

THE

GATEKEEPER

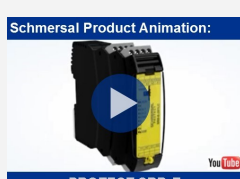
Man-Machine Safeguarding News

April 2016

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Video Spotlight



PROTECT SRB-E Product Animations

A series of animations highlighting the features and applications of the PROTECT SRB-E safety controllers. Duration: 5 min, 10 sec.

[View the video on YouTube](#)

Literature



Machine Safety in Europe

Our latest book examines European machine safety standards and communicates the basic principles of machine safety at an international level. Hardcover.

[Order a complimentary copy](#)

Reference



PROTECT SRB-E Brochure

This 10 page brochure highlights the features of the new PROTECT SRB-E series safety controllers.

[Download the PDF here](#)



Application Finder

Our Application Finder is a helpful tool for users to select suitable switchgear for variety of machine safeguarding applications. It is now available for iPad and Android tablets. Download the free app here:



[Or view on the web](#)

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Safety Controllers Provide Control Reliability

OSHA, ANSI, RIA and other national and international agencies use the term "control reliability" when referring to the characteristics of a safety circuit. By definition this means that the safety system is designed, constructed and installed such that the failure of a single component within the device or system should not prevent normal machine stopping action from taking place - but shall prevent a successive machine cycle from being initiated until the failure is corrected. This description of a control reliable circuit will have the same requirements as that of a Category 3 safety design as per ISO 13849. Using redundant-safety rated interlocks, sensors and other types of devices is only one part to achieving a control reliable safety circuit. In order to fully fulfill these requirements, the circuit must feature a form of fault detection.

Typical faults to be detected include:

- failure of guard monitoring switch/sensor
- open-circuit
- short-circuit in interconnection wiring
- short-to-ground in interconnection wiring
- cross-short between channels
- welded contact(s) in a controlled output device (such as positive-guided motor contactor).

This fault detection can be accomplished using a complex hard-wired circuit incorporating many latching positively guided relays, but it requires vast amounts of wiring to arrange the logic for monitoring and validation of a self-designed safety monitoring circuit. It is much more economical to use an approved safety rated controller for this function. Such safety rated controllers will typically not only monitor these faults, but also internal failures such as those of its own positive-guided relay(s), fault in safety system monitoring circuit and insufficient operating voltage.

As with any safety device, the selection of a specific safety controller is based on the requirements of the application. General criteria for safety controller selection include:

- operating voltage required for the safety controller
- type of safety device being monitored
- Feedback and reset circuit requirements
- number and type of safety outputs (delayed or instant) and signaling/auxiliary outputs

The use of a safety controller is vital when attempting to fulfill the fault detection aspect of a basic control reliable circuit.

New Product Highlight



PROTECT SRB-E Safety Controllers

The latest addition to our line of safety controllers, the PROTECT SRB-E is a series of electronic multifunctional safety controllers. Each module can be set to one of up to 11 different function configurations via a simple selector on the front of the unit. Key features include fast response times, high switching capacity

PNP outputs, and compatibility to monitor most conventional safety sensors and electromechanical safety equipment. The PROTECT SRB-E series safety relay modules can all be used in applications up to Category 4, PLe in accordance with ISO 13849 and SIL 3 in accordance to IEC 61508.

For more information, visit our website: www.schmersalusa.com
 visit our online catalog: www.usa.schmersal.net
 or download the [PROTECT SRB-E Tech Brief](#) (PDF)

Safety Webinar



Machine Guarding - Tamper Resistance and Fault Masking

Earlier this month, our Engineering Services Manager Mike DeRosier presented a one hour webinar which explores these two important aspects of machine guard design. During the session Mike discusses how to improve tamper resistance in design and implementation, as well as how fault masking can effect safety performance.

The webinar is available to view on demand. 1 hour.

[Go to the webinar](#)

View other webinars and safety training videos on our website: www.schmersalusa.com

Ask The Expert



Devin Murray
 TUV Functional Safety Engineer
 ID-No. 4274/11

Q: How can safety outputs fail within a safety controller?

A: Safety outputs of a controller can be susceptible to damage when directly switching inductive loads such as a coil from a motor or relay. In short, as an inductive load is switched off it will attempt to maintain its magnetic flux thus creating a voltage spike. This elevated voltage surge can cause damage as it flows through a sourcing PNP output or as an electric arc flows across a relay contact. Over time and/or with enough voltage these outputs will fail-to-a-safe state. Protection circuits such as utilizing a fly back diode is commonly used to prevent such damage.