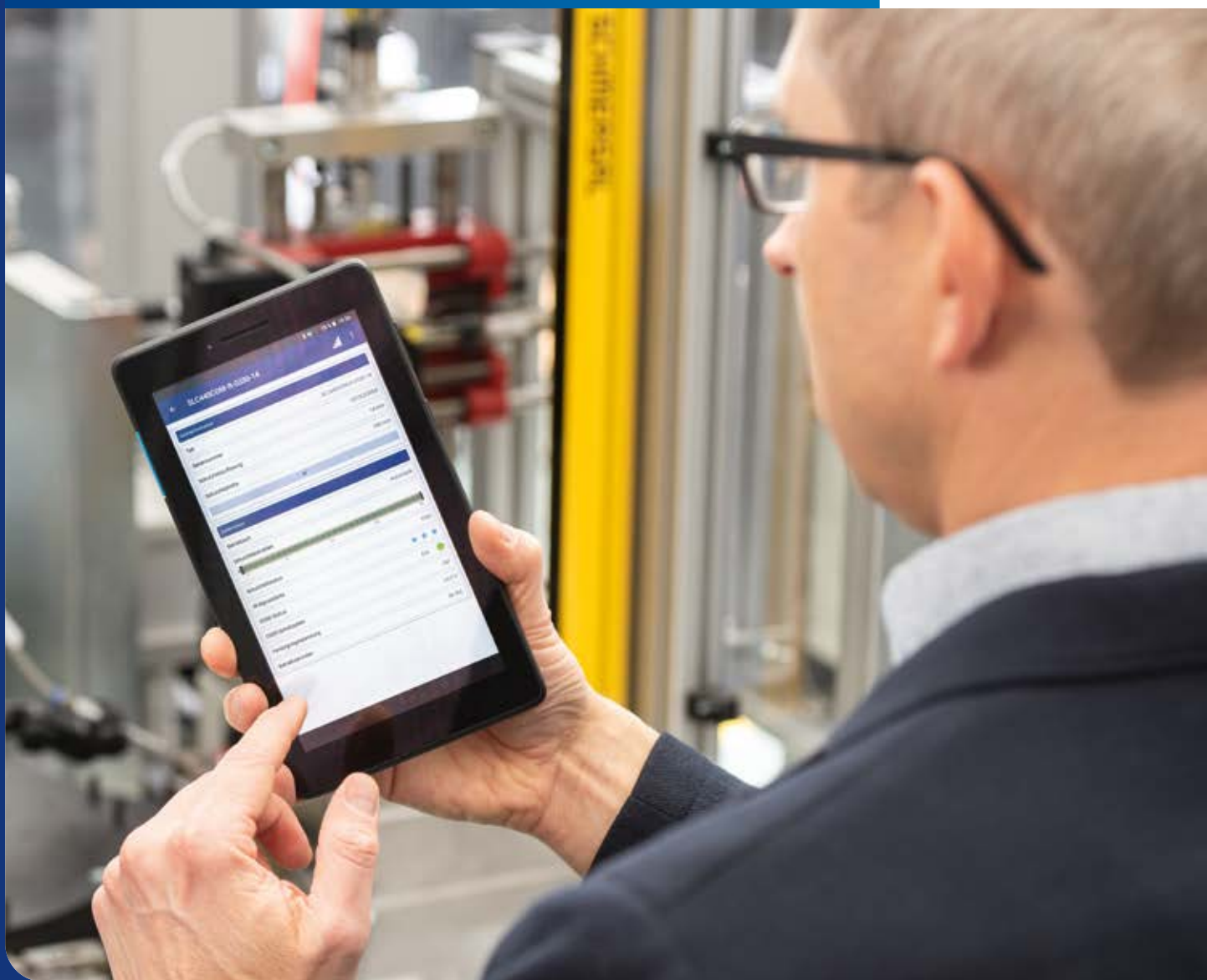


Safety in system  
Protection for man and machine

# INNOVATIONS 2019/2020

NEW



**SCHMERSAL**  
THE DNA OF SAFETY



## THE DNA OF SAFETY®

Machine safety is a complex topic. Companies are increasingly calling on qualified specialists for support. For us, safety is in our genes – the company is now managed by the third generation of the Schmersal family, but that's not the only reason. Competence and expertise when it comes to machine safety are just part of our DNA, allowing us to develop excellent safety concepts for individual plants for machine builders and operators. We're constantly adding new innovations to our range of products, you'll find some of them in this brochure. Our new products, like the safety fieldbox, allow us to design better and more efficient safety solutions to match the applications and requirements of our customers.

**Heinz Schmersal and Philip Schmersal**

General Managers

# PROTECTION FOR MAN AND MACHINE

## COMPLETE SOLUTIONS FROM A SINGLE SOURCE

The Schmersal Group is your one-stop shop for comprehensive solutions, developing customised safety architectures, which comprise components, control systems and software. These architectures are tailored to your application and facilitate the integrated communication of diagnostic information from each component to the Cloud.

Easily configure your customised safety solution by choosing from a set of building blocks – from the individual component to the full service package with turnkey delivery of complex safety systems. With its extensive range of safety services and technical training courses, our business unit tec.nicum has been established to meet this demand.

### Safe signal processing



Safety-monitoring module  
PROTECT SRB-E



Safety module  
PROTECT SELECT



Safety controller  
PROTECT PSC1

### Installation systems



Parallel wiring  
Safety Fieldbox



Series wiring  
Passive Fieldbox



Extended diagnostic  
SD interface



AS interface  
Safety at Work

### Safety switchgear



### tec.nicum



integration



engineering



consulting



academy

# SOLENOID INTERLOCK AZM40

## THE SMALLEST ELECTRONIC SOLENOID INTERLOCK IN THE WORLD



Original size

The AZM40 has a bistable interlock principle, allowing the last lock state to be retained in the event of a power failure. Even with hazardous run-on movements, the safety door remains safely interlocked. Thanks to the 180 degree angle flexibility, the actuator can approach the

AZM40 continuously so that the interlock can also be used on flaps that do not close at a 90 degree angle or that open upwards at a 45 degree angle. The angle flexibility ensures that the interlock can be easily installed even in confined and difficult-to-access locations.



## Solenoid interlock AZM40

- Small construction form  
(WxHxD: 40 x 119.5 x 20 mm)
- Bistable principle of operation
- High holding force  $F_{Zh} = 2,000 \text{ N}$
- Latching force approx. 25 N
- Individually coded version with  
coding level "High" according to ISO 14119
- Suitable for applications  
up to Cat. 4 / PL e / SIL 3



- Actuator can approach interlock  
continuously within a 180 degree angle
- Optimised for mounting on 40 mm profiles
- Symmetrical mounting,  
can be bolted on either side
- Only one version for hinged and  
sliding doors
- LEDs visible from three sides



# SOLENOID INTERLOCK AZM150

## SLIMLINE DESIGN – HIGH CODING

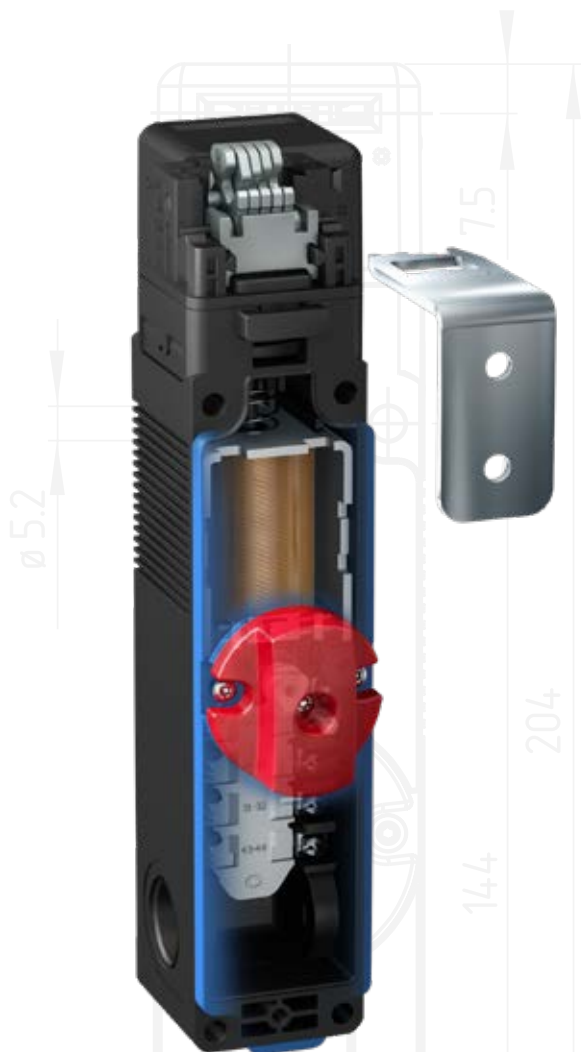


The new AZM150 electromechanical interlock boasts a slimline design and a clamping force of 1,400 N. The AZM150 can be combined with a range of different actuators to suit different mounting situations, including a straight or angled actuator for sliding guards and a flexible actuator for small hinged guards.

### Solenoid interlock AZM150

- Actuating head can be repositioned by 4x 90°
- Holding force  $F_{Zh} = 1,400 \text{ N}$
- Latching force 30 N
- Individually coded version with coding level "High" according to ISO 14119
- Power to unlock / Power to lock
- Suitable for applications up to Cat. 3/PL d

One major benefit of the interlock is the rotating actuator head which, instead of a bolted connection, can be locked in place simply by pressing the cover down. The 360 degree rotating actuator head with its two insert slits allows for a range of mounting and approach options for highly versatile use.



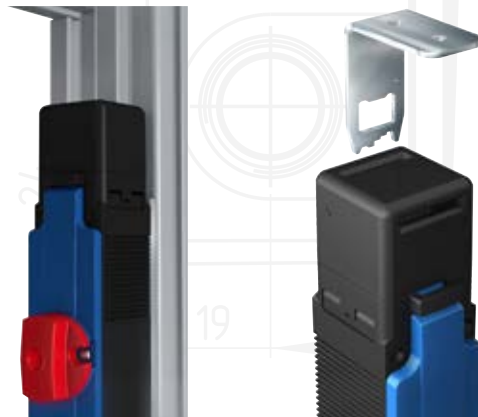
- 4 switching contacts
- Manual release, emergency exit or emergency release
- Protection class IP66 / IP67
- Compatible with 40 mm profiles
- WxHxD: 40 x 204 x 48 mm
- Thermoplastic enclosure



Eight approach levels thanks to rotating actuator head



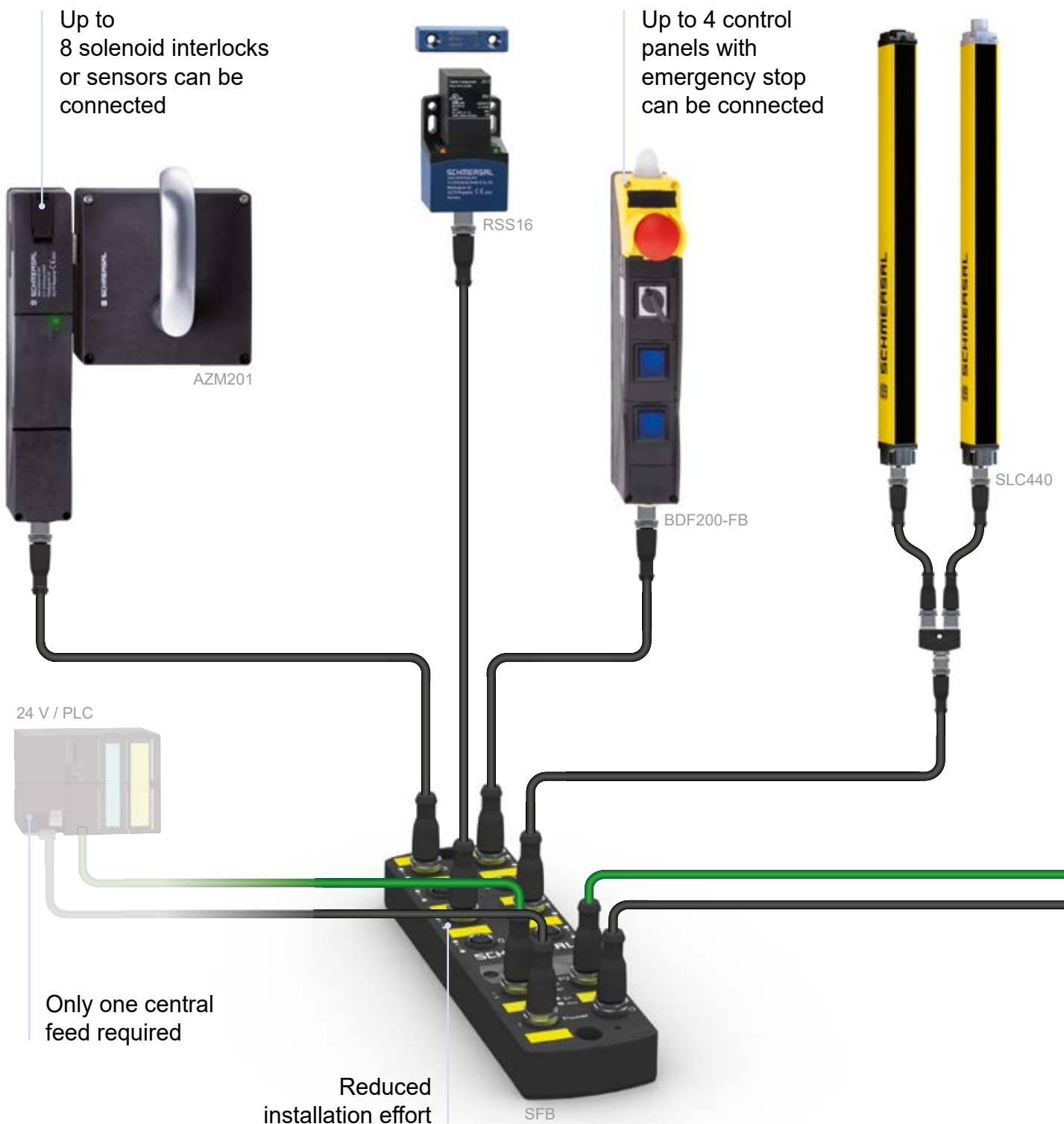
Flexible actuator for rotating guard systems



Individually coded version with coding level "High" according to ISO 14119

# SAFETY FIELDBOX SFB

## THE NEW INSTALLATION SYSTEM FROM SCHMERSAL







RSS260



AZM300



RSS36



AZM400

Cable protection –  
integrated automatic  
resettable fuse

2-channel control  
of the interlocking  
function

Optimum process transparency:  
transfer of all diagnostic signals



Fail-safe  
installation



SFB

M12 power connector with  
10 A current carrying capacity

# SAFETY FIELDBOX SFB

## DECENTRAL AND FLEXIBLE DEPLOYMENT



### Safety fieldbox SFB

- 8 universal 8-pin M12 device ports
- Connection of electronic and electromechanical 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 10 A current carrying capacity
- Robust industrial design
- PROFINET/PROFIsafe field bus interface



The safety fieldbox allows a wide range of safety switchgear devices to be connected in the field and freely interlinked on a decentralised basis. Straightforward connection with M12 connectors allows for quick and fail-safe installation.

The power supply to the fieldbox is via an M12 power connector with a current carrying capacity of 10 A. The cable section of 3 mm<sup>2</sup> allows for simple installation of the fieldboxes in series with a single central power supply.

# CONTROL PANEL BDF200-FB

## MODULAR SYSTEM OPTIMISED FOR SAFETY FIELDBOX



### Control panel BDF200-FB

- Electronic emergency stop function with integrated OSSDs
- Large selection of illuminated control push buttons, key switches, indicator lights and selector switches
- Up to 4 control panels with electronic emergency stop function and 3 operational command and signalling devices can be connected to the SFB.
- Plug and play solution for connection to the safety fieldbox
- Emergency stop, start/stop and reset functions available
- Slimline, shock-resistant enclosure for mounting to 40 mm profile systems

# NON-CONTACT SAFETY SYSTEMS

## MULTIFUNCTIONAL AND EFFICIENT

### Safety light curtains/grids SLC/SLG440COM with integrated Bluetooth interface



- Transfer of status and diagnostic data over the Bluetooth interface
- App for Android and iOS
- Performance Level PLe, Safety type 4
- Beam blanking device for fixed and moving objects
- User-friendly parameter setting, no tools required
- Integrated set-up tool

**GIT**  
**SECURITY**  
**AWARD**  
**2020**  
**FINALIST**

The first safety light barrier with integrated Bluetooth interface from Schmersal:  
The SLC/SLG440COM with Bluetooth BLE is an opto-electronic safety system which, thanks to a Bluetooth interface, can supply all status and diagnostic data on the switching condition of the device to a smartphone or tablet in real time. In addition, the Bluetooth interface also enables easy commissioning by smartphone or

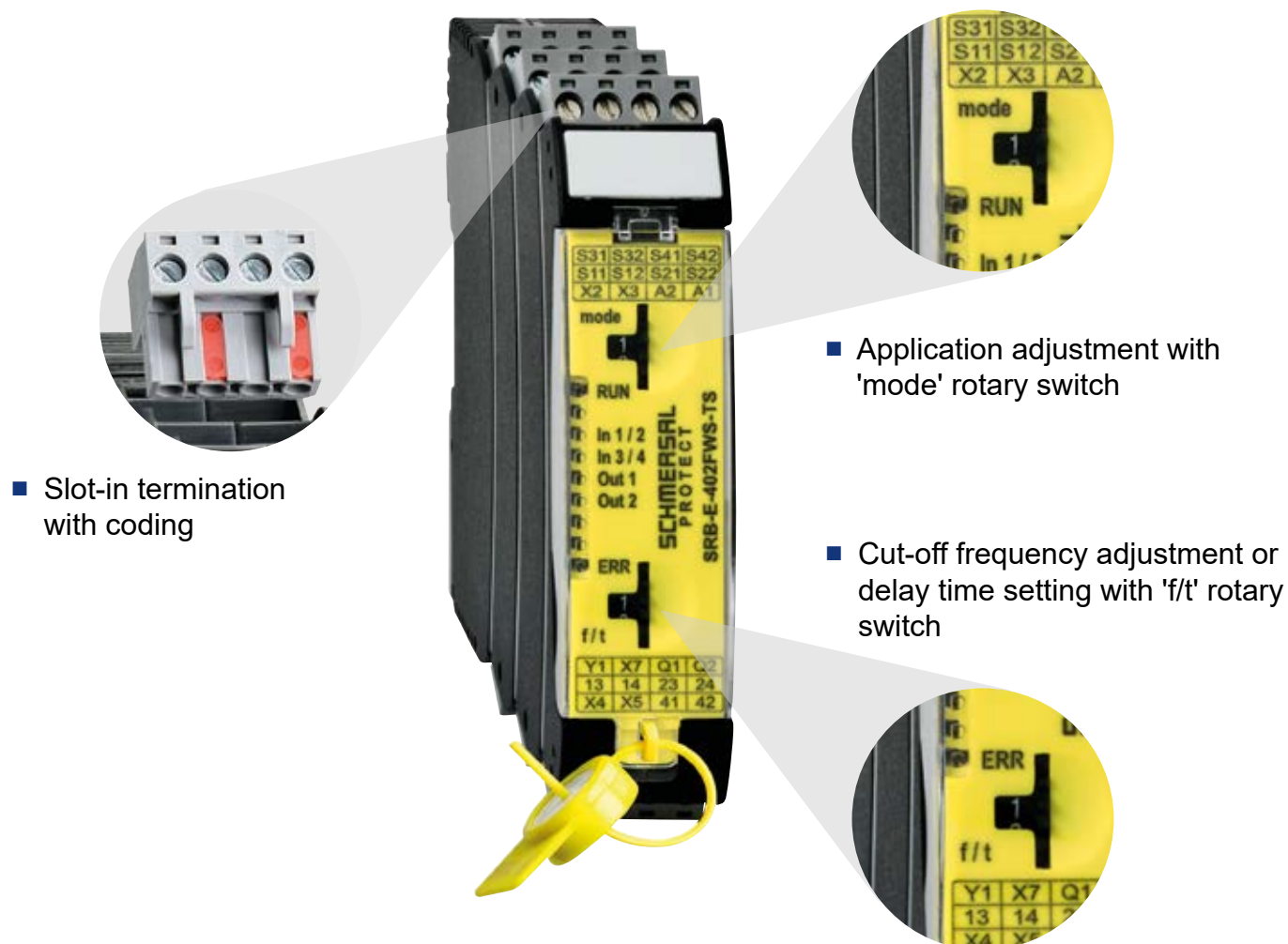
tablet through the integrated setup assistant. An additional benefit: data can be saved, allowing them to be used for documentation purposes in predictive maintenance. A proprietary Schmersal app allows data communication with smartphones or tablets (Android, iOS). BLE is the acronym for Bluetooth Low Energy, a wireless system for near-field data transmission with secure transmission technology.

# STANDSTILL MONITORING, TIME MONITORING AND SAFETY GUARD MONITORING

## NEW SAFETY RELAY VERSION WITH THREE FUNCTIONS

### Safety relay module SRB-E-402FWS-TS

- Three functions in one device:
  - safe standstill monitoring,
  - fail-safe delay timer and
  - safety guard monitoring
- Easy configuration with rotary switch
- Actuation delay time adjustable
- Detects standstill using 1 or 2 impulse sensors
- Standstill frequency adjustable
- Additional standstill signal as an option
- 1 or 2 channel signal evaluation



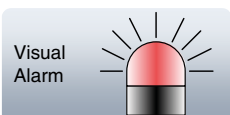
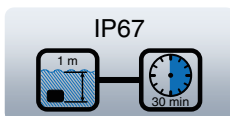
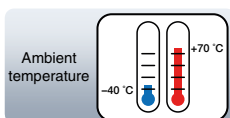


# HEAVY DUTY SWITCHES HDS

## THE FLEXIBLE AND MODULAR SWITCHGEAR PLATFORM



up to PL e  
ISO 13849-1



### Pull-wire emergency stop switches RS656/RS656 at a glance

- Length of wire up to 2 x 100m, with integrated wire breakage and pull function
- 2 NC / 2 NO contacts
- Pressure-setting plastic or grey cast iron enclosure
- central connection terminal
- Mechanical switching position indication
- Optionally available with 2-wire field bus solution

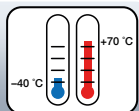
### User benefit

- The emergency stop function can be triggered at any point on the wire.
- The maximum length of wire of 2 x 100 m reduces the number of switches required, thereby saving costs
- Reduced installation costs thanks to central connection terminal
- Pressure-setting plastic enclosure for various application environments
- Includes DuplineSafe® interface: fail-safe series wiring including diagnostics with minimal wiring effort
- Can be attached to various competitor products



up to PL d  
ISO 13849-1

Ambient  
temperature



IP66

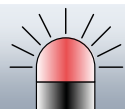


IP67



**Dupline®**  
Fieldbus Installationbus

Visual  
Alarm



## Basic switches BS655/BS656 at a glance

- Toothed shaft for form-fit connection of a range of function units
- Up to 3 NO / 3 NC contacts
- Pressure-setting plastic or grey cast iron enclosure
- Central connection terminal (2 NO / 2 NC contacts)
- Adjustable switching angle
- With optional 2-wire field bus solution

## User benefit

- Product platform concept, can be combined with different function units (actuators)
- All variants can be used as a safety switch
- Reduced installation costs thanks to central connection terminal (2 NO / 2 NC contacts)
- Pressure-setting plastic enclosure for various application environments
- Includes Dupline® interface: diagnostics functions with minimal wiring effort
- Can be attached to various competitor products



# HEAVY DUTY SWITCHES HDS

## VERSIONS FOR EXPLOSION PROTECTION



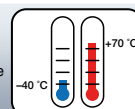
### Heavy Duty Switches HDS RS655 and BS655

- Category 2G and 2D
- Ex ib (gas) – intrinsic safety
- Ex tb (dust) – protection by enclosure
- Wire pull, position or belt alignment switch



up to PL e Cat. 4  
ISO 13849-1

Ambient  
temperature



Ex tb (Dust)  
Protection by  
enclosure

Ex ib (Gas)  
Intrinsic safety



SRB EXI

Zone 22

ZONE 1/21

ZONE 2/22

# SAFETY SENSORS

## PROVEN DESIGN



### Safety sensor EX-RSS16

- Category 3G and 3D
- Ex ec (gas) – increased safety
- Ex tc (dust) – protection by enclosure
- RFID-technology for needs-based protection against tampering
- Individually coded version with coding level "High" according to ISO 14119



up to PL e Cat. 4  
ISO 13849-1



Ex ec (Gas)  
Increased safety

Ex tc (Dust)  
Protection by  
enclosure

ZONE 2/22

ZONE 1/21

Zone 22

# PULL-WIRE EMERGENCY STOP SWITCHES EX-ZQ900

## ROBUST AND FLEXIBLE EMERGENCY STOP FUNCTION



### Pull-wire emergency stop switches EX-ZQ900

- Category 2G and 2D
- Ex ib (gas) – intrinsic safety
- Ex tb (dust) – protection by enclosure
- Reset pushbutton
- Position indication
- Wire pull and breakage detection
- Wire up to 75 m long



Now for  
zone 1/21



Ex tb (Dust)  
Protection by  
enclosure

Ex ib (Gas)  
Intrinsic safety



SRB EXI

Zone 22

ZONE 1/21

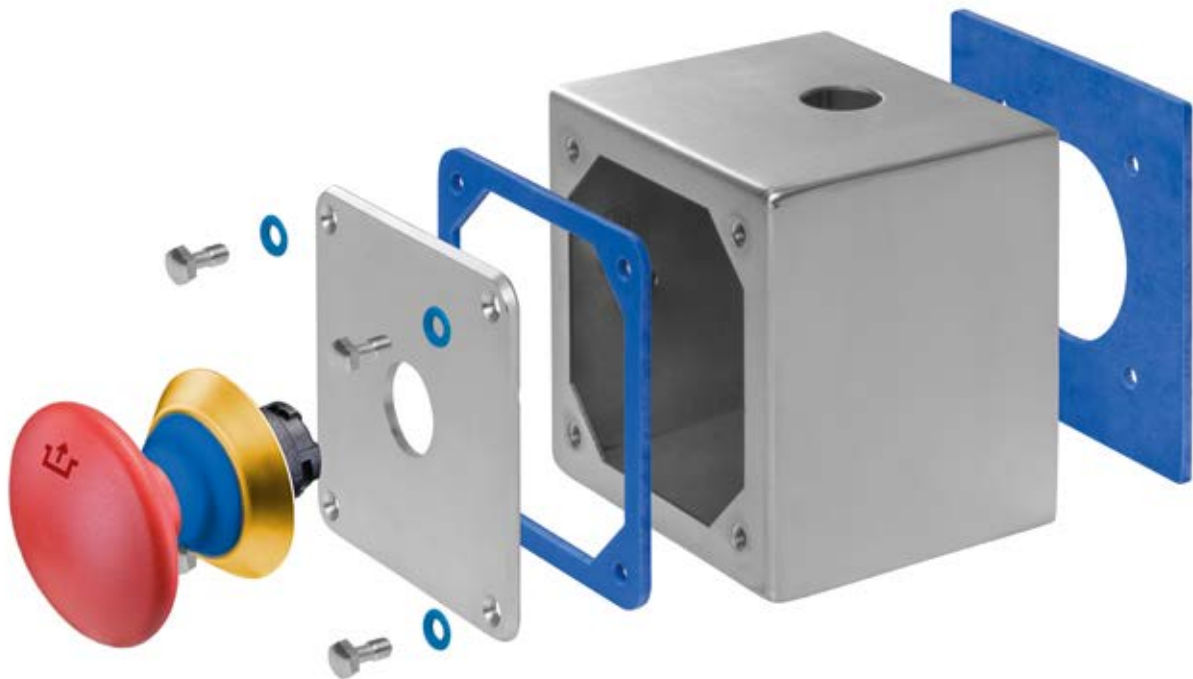
ZONE 2/22



# THE NEW STAINLESS STEEL ASSEMBLY HOUSING TOUGH PERFORMER

## Stainless steel assembly housing NBGLC with IP69K for hygienic applications

- For applications in food processing machinery in accordance with DIN EN 1672-2
- Variable sizes with up to five holes for command devices
- No additional mounting accessories such as spacers required thanks to flange seal under the enclosure
- Special version for NSK protective collar in all enclosure sizes
- Cable entry in the enclosure floor or side



# THE AZ / AZM201 PRODUCT FAMILY

## SAFETY COMPONENTS WITH NEW FUNCTIONS

### AZM201D solenoid interlock with dual safety function

- Two safety functions into one module
- Safety guard monitoring: two safety outputs signal a closed door or door left ajar
- Interlock monitoring: two additional safety outputs signal the locked status
- No additional safety switch required
- Individually coded version with coding level "High" according to ISO 14119
- Suitable for applications up to Cat. 4 / PL e / SIL 3



## Solenoid interlock AZM201 with button and LED

- Button freely assignable
- Release function possible directly on solenoid interlock
- 100% drop-in replacement for predecessor model AZM200
- Suitable for applications up to Cat. 4 / PL e / SIL 3



## AZ201 safety switch

- Individually coded version with coding level "High" according to ISO 14119
- Optional: enhanced diagnostics with SD interface
- Suitable for applications up to Cat. 4 / PL e / SIL 3



# SAFETY SOLUTIONS WITH SYSTEM EXTENSION OF AS-I SAFETY PROGRAMME

## Solenoid interlock AZM201-AS

- Solenoid interlock with integrated AS-i Safety Interface
- Holding force 2,000 N
- Individually coded version with coding level "High" according to ISO 14119
- Manual release, emergency exit or emergency release
- Power to unlock / Power to lock
- 2 different directions of actuation
- Protection class IP67
- Suitable for applications up to Cat. 4 / PL e / SIL 3



## Safety switch AZ201-AS

- Safety switch with integrated AS-i Safety Interface
- Individually coded version with coding level "High" according to ISO 14119
- 2 different directions of actuation
- Protection class IP67
- Suitable for applications up to Cat. 4 / PL e / SIL 3





# SOLENOID INTERLOCKS WITH BOWDEN CABLE

## EVERYTHING UNDER CONTROL

### The bowden cable

- Remote release via a wire rope
- Can be used as
  - Emergency exit release
  - Emergency unlocking feature
- Total length 6 m, sheath length 4 m
- Other individual lengths possible on request

### Solenoid interlock AZM300

- Holding force  $F_{Zh} = 1,150 \text{ N}$
- Switchable latching force (25 N / 50 N)
- Symmetrical mounting for right- and left-hinged doors
- Individually coded version with coding level "High" according to ISO 14119

### Solenoid interlock AZM400

- Bistable, motor-driven system
- Holding force  $F_{Zh} = 10,000 \text{ N}$
- Release possible against lateral forces up to 300 N
- Individually coded version with coding level "High" according to ISO 14119



# POSITION SWITCH

## POSITION SWITCHES WITH NEW FEATURES

### Variants with connectors

- New variants for PS21x and PS31x with 8-pin M12 connectors
- Metal or thermoplastic enclosure



### Enhanced temperature range

- New variants for PS21x and PS31x for down to -40 degree temperature
- Protection class IP66 / IP67



### Position switch

- Wide application range thanks to modular versatility and design
- Switching elements with up to three contacts
- Actuating elements can be rotated in 45 degree steps



## **tec.nicum**

excellence in safety

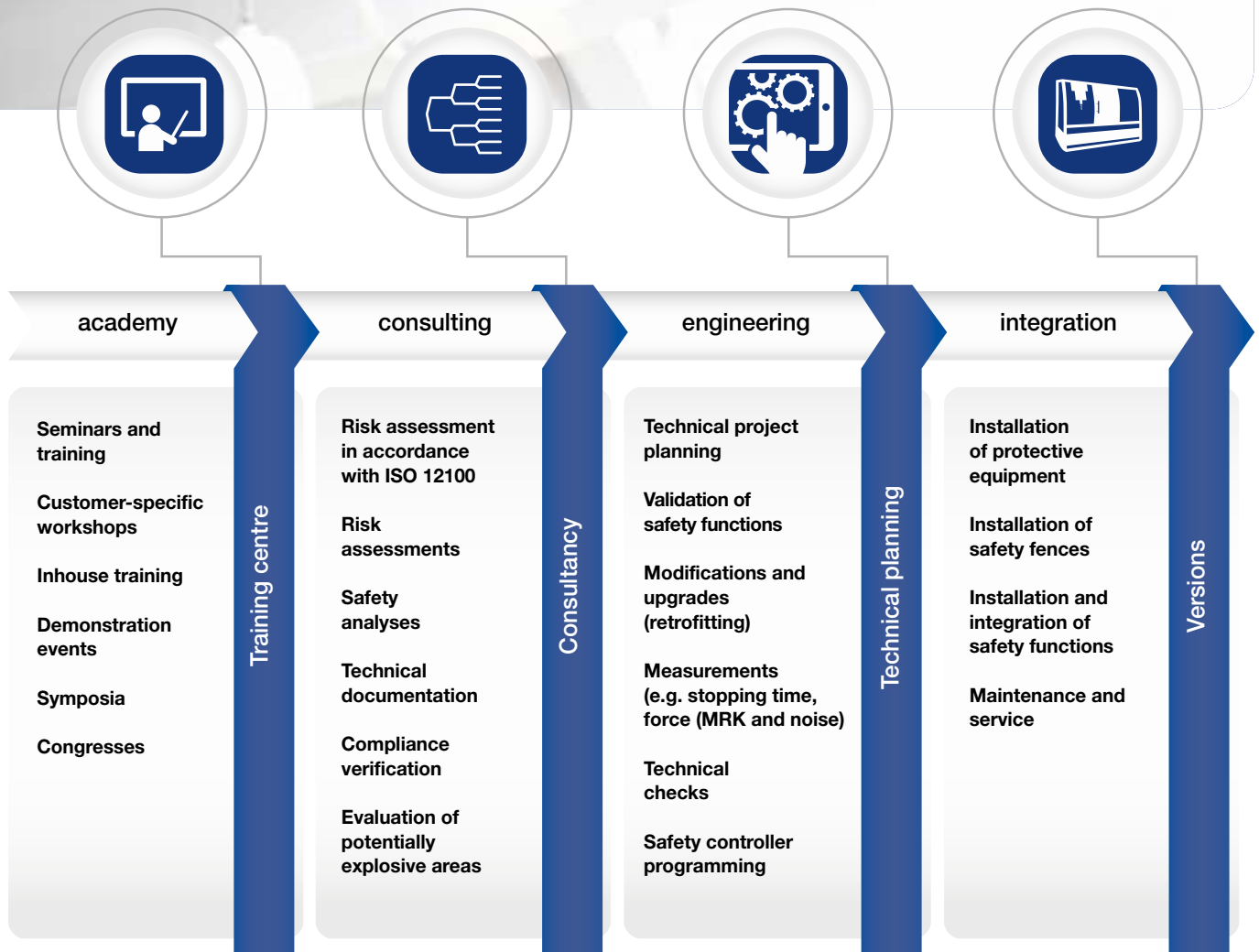
### **tec.nicum – Developed services relating to the machine safety and industrial safety**

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

tec.nicum offers companies a global network of TÜV Rheinland-certified Functional Safety Engineers, so that the services of the international tec.nicum organisation can be accessed quickly and easily wherever the customer is located. tec.nicum experts not only have a sound knowledge of the applicable regional and national guidelines, laws and ordinances, they also have the 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 analysing and designing their machines and workplaces to comply with the 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 **consulting** 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.

#### Contact:

**tec.nicum**

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# 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 2000 people and seven manufacturing sites on three continents along with its own companies and sales partners in more than 60 countries.

Customers of the Schmersal Group include global players from the area of mechanical engineering and plant manufacturing as well as operators of machinery. They profit from the company's extensive expertise as a provider of systems and solutions for machine safety. Furthermore, Schmersal specialises in various areas including food & beverage, packaging, machine tools, lift switchgear, heavy industry and automotive.

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



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