ARTICLE

Rockwell Automation

EMEA643 August 2008

# PASSPORT TO SAFETY

***In today's marketplace, you have to think globally. That is where functional safety can help***

## FUNCTIONAL SAFETY BOOSTS PROFITS

The overall objective of functional safety is to protect workers by reducing incidents and to reduce risk of loss and costs associated with risk. Cost of risk is the sum of insurance premiums, claims administration fees, workers' compensation claims, risk management department costs (salary, travel, fringe benefits, and so on), legal fees, and other related costs such as state fees, assessments and consultants. Cost of risk expenses are measurable direct costs.

## WHAT DOES FUNCTIONAL SAFETY MEAN TO YOU?

Functional safety benefits users by cutting costs, but not reducing safety. It provides them with a high safety/failure ratio so that they can maximise both production and safety.

Cont…

Using functional safety and its applicable standards requires the availability of data such as probability of dangerous failure per hour (PFHd) or mean time to dangerous failure (MTTFd). This adds the time domain because functional safety allows you to calculate the reliability of your safety system. This should not be regarded as an absolute and certain value but more as an indicative and relative quantification that can prevent the use of unsuitable equipment.

**BUSINESS JUSTIFICATION FOR SAFETY INVESTMENTS**

A white paper from Rockwell Automation outlines the long-term financial benefits manufacturers can reap by integrating comprehensive machine safety programmes into their workplaces as a form of insurance against potential risks. The ‘Proving the Value of Safety’ white paper is linked from the safety Web site at: www.rockwellautomation.com/go/prsafety

Like a travel passport that authorises you to travel internationally, a control system that uses a functional safety concept gives you a ‘passport to safety’. That is because a system using functional safety meets international safety standards, making your system compliant with safety standards applicable in most nations. As a result, you have significantly increased global market opportunities to sell your product to new customers.

**WHAT IS FUNCTIONAL SAFETY?**

It is the part of the overall safety implementation that depends on the correct functioning of the process or equipment in response to operational safety inputs. It relates to the physical operation of a machine or process. In other words, functional safety equals the confidence in the ability of the safety-related control system to perform its function over a specified time period.

The name ‘functional safety’ is often associated only with programmable safety systems, but this is a misconception. It covers a range of devices, such as interlocks, light curtains, safety relays, safety PLCs, safety contactors and safety drives that are interconnected to form a safety system.

An example of functional safety is an over-temperature protection device using a thermal sensor in an electric motor’s windings to de-energise the motor before it can overheat. The thermal sensor performs a *function*, or action, to help provide safety.

Another  example, compare fixed hard guarding to electrically interlocked guarding. The hard guarding is not considered functional safety. Although the fixed guard does perform a safety function — keeping people out and materials in — it is not considered ‘functional safety’ because there is no input to a system. The interlocked door, however, is an example of functional safety. When the guard is opened, the interlock serves as an ‘input’ to a system that assures a safe state is achieved.

Functional safety falls under the umbrella of the risk reduction process. The risk reduction process involves these steps:

- Eliminate by design using inherently safe design concepts.
- Safeguarding and protective measures with hard guarding and safety devices.
- Complimentary safety measures including personal protective equipment (PPE).
- Safe working practice achieved with procedures, training and supervision.

Functional safety addresses the safeguarding portion of the risk reduction process. When you implement integrated safety by designing systems so that safety and environmental considerations are fundamental elements of doing work, you include functional safety measures as part of the safety system.

**HAZARD ANALYSIS AND RISK ASSESSMENT**

Performing a hazard analysis and risk assessment is the first step in the safety life cycle, which has five steps:

1. Risk assessment or hazard analysis.
2. Safety system requirements.
3. Safety system implementation.
4. Safety system validation.

5. Maintaining and improving the safety system.

Functional safety is part of the safety life cycle because it is involved in steps 2, 3 and 4.

When designing equipment and associated control systems, a hazard analysis will help determine whether functional safety is necessary to ensure adequate protection against each significant hazard. If so, then users can integrate functional safety into the machine design requirements, implementation and validation.

A hazard analysis identifies what has to be done to avoid hazardous events associated with the operation and maintenance of the machinery. In addition, a risk assessment gives the safety integrity required of the safety system for the risk to be acceptable.

**Ends**

**Notes to editors**

Rockwell Automation, Inc. (NYSE: ROK), is a leading global provider of industrial automation power, control and information solutions that help manufacturers achieve a competitive advantage for their businesses. The company brings together leading global brands in industrial automation that include Allen-Bradley® controls and services and Rockwell Software® factory management software. Headquartered in Milwaukee, Wisc., the company employs about 20,000 people serving customers in more than 80 countries.

For further information, please contact:

Rockwell Automation Ltd
Pitfield, Kiln Farm
MILTON KEYNES, MK11 3DR
Tel 0870 242 5004 Fax 01908 839696
www.rockwellautomation.co.uk

General

Andrea Burt
E-mail: aburt@ra.rockwell.com

Sales Leads

Rockwell Automation Ltd
UK Marketing Communications Specialist
Rockwell Automation Ltd
Pitfield, Kiln Farm
Milton Keynes K11 3DR
Tel 0870 242 5004 Fax 01908 839696
E-mail:ukmarketing@ra.rockwell.com

Issued by

Fisher Marketing Limited
Grange Lodge
Market Square
Westerham,Kent, TN16 1AR
**Tel 01959 56498 Fax 01959 565947**

E-mail: fmpr@fishermarketing.co.uk

**An electronic version of this press release can be downloaded from our press room at www.fishermarketing.co.uk**