

A package full of solutions

Packaging



Safe solutions for your industry

Safety systems for the packaging industry

Safety in system: Protection for man and machine - under this motto, the Schmersal Group develops and produces safety switching appliances and systems for the entire machinery and plant construction for decennia already. In some industries, special and additional requirements are applicable. As customer-focussed company, who intensively deals with the wishes of the manufacturer and users of machines, Schmersal has taken up these challenges from the start. As a result, specific products and solutions were developed for many industries and for some of them, an own portfolio has been developed as well.

One mission - different requirements

Disposable syringes, oatmeal or headache tablets: in the packaging technology, a wide range of requirements is applicable. The Schmersal Group offers products and solutions for the safety of machinery in different fields of the packaging machinery construction.

- Non-food
- Food-processing industry
- Pharmacy
- Medical technology.

Especially for the sensitive fields of the packaging technology, we have developed tailor-made product series, which do not only guarantee the safety of the machine, but also contribute to an enhanced productivity and availability. This applies for instance to plants, which were developed according to the Hygienic Design standards and to machines,

for which the directives regarding the dust-explosion protection must be observed during the filling and packing of bulk goods.

High performance, high pace

A traditional industry, on which the Schmersal Group focuses, is the packing machinery construction. In this industry, machinery and plants are often operated at high pace with short cycle times. They are frequently integrated in the entire production and/or packaging lines as well. This has major consequences for the selection and the design of safety systems.

- The safety guards must not interrupt the production cycles nor affect the productivity of the plants.
- They must run with highest reliability.

Highest availability

The safety switchgear from the Schmersal Group are characterised by a long life-time even under unfavourable conditions and when operated 24/7. Many series, especially those, which are preferably used in the packing machinery industry, are designed so that any stop of the machine is avoided when possible.

An example: safety sensors, safety switches and solenoid interlocks equipped with the Schmersal-patented CSS technology detect the slightest misalignment of the guard door and transmit a corresponding message to the control or the master display. The user then can realign the guard door before it become misaligned to such extent that for instance the

safety sensor no longer responds to the actuator, thus preventing the start-up of the machine

Information provides for transparency

In complex plants, the communication between individual components is highly important. The Schmersal Group therefore offers a Diagnostic Gateway, for instance for the CSS series, for the transmission of non-safety-related, diagnostic-information through default bus protocols. This provides for enhanced availability and quick troubleshooting in case of a failure.

The use of the "AS Interface Safety at Work" standard is also useful for the transmission of safety-related signals. Here, the user benefits from considerably reduced installation efforts and overheads as well as enhanced diagnostic possibilities - features, which are applauded within packing machinery construction. The Schmersal Group therefore offers a comprehensive programme of safety switchgear with integrated AS-i Safety interface.



Source 1)



Source 1)

Quick troubleshooting

Packing machinery accomplish highly complex process cycles, in part with highly filigree materials. Some machine types therefore tend to present failures more often than others, where the processes are more stable due to the applied materials and work cycles. Safety solutions from Schmersal can be configured to enable a fast and safe elimination, for instance of jammed materials. The protection against tampering thereby plays an important role as well

New developments for vibrating machinery

The packing machinery construction industry often uses solenoid interlocks to avoid operators interrupting the process by opening a safety guard when the machine is running. To enable the smooth insertion of the actuator, safety switches often have a large play at the insertion opening. As a result, the machine vibrations could cause rattling of the safety guards. For this special problem, Schmersal has developed an innovative solution, the non-contact MZM 100 solenoid interlock. This solenoid interlock generates the standard-compliant holding force of 500 N pure magnetically to exclude any rattling!

Dust-explosion protection

When filling and packing organic dusts, the regulations regarding the dust-explosion protection must be observed. This applies both to foodstuffs in powder form, pharmaceuticals and animal feedstuff. The Schmersal Group offers a comprehensive programme of switchgear for automation and machinery safety, which is tested and certified in accordance with the ATEX and IECEx Directives.

Hygiene

During the packing of foodstuff and pharmaceutical products, special hygienic requirements must be observed as well. For the different hygienic zones (dry zone, splashing zone, wet zone and aggressive zone), Schmersal offers solutions, which meet the "Hygienic Design". These solutions also include safety sensors, which can be smoothly cleaned due to the smooth surfaces of the sensor and the actuator and which are moreover suitable for concealed mounting. Depending on the requirements of the application, the safety switchgear are accordingly approved and certified in accordance with the foodstuff technology standards (Eco-lab, 3A Sanitary, FDA etc.).

Experience exchange in the Packaging Excellence Center

The Schmersal Group aims at establishing good contacts and exchanging experiences with manufacturers of food-processing machinery so that new switchgear is developed and the individual consultancy is provided with the highest level of practice-orientation.

Schmersal is also member of the "Packaging Excellence Center" (PEC). This Centre of Competence for the packaging and automation technology joins the leading German companies of the packing machinery construction.

International presence

The majority of packing machinery builders are operating at international level. This is true, not only for the "big players" on the market, but also for the numerous medium-sized companies, which are specialised in defined segments of market, fields of application or packaging technologies. These enterprises can rely on Schmersal for competent service and consultancy in approximately 50 nations – according to the motto: safe solutions for your industry.

Services

Machine safety is a complex theme. The Schmersal Group offers its customers comprehensive support for the implementation of standards and guidelines in high-production machinery and plants. The service portfolio include, amongst other things, seminars in the Wuppertal tec.nicum training centre as well as individual consultancy for machine builders and safety engineers by certified Safety Consultants in more than 20 countries.



Source 2)



Safety switch with separate actuator

Safety switch with separate actuator



AZ 15/16 - Code number: C-49AZ15



AZ 200 - Code number: C-74AZ20



AZ 17 - Code number: C-61AZ17

Application

Safety switches with separate actuators are intensively used in the entire production and in almost all fields of the packaging industry. They are suitable for the position monitoring of sliding, hinged and especially removable safety guards, which need to be closed to ensure the required operational safety.

In addition to the universally-popular AZ 16 (left), different series are available, which can be fitted, amongst other things, on profiles as well as in confined mounting spaces and moreover can be used for modernisation and retrofitting purposes. The programme also includes coded versions, which guarantee a high level of protection against tampering.

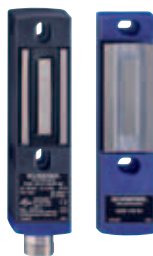
- Up to 4 safety contacts
- Metal and thermoplastic enclosure
- Long life
- Optionally with individual coding
- A wide range of accessories is available
- Versions with connector and cable



Solenoid interlocks



AZM 190 - Code number: C-04AZM1



MZM 100 - Code number: C-91MZM1



AZM 170 - Code number: C-41AZM1

Application

The solenoid interlocks of the AZM series have been designed to prevent sliding, hinged and removable safety guards, e.g. fences or doors from being opened before hazardous conditions (e.g. run-on movements) have been eliminated. The necessary signal is transmitted to the solenoid interlocks through fail-safe standstill monitors or fail-safe delay timers.

As an alternative to the AZM series, the MZM 100 is available, a non-contact solenoid interlock, whose latching force of 500 N is electromagnetically generated. This innovative product has been especially developed to match the requirements of the packaging industry.

- Holding force of 500 - 3500 N
- Up to 5 safety contacts
- Metal and thermoplastic enclosure
- Long life
- Optionally with individual coding
- Non-contact solenoid interlocks
- A wide range of accessories is available
- Versions with connector and cable



Position switch with safety function

Position switches to EN 50047 / 50041



Z/T 196 - Code number: C-82196



Z/T 235/236 - Code number: C-08236



Z/T 335/336 - Code number: C-12335

Application

Position switches with safety function can be used for various positioning tasks of packages and conveyed material as well as linear axes and conveyor belts. The position monitoring of safety guards is another popular field of application for these switches.

Due to their standardised mounting dimensions, this switchgear is universally applicable. Different actuating elements are available for an optimal adjustment of the individual series to the specific application.

- Plastic and metal enclosure
- Different designs
- Mounting dimensions to EN 50047 or EN 50041
- Actuating elements for various applications
- Versions with connector and cable



Hinge safety switch



T.C 235/236 - Code number: C-53TC23



TV.S 335 - Code number: C-34TV8S



TVS 410 - Code number: C-56TVS4

Application

Wherever the mounting space is confined or special requirements with regard to tamper protection must be met, the use of hinge safety switches is recommended as an alternative to the conventional safety switches with separate actuator.

Here, the safety-related monitoring function is integrated in the switch. In this way, small guards and service doors, e.g. of automatic conveying systems, as well as heavy hinged door on large packaging machines can be (depending on the series used) protected as to provide for easy fitting and maintenance as well as compliance with the standards.

- Plastic and metal enclosure
- Suitable for standard profile systems
- Positive linkage without cam
- Additional hinges and universal joints to simplify fitting



Non-contact safety sensors

Electronic and magnetic safety sensors



BNS 260 - Code number: C-71BNS2



RSS 36 - Code number: C-57RSS3



CSS 180 - Code number: C-22CSS1

Application

The use of safety sensors is of particular advantage, in cases where extremely dirty conditions can occur or high hygienic prescriptions must be met. These requirements especially apply to packaging machinery used in the food processing industry. Due to the smooth surface, both the switchgear and the actuator can be easily cleaned; some series meet the basic principles of "Hygienic Design".

With the CSS technology, the Schmersal Group has developed an operating principle, which offers considerable advantages for the safety of machinery in actual practice. The CSS technology provides for instance comprehensive diagnostic information, which enables fast localisation of faults. This is particularly advantageous on interlinked packaging plants or on machinery with many stations and safety guards.

- Plastic and stainless steel enclosure
- Many coding options
- Based upon the latest RFID technology
- With integrated logic circuit for monitoring and evaluation
- Protection class up to IP69K
- Insensitive to transverse misalignment
- Insensitive to soiling



Optoelectronic safety devices



SLB 200 - Code number: C-43SLB2



SLB 400 - Code number: C-86SLB4



SLC 420 IP 69K - Code number: C-69SLC4

Application

Optoelectronic safety devices such as safety light barriers, safety light grids and safety light curtains are used to protect access to hazardous points or hazardous areas. Compared to the separating safety guards, they provide for an enhanced flexibility.

Through muting and blanking functions, they can be set so that conveyed products and/or packaging material can get into the hazardous area, whilst persons are detected immediately.

The programme from the Schmersal Group also includes optoelectronic safety guards with protection class IP 69K, which are suitable for the hygiene-critical areas of foodstuff packaging.

- Type 2 and 4 safety light grids and curtains to IEC/EN 61496-1, -2
 - Protection class up to IP69K
 - Optionally with muting and blanking functions
- Safety light barriers range 4 - 15 m



Controlling, signalling and evaluating

Control devices and indicator lights



BDF 200AS - Code number: BDF 200



ZSD 6 - Code number: C-78ZSD



NAS 311 - Code number: C-87NAS3

Application

At the man-machine interface of packaging machinery, command devices and indicator lights keep the operator informed about the operating condition and take care of the communication with the machine. The Schmersal Group has a comprehensive portfolio of command devices, which have been developed especially for industrial applications.

This offer includes a series for rough operating conditions as well as a series designed in accordance with the "Hygienic Design" principles, which is used in the automated foodstuff packaging. New in the programme are the compact, modular control panels of the BDF series, which can be fitted onto common profile systems.

- Emergency stop button
- Pull-wire emergency stop switches
- Two-hand control panels
- Enabling switches
- Tactile sensors
- Foot switches
- Pushbuttons, selectors and indicator lights



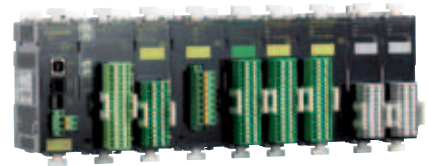
Safety monitoring modules and safety controllers



Code number: SRB



Code number: PROTECT-SELECT



Code number: PROTECT PSC

Application

Safety monitoring modules and safety controllers are used for the safe evaluation of switching signals. Possible signal generators are, for instance, mechanical position switches, safety switches, solenoid interlocks, safety sensors as well as command and signalling devices.

Besides a very comprehensive programme of safety relay modules, the Schmersal Group offers the PROTECT PSC safety controllers for the packaging machinery industry, which can be combined with safe speed monitoring through the PDMS system. One of the latest innovations is the compact PROTECT-SELECT safety controllers, which can be easily configured without programming knowledge.

- Safety-monitoring modules
- Compact safety controllers
- Safety bus systems





For many years the privately owned Schmersal Group has been developing and manufacturing products to enhance occupational safety. What started out with the development and manufacture of a

very wide variety of mechanical and non-contact switchgear has now become the world's largest range of safety systems and solutions for the protection of man and machine. Over 1,200 employees in more than 20 countries around the world are developing safety technology solutions in close cooperation with our customers, thus contributing to a safer world.

Motivated by the vision of a safe working environment, the Schmersal Group's engineers are constantly working on the development of new devices and systems for every imaginable application and requirement of the different industries. New safety concepts require new solutions and it is necessary to integrate new detection principles and to discover new paths for the transmission and evaluation of the information provided by these principles. Furthermore, the set of ever more complex standards, regulations and directives relating to machinery safety also requires a change in thinking from the manufacturers and users of machines.

These are the challenges which the Schmersal Group, in partnership with machinery manufacturers, is tackling and will continue to tackle in the future.

Product ranges	Industries	Services	Competences
 Safe switching and monitoring ■ Guard door monitoring safety switches ■ Command devices with safety function ■ Tactile safety devices ■ Optoelectronic safety devices Safe signal processing ■ Safety monitoring modules ■ Safety controllers ■ Safety bus systems Automation ■ Position detection ■ Command and signalling devices	 ■ Elevators and escalators ■ Packaging ■ Food ■ Medicine/ pharmaceuticals ■ Machine tools ■ Wood working ■ Construction machines and cranes ■ Renewable energy sources ■ Automotive ■ Chemical industry	 ■ Application advice ■ CE conformity assessment ■ Risk assessment in accordance with the Machinery Directive ■ Stop time measurements ■ Training courses	 ■ Machine safety ■ Automation ■ Explosion protection ■ Hygienic design

All data mentioned in this flyer have been carefully checked. Technical modifications and errors excepted.



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