

Safety in System
Protection for man and machine

INNOVATIONS

2025/2026



80 YEARS
1945-2025



SCHMERSAL
THE DNA OF SAFETY



INNOVATION DRIVES US

Industry is changing rapidly: networked systems, flexible manufacturing processes and digital technologies are setting new standards and presenting completely new challenges for machine safety. As a family-run company with more than 80 years of experience, we develop solutions that combine safety and productivity. Our latest product innovations offer intelligent functions, improved diagnostic options and smart system solutions that make processes simpler, more transparent and more economical.

Find out in this brochure how we redesign machine safety in a practical, innovative and customised way to meet your individual needs. We are also expanding our international network of safety consultants to provide you with personalised, targeted and optimum support for all questions relating to machine safety.

We invite you to discover the future of machine safety with us.

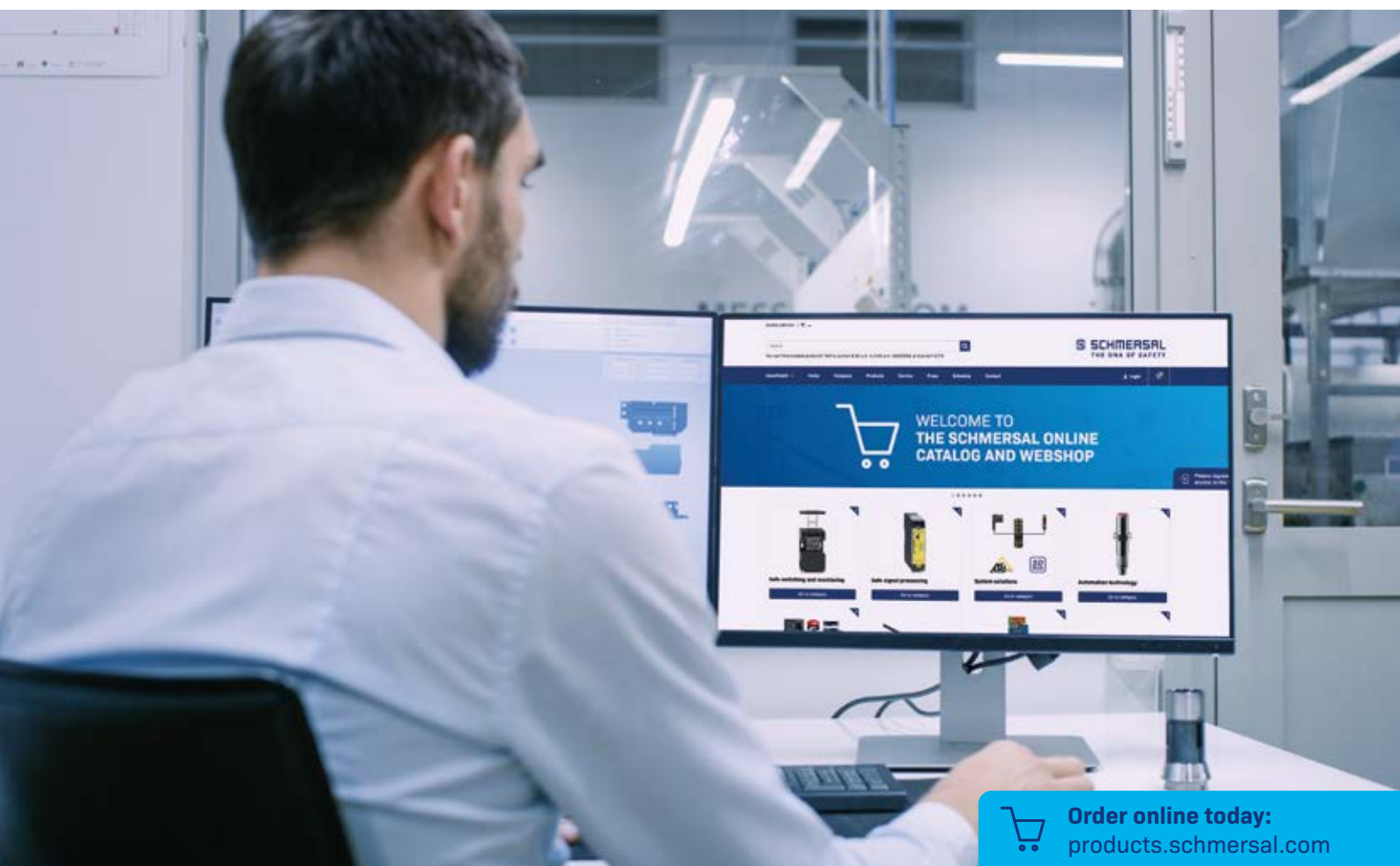
Heinz Schmersal and **Philip Schmersal**

Managing Directors

www.schmersal.com

SCHMERSAL WEBSHOP

24/7. SIMPLE. SAFE.



SCHMERSAL WEBSHOP



CONVENIENT



OPTIMISED



INFORMATIVE



EFFICIENT

You can order around 8,000 safety and automation products directly from the Schmersal webshop – from classic electromechanical safety switches to programmable safety controllers and software solutions. Up-to-date and comprehensive product information is available online for each item at all times.

You can also conveniently download operating instructions, declarations of conformity, certificates and other documents. For individual questions, simply use the integrated live chat: Our competent sales staff will advise you quickly and reliably on product selection and correct use.

CONTROL PANEL BDF20

INTUITIVE CONTROL, ELEGANT DESIGN

NEW CONTROL PANEL BDF20

- 12 push button colours for maximum flexibility
- M12 connector for quick, error-free installation
- Two operating elements –
an emergency stop with one button or with two buttons
- For solenoid interlock AZM40 and door handle system DHS-U1
- Cover caps available for connector-free appearance



The small BDF20 control panel is optionally available with emergency stop, illuminated push button or indicator light. With its mountable push button caps in twelve colours, it can be flexibly adapted to the application. The M12 plug connection enables quick and error-free installation and allows control panels with emergency stop to be connected directly to the Schmersal safety fieldbox. The plug connection on the control panel can be concealed and protected against tampering using the optional MS-BDF40 mounting kit.

The BDF20 can be installed as a stand-alone system or combined with the AZM40 solenoid interlock and the DHS door handle to create a minimalist door interlock system. Thanks to its versatile installation options and compact design, the BDF20 can also be used to realise door systems for double acknowledgement. This means that a door interlock system consisting of a BDF20 or BDF40 with AZM40 and DHS is installed on the outside of the door, while the BDF20 with emergency stop and illuminated push button is installed on the inside of the door.

DOOR HANDLE SYSTEM DHS-U1

NEW STANDARDS IN ERGONOMICS, FUNCTIONALITY AND DESIGN

DOOR HANDLE SYSTEM DHS-U1

- NEW**
- Can now also be combined with BDF20
 - Machine status directly recognisable on the handle
 - Ergonomic door handle for left or right-hinged guard doors
 - Optimised for solenoid interlock AZM40
 - Can also be used with RSS36 and RSS260 safety sensors



Connector and cover cap

In the door interlock system, the DHS door handle combines the function of a robust handle with the display of various machine statuses. These are signalled over a large area via the lighting of the DHS in seven different colours, which can be individually controlled by the user to display the defined machine status in each case.



The door interlock system is designed to work perfectly with the AZM40 solenoid interlock and the BDF20 and BDF40 control panels. In addition, the door handle can also be combined with safety sensors from the RSS36 and RSS260 series if no locking function is required.

SAFETY LIGHT CURTAINS / SAFETY LIGHT GRIDS

SLC/SLG440COM WITH A WIDE RANGE

SAFETY LIGHT CURTAIN SLC440COM...H



- Hand protection with a range up to 30 m
- Resolution 30 mm
- Protection field 330 to 1,930 mm
- Active integrated set-up tool
- Status and diagnostics with Schmersal 'SLC Assist' app via Bluetooth® LE interface



The new SLC440COM...H safety light curtains and SLG440COM...H safety light grids offer expanded ranges for reliable safeguarding of extensive systems, conveyor routes and platforms on underground networks operating autonomous rail vehicles.

With ranges of up to 30 metres (SLC440COM) or 60 metres (SLG440COM), they offer reliable hand or body protection and enable monitoring over large distances with minimal installation effort.

SAFETY LIGHT GRID SLG440COM...H



- Body protection with a range up to 60 m
- Resolution 300, 400, 500 mm
- Protection field 500 to 900 mm
- Active integrated set-up tool
- Status and diagnostics with Schmersal 'SLC Assist' app via Bluetooth® LE interface



Using mirrors, entire areas can be safeguarded and monitored with just a single safety light curtain or light grid.

This solution reduces both the installation effort and the acquisition costs. In addition, the safety light curtains and light grids have a Bluetooth® LE interface which can be used in conjunction with the "SLC Assist" app for easy monitoring and diagnosis.

SOLENOID INTERLOCK AZM150

SLIMLINE DESIGN – HIGH CODING LEVEL

SOLENOID INTERLOCK AZM150

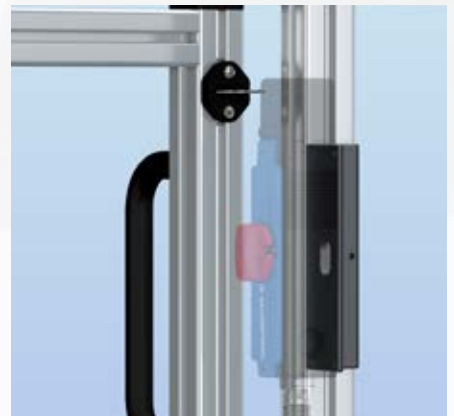
- Holding force $F_{zh} = 1,500 \text{ N}$
- Actuating head can be repositioned by $4 \times 90^\circ$
- NEW** ■ Push button for emergency exit in the danger zone or emergency release
- NEW** ■ Door handle DHS-AZM150, optionally with ball handle for opening a safety guard within the danger zone
- Variants with 8-pole M12 connector plug, compatible connection to SFB safety fieldbox



Red ball handle for opening a safety guard from the danger zone



Optional accessories:
Bowden cable for remote release



Straight and angled mounting plates
for easy mounting on profile systems

SAFETY FIELDBOX SFB

COST-OPTIMISED, DECENTRALISED INSTALLATION SOLUTION

SAFETY FIELDBOX SFB

NEW NOW AVAILABLE IN 3 FIELDBUS VARIANTS

SFB-PN-IRT-8M12-IOP-V2



SFB-EIP-8M12-IOP

EtherNet/IP™



SFB-EC-8M12-IOP

EtherCAT®
Safety over
EtherCAT®



PRODUCT PROPERTIES

- 8 universal 8-pin M12 device ports
- Connection of electronic and electro-mechanical switchgear devices
- 4 control panels (with EMERGENCY STOP) connectable
- 1-channel and 2-channel control of the interlocking function
- Automatic resettable fuse integrated
- M12 power connector with a current carrying capacity of 10 A
- Robust industrial design

Thanks to the safety fieldbox, a wide variety of safety switchgear can be connected decentrally in the field and freely linked in the safety controller. Straightforward connection with M12 connectors allows for quick and fail-safe installation.

The power supply to the fieldbox is provided via M12 power connectors with a current capacity of 10 A. Due to the cable cross-section of 3 mm², the installation of the fieldboxes in series connection with only one central supply is possible.

Device ports

8 connector M12,
8-pole

LED diagnostic

Extended status indication
of the safety switchgear

Communication

PROFINET/PROFIsafe (PN)
EtherNet/IP/CIP-Safety (EIP)
EtherCAT/FSOE (EC)

Power supply

M12 power connection with 10 A

Signal assignment

- 2 × F-DI: 2-channel safety input
- 1 × F-DQ: Safety output, internal, 2-channel
- 1 × DI: Digital input for diagnostic signal
- 2 × DQ test pulse: 2 test pulse outputs for NC contacts
- 24V and GND: Power supply of the connected safety switchgear

LED diagnostic

Extended status indication
of the safety fieldbox



UNIQUE OPPORTUNITIES

In addition to electronic and electromechanical safety sensors and switches, light grids, light curtains and light barriers can also be connected to a single device connection via Y-adapters.

A particular highlight of the Schmersal SFB is the ability to connect up to 8 solenoid interlocks with 1-channel or 2-channel actuation of the guard locking function. The option to connect up to 4 control panels with emergency stop button and up to 3 non-safe command and signalling devices is unique.



CONTROL PANELS BDF20 AND BDF40-FB FOR DIRECT CONNECTION TO THE SFB

CONTROL PANEL BDF20

- A variant with emergency stop and an illuminated push button for connection to the SFB is available
- Slim 40 mm design made of glass fibre reinforced plastic with IP65 degree of protection
- Flexibility thanks to push button cover caps in 12 colours
- Quick and error-free connection to SFB via 8-pole M12 connector



CONTROL PANEL BDF40-FB

- 2 variants available with emergency stop and 3 illuminated push buttons or with 4 illuminated push buttons
- Slim 40 mm design made of glass fibre reinforced plastic with IP65 degree of protection
- Up to 4 BDF40-FB devices can be connected to one SFB
- Flexibility thanks to push button cover caps in 12 colours
- Quick and error-free connection to SFB via 8-pole M12 connector
- Generous open spaces for easy labelling

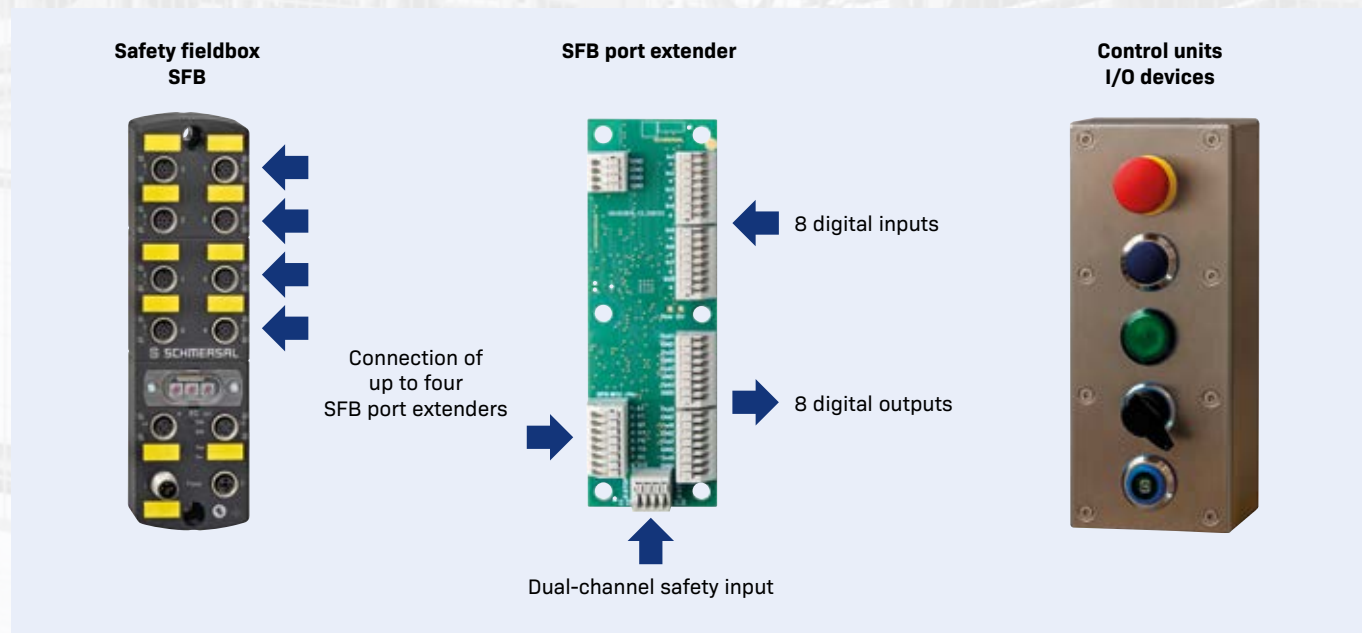


SFB PORT EXTENDER

EXTENSION MODULE WITH ADDITIONAL DIGITAL INPUTS AND OUTPUTS

SFB PORT EXTENDER

- Built-in module, can be used for customised control panels with e.g. illuminated buttons and emergency stop or for connecting other digital I/O devices
- Up to 4 SFB port extenders can be connected to one SFB
- 8 digital inputs 24 VDC for connecting electromechanical or electronic switches
- 8 digital outputs 24 VDC / 300 mA for connecting LED light indicators, lamps and other loads. Total current maximum 800 mA.
- 2-channel safety input for connecting electromechanical safety switches with contacts



The new SFB port extender extends the connection options of the safety fieldbox SFB: up to four PCB modules can be connected to one SFB, each of which enables the connection of additional switching devices – for maximum flexibility in your application.

The advantage: Even non-safe switching devices can be easily connected to the SFB in the field and analysed via the three supported fieldbus protocols. The SFB port extender and the connected switching devices are supplied with power directly via the SFB connection.

INDUCTIVE PROXIMITY SWITCHES IFL POSITION DETECTION AND MONITORING

INDUCTIVE PROXIMITY SWITCHES IFL EFFICIENCY LINE

NEW

- Complete product family: M8, M12, M18 and M30
- Metal enclosure (M8 variant made of stainless steel)
- Temperature range -25 °C up to $+70\text{ °C}$
(M8 for up to $+80\text{ °C}$)
- With integrated diagnostic LED to indicate short circuit or overload
- Optionally with connecting cable or built-in plug
- UL approval



The IFL inductive proximity switch from Schmersal is the standard solution for non-contact detection of metallic objects for position detection and monitoring in industrial applications.

The new proximity switches offer maximum flexibility thanks to a 4-wire solution with antivalent output function with NC and NO contacts. The integrated LED indicator lights up not only when objects are detected, but also

has a diagnosis function to quickly and reliably indicate short-circuits and overloads. This helps to boost operational safety and makes for easier fault diagnosis in ongoing operation. The UL approval complements the new IFL generation profile and opens up new additional opportunities on the global market.

SAFETY SENSOR BNS 40S

- Enhanced temperature range up to 100 °C

- Suitable for the food processing industry
- Stainless steel enclosure
- Concealed mounting possible
- Insensitive to transverse misalignment



In combination with the stainless steel housing and the contactless, electromagnetic mode of operation, the sensor is particularly suitable for use in hygiene-sensitive applications such as food processing.

Despite their compact design, the BNS sensors achieve high switching distances. Concealed mounting is also possible, as the sensor technology works through plastic and even stainless steel covers.

TIME OF FLIGHT CAMERA AM-T100

3D DEPTH IMAGES FOR THE AUTOMATION OF INDUSTRIAL MANUFACTURING PROCESSES, LOGISTICS AND ROBOTICS

TIME OF FLIGHT CAMERA AM-T100

- High-resolution 3D depth images thanks to Sony DepthSense™ technology
- High frame rate of up to 60 fps
- 67° × 51° field of view with a range of up to 6 m*
- Optimally adaptable to different ambient and mounting conditions

* Depending on the remission properties of the target objects, a range of up to 30 m can be achieved.

APPLICATIONS

- Customised application in the areas of pick & place, presence monitoring, dimension and volume detection, etc.
- Monitoring of 3-dimensional areas with the CONSAM-T software
- Standardised data interface for creation of individual applications

The AM-T100 is a time-of-flight camera (ToF camera) that uses a Sony DepthSense™ sensor to generate high-resolution 3D depth images. The high frame rate of up to 60 fps enables efficient use in industrial manufacturing processes, logistics and robotics.

With powerful IR illumination and 640 × 480 pixel image resolution, the AM-T100 achieves a 67° × 51° field of view with a range of up to 6 m*.



Original size

High-performance algorithms enable pre-filtering of the data so that the camera can be optimally adapted to different ambient conditions. The AM-T100 is a GigE vision camera that makes its image data available to common image processing software via the standardised data interface GenICam. Schmersal also offers support in the creation of customised applications. These can range from configurable applications directly on the camera to complex data analyses on an external PC.

CREATION OF CUSTOMISED APPLICATIONS

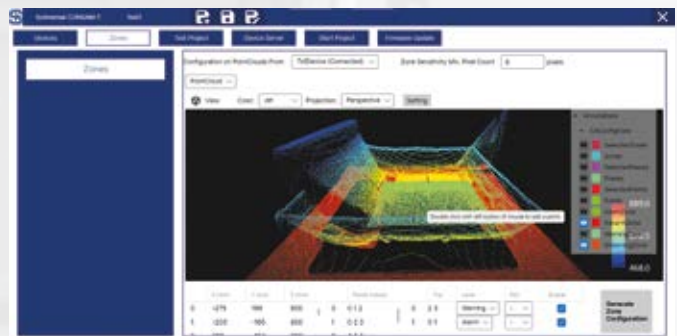
Typical areas of application for the camera are pick & place, presence control, dimension/volume detection or pattern recognition. Our SCHMERSAL engineering team provides support in the creation of customised software solutions and integration into the existing system environment. Depending on customer requirements, we create configurable applications that run on the camera or work with partners with a high level of expertise in the fields of automation and machine vision to create complex 3D image processing solutions on external industrial PCs.



Presence detection and quality inspection

MONITORING OF 3-DIMENSIONAL AREAS

Using the CONSAM-T software, the camera can be configured to monitor complex 3D zones. If objects enter these zones, digital outputs are switched. In addition, digital inputs can be used to switch back and forth between different 3D zones so that even demanding sequences and processes can be monitored.



DATA INTERFACE FOR INDIVIDUAL APPLICATIONS

The camera's 3D data can be used to create customised applications with Machine Vision Software from different developers, including HALCON. In that case, the data is evaluated on an external computer, which forwards the results to a control system.



Fast detection of the filling level

PULL-WIRE EMERGENCY STOP SWITCHES ZQ215 / ZQ315 PULL-WIRE SWITCHES TQ215 / TQ315 COMPACT PULL-WIRE SWITCHES WITH THREE PULLING DIRECTIONS

PULL-WIRE EMERGENCY STOP SWITCHES ZQ215 / ZQ315 PULL-WIRE SWITCHES TQ215 / TQ315

NEW

- Pulling direction of the eye upwards
- Wire pull and breakage detection
- Latching mechanism for pull-wire emergency stop switch with manual RESET button
- Suitable for wire lengths of up to 25 m
- Compact metal enclosure
- Optionally available with status LED



A new addition to the range is a vertical pull-wire offset with an upward-facing eyelet. It complements the previous variants, in which the pull-wire offset points either to the left or right, and enables wire lengths of up to 25 metres.

The pull-wire switches in this series have been specially developed for use in demanding environments with limited installation space. Thanks to a robust metal housing, a wide temperature range and a high degree of protection, they are ideal for use outdoors or in harsh environments, for example in mining, heavy industry or raw materials processing.

We remain true to our modular concept with this series too: all pull-wire switches can be individually configured according to customer requirements – with up to three switching contacts, various connection options and optional LED status displays.

All versions are also available as pull-wire emergency stop switches (ZQ...). If the emergency stop function of the pull-wire emergency stop switch is activated, a latching mechanism maintains the switching command until the switch is manually unlocked by pulling the blue release button and reset to its initial position.

THE FUTURE OF SAFE COMMUNICATION

AN OUTLOOK ON IO-LINK SAFETY



COMING
SOON

Schmersal is working on a new device platform that will support IO-Link Safety in the future and thus open up a new dimension of safe communication. The first products in this series will be the AZM42-IOL-S solenoid interlock and the RSS362-IOL-S safety sensor.

IO-Link Safety makes it possible to transfer safety-relevant data just as easily and in the same standardised way as diagnostic data – and via the same interface.

This opens up numerous advantages:

- Standardised interface for standard and safety devices
- Simplified installation thanks to reduced wiring and clear structure
- Extended diagnostic options that reduce failures and facilitate maintenance
- More transparency about the condition of the entire system
- Future-proof integration into modern, networked production environments



Solenoid interlock AZM42-IOL-S

With these developments, we are already shaping the path to the safe communication of tomorrow. IO-Link Safety is more than just a technical feature – it is a milestone for greater efficiency, flexibility and safety in your machines.



Safety sensor RSS362-IOL-S

Look forward to the next level of machine safety – with Schmersal and IO-Link Safety.

SOLENOID INTERLOCK EX-AZM300

VERSIONS FOR EXPLOSION PROTECTION



SOLENOID INTERLOCK EX-AZM300-3G/2D

- Zone 2 and 21 (gas and dust atmospheres)
- Ex ec (gas) – increased safety
- Ex tb (dust) – protection by enclosure
- Includes protective enclosure
- Suitable for applications up to Cat. 4 / PL e / SIL 3
- Manual release



Ex tb (dust)
Protection
by enclosure



Ex ec (gas)
Increased
safety

ZONE 0 / 20

ZONE 21

ZONE 2

SOLENOID INTERLOCK EX-AZM150

VERSIONS FOR EXPLOSION PROTECTION

SOLENOID INTERLOCK EX-AZM150-3GD



- Zone 2 and 22 (gas and dust atmospheres)
- Ex nR (gas) – restrictive breathing enclosure
- Ex tc (dust) – protection by enclosure
- Actuating head can be repositioned by $4 \times 90^\circ$
- Holding force $F_{zh} = 1,500 \text{ N}$
- Latching force 50 N
- Suitable for applications up to cat. 3/PL d



Ex nR (gas)
Restrictive
breathing
enclosure

Ex tc (dust)
Protection
by enclosure



- Zone 1 and 21 (gas and dust atmospheres)
- Ex mb (gas/dust) – encapsulation
- Suitable for food processing industry
- Stainless steel enclosure
- Concealed mounting possible
- Insensitive to transverse misalignment



ZONE 0 / 20

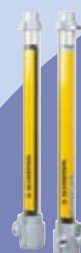
NON-CONTACT SAFETY SYSTEMS

VERSIONS FOR EXPLOSION PROTECTION



SAFETY LIGHT CURTAINS/GRIDS EX-SLC/SLG440-2GD

- Zone 1 and 21 (gas and dust atmospheres)
- Ex db op is (gas) – flameproof enclosure, optical radiation
- Ex tb op is (dust) – protection by enclosure, optical radiation
- Protective enclosure made from copper-free aluminium, borosilicate glass and silicone gaskets
- Degree of protection IP66, IP67



Ex db op is (gas)
Flameproof enclosure,
optical radiation

Ex tb op is (dust)
Protection by
enclosure,
optical radiation



excellence in safety

tec.nicum is the Schmersal Group's business unit for solutions and services related to machine, plant and occupational safety.

Schmersal restructured its service business in 2024. The range of safety services offered by tec.nicum has been significantly expanded – particularly with regard to digitalisation and complete solutions for machine safety – and the global activities and expertise have been more closely integrated.

In April 2024, Schmersal founded tec.nicum – Solutions & Services GmbH as a new subsidiary, which also incorporated omnicon engineering GmbH, which Schmersal had already acquired in 2019. The headquarters of the new subsidiary is located in Kirkel-Limbach, Germany.

The four pillars on which tec.nicum's offering has been built to date – academy, consulting, engineering and integration – have been supplemented by two more: digitalisation and outsourcing.

digitalisation: tec.nicum is increasingly offering newly developed software solutions, such as a new tool for carrying out risk assessments, as well as new digital technologies such as cloud solutions, IIoT applications, digitalised lockout-tagout procedures and energy management tools.

outsourcing: tec.nicum offers companies the opportunity to completely outsource all tasks related to machine safety, from the planning and installation of control cabinets to the design of holistic safety solutions. tec.nicum provides the user with ready-to-connect plug & play solutions.

Thanks to its worldwide consultancy network, tec.nicum services are available around the globe. tec.nicum provides customers with competent, product- and manufacturer-neutral advice and supports them in the safety-related design of their machines and production lines.

tec.nicum
Schmersal Group

tec.nicum – Solutions & Services GmbH
Kirkel office

Friedrichstraße 65
66459 Kirkel-Limbach

Phone: +49 6841 77780-0
E-mail: info-en@tecnicum.com
Web: www.tecnicum.com

tec.nicum – Solutions & Services GmbH
Wuppertal office

Möddinghofe 30
42279 Wuppertal

Phone: +49 202 6474-932
E-mail: info-en@tecnicum.com
Web: www.tecnicum.com





academy

Education center

- Training courses
- Customer-specific trainings
- In-house seminars
- Certified courses (mce.expert and FSE)



consulting

Analysis and documentation

- Technical support
- Risk assessment
- CE conformity assessment
- Evaluation of machines and production lines
- Reports



engineering

Planning and design

- Technical project planning
- Conceptual project development
- Electrical and mechanical design
- Executive project management



integration

Practical application

- Turnkey approach
- Installation
- Retrofit



digitalisation

Software integration

- tec.**ps** (Product Service System)
- tec.**ssm** (Schmersal Smart Machine)
- tec.**cvs** (AI and Computational Vision Solutions)
- tec.**dloto** (Digital Lockout Tagout)
- tec.**ems** (Energy Monitoring System)



outsourcing

Serial solutions

- Plug & Play products
- Engineer to Order projects
- Systems and cabinets



tec.nicum

The range of services offered by tec.nicum comprises six segments: academy (knowledge transfer), consulting (advisory services), engineering (technical planning), integration (execution and implementation), digitalisation (software solutions and new digital technologies) as well as outsourcing (complete solutions).

THE SCHMERSAL GROUP

PROTECTION FOR MAN AND MACHINE

In the demanding field of machine safety, the owner-managed Schmersal Group is one of the international market leaders. The company, which was founded in 1945, has a workforce of about 2,000 people and seven manufacturing sites on three continents along with its own companies and sales partners in more than 60 nations.

Customers of the Schmersal Group include “Global Players” in mechanical engineering and plant manufacturing and operators of machinery. They benefit from the company’s extensive expertise as a provider of systems and solutions for machine safety. In addition, Schmersal specialises in various areas including intralogistics, foodstuff production, the packaging industry, machine tool industry, lift switchgear, heavy industry and the automotive industry.

A major contribution to the systems and solutions offered by the Schmersal Group is made by tec.nicum with its comprehensive range of services: Certified Functional Safety Engineers advise machinery manufacturers and machinery operators in all aspects relating to machinery and occupational safety – and do so with product and manufacturer neutrality. Furthermore, they design and realise complex solutions for safety around the world in close collaboration with the clients.



SAFETY PRODUCTS

- Safety switches and sensors, solenoid interlocks
- Safety controllers and safety relay modules, safety bus systems
- Optoelectronic and tactile safety devices
- Automation technology: position switches, proximity switches

SAFETY SYSTEMS

- Complete solutions for safeguarding hazard areas
- Individual parametrisation and programming of safety controllers
- Tailor-made safety technology – be it for individual machines or a complex production line
- Industry-specific safety solutions

SAFETY SERVICES

- tec.nicum academy – Seminars and training
- tec.nicum consulting – Consultancy services
- tec.nicum engineering – Design and technical planning
- tec.nicum integration – Execution and installation
- tec.nicum digitalisation – Software solutions and new digital technologies
- tec.nicum outsourcing – Complete solutions



x.000 / SLW / 11.2025 / Teile-Nr. 101211017 / EN / Ausgabe 18