one of the fastest-growing segments of the industrial automation market and ARC expects it to increase at a compound annual growth rate of over 4.6 percent through the year 2013.

Rockwell Automation offers the world's largest portfolio of safety automation products and services. The acquisitions of ICS Triplex and CEDES expanded the Rockwell Automation portfolio into process safety, machine safeguarding systems and light curtains, as well as helped strengthen the company's global base. These acquisitions, among others, bolstered the company's offerings, which encompass a broad range of scalable products and solutions including component, programmable and fully integrated safety solutions.

Additionally, Rockwell Automation made strong inroads in product development for safe motion-controlled solutions with the Minotaur™ MSR57P dedicated safe-speed monitoring relay. This is designed to allow personnel to enter hazardous areas while motion is present. The device supports numerous input devices such as E-stops, light curtains, enabling switches and interlock switches, which detect demands on the safety system and initiate a stop request of the motion. It also monitors personnel in the hazardous area while the machine is in a safe-speed condition. This release is representative of the way the overall market is further expanding product lines outside of the traditional segmentation in the market.

The year 2008 marked the end of a tremendous expansion in the overall machine safeguarding market since 2004, a period in which CAGR was nearly 20 percent. Numerous catalysts helped the market surge as safety became the mantra on a global scale and across numerous industries. The machine safeguarding segment benefited from the rising tide in the global machinery market. In addition, the automotive industry – particularly with the high concentration of robotic lines, stamping, metal fabrication and metal working operations – along with the food & beverage, textile, aerospace and furniture & wood products industries drove growth in this market.

Consulting Services and Skills in the Channel

The service business is an important growth element, creating an increasing number of opportunities for applications, according to the report. Growth in the machine safeguarding business depends on associated consulting services to provide application guidance for machine-building OEMs and end users. Both the supplier community and distributors and system integrators in the channel require service and application skills to sustain this growth. Consulting services overcome one of the biggest barriers to applying the latest generation of machine safeguarding technology. The optimal safeguarding solution is no longer a straightforward decision for the machine-building community. With a range of new control reliable safety options – including the Allen-Bradley® GuardLogix® family of integrated safety controllers – entering the market, implementing safety is no longer a simple matter of adding more guarding. Instead, machine designers increasingly are designing safety solutions into machines upfront.

Consulting services are increasingly important in the selling process to help machine builders make the right choice for their particular applications, according to the report. As control reliable servos, fluid power and PLCs emerge on the market, a safeguarding solution requires engineering skills from multiple domains of expertise. In many ways, the machine builder is faced with the same challenges faced when seeking to create the optimal mechatronic solution for the machine design where, in many cases, the optimal balance between mechanical, electrical and software is critical to achieving higher productivity and reliability.

Through consulting services, innovative safety solutions and standards leadership, Rockwell Automation helps OEMs, integrators and end users find that balance and gain a competitive advantage. Rockwell Automation Safety Services assists customers at any step of a safeguarding project from training, standards assistance, to risk and hazard assessments, circuit evaluations, system architecture development, system and hard guarding design, through validation and startup. Rockwell Automation also develops and implements a strategic approach to maintenance, helping manufacturers improve asset utilization and drive efficiency throughout the production process and asset life cycle.

Importance of Functional Safety

In the past, safety systems often were an afterthought, implemented once the entire system or machine was outfitted. Today, providers of automated safety systems who incorporate the safety network early in the machine or line design achieve a strategic advantage. This helps maximize the utilization of the value-added features. For example, designing in safety upfront helps end users gain improved information flow and diagnostics, design flexibility and better overall system reliability, all of which help increase productivity and reduce costs.

Furthermore, recent changes to the European Commission's Machinery Directive, which take effect Dec. 29, 2009, will significantly reshape how designers approach machine safety projects. With these new functional safety standards, designers will need to assess the reliability of the safety components by adding a quantitative calculation to the design. While this means more steps and procedures, it also offers benefits. Namely, the new standards promote a more methodical approach that can lead to machinery with more predictable performance, greater reliability and availability, and improved return on investment.

Rockwell Automation defines "functional safety" as a safety system that improves the functional operation of the machine – simultaneously helping to increase safety, efficiency and productivity, while reducing waste.

To help machine builders meet the new requirements and successfully deploy functional safety, Rockwell Automation is offering education and training programs, and tools to help reduce the documentation

complexity. Rockwell Automation recently released a product library file designed for use with the SISTEMA calculation tool. The SISTEMA tool, developed by Germany's BGIA organization, automates calculation of the attained PL of the safety-related parts of a machine's control system in the context of EN ISO 13849-1. The SISTEMA calculator and related Rockwell Automation library are available free of charge at <http://discover.rockwellautomation.com/safety>.

Safety and Competitive Strategies

From a purely defensive perspective, automation suppliers need to add machine safeguarding functions and safety network compatibility to their devices to fend off competition from suppliers that already have these capabilities, according to ARC. Since many networks can accommodate safe and standard components – and since OEMs and end users tend to prefer single vendor solutions – suppliers looking to penetrate an installation with a combination of safe and standard devices on a popular network represent formidable competition.

In 2002, Rockwell Automation joined two other members of the Open DeviceNet Vendor Association to develop an open protocol allowing both standard and safety devices to operate on the same network. As a result of this effort, ODVA introduced a Common Industrial Protocol (CIP). Referred to as CIP Safety, this protocol helps manufacturers maximize production by synchronizing the safe and standard functions of equipment. CIP Safety also enables the distribution of safety control devices to appropriate locations on a machine, thereby helping reduce overall installation costs.

Safe Motion Becoming Pervasive

Motion control manufacturers, particularly AC drive and servo drive manufacturers, like Rockwell Automation, are well aware that users and OEMs anticipate widespread adoption of integrated safe motion capabilities into end devices, according to the ARC report. AC drive manufacturers are largely responsible for incorporating safe stop functionality into their systems and general motion control suppliers are integrating safety functionality into controllers, safe I/O and the servo drives. Moreover, the general motion control market expects much greater functionality in the drive in terms of safe torque, safe speed and safe stop. Some industry estimates indicate that as many as 80 percent of servo drives will have safe motion capabilities within a few years.

Current safety standards allow configurable safety systems to be integrated directly into servo drives, as ARC reported. This embedded functionality makes it possible for machine builders to incorporate safety strategies that improve operator productivity. With safe drives, safety solutions are becoming less complex, with far fewer cables and connections, resulting in reduced design, commissioning and installation costs. Safe drive functionality in a servo drive has two fundamental modes of operation: 1) safe stop in accordance with EN60204-1, and 2) safe motion.

In 2009, Rockwell Automation introduced safe-speed control core technology as part of the Allen-Bradley® Guardmaster® Minotaur® MSR57P dedicated safe-speed monitoring relay, the Allen-Bradley® PowerFlex® 755 series of AC drives, and the Allen-Bradley® Kinetix® 6200 servo drive. In addition to helping reduce overall system cost, improve flexibility and increase productivity, safe-speed control offers easier configuration and can be used across multiple platforms.

Wireless Technology for Safety Networks

ARC reports that the market is heading toward a proliferation of safety networks. This is a serious concern for component suppliers that need to develop network interfaces to these systems. To exacerbate the situation, wireless operator interfaces in safety applications, such as emergency stop, also are

beginning to gain traction in the market. However, wireless safety devices are not yet widely available, as many products are still undergoing approvals and certifications.

Rockwell Automation is collaborating with Cisco Systems, which boasts a leading market position in wireless infrastructure, to bring these wireless solutions into the mainstream of industrial automation. The goal of Rockwell Automation is to offer the benefits of standard, unmodified Ethernet networking – both wired and wireless – through its Integrated Architecture™ system, which includes standard and safety control solutions, throughout the manufacturing enterprise.

In addition, Rockwell Automation and Cisco are collaborating to extend their consultancy capabilities to provide a set of globally delivered Network and Security service offerings for industrial wired and wireless network architectures. These services will provide practical assistance to customers as they move into this new space.

Overall Industry Leadership

The Rockwell Automation product portfolio for safety is rapidly expanding with the inclusion of GuardLogix® integrated safety controller family and safe motion from the core of the Rockwell Automation business, according to ARC. In effect, Rockwell Automation is building a complete safety solution business that includes components, systems, and services. Specifically, the company offers machine safety services with an experienced, trained staff to provide long-term support services to machine builders that need to keep abreast of the latest OSHA, ANSI, EN and IEC standards. Utilizing a trained staff of consulting engineers, Rockwell Automation will assist machine builders and end users to conduct audits to verify and document compliance with the variety of safety standards emerging in each region of the world. Overall, the Rockwell Automation solution strives to be a comprehensive solution for safety.

Having a strong financial position, ARC reports that Rockwell Automation continues to acquire expertise and invest in innovation and aggressive research and development. Through a global transformation of its business processes and the underlying information systems that support them, the company has simplified and increased collaboration to better serve its customers and achieve its growth goals. The company's long-term strategies include providing superior solutions, Six Sigma practices and a performance-driven culture to solve customer challenges.

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