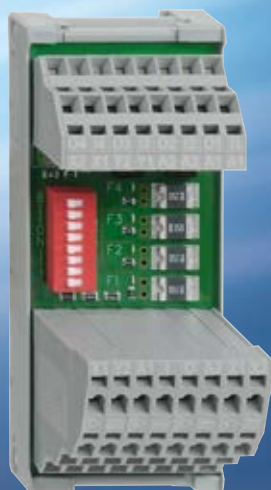


Safety in system: Protection for man and machine

Innovations 2016/2017

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SCHMERSAL

Safe solutions for your industry

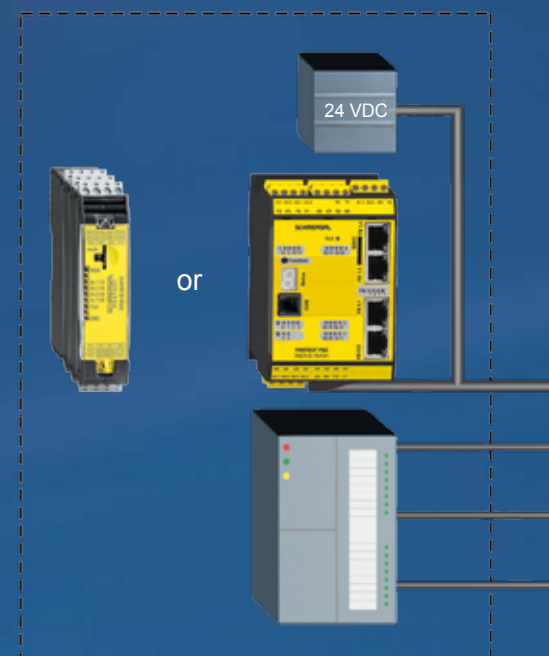
Schmersal Safety Installation Systems – The right solution for every application

The new Schmersal Safety Installation System provides machine designers and maintenance personnel a simple approach to complex wiring requirements while minimizing wiring errors leading to cost reduction and minimized downtime.

Three alternatives for optimum personal and production safety

- With the passive distribution module (PDM) or the passive field box (PFB), mixed series connections are possible with up to four different electronic safety sensors and solenoid interlocks. With the PDM and PFB, larger systems can be constructed thanks to the cascading capability. Wire cross sections of up to 1.5 mm² reduce voltage drops in the supply cables. The internal auto-reset fuses for each safety interlock saves the mandated individual fuse when the wire cross section is reduced.
- Aside from standard I/O devices, an option also exists to connect safety sensors and interlocks with serial diagnosis. Comprehensive diagnostic data can be transferred to a control system via the SD-gateway by means of series diagnostics. Once the specific information has been transmitted the data can be visualized through the machine HMI.

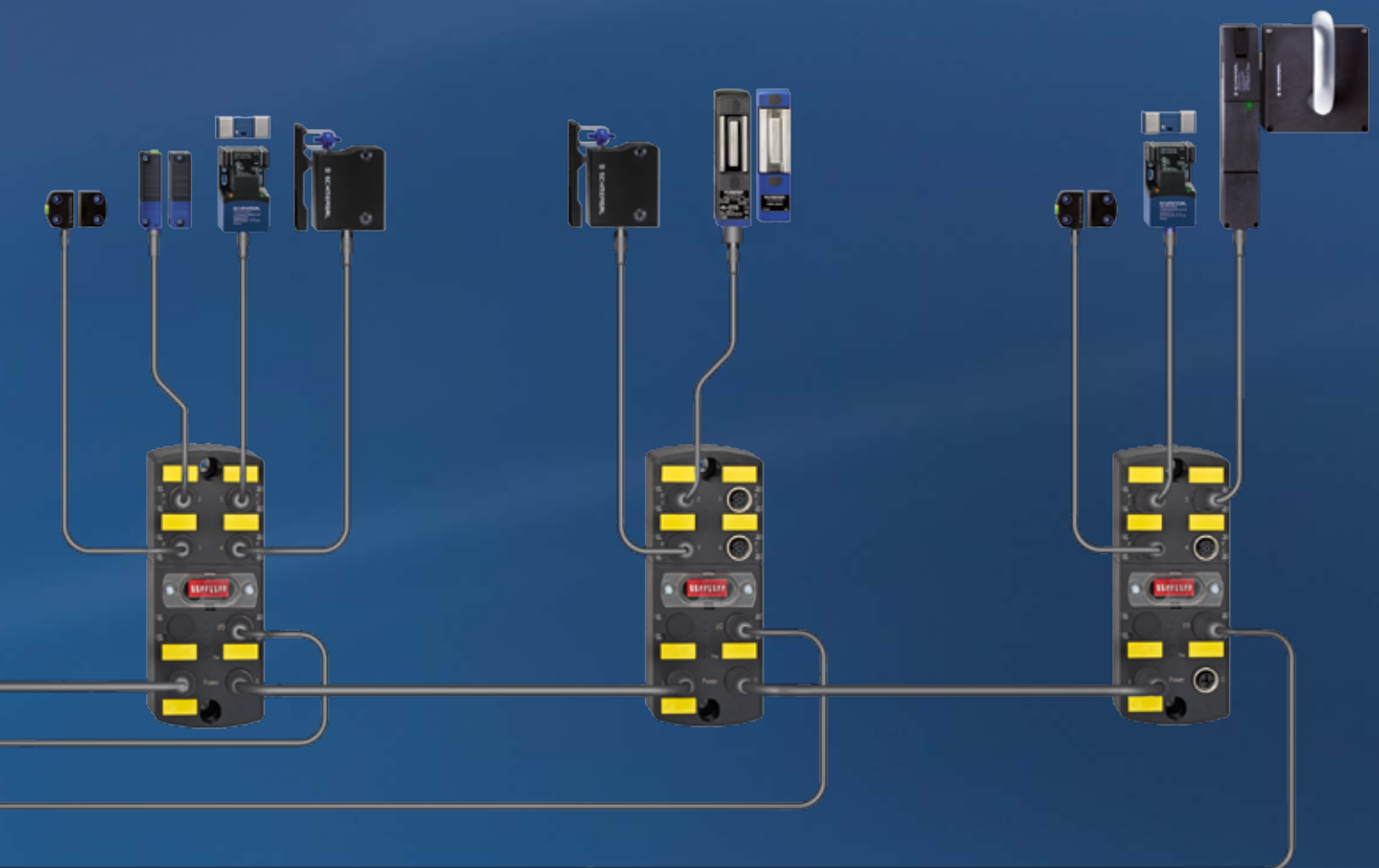
Example: passive field boxes for parallel IO wiring (PFB-IOP)



- The new safe input expander module SRB-E-PE can have not only electromechanical safety switches with dry contact outputs connected to it but also electronic safety sensors with OSSD outputs. For larger systems, the input expander SRB-E-PE can be connected in series.

With all three solutions, individual diagnosis of the connected safety switchgear is possible. With the passive installation systems, actuation of the solenoid interlocks connected in series is also possible. This feature provides the user with a clear indication of which switch in series has triggered a signal.

For maintenance purposes the safety installation system offers the user the ability to troubleshoot easily and quickly, helping avoid costly machine downtime. As such, the safety installation systems from Schmersal contribute towards increased availability of the machines.



The three versions of the Schmersal Safety Installation Systems at a glance



Passive field box PFB: For versatile industrial use

The passive field box PFB is a plug & play solution for multiple areas of applications.

- Voltage supply via new M12 power connector
- Robust IP67 version for installation in the field
- Compact field box with dimensions 63 mm x 156 mm

Passive distribution module PDM: For hygiene-sensitive applications

The passive distribution module PDM is small and compact, can be mounted easily in existing terminal boxes and is especially suitable for higher demands in hygiene with food and packaging machines.

- Can be configured easily via DIP switches
- Spring-type terminals for simple and low-cost installation
- Compact design with a width of only 45 mm on the profile rail



Active input expander module SRB-E-PE: For all common safety switchgear

The active input expander modules SRB-E-PE are used for safe series connection of electromechanical switches and sensors to contact outputs or electronic OSSD outputs. The safety relay module SRB-E-PE can be configured multifunctionally for up to 9 different applications.

- Function settings can be configured easily via rotary knob switches
- Removable screw-type or spring-type terminals
- Compact module with a width of just 22.5 mm on the profile rail
- Suitable for applications up to Cat. 4 / PL e / SIL 3



Safety solutions with system: Extension of AS-i safety program

The field bus standard AS-i can have not only non-safe but also safe switches, sensors and solenoid interlocks simply and cost effectively wired to it. Connection to the AS-i safety network provides many advantages to users of safety switchgear: fast installation and commissioning, comprehensive diagnosis functions and a high level of flexibility when adapting the safety function to the application.

The safety sensor RSS260, solenoid interlock AZM300 as well as safety light curtains and light grids SLC/SLG440 are now also available with integrated AS-i safety-at-work.

Overview of the advantages of the new safety products with AS-interface:

Safety sensor RSS260-AS

- Enhanced protection against tampering to ISO 14119 through RFID technology
- Can be exchanged with magnetic safety sensor BNS 260-AS
- Small size with high switching distance of 10 mm
- Suitable for applications up to Cat. 4 / PL e / SIL 3



Solenoid interlock AZM300-AS

- Enhanced protection against tampering to ISO 14119 through RFID technology
- Hygiene-compliant design, protection class IP69, resistant to many cleaning agents
- The solenoid interlock is available in two versions:
 - AZM300 Z-AS – authorised operation when door is locked
 - AZM300 B-AS – authorised operation when door is closed
- Suitable for applications up to Cat. 4 / PL e / SIL 3



SLC/SLG440-AS safety light curtains and safety light grids

Safety light curtains and safety light grids of the SLC and SLG series safeguard hazardous areas and danger zones in different applications, such as presses, robot cells, die casting machines, palletisers, etc. The SLC/SLG440-AS product series enables flexible safety solutions: Adaptation to various machine concepts can be realised with integrated functions that are parametrised without any aids (PC/software) at all. The protective targets can be smoothly and effortlessly implemented if changes to the process lead to modified settings such as fixed and dynamic object blanking with variable periphery. An integrated set-up aid reduces the amount of effort required for installation and the status indicator provides information about the current operating condition.

Safety light curtain SLC440-AS

- Protection field heights 170 mm – 1770 mm
- Resolution 14 mm and 30 mm
- Suitable for applications up to Cat. 4 / PL e / SIL 3

Safety light grids SLG440-AS

- Protection field heights 500 mm / 800 mm / 900 mm
- 2-, 3-, 4-beam
- Programmable blanking functions (Blanking)
- Suitable for applications up to Cat. 4 / PL e / SIL 3



Heavy Duty switchgear with DuplineSafe installation bus: Safety over long distances

DuplineSafe is a safety-orientated field bus system for the transfer of messages and commands.

DuplineSafe is especially suitable for reliable signal transfer over long distances.

Pull-wire emergency-stop switch T3Z 068-2909

The cable-operated emergency switch T3Z 068-2909 can now be joined via a plug & play connection to the DuplineSafe installation bus. In combination with DuplineSafe, simple and safe signal evaluation of cable-operated emergency switches is made possible over long distances.

- Maximum cable length 2 x 50 m
- Time-saving individual diagnosis: accurate detection of which cable-operated emergency switch triggered a signal in the safety chain
- Reduction in downtimes
- Prevention of damage thanks to safe operation even in extreme weather conditions



Dupline
Fieldbus Installationbus

Belt alignment switches T. 454

The belt alignment switch T. 454 is designed for a belt speed of up to 6 m/s. Through staggered contacts, a pre-warning is issued at a 10 degree angle of actuation. At a 25 degree angle of actuation, the conveyor belt is switched off. In this way potentially severe system damage and longer downtimes, caused by a loaded conveyor running at an undesired angle, can be avoided.

The T. 454 is now also offered by Schmersal with a DuplineSafe connection.

- Can be adapted to various applications by means of different roller diameters
- Greater availability through operation on the Dupline installation bus
- Avoidance of damage through safe operation even in extreme weather conditions



Dupline
Fieldbus Installationbus

Emergency stop pushbutton MBGHAC311YE

The emergency stop striker button MBGHAC311YE can now also be joined to the DuplineSafe installation bus via a plug & play connection. In the same way as for cable-operated emergency switches, every individual emergency stop striker button can be determined in the safety chain after actuation. This thereby reduces failure times and downtimes.

- Robust light-alloy metal housing
- Easy to install
- Protection class IP65 / IP67



Dupline
Fieldbus Installationbus

Less is more: new series with versatile areas of application

New SRB-E series: Multifunctional with just eight versions

The new series of safety evaluation units PROTECT SRB-E can cover almost all common application profiles with just eight basic versions. Every safety evaluation unit can be configured very easily via rotary switches for up to eleven different applications. The safety evaluation units are suitable for monitoring all common electromechanical and electronic safety switches and solenoid interlocks as well as safety sensors and optoelectronic protection devices.

- Very fast response times (< 10 ms) on request
- Excellent switching performance and short cycle times
- Slot-in termination with coding
- Safety relay and/or safe semi-conductor outputs
- Suitable for applications up to Cat. 4 / PL e / SIL 3



Smallest safety light barriers in the world with integrated evaluation electronics

Safety light barriers SLB240/440/450

The new safety light barriers of the SLB240/440/450 series with integrated evaluation are distinguished by an extremely small size. They can be integrated conveniently in very tight installation spaces and can be mounted quickly and easily. The single beam safety light barriers can be deployed in a wide range of application scenarios, such as processing centres for assembly/handling as well as in the timber, paper and print industry, in high bay warehouses or packaging machines. Especially suitable for safeguarding smaller hazard areas such as on machines with small openings or slots.

- Adjustable coding without aids/PC
- With optional heating for low temperatures
- User-friendly set-up tool
- Status and diagnostic indication
- Suitable for applications up to Cat. 4 / PL e / SIL 3



Innovative safety components with new functions

New RFID solenoid interlock AZM201 with an increased protection against tampering

Owing to the large actuator inlet, the solenoid interlocks AZM201 are capable of compensating for a vertical offset between the actuating element and locking mechanism. This simplifies assembly and reduces the amount of time required for maintenance and adjustment of the protection device.

The new AZM201 is a further development of the AZM200 version and now is also available with individual coding (coding stage "high" in accordance with ISO 14119).

- Fewer additional measures necessary to prevent overriding locking devices, e.g. positioning out of reach or in a concealed position
- Same design as the tried and trusted version AZM200 already on the market and is therefore 100 % compatible in terms of replacement
- Same teach-in process as for other high-coded Schmersal RFID products
- Three different coding levels from family coded to individually coded
- Suitable for applications up to Cat. 4 / PL e / SIL 3



**Now even more flexible:
RFID safety sensor RSS260
with cable and connector**

The RSS260 is one of the smallest RFID safety sensors available on the market and can be deployed in a variety of ways on account of its small size and different targets. With its very small dimensions (40 x 18 x 30 mm), it is suitable not only for installation on aluminium profiles but can also be used with many other door formats such as the very common Plexiglas doors and panels.

Now, the RSS260 is also supplied on request with a connection cable with M12 plug – thereby facilitating simple connection even in areas that are difficult to reach.

- Enhanced protection against tampering to ISO 14119 through RFID technology
- Informative diagnosis function enhances availability
- Suitable for applications up to Cat. 4 / PL e / SIL 3



**Diverse range of applications:
intermediate switch of NK / RK series**

The new intermediate switches of the NK / RK series have a diverse range of applications: The NK version is suitable for the food processing industry thanks to its hygiene-orientated design. The RK intermediate switches, on the other hand, are ideal for use in outdoor areas and under inclement weather conditions, e.g. for systems in processing technology, aeroplane tractors or elevating work platforms.

A special feature of the NK/RK series is the new sealing system: Should there be a defect in the boot, fluid is passed through the device without the device being damaged. This contributes towards greater system availability.

- High levels of protection in front of and behind the front panel with IP69K and IP67
- Easily to clean thanks to hygienic design
- Quick to install with central nut and M12 plug connection





tec.nicum

excellence in safety

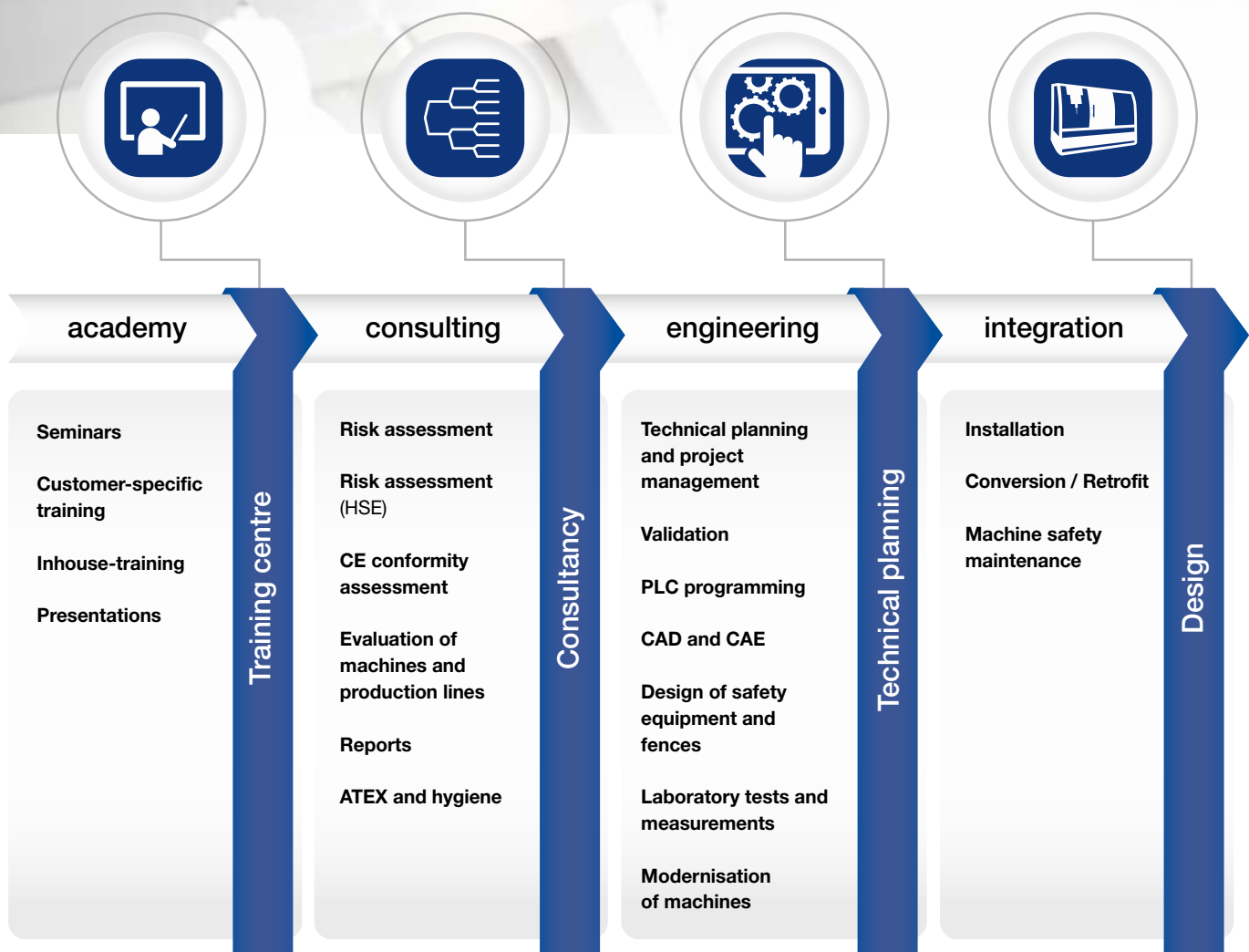
tec.nicum – Services relating to machine safety and industrial safety

In the Schmersal Group, tec.nicum is the business unit for services relating to machine and industrial safety. The experts at tec.nicum implement all sorts of safety-related projects for their customers – from analysis of the status quo through planning and documentation to the final handover of the finished, norm-compliant machine.

tec.nicum offers companies a global network of TÜV Rheinland-certified Functional Safety Engineers, therefore the services of the international tec.nicum organisation can be accessed quickly and easily wherever the customer is. tec.nicum experts not only have sound knowledge of the applicable regional and national guidelines, laws and ordinances, they also have technical know-how and extensive experience in project implementation.

The experts at tec.nicum aim to offer customers competent, product and manufacturer-neutral advice and support them in designing their machines and workplaces to comply with the current local and or international standards.

For all of its consultancy and solution strategies, tec.nicum sets great store by objectivity.



The range at tec.nicum covers four columns: learning in the **academy section**, consultancy services in the **consultancy section**, designing safety solutions in the **engineering section** and practical implementation in the **integration section**.

The head office of the tec.nicum organisation, which operates all over the world, is in Wuppertal, Germany.

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The Schmersal Group

The privately-owned Schmersal Group has been developing and manufacturing products to enhance the safety at work for decades. The company was founded in 1945 and is represented by seven manufacturing sites on three continents and with its own companies and sales partners in more than 60 nations. In the demanding field of machine safety, the Schmersal Group is one of the international market and competence leaders. Based on a comprehensive product range, the company's approximately 2000 employees develop and design complete solutions for the safety of man and machine.

Customers of the Schmersal Group include „global players“ from mechanical engineering and plant manufacturing and machine users. They benefit from the comprehensive know-how of the company when it comes to the standard-compliant integration of safety technology in the production processes. Furthermore, Schmersal has special sector expertise in the application fields that demand high quality and special characteristics from safety switching systems. These include food production, the packaging industry, machine tool construction, lift engineering, heavy industry and the automotive industry.

Against the backdrop of increasing numbers of standards and directives, tec.nicum offers a comprehensive range of safety services as part of the Schmersal Group services division: Certified functional safety engineers advise customers on selecting suitable safety equipment, CE compliance assessments and risk assessment, on a word-wide basis.

Product ranges



Safe switching and monitoring

- Guard door monitoring (Safety switches)
- Command devices with safety function
- Tactile safety devices
- Optoelectronic safety devices

Safe signal processing

- Safety relay components
- Safety controllers
- Safety bus systems

Automation

- Position detection
- Command and signalling devices

Industries



- Elevators and Escalators
- Packaging
- Food
- Automotive
- Machine tools
- Heavy industry

Services



- Application support
- CE conformity assessment
- Risk assessment
- Upgrading / Retrofit
- Technical planning and implementation
- Training courses

Competences



- Machine safety
- Automation
- Explosion protection
- Hygienic design

Precautions have been taken to assure accuracy of the information in this catalogue. Typographic or pictorial errors that are brought to our attention will be corrected in subsequent issues.

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