

# Input expander module PROTECT-PE



## PROTECT-PE

# Safe sensor combination

### Operating principle

- Connection of up to 4 safety-related sensors per input expander
- Signal processing and summary of individual sensor signal of a redundant safety output
- Evaluation by a downstream safe safety-monitoring module
- Can be combined with devices of PROTECT-SRB and PROTECT-SELECT series
- Can be used up to PL d / SIL 2



# and evaluation

## User-friendly

- Possibility to connect up to 4 sensors per interface
- Cascading possible for the connection of up to 80 sensors
- Cage clamps

## Flexible

### PROTECT-PE 02

- Connection of sensors with two NC contacts
- Possibility to connect contacts connected to potential, e.g. AOPD, CSS and RSS
- Deactivation of the cross-wire short monitoring through DIP switches

### PROTECT-PE 11

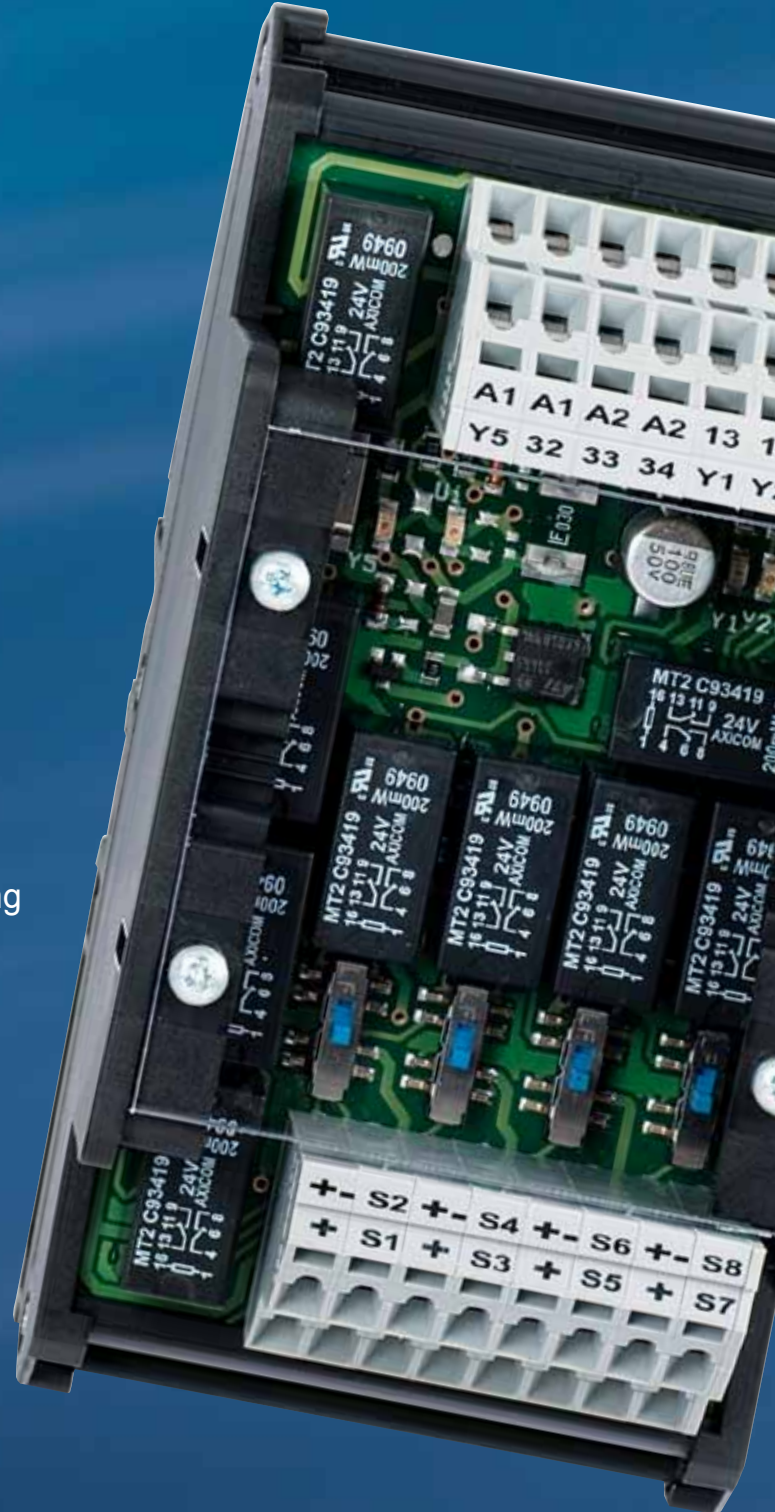
- Connection of antivalent sensors with NC/NO contacts

### PROTECT-PE 11 AN

- Connection of antivalent sensors with NC/NO contacts
- Antivalent output level

## Diagnostic and visualisation

- 6 LED's to indicate switching conditions
- Semi-conductor signalling output for each sensor plus group signal
- Potential-free signalling contact







## Applications of input expanders

The possibility to combine different safety sensors with each other and the user-friendly diagnostics are the essential features of the input expanders of the PROTECT-PE programme.

The individual sensor signals of a safety output are summarised and subsequently redundantly monitored by a safe monitoring module. In this way, they are optimally suitable for use on machinery and plants, where multiple sensors act on one safety function.

For diagnostic purposes, every sensor signal can be separately read into a higher-level control system and optionally the function of the group signal can be used. In addition to that, a potential-free signalling contact is supplementary available. The signalling outputs Y1-Y5 and the corresponding LED at the device signal that the safety guard is opened by emitting a 24V signal. This variable diagnostic function offers the user many possibilities to customise the visualisation as desired.

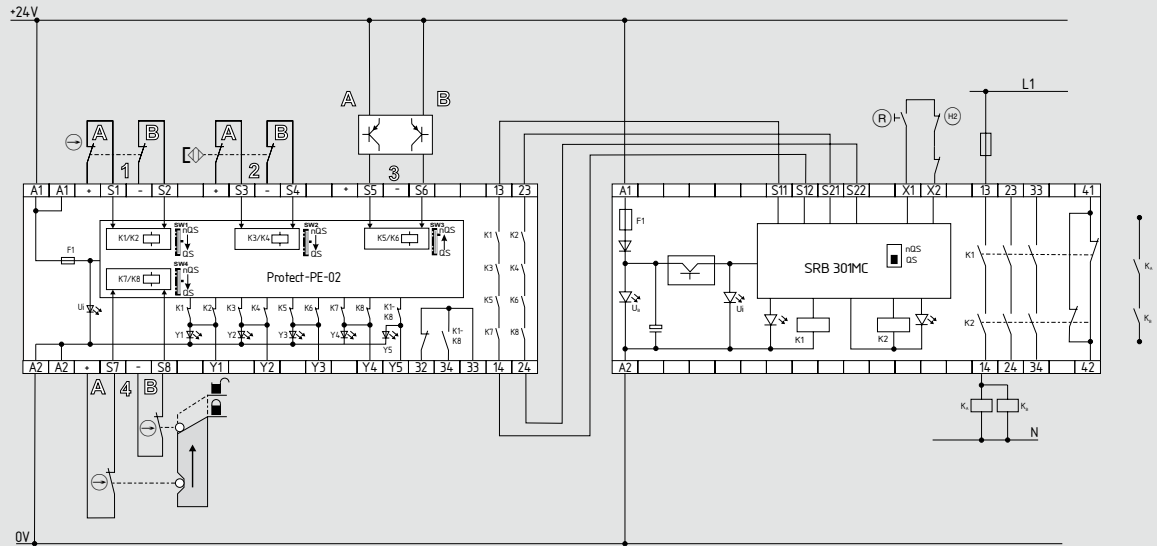
Especially on larger plants or when multiple sensors are used, the cascading of the input expanders offers a major advantage, without sacrificing the accurate diagnostic of each individual sensor.





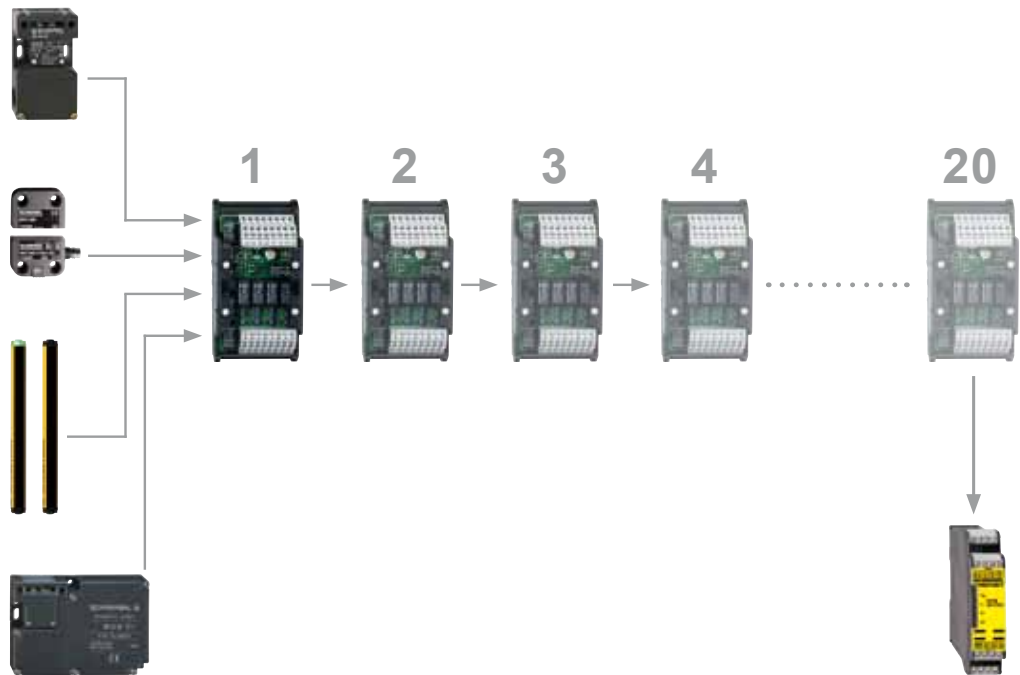
## Wiring example

Example of the wiring of four different safety-related sensors to the PROTECT-PE 02 input expander with evaluation through a downstream safety-monitoring module



## Cascading of multiple input expanders

The simple cascading of the input expanders enables the user to set up a series-wiring of up to 20 devices if needed. This corresponds to a signal processing of up to 80 sensors.





# 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 1,200 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.

[www.schmersal.com](http://www.schmersal.com)

