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## Multifunctional and flexible New safety relay modules

**At the SPS IPC Drives trade fair, the Schmersal Group is presenting a range of safety relay modules that are distinguished by optimum adaptation to different applications and offer various unique selling points. During development of the range, the design engineers also had to bear particular demands relating to packaging machine construction in mind.**

For the evaluation of safety-orientated signals, many packaging machine builders rely on safety controllers that are available in different shapes and performance categories. One of the reasons is the greater flexibility compared with "classic" safety relay modules. Machine builders of this kind, in particular, who project or modify customer-specific plant appreciate a common hardware platform, which through programming or parametrising can be adapted to different requirements.

However, there are still good reasons for using the "good old" safety relay modules. They are compact and can therefore be integrated well in the switch cabinet and they facilitate a high level of safety. Furthermore, the design engineer has a variety of versions available for different safety switchgear and tasks. Last but not least, the safety relay module is the cheapest solution on small machines with a safety door plus emergency stop function, for example.

The advantage of a very varied range (the current "Protect SRB" programme of the Schmersal Group alone comprises more than fifty safety door monitors, safety modules for emergency stop etc. and also special forms) can also be seen as a disadvantage from the customer's perspective: Depending on the specific task, different relay modules have to be selected, ordered, reserved, installed and connected. This disadvantage no longer applies with the new Protect SRB-E series. The developers of the Schmersal competency centre for fail-safe

controller technology in Wettenberg have restructured the whole programme and also the functions of the safety relay modules and above all concentrated it.

The new SRB-E programme comprises eight versions, and each version replaces several dozen existing SRB modules. This is made possible mainly by the configuration capability of the modules: A rotary switch is used as an easy and handy operating element with which the user can choose from up to eleven applications – a feature familiar e.g. from the Protect Select compact safety controllers.

This means: With eight models, the uncomplicated family can cover a whole range of possible application profiles. The modules are therefore suitable for monitoring all common electromechanical and electronic safety switches and interlocks as well as safety sensors and optoelectronic protection devices (AOPDs). All equipment versions can be used in applications up to category 4/PL e according to EN ISO 13849-1 and also SIL 3 according to EN 62061/ IEC 61508.

The drastically reduced number of versions as well as the product-accompanying clear overview of the eight versions with their respective functions make it considerably easier for the machine manufacturer to select the right module for his individual application. The desired application is set easily using the rotary switch. A second rotary switch enables the selection of additional functions, such as drop delay time or the use and configuration of a second safety function.



**Packaging machine construction places particular demands on machine safety, too – for example being able to adapt to the deployment scenario flexibly.**

Among the additional means of selection offered to the user by the Protect SRB-E system are, among other things, the contact configuration of safety sensors, cascading via secure inputs, the selection between stop category 0 and 1 as well as one or two channel signal evaluation.

All Protect SRB-E versions are distinguished by very short response times and signalise to the operator detailed diagnosis and status messages via LED displays. For the Protect SRB-E series, the Schmersal design engineers have developed a new housing in a uniform construction width of 22.5 mm. Among its fundamental properties are a front plate cover, which can be secured with a lead seal to safeguard the function settings. Push-fit and coded connection technology and simple identification of the modules via BMK simplify installation. And despite the compact form, the new modules feature up to ten secure inputs and five secure outputs. Operation-related signals, e.g. for diagnostic purposes, can be output from up to four message points.



**For more complex applications in packaging machine construction, the programmable, flexibly extendible Protect PSC 1 safety controller is an ideal choice.**

One version of the new SRB-E module is distinguished by p-switching secure performance semi-conductor outputs up to 5.5 A. This SRB-E model is particularly suited to secure applications with high switching performance in conjunction with short cycle times, for example switching of valve hubs or complete output assemblies.

Additional versions are equipped with a combination of secure relay outputs and secure semi-conductor outputs of category 4 / PL e or with an input extension for up to four sensors, which can likewise be monitored up to performance level PL e. A combi version makes it possible to monitor two safety functions with one device, such as a two-hand operating panel and an emergency stop function. The secure outputs, which are available separately, can be linked together by the user according to the application. From Schmersal's perspective, the new Protect SRB-E modules simplify the use of safety relay modules. At the same time, they enhance their potential use in areas where flexibility is particularly important. They are therefore a genuine alternative to (compact)

safety controllers when it comes to clear safety tasks and monitoring individual machines, e.g. with a safety door and emergency stop. Design engineers of machines with more complex safety tasks or many safety functions, on the other hand, will still count on compact safety controllers such as the parametrisable Protect Select system or the new generation of programmable Protect PSC 1 safety controller (figure 4), which likewise are among the central exhibits at the SPS IPC Drives trade fair.

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