

Safety in system: Protection for man and machine.

Product Overview | Edition 10



SCHMERSAL
Safe solutions for your industry

Safety in system: Protection for man and machine.
Welcome to the Schmersal Group



Welcome to the Schmersal Group. We are happy about your interest and would like to give you a quick insight into our program which addresses to all fields of the manufacturing industry, machinery and plant industry.

Our motto is Safety in System: Protection for Man and Machine. In this sense we would also like to help you personally. You can find your contact person on pages 22/23 or at www.schmersal.com.

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The Schmersal Group

The Schmersal Group offers the largest program of safety switchgear in the world. The individual development and production sites of the group are concentrating on specific product groups. Our sales offices and partners provide a competent consultancy and service to the major industries – worldwide.



K.A. Schmersal GmbH & Co. KG Industrielle Sicherheitsschaltssysteme

The parent company of the Schmersal Group was founded in 1945 at Wuppertal, where the headquarters of the company are still established nowadays. Initially, the company concentrated on the development and the production of mechanically operated switchgear for mechanical engineering and elevator technology. As the product portfolio was continuously extended, it nowadays features an extraordinary comprehensive programme of electromechanical switchgear and sensors.

In the early nineties, the European Machinery Directive was implemented. As a result, Schmersal started developing safety-related products, enabling the machinery and plant builders to comply with the stringent requirements for machine safety.

The evolution from manufacturer of industrial switchgear to expert in innovative solutions for the safety technology was an essential milestone for the company's growth and the company's expansion to a worldwide operating company group.

At the Wuppertal site, some 540 employees are employed today. Early 2013, a new logistics centre for servicing the European markets was put into operation on the headquarters' premises.

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K.A. Schmersal GmbH & Co. KG Wettenberg plant (formerly Elan)

The history of the Wettenberg plant starts with the company Elan Schaltelemente GmbH & Co.KG, which was originally founded in 1952 in Düsseldorf and moved to the Mittelhessen district in 1988. In 1997, the Schmersal Group took over Elan. In September 2012, the company was completely integrated into the company group and merged with K.A. Schmersal GmbH & Co. KG.

From the very first start, the plant placed its business emphasis on industrial low-voltage switchgear. At Wettenberg, switchgear were and are developed and manufactured, which distinguish from conventional devices by their mechanical, electrical and functional features. In addition to that, Elan can be rightfully called one of the pioneers of machinery safety technology: in the eighties, the company already developed switchgear for the protection of man.

Today, the Wettenberg plant is the Competence Centre of the Schmersal Group for

- Control devices and indicator lights
- Two-hand control panels
- Safety relay modules and similar safety-monitoring modules
- Safety switchgear for explosive areas
- Proprietary programmable electronic systems with safety function

At the Wettenberg site, approximately 170 employees are employed.

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ACE Schmersal Eletroeletrônica Industrial Ltda.

Schmersal founded a subsidiary company in Brazil as early as 1974. The production facility located at Boituva (Sao Paulo) today has about 300 employees.

ACE offers a wide range of electromechanical and electronic products such as safety switchgear, command devices and indicator lights, foot switches and proximity switches.

Furthermore, the Boituva plant manufactures complete control systems including enclosure, which are partly assembled with command devices and indicator lights in accordance with the customers' specifications. Application fields are inspection control panels for the elevator industry. The ACE programme is sold on the Latin-American and Mexican market through own sales agencies and commercial partners as well as by official distributors.

In 2013-2014, the factory will be extended with new administrative and social facilities.

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Schmersal Industrial Switchgear Co. Ltd.

In 1999, Schmersal set up a production plant at China to provide the "Global Players" of the elevator industry with elevator switchgear for the booming Chinese market.

Today, Schmersal Industrial Switchgear Co. Ltd. also manufactures switchgear for both other business areas, i.e. for automation and safety technology. These components are produced according to the same high production and quality standards that are applicable in the other plants of the Schmersal production network.

Meanwhile, an own construction department has been set up, which is, amongst other things, responsible for customizing the existing product series to the customers' needs and wishes.

The company has approximately 100 employees and is currently erecting a new and large production and administrative building with a useful space of over 15,000 m² at Qingpu in the Shanghai district. The sales office situated in downtown Shanghai controls four regional agencies located in China's most important industrial centres.

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Schmersal Safety Control GmbH

At the end of 2008, the Schmersal Group took over Safety Control GmbH and Safety Protec GmbH situated at Mühlendorf / Inn, two companies specialised in the development and production of safety light grids and safety light curtains. The plant has become the Competence Centre for optoelectronic safety devices.

The current product programme of Schmersal Safety Control GmbH includes universally applicable safety light grids and light curtains as well as extremely compact models and series with protection class IP69K for very rough ambient conditions or hygiene-sensitive applications. For special requirements, Schmersal Safety Control also has developed customer-specific tailor-made variants.

All series, which are developed and produced at Mühlendorf, are characterised by a high functionality and a simple installation – optimal features enabling their use as hazardous area and hazard point protections for various tasks in miscellaneous areas.

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BÖHNKE + PARTNER GmbH STEUERUNGSSYSTEME

Since 2012, BÖHNKE + PARTNER GmbH completes the elevator portfolio of the Schmersal Group with controller design.

The experts in control technology for elevator systems are already for 22 years successful both at national and international level. Ever since its establishment in 1991, the company has continued to grow. Today, it has a work surface of almost 2,000 m², accommodating the development and production facilities as well as the offices and the warehouse. Approximately 60 employees develop and manufacture the control technology.

In addition to circuit boards constituting the electronic hardware, BÖHNKE + PARTNER also develops the necessary software for the controller units. As leading manufacturer of controller systems for elevators, BÖHNKE + PARTNER is also a technological trendsetter. For instance, the company was the first to produce a controller equipped with a clear text display. Meanwhile, such elements are available as standard.

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Safe switching and monitoring

Guard door monitoring – Interlocking devices and solenoid interlocks

The extraordinary comprehensive product range from the Schmersal Group for monitoring hinged, removable and sliding safety guards enables an accurate adaptation of the protective device to the specific application.

If special requirements e.g. with regard to explosion protection, hygiene, compactness, holding force, actuation or wiring possibilities have to be met, suitable solutions are available as well, also for areas with bodily access.



New operating principle
with RFID technology



Thermoplastic
solenoid interlock



Solenoid interlock,
slim design



Thermoplastic solenoid
interlock, compact design



Metal solenoid interlock

Safe switching and monitoring

Guard door monitoring – Safety switches



Safety switch with individual coding



Safety sensors with magnetic operating principle



Safety switch



Cable-free systems / key trapped systems



Position switch with safety function



Safety switch for hinged guards

Safe switching and monitoring

Command devices with safety function

The control devices of the Schmersal Group always ensure a safe and reliable transmission of the operator's commands, regardless if safe stopping from dangerous movements or start-up of critical machine functions are concerned.

Apart from many special constructive features, these devices have a long life and an intelligent ergonomic construction.



Pull-wire emergency-stop switches



Emergency-Stop push buttons



Enabling switches



Two-hand control panels



Safety foot switches

Safe switching and monitoring

Tactile safety devices

Wherever crushing or shearing points are to be safeguarded, such as on elevating platforms, rising stages, sliding doors or industrial gates, tactile safety devices offer simple and easy to fit solution. In the hazardous area,

two-dimensional safety devices could be useful as well, for instance at industrial robots, punching machines and woodworking machines.



Safety edges



Safety bumpers



Safety mats



Safety edges for corner applications

Safe switching and monitoring

Electronic safety sensors and solenoid interlocks

The electronic monitoring of movable safety guards, including the actuation in non-contact solenoid interlocks, enables a non-contact and wear-free detection of the corresponding actuator. The applied pulse-echo technology tolerates large misalignments both in the switching distances and in the approach of the coded actuator.

The safety channels of the electronic sensors and electronic solenoid interlocks can be series-wired, depending on the used component type up to a maximum of 31 devices. In this series-wired chain, control category 4 to EN 13849-1 is still achieved because of the autonomous function test. The chains can also have a mixed structure, i.e. the described safety sensors and solenoid interlocks can be arbitrarily combined.



Electronic solenoid interlock with magnetic operating principle and intelligent diagnostics



Electronic solenoid interlocks with separate actuator



Safety sensors with inductive working principle



Electronic safety sensors with 4 actuating planes



PROFIBUS-Gateway

Safe switching and monitoring

Non-contact guard door monitoring

Safety sensors are particularly advantageous on safety guards, which cannot be protected by means of conventional safety switches due to their design or the environmental conditions. They are especially suitable for use in areas with a high degree of dust and pollution. Due to their non-contact operating principle, safety sensors feature smooth fitting and a large tolerance with regard to misalignments of sensor and actuator.

Safety sensors are particularly advantageous on safety guards, which cannot be protected by means of conventional safety switches due to their design or the environmental conditions.



Non-contact safety sensor with ergonomic door-handle



Safety sensors, rectangular design



Safety sensors, cylindrical design



Safety relay module



Safety sensors, extremely compact rectangular design



Safety sensors, cylindrical design

Safe switching and monitoring

Optoelectronic safety devices

The Schmersal Group offers both electromechanical safety devices with physical separation and non-contact safety devices. As a partner of safety technology, Schmersal offers solutions for an efficient optoelectronic monitoring of hazardous areas.

The program includes, amongst others, safety light barriers and safety light grids that can be used up to control category 4 to EN 954-1. Often, these devices offer a higher degree of flexibility than the conventional electromechanical safety devices.



Safety light grids with integrated muting function



Safety light grids with higher protection class IP69K



Safety light curtains



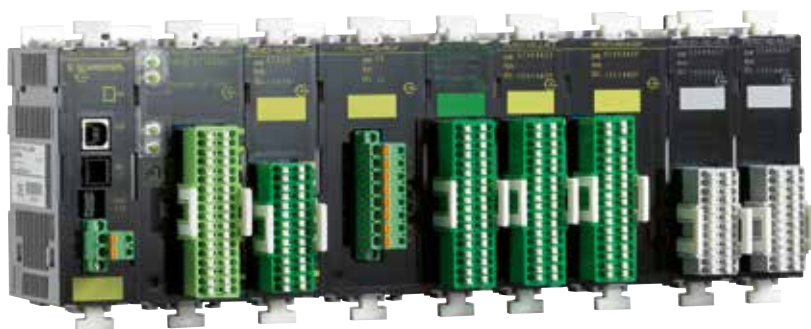
Safety light barriers
Control category 4

Safe signal processing

Safety monitoring modules, control units and field bus systems

Apart from the conventional safety relay modules, the Schmersal Group also offers microprocessor-controlled safety technology. Depending on the complexity and the number of safety circuits, integral solutions with safety

monitoring modules, safety control units or safety field bus systems featuring many visualisation and diagnostic possibilities are available.



PROTECT PSC
safety control



ESALAN
Safety Controller



Safety relay module with
removable terminals



Compact safety controllers with
function for programme selection.
Optionally with radio link extension



Standstill monitors
and delay timer

Safe signal processing

Safety bus systems

AS-Interface Safety at Work (SaW) is a safe and worldwide successful bus system, based on the open AS-International standard. Safety components such as emergency stop, safety switches, solenoid interlocks or safety light curtains are smoothly interconnected through the yellow AS-Interface cable.

The information of the safety components is transmitted through the AS-Interface network and monitored by the safety monitor. If a safety circuit is triggered or in case of failure of a safety component, the safety monitor puts the machine or installation safely to a hold position.



Safety monitor
AS-Interface Safety at Work



Safety sensor



Safety switch



Solenoid interlock



Command devices

Automation technology

Position detection

The application field of electromechanical and contact-free position switches from the Schmersal Group ranges from high-precision mechanics to heavy-duty machine construction.

Magnetic switches and inductive, optical and capacitive proximity switches belong to the category of contact-free devices, i.e. switches operating without physical contact. Many switches can also be used as position switch with safety function.



Metal and thermoplastic standard switches



Magnetic reed switches



Proximity switches



Sensors for high EMC loads



Position switches



Micro switches

Automation technology

Position detection

A large range of actuating elements enables an optimal adaptation of the switches to the specific application.



Heavy-duty limit switches



Mounting rails and cams



Plug-in position
switch



Magnetic switch,
robust design



Multi-position switches for series wiring

Automation technology

Command and signalling devices

For the man-machine interface, Schmersal offers command devices, such as foot switches and pull-wire switches as well as signalling devices.



Emergency-stop pushbuttons



Foot switches



Heavy-duty version
Series R



Hygiene-conform
command and
signalling devices



Pull-wire
switches



Design program

Ex-switchgears according to ATEX

For explosive-endangered areas

The Schmersal Group offers a large program of switchgear for explosive-endangered environments in accordance with the Directive 94/9/CE.

These switches are used wherever the risk of dust or gas explosions is present, for instance in chemical plants, facilities processing organic powder substances and metal machining, where inflammable aluminium dust is emitted.



Ex solenoid interlocks



Safety sensors with inductive working principle



Ex position switches with safety function



Ex safety sensors



Ex safety switches with separate actuator

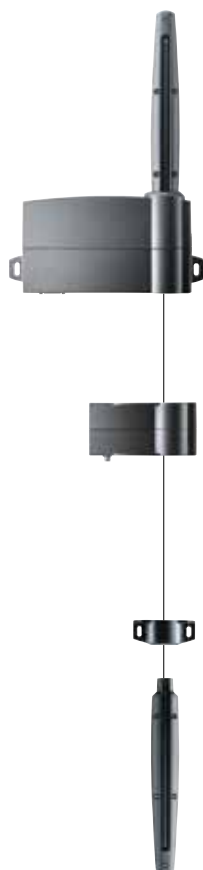


Ex solenoid interlocks

Lift switchgear

For more than fifty years, Schmersal has produced switchgear for the "safest transportation means in the world". Apart from classic switchgear such as door contacts, door interlocks and position switches, Schmersal also introduces new technologies offering considerable advantages to elevator manufacturers.

Schmersal also offers brand new technologies for this highly competitive market with particular advantages for designers, such as the USP elevator positioning system working according to a new principle, which is used successfully worldwide.



Elevator positioning system USP



Emergency call system



Magnetic reed switches



Door contacts



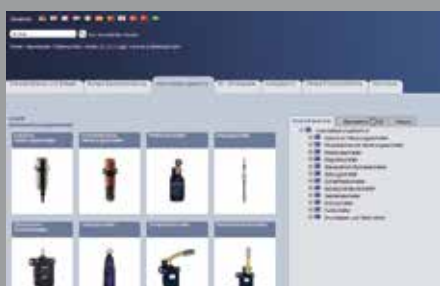
Floor and fine adjustment switches



Door locking devices

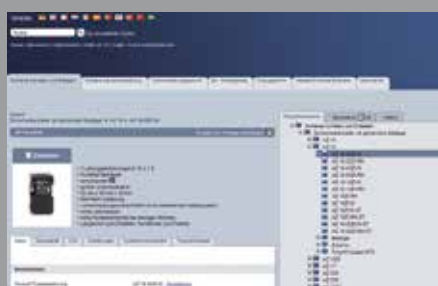
You will also find detailed information regarding our product variety on our website: www.schmersal.com.

Of course you can call us or one of our representatives on the following pages: Phone +49(0)2026474-0



Online catalogue

Designers and company purchasers which cooperate with the Schmersal Group do not need to store extensive data and update it: You can find all required information and data daily updated in the online catalogue at www.schmersal.net



Online documentation in 13 languages

The online offer for customers is continuously extended. It can be taken for granted that the General Catalogue, which comprises round 1000 pages as printed version, is online available in 13 languages. But not only the technical data of the complete product portfolio are available in such a way. Also the declarations of conformity, the test certificates as well as the mounting and wiring instructions can be viewed or downloaded.



Service for designers

The technical drawings of the products are also included in the online catalogue, as a special service to designers. In this way, they can download the required drawings and import them directly into their CAD-systems. The CAE data enabling a comfortable planning of electrical projects are available for download on the Internet as well. The Schmersal homepage furthermore contains up-to-date information with regard to general subjects, technical articles on machine safety as well as news regarding events and trainings. Just check it out!

Visit our industry portal at www.industry.schmersal.com

Other publications

Companies



- Image brochure
- Product overview

Our updated image brochure includes "facts and figures" regarding the Schmersal Group. This brochure will introduce our business activities and our international production sites to you. And you will get a deeper insight in a medium-sized owner-managed company, which is successful for more than six decades already - according to the motto "Safe living, safe working".

The product overview gives you a concised overview how our range of approx. 18,000 safety switchgear is categorised. You will find the comprehensive description of this overview in our catalogues and product brochures (see below).

Products



Catalogues

- Safety technology
- Automation technology
- Explosion protection
- Elevator technology

Thematic brochures

- Electronic safety sensors and solenoid interlocks
- Safety Control PROTECT PSC
- AS-Interface Safety at Work
- Ex switchgear
- Control devices and indicator lights
- Safety relay modules PROTECT SRB

In the comprehensive catalogues, you will find our entire range of default switchgear, which the Schmersal Group offers for the individual businesses and fields of competence. All data can also be quickly found by means of intelligent search functions in our online catalogue at www.schmersal.net, where they can be download as well.

Our thematic brochures give you an overview of the principles, application possibilities and product range of the individual series and technologies.

Branches



- Food
- Woodworking
- Packaging
- Machine tools
- Elevators and Escalators

For a number of core industries of the machinery and plant construction, we have developed dedicated products and solutions, which do not only optimise the safety level, but the productivity of the machines as well.

We offer, for instance, different series of safety switchgear, which have been developped in accordance with the "Hygienic Design" principles; due to their protection class IP69K, they can be cleaned using high-pressure jet steamers, a commonly used tool in many food-processing companies.

Services



- Safety Consulting
- tec.nicum
- MRL News

The "Safety Consulting" brochure gives you an overview of our worldwide services. Get informed about the service offer of our Safety Consultants, who can help you for instance with the CE Conformity Declaration process!

In our tec.nicum training centre, we regularly organise interesting seminars, lectures and workshops regarding machinery safety. Request our up-to-date programme!

You can subscribe for free to MRL News, which is regularly published, to keep in touch with the latest substantiated "news" regarding the development of the standards.

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The Schmersal Group

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 1,400 employees in more than 50 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



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

Industries



- Elevators and escalators
- Packaging
- Food
- Machine tools
- Heavy industry

Services



- Application advice
- CE conformity assessment
- Risk assessment in accordance with the Machinery Directive
- Stop time measurements
- Training courses

Competences



- 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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