THE

GATEKEEPER

Man-Machine Safeguarding News

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Reference

GK-1 Catalog

New for 2014, the eleventh edition of our main Machine Guarding Safety Products catalog. 230 pages.

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Literature

RFID Integrated into Safety

Radio-frequency identification (RFID) is a technology that uses radio waves to provide a wireless data exchange of a coded identification number between a target (tag, label, or chip) and a reader - a device which transmits an encoded radio signal to the target. When applied to a safety sensor, the RFID actuator target is mounted to the safety guard door and the sensor remains stationary on the machine frame. With the guard door closed, the sensor identifies the actuator and enables the safety outputs, allowing the machine to run. Conversely, with the guard door open and the target actuator out of range, the sensor will disable the outputs preventing machine startup.

As with any safety device, in order for an RFID sensor to be classified as safety rated it must meet certain requirements and pass test procedures called out by various international standards. Among these requirements are the monitoring of the RFID signal. Some manufactures monitor this signal through a dedicated proprietary safety monitor while others incorporate the monitoring directly into the switch.

Due to the radio-frequency communication between the actuator and sensor, physical wear and tear is virtually eliminated which affects the Performance Level per ISO 13849 and Safety Integrity Lever per IEC 62061 as the probability of a dangerous failure per hour (PFHd) is dramatically decreased. RFID systems can also provide a large number of individually encoded actuators, which can make them a high level encoded Type 4 interlock device, per the new ISO 14119 standard on interlock design and selection.

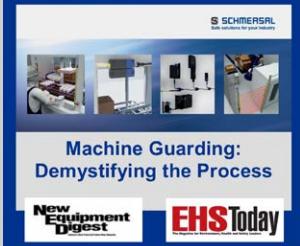## RFID Based Electronic Safety Sensors & Solenoid Interlocks

Schmersal now has an ever growing family of sensors and solenoid interlocks that use RFID technology:

RSS260 Safety Sensor

The latest addition to our RFID family is the compact RSS260. It has mounting flexibility due to a symmetrical design and actuation from end or side. It is available with several types of actuator targets. More

RSS36 Safety Sensor

An IP69K rated safety sensor made from ECOLAB approved materials, it is a viable solution for use in hygienic or outdoor environments where high temperature and high pressure wash downs are typical. Available with an optional magnet latch. More

AZM300 Solenoid Interlock

This solenoid interlock provides 1,000 N locking force and adjustable latching (either 25N or 50N). It is constructed from ECOLAB approved materials and is sealed to IP69K standards and has mounting flexibility for sliding guards and left- or right-hinged doors. More

These electronic safety sensors feature an LED status indicator, optional serial diagnostics, and optional individual coding of actuators. Because of an integrated dual monitoring microprocessor, only one switch is required to meet PLe per ISO 13849-1 and SIL3 per IEC 62061. They can be connected in series with other electronic safety sensors and locking switches, up to 31 devices, without loss of signal or safety level.

Ask The Expert

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Q: Are individually coded interlocks required for PLe and SIL3 applications?

A: Performance Levels per ISO13849 and Safety Integrity Levels per IEC62061 refer to the safety related parts of the control system (SRP/CS).

ISO 14119, which deals with the design and selection of guards, refers to individually coded interlocks as one option to help combat device manipulation.

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Although a clean and easy method to avoid device tampering on a high level, unique coding does not play a role in the actual calculation of the PL or SIL, nor is it a required characteristic for a Control Category or System Type architecture per ISO13489 and IEC 62061 respectively.

Whitepaper: Safety Interlock Design

Schmersal presents a technical article overviewing the focal points specified by the new ISO 14119 standard which regulates the principles for design and selection of interlocking devices associated with safety guards.

Download the whitepaper here.