

Systematic Safety
Protection for man and machine

SAFE SIGNAL PROCESSING – THE PROTECT FAMILY

PROTECT SRB, PROTECT SELECT, PROTECT PSC1



SAFE SIGNAL EVALUATION

THE COMPLETE SCHMERSAL PORTFOLIO

Depending on the complexity and number of safety circuits, the Schmersal Group provides solutions for reliable signal monitoring based on safety control modules and safety controllers with an array of visualisation and diagnostic possibilities.



PROTECT SRB MODULES

- Multi-purpose use, easy installation, low cost solution
- SRB-E-series covers a broad range of applications with a small number of versions
- SRB301ST for lift applications and equipment of combustion plants, approvals in accordance with EN 81-20/50 and EN 50156-1
- Also for areas at risk of explosion



PROTECT SELECT

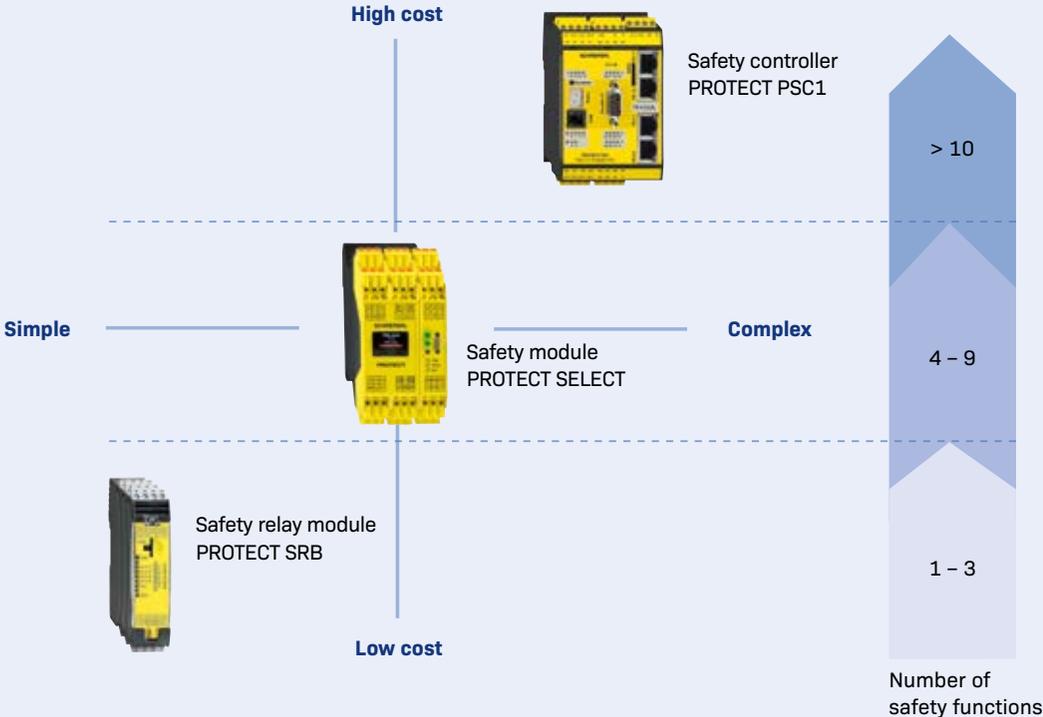
- Up to 6 safety functions can be realised
- Adaptation to individual requirements thanks to simple parameterisation
- Numerous parameters such as short-circuit monitoring can be configured
- Save space in the control cabinet
- Display of clear text messages during troubleshooting



PROTECT PSC1

- Freely programmable
- Scalable with expansion modules (up to 272 IO)
- Axis monitoring for up to 12 axes in accordance with DIN EN 61800-5-2
- Easy to integrate into existing fieldbus environments
- Decentralised expansion possible (Multi Master)

SAFETY SOLUTIONS



In addition to our standard safety logic products, we can also create customised solutions that are tailored to your requirements.

GET IN TOUCH!



PROTECT SRB-E MODULES

MULTI-FUNCTION SAFETY MODULES

ADJUSTABLE CONFIGURATION AND APPLICATIONS

Flexible

- 1 or 2 channel signal evaluation
- Contact configuration can be selected for the sensors
- Start/Reset functions with monitoring
- Input expanders for 4 sensors up to PL e
- Cascading via safe inputs
- Combined evaluation for 2 safety guards
- Two-hand control monitoring
- STOP Category 0 and 1
- Standstill Monitoring
- Up to 5 safety outputs
- Safety category 4, PL e semi-conductor outputs up to 5.5 A

User-friendly

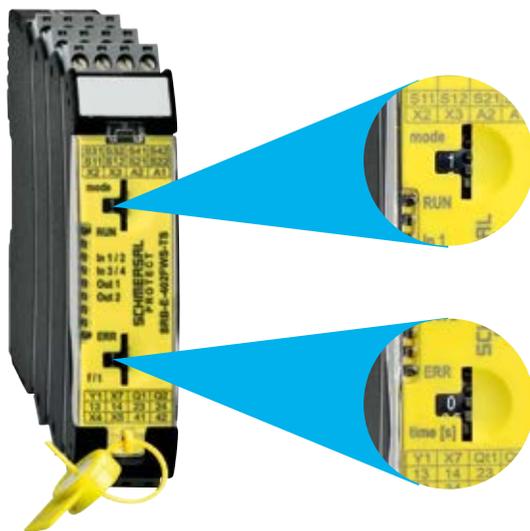
- Up to 11 different applications can be selected
- Monitoring of all conventional safety switchgear
- Safety level of up to PL e / SIL 3 can be achieved
- Simple adjustment using rotary switch
- Selected application can be locked using seal
- Quick response time (< 10 ms) to request
- Excellent switching performance and short cycle times
- Slot-in termination with coding

Compact

- Installation width for all device variants 22.5 mm
- Up to 10 safe inputs and 5 safe outputs
- Up to 4 signalling outputs
- Holder for equipment label
- Up to 24 connecting terminals



Connection option for all standard safety switchgear



Function setting via rotary knob "mode"

Adjustment of drop-out delay (stop category 1) via rotary switch for "time"

PROTECT SRB-EXI PROTECT SRB301ST

SAFE SIGNAL PROCESSING WITH THE INTRINSIC SAFETY OF IGNITION PROTECTION

These devices combine functional safety, reliable signal analysis and safety approval with explosion protection. They monitor the connected sensors, reset buttons, emergency stop devices, locking mechanisms and safety sensors with the intrinsic safety of the "i" ignition protection.

The sensors can be installed or implemented in zones 1/2 and 21/22.

The PROTECT SRB-EXi modules can be installed in a suitable switching cabinet in gas explosion safety zone 2.

Approvals category (2) GD / 3 G:

- ATEX
- IECEX
- INMETRO



THE SRB301ST FOR LIFT APPLICATIONS

The module has approval in accordance with EN 81-20/-50 and is suitable for signal processing of floating and non-floating outputs (e.g. AOPDs).

- 3 safety contacts, STOP 0
- 1 signalling output

Also suitable for combustion plants in accordance with EN 50156-1.



PROTECT SELECT

MULTI-FUNCTIONAL SAFETY MODULE WITH PROGRAM SELECTION FUNCTION

With the multi-functional PROTECT SELECT compact safety module, the engineer has greater flexibility during configuration of the safety device and its subsequent integration into the machine functions.



Four different programs are available. Each program can be precisely adapted – without any programming knowledge, simply with the menu and clear text messages – to the specific application case. The drop-out delay and the debounce times can be set individually, and numerous parameters such as the short-circuit monitoring can be set as required – a definite advantage in comparison with safety relay modules.

With every application program the user profits from numerous functions – such as:

- Connection of up to six dual-channel safety switching devices (with or without potential) up to PL e / SIL 3
- Safety semi-conductor and relay outputs with STOP 0 or STOP 1 function
- Safe analogue monitoring of temperature and other process variables
- Free assignment of start-up tests, periodic tests, auto-start, manual start
- Cross-wire detection
- Display of clear text messages during troubleshooting
- Input filter for safety devices with contact bounce

UNIVERSAL COMMUNICATION INTERFACE

UNIVERSAL FIELD-BUS CONNECTION



Using the universal communication interface the required field-bus protocol can be manually selected via software.

Parallel to the active field-bus protocol, the local communication within the PSC1 control system can be realised via the Ethernet SDDC and SMMC.

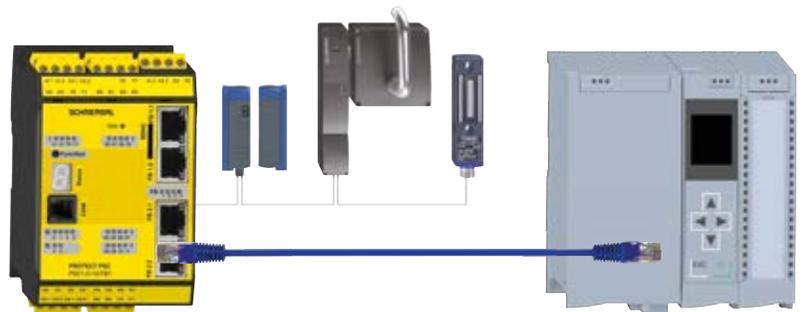
Available

on request

INTEGRATED SD BUS GATEWAY

Up to 31 Schmersal SD bus sensors can be connected and evaluated with their extended diagnostic data directly onto the compact controller PSC1.

In doing so, the universal communication interface takes on the task of a gateway to the respective field-bus protocols, set via software (communication to machine controller).



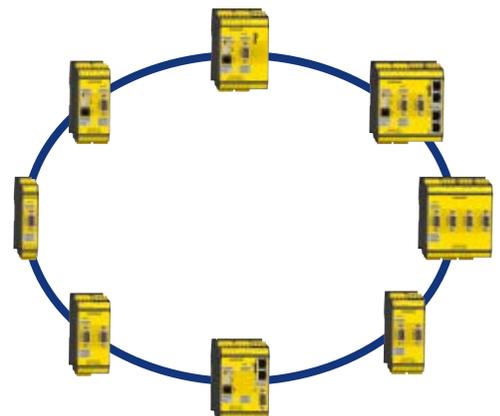
For safe drive monitoring many safety features are supported:

- Safe shutdown: Safe Torque OFF (STO)
- Safe stopping: Safe Stop 1 (SS1), Safe Stop 2 (SS2), Safe Operating Stop (SOS)
- Safe movement: Safely-Limited Speed (SLS), Safe Direction (SDI)
- Safe monitoring: Safe Cam (SCA)
- Safe positioning: Safely-Limited Position (SLP), Safely-Limited Increment (SLI), Safe Emergency Limit (SEL)

The drive monitoring is carried out depending on the application requirements, with one or two encoder systems.

The following encoder signals are supported:

- 1 encoder system: TTL, SIN/COS, SSI (Gray code / binary code)
- 2 encoder systems: TTL, SIN/COS, SSI (Gray code / binary code), Resolver, HTL



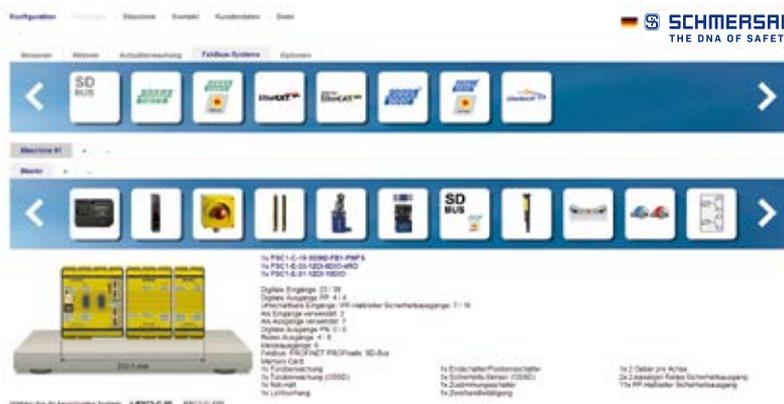
PROTECT PSC1

PROGRAMMABLE MODULAR SAFETY CONTROLLER



The safety control system PSC1 consists of freely programmable compact safety controllers with I/O extension modules for signal processing of EMERGENCY STOP switches, guard door switches, light grids and other mechanical and electronic safety switchgear. Additionally there is the possibility via numerous functions to monitor axes. Using the universal communications interface, a connection can be established to all the standard field bus systems.

- Safe logic control according to Annex IV of the Machinery Directive 2006/42/EC
- Connection for all standard safety switchgear up to PL e and SIL 3
- Modular expansion with up to 272 inputs/outputs
- Secure 2 A p-switching semiconductor outputs, can be switched to secure p-/n-switching semiconductor outputs
- Freely programmable inputs/outputs, 2 A p-switching
- Safe drive monitoring (SDM – Safe Drive Monitoring) according to EN 61800-5-2 for up to 12 axes
- Universal communication interface:
 - Supports all standard fieldbus systems
 - Setting and resetting of fieldbus protocols by software
 - Safe remote I/Os via Ethernet Safety Device to Device Communication (SDDC)
 - Safe cross communication via Ethernet Safety Master to Master Communication (SMMC)
- Integrated Schmersal SD Bus connection to the standard field bus systems
- Safety functionalities up to SIL 3 according to IEC 61508/IEC 62061, PL e and Cat. 4 according to EN ISO 13849-1



SCHMERSAL
THE DNA OF SAFETY

Configurator



USER SOFTWARE PROGRAMMING SOFTWARE SAFEPLC2



PROGRAMMING SOFTWARE SAFEPLC2

- Modern, object oriented application development environment
- Preconfigured elements for safe electronic and electromechanical switching devices
- Easy reuse of application code by macros
- Programming assistance by various search functions
- Simple signal tracking by different colour representation and status messages
- Easy to detect safety functions through practice oriented libraries for logic, Safe Drive Monitoring, SD-bus and encoder elements
- Configurable user permissions
- Offline simulation

Programming software
SafePLC2:



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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