

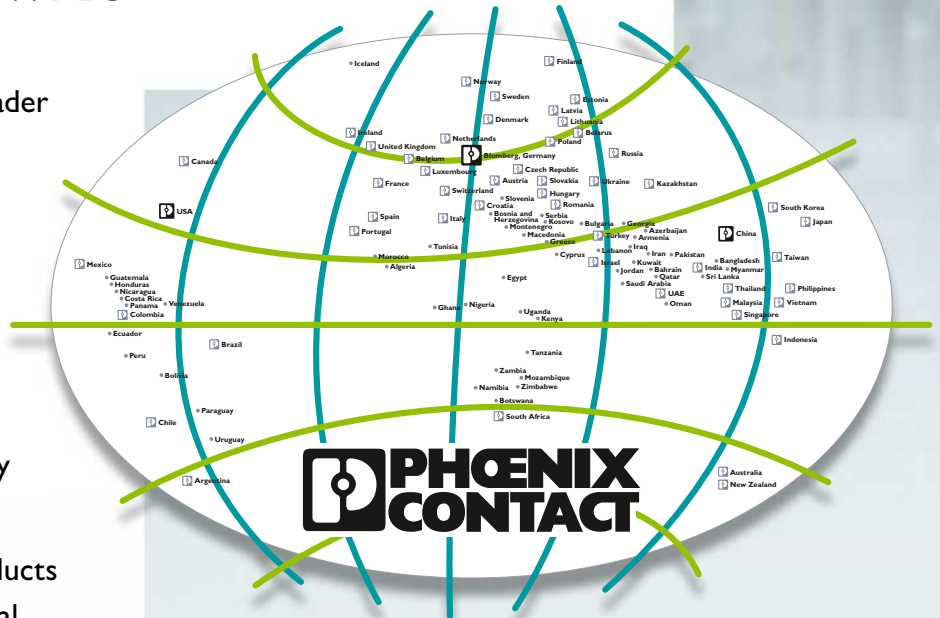
# Functional Safety

From emergency stop relays to safe controllers

# PHOENIX CONTACT – in dialog with customers and partners worldwide

Phoenix Contact is a global market leader in the field of electrical engineering, electronics and automation. Founded in 1923, the family-owned company now employs around 14,500 people worldwide. A global sales network with over 50 sales subsidiaries and more than 30 additional sales partners guarantees customer proximity directly on site, anywhere in the world.

Our range of services consists of products associated with various electrotechnical applications. This includes numerous connection technologies for device manufacturers and machine building, components for modern control cabinets, and tailor-made solutions for many applications and industries, such as the automotive industry, wind energy, solar energy, the process industry or applications in the field of water management, power transmission/distribution, and transportation infrastructure.



## Global player with personal customer contact

Company independence is an integral part of our corporate policy. Phoenix Contact therefore relies on in-house competence and expertise in a range of contexts: the design and development departments constantly come up with innovative product ideas, developing special solutions to meet customer requirements. Numerous patents emphasize the fact that many of Phoenix Contact's products have been developed in-house.



# Functional safety from PHOENIX CONTACT

In order to implement safety standards in the best possible way, consistent and efficient solutions are required.

These requirements are met by the Phoenix Contact safety portfolio. This range is characterized by its easy installation and configuration.

From simple, safe coupling relays to safe controllers, you'll always find the right logic module for your standard-compliant and efficient solution.

## Tested safety

- EN ISO 13849-1 and EN 62061 for machine building and systems manufacturing
- IEC 61508 for the process industry
- Germanischer Lloyd (GL) for use in shipbuilding and offshore systems
- EN 50156 for use in furnaces, steam generators, waste heat boilers, rotary furnaces, and hot gas generators



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# PSRmini – highly compact safety and coupling relays

The complete PSRmini product range consists of 6 mm, 12 mm, and 17 mm versions.

Despite their highly compact design, the PSRmini devices offer impressive performance features: they switch loads up to 6 A, are compatible with many signal generators, and support versatile use thanks to their comprehensive approvals.

Maximum safety is ensured by force-guided contacts. Save space and increase flexibility without having to make compromises in the application.

## Force-guided contacts

A safety relay for monitoring functions in machines and systems is based on relay technology with force-guided contacts according to EN 50205.

In a safety relay module with integrated monitoring, forced guidance is used for safety detection. Dangerous errors, such as the welding of contacts, are therefore reliably detected and a high level of safety is achieved.



## Extremely compact

The narrowest safety relay with force-guided contacts offers space savings of up to 70%.

## Highly compatible

Compatibility with all important signal generators and safety-related systems enables a large usage range.



## Comprehensive approvals

Thanks to a variety of worldwide approvals, PSRmini is available in all relevant markets. For the first time, the installation of safe coupling relays up to Ex zone 2 is possible.





### PSRmini in the Termination Carrier

Termination Carriers prewired by Phoenix Contact enable fast, error-free mounting and connection to common safe systems. Signal connection is by means of Plug and Play using standardized system cables. Standardized or controller-specific front adapters are used for connection to your safe system.



### Relay Technology<sup>2</sup>

Designed by PHOENIX CONTACT

6A

Innovative relay technology from Phoenix Contact offers maximum safety and high switching loads up to 6 A.

### Available for one or more contacts

Fine-grained architecture enables the modular design of safety concepts: the 6 mm version comes with 1 to 2 enable paths.

### Convenient connection methods

Screw and spring-cage connection technology offers convenient control cabinet installation.

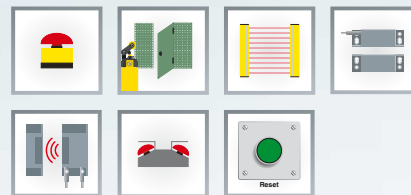
# PSRmini – modular safety solutions for machine building

As a mechanical engineer, you are familiar with the dynamics and requirements of your market. Safety technology in particular plays an ever increasing role in this field. Standards and directives make an important contribution.

With the PSRmini, we are giving you the option to create new safety concepts that offer you many advantages:

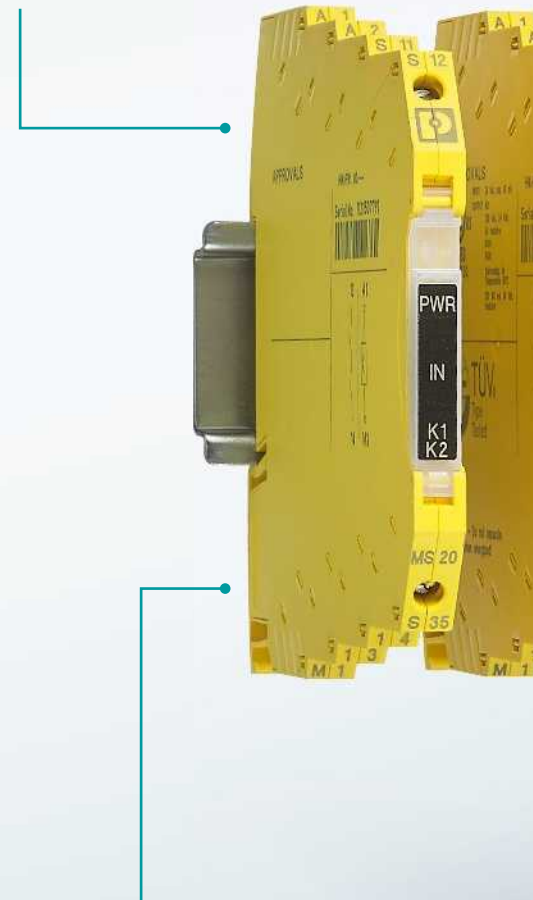
- Optimization of space requirements in the control cabinet
- Maximum availability and compatibility of system components
- Comprehensive approvals for global markets

## Scalable safety relay solution



## Compatible with numerous signal generators

Compatibility with a wide range of signal generators such as emergency stop equipment, safety door switches, and light grids.



## Proven safety for global markets

Force-guided contacts enable maximum safety levels up to PL e in accordance with ISO 13849 and SILCL 3 in accordance with IEC 62061.

### Your advantages:

With the new generation of safety relays, classic safety applications can be implemented under optimum conditions. For you, this means:

- Compact design of control cabinet modules through up to 70% less required space
- Cost-benefit optimization through the provision of just one enable contact
- Complete product range enables a large usage range and a reduction in suppliers



Safety technology in machine building



### Highly compact design

Up to 70% space savings and high scalability from one enable contact make new safety concepts possible.



# PSRmini

## Reliable signal availability in the process industry

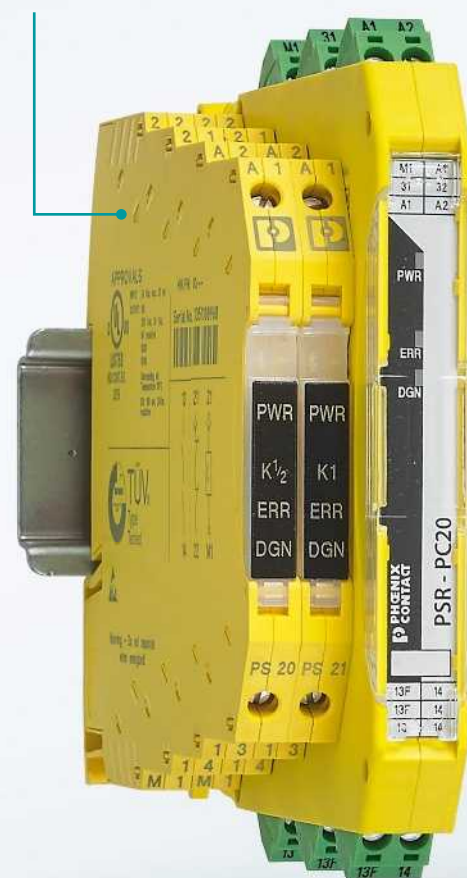
As a specialist in the process industry, you rank compatibility and reliability among the primary requirements for your systems and components.

For this reason, we would like to introduce to you our highly compact, safe coupling relay for electrical isolation and power adaptation.

Adapted to the relevant process control systems and special requirements of your industry, we offer SIL-certified coupling modules for emergency shutdown and fire and gas applications.

### Safe shutdown

Thanks to their redundancy and force-guided contacts, the coupling relays for safe shutdown ensure that every command from your SIS is implemented. Safe switching is possible up to SIL 3.



### Diagnostics technologies

Application	ESD	ESD with interlocking		F&G
Product	PS20, PS21 PC20, PC32	PS40	PC40	PC50
Visual Diagnostics	✓	✓	✓	—
Error Signal Generator	✓	—	✓	✓
Interlocking	—	✓	✓	—

#### ESD (Emergency Shutdown):

With the safe shutdown, the PSRmini can be switched back on again by the SIS even after a diagnosed error.

#### ESD (Emergency Shutdown) with Interlocking:

With the safe shutdown with interlocking, the PSRmini cannot be switched back on again after a diagnosed error.

**F&G (Fire & Gas):** Safe switch on



## Your advantages:

We strive to contribute to the safety of your system and to minimize downtimes. We also reduce space and material requirements. For you, this means:

- Fewer control cabinets required thanks to up to 70% less required space
- Shorter downtimes during scheduled maintenance phases thanks to simple, fast diagnostics
- For the first time, the use of safe coupling relays all the way up to the potentially explosive areas simplifies the design of distributed concepts
- Reduction in installation times and fast, simple startup



Safety technology in the process industry



### Safe shutdown with locking

The internal lock prevents the system from being switched on again in the event of an error.

### Safe switch on

The PSR-PC50 ensures that the system can be switched on safely at all times. It also provides comprehensive monitoring of the load side for open and short circuits.

## Diagnostics technologies

The PSRmini coupling relays feature innovative diagnostics technologies. With these relays, the hardware and time necessary for the SIL-relevant proof testing required by standards can be reduced to a minimum.

- Visual Diagnostic is the SIL 3-qualified verification of defined LED statuses directly on the module
- The Error Signal Generator initiates the active feedback of a potential error to the affected DO of the controller
- For safety reasons, the interlocking function prevents the PSRmini from being switched back on after a diagnosed error

# PSRclassic – conventional safety relays

The comprehensive PSRclassic product range includes conventional safety relays with force-guided contacts.

Functions such as emergency stop, safety doors, light grids, and two-hand control devices are available in various versions with up to eight enable contacts.

The PSRclassic safety relays are characterized by the large selection of functions and versions. They are particularly suitable for applications in machine building.

## Fast diagnostics

Status LEDs for the supply voltage, input circuit, and relay ensure precise status display.



## An ideal solution for every function

Safety relays are ideal for use in applications where your machine or system only requires a few safety functions and logic operations – one device per function.

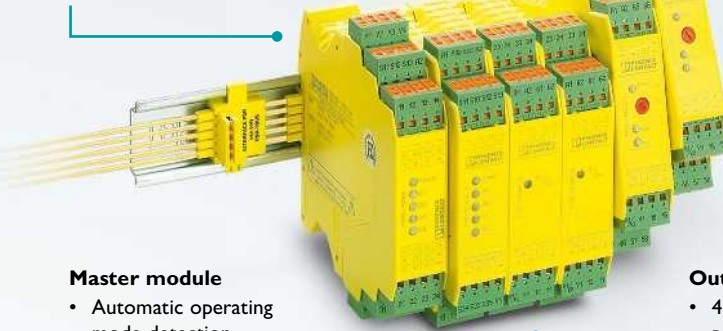


## PSRmodular – cross-wiring made easy

The modular safety relays can be extended easily and flexibly based on the modular principle. Cross-wiring of the master safety relay with up to ten extension modules is possible using the system connector at the back. Errors are therefore avoided and you can save wiring and configuration effort.

### Input module

- Up to 4 safety sensors can be connected
- Sensor state displayed via signal contact



### Master module

- Automatic operating mode detection
- Can also be used as a stand-alone device

### Output module

- 4 enable contacts per module
- Time function up to 30 s



### Safe time functions

Safety relays with time functions can be set between 0.1 s and 300 s according to the application.

### Proven safety technology

The internal redundant design as well as the consistent use of force-guided contacts have long been proven.

### Convenient connection technology

The COMBICON connectors are coded and available either as a screw version or a double spring-cage version.



# PSRclassic – conventional coupling relays

Designed specifically for the process industry, the PSRclassic range offers coupling relays with force-guided contacts for safe switch on and shutdown.

SIL-certified coupling relays are available for safe signal processing for a large number of functions that are required for emergency shutdown or fire and gas applications, for example.



## Approvals and characteristics

All certificates and characteristics are available for easy loop calculation, configuration, and document creation. SIL certification can be identified by the yellow housing color.



## Compatible with a range of different safe systems

The integrated test pulse filter and the adapted current control circuit ensure a long service life and optimum compatibility with common safe systems from well-known manufacturers in the process industry.

## Easy diagnostics

Features and functions such as force-guided safety relays and line and load detection ensure optimum diagnostics and availability.

### PSRclassic in the Termination Carrier

As with PSRmini, the prewired Termination Carriers from Phoenix Contact enable fast, error-free mounting and connection to common safe systems.

Signal connection is by means of Plug and Play using standardized system cables. Standardized or controller-specific front adapters are used for connection to your safe system.



### Coupling relays with forced guidance

The use of coupling modules with force-guided contacts is recommended wherever safe diagnostics is required.

# PSRmultifunction – multifunctional safety relays

PSRmultifunction offers one higher-level sensor circuit and two local sensor circuits in a single device.

You can therefore implement common applications with safety functions such as emergency stop, safety door or light grid monitoring using just one device.

There are four device versions for monitoring different types of sensor, each with screw, spring-cage or tool-free push-in connection.

## Highly compatible

Compatibility with all important signal generators and safety-related systems enables a large usage range.

## Advantages in comparison with three safety relays

- Preconnected safety functions in the device mean fewer potential wiring errors
- Space requirement cut by two thirds
- Reduced costs for warehousing and logistics

## Three functions in one device

The three safety functions are combined in the same narrow housing measuring just 22.5 mm. This reduces your costs for warehousing and logistics and saves space in the application.





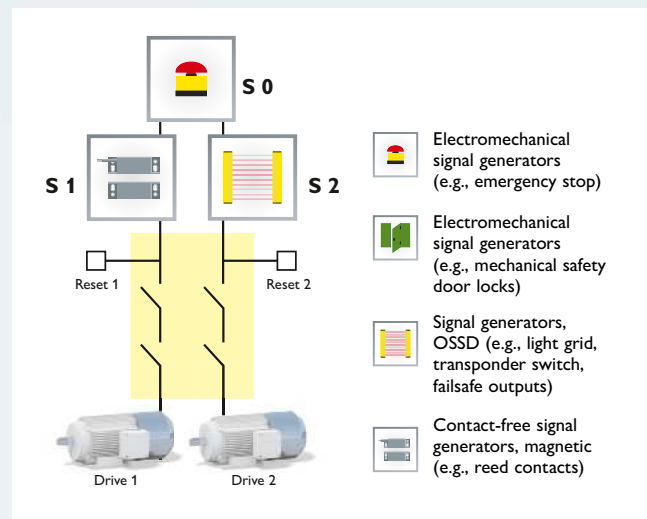
## Method of operation of multifunctional safety relays

The PSRmultifunction safety relays have three sensor circuits which can all be connected via one or two channels:

- One higher-level sensor circuit **S0**
- Two local sensor circuits **S1** and **S2**

The local sensor circuits **S1** and **S2** each cover a function such as a safety door or a light grid. In the event of an error, both sensor circuits can be reactivated independently of one another.

The higher-level sensor circuit **S0** monitors both local sensor circuits. If it is triggered, the safety circuits protected by **S1** and **S2** are both shut down.



## Avoid errors

Preconnected safety functions in the device mean fewer potential wiring errors.

## Various connection technologies

Choose between screw, spring-cage, and tool-free push-in connection.

# PSRmotion – zero-speed and over-speed safety relays

The PSRmotion safety relay modules reliably monitor the speed and downtime of rotating parts in systems and machines.

The narrow PSR-MM25 zero-speed safety relay does not require any additional sensors for monitoring. The residual voltage induced by the motor windings is analyzed in order to detect downtime.

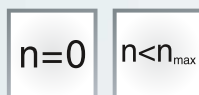
With the combined PSR-RSM4 zero-speed and over-speed safety relay, sensors such as encoders and initiators can be used for motion detection.

## PSR-MM25: flexible zero-speed safety relay

- Sensor-free monitoring of one and three-phase alternating current and direct current motors
- Application-specific adjustment options for the switching threshold and time delay
- Can be used for machines with or without frequency inverters



Sensor-free  
motor monitoring



## Safety functions that can be implemented according to EN 61800-5-2

- STO: safe torque off
- SLS: safe limited speed
- SMS: safe speed monitoring



## PSR-RSM4: One device, two functions

- Safe monitoring of up to three different speeds and one freely definable downtime threshold
- Can be adjusted by means of the PSR-CONF-WIN software

### Software-parameterizable speed monitoring

You can easily integrate the PSR-RSM4 zero-speed and over-speed safety relays into your system, thanks to the PSR-CONF-WIN software. The PSR-CONF-WIN software allows you to easily set and transfer the speed monitoring parameters.

The software can be downloaded free of charge on our website and easily installed on your Windows system.



### Convenient connection methods

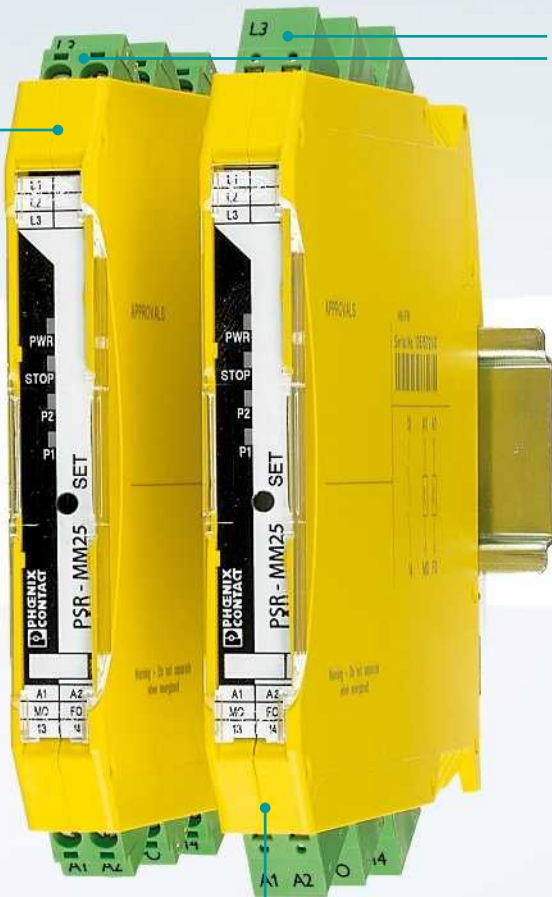
Screw and spring-cage connection technology offers convenient control cabinet installation.



Control of electromechanical guard locks

### Highly compact at 12.5 mm

Up to 75% space savings without limiting performance, thanks to relay technology developed in-house



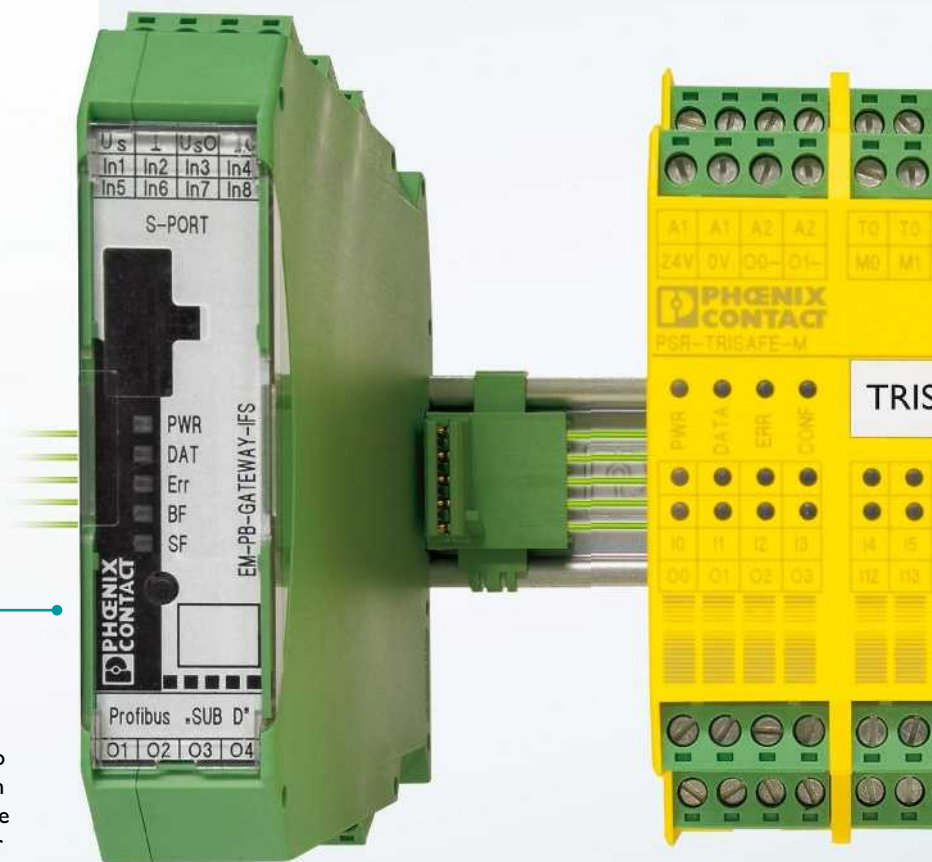


# Trisafe – configurable safety modules

Use Trisafe configurable safety modules to customize and combine all safety functions according to your requirements.

Flexibly adapt the Trisafe system to your application requirements using various safe extension modules and fieldbus couplers.

The safety logic is created very easily with the SAFECONF configuration software using drag and drop.



CANopen

DeviceNet

EtherNet/IP

Modbus

PROFI  
BUS

PROFI  
NET

## Fieldbus coupler

You can use a fieldbus coupler to easily extend your Trisafe station so that status information for the safety circuits is also available for the machine controller.

## Easy configuration using the SAFECONF software

With SAFECONF, you can easily create the safety logic for Trisafe and SafetyBridge technology using drag and drop.

For details of the SAFECONF software, please refer to pages 22 and 23.



### Extension modules

Thanks to the modular system, you can easily extend your Trisafe by adding safe digital inputs and outputs, as well as safe relay outputs.

#### Digital I/O module

- 8 safe inputs, 4 safe outputs
- Clock and signal outputs

#### Relay output module

- 4 floating relay contacts
- Can be individually configured for 1- or 2-channel shutdown



### Trisafe configurable safety module

Safe and freely configurable master module:

- Also available as version for safe extension
- 20 safe inputs, 4 safe outputs
- Clock, signal, and ground switching outputs
- Clear indication of all I/O states by LEDs

# SafetyBridge – network safety solutions

Reliably integrate functional safety into your network with the Inline and Axioline F I/O systems.

To do this you do not need a safety controller, you can still use your preferred standard network and your standard controller.

The SafetyBridge network solution is suitable both for new systems and for retrofitted applications. Benefit from the flexibility and cost-saving advantages of SafetyBridge technology.

## What are the advantages of independence from the network?

SafetyBridge technology can be integrated extremely easily into all common fieldbus and Ethernet-based networks.

Continue to benefit from the advantages of your preferred network solution. No additional safety networks are required, which saves you time and money when designing your machines and systems.

SafetyBridge Technology 

Designed by PHOENIX CONTACT



## SafetyBridge logic modules for Inline and Axioline F

The logic module represents the core feature of a SafetyBridge application. It controls the safe application and monitors safety-related communication between the safe I/O modules. The intelligent logic modules can be connected with up to 16 devices.



### Easy configuration using the SAFECONF software

With SAFECONF, you can easily create the safety logic for Trisafe and SafetyBridge technology using drag and drop.

For details of the SAFECONF software, please refer to pages 22 and 23.



CANopen

EtherCAT<sup>®</sup>  
Technology Group

EtherNet/IP<sup>™</sup>



Modbus

PROFI<sup>®</sup>  
BUS

PROFI<sup>®</sup>  
NET

sercos  
the automation bus



### SafetyBridge extension modules for Axioline F and Inline

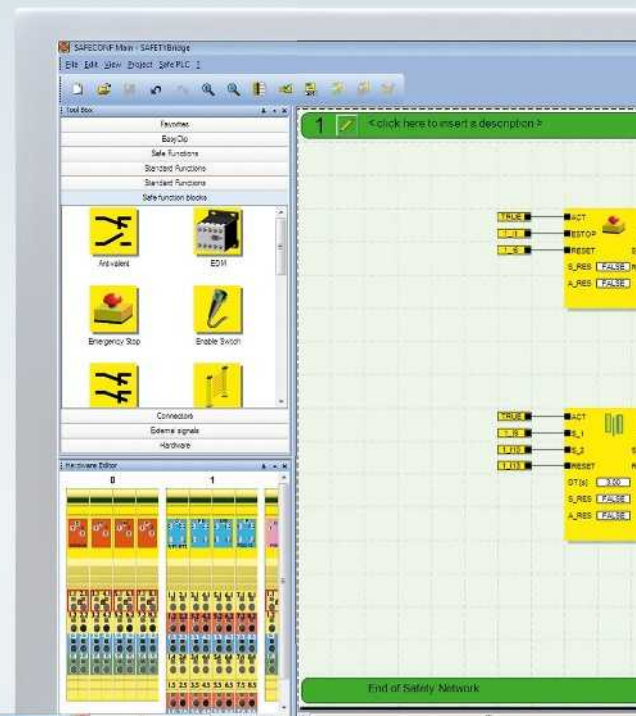
Distributed in the network, the extension modules record safety-related signals and output them wherever they are required. They record either safe digital inputs or outputs and feature relay contacts.



# Easy configuration – using the SAFECONF software

The SAFECONF configuration software can be downloaded free of charge and provides you with all the tools you need to configure your safety logic in accordance with the relevant standards – easily and in a single user interface.

With SAFECONF, you can easily create the safety logic for Trisafe and SafetyBridge technology using drag and drop.



## Integrated E-Learning

The E-Learning features integrated in the software offer support in various areas, such as determining performance levels and providing an easy introduction to the software.

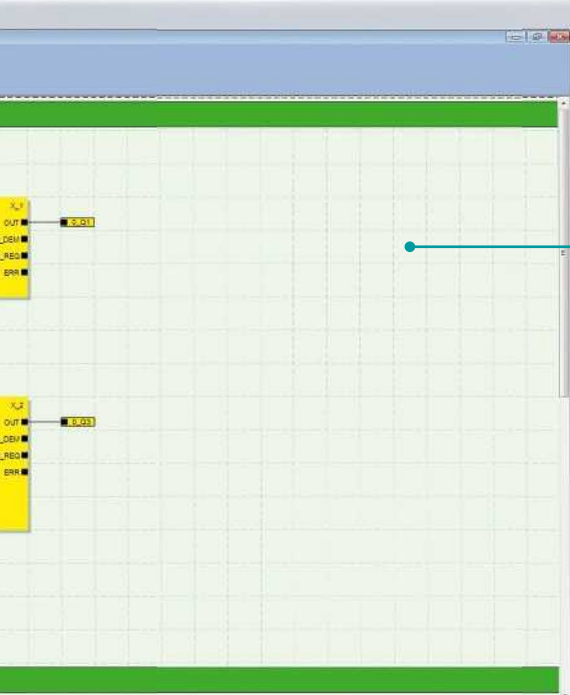
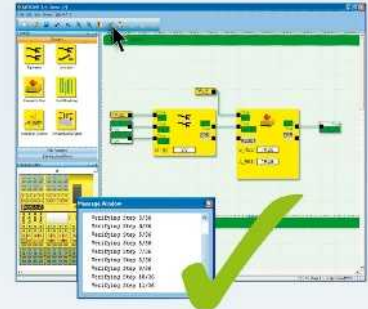
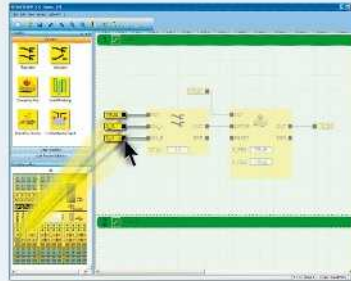
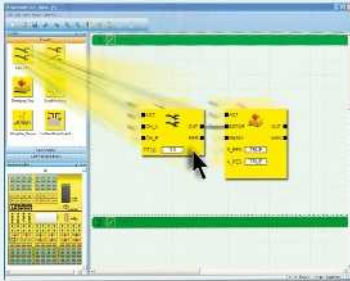
## Application help

Extremely comprehensive help is available in the form of block-specific and TÜV-certified application examples. This makes the implementation of safety requirements even easier.

## Easy configuration using the SAFECONF software

With SAFECONF, you can easily create the safety logic for Trisafe and SafetyBridge technology using drag and drop.

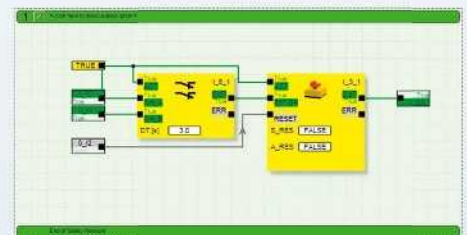
- 1 Select and configure the safety functions.
- 2 Connect the module I/Os to the safety functions.
- 3 Check and save the safety functions – and you're done!



### Intuitive operation and certified blocks

Easy configuration of the safety logic without any programming knowledge. The safety logic is created using the TÜV-certified blocks by means of drag and drop.

All tools are arranged directly in one window, enabling you to work intuitively with the SAFECONF software.



	Name	Value	Project 1	Project 2	Project 3	Description
1	U1					Input 1
2	U2					Input 2
3	U3					Input 3
4	U4					Input 4
5	U5					Input 5
6	U6					Input 6
7	U7					Input 7
8	U8					Input 8
9	U9					Input 9
10	U10					Input 10
11	U11					Input 11
12	U12					Input 12
13	U13					Input 13
14	U14					Input 14
15	U15					Input 15

### Simulation and diagnostics

Shorter project processing times and standardized implementation of safety circuits thanks to the integrated simulation mode. Easy checking and validation of the safety logic directly from your PC.



# PROFIsafe control technology – I/O systems

Reliably integrate functional safety into your PROFINET networks with the Inline and Axioline I/O systems.

The PROFIsafe gateway enables safe communication between two PROFINET systems.

## PROFIsafe I/O modules for Inline

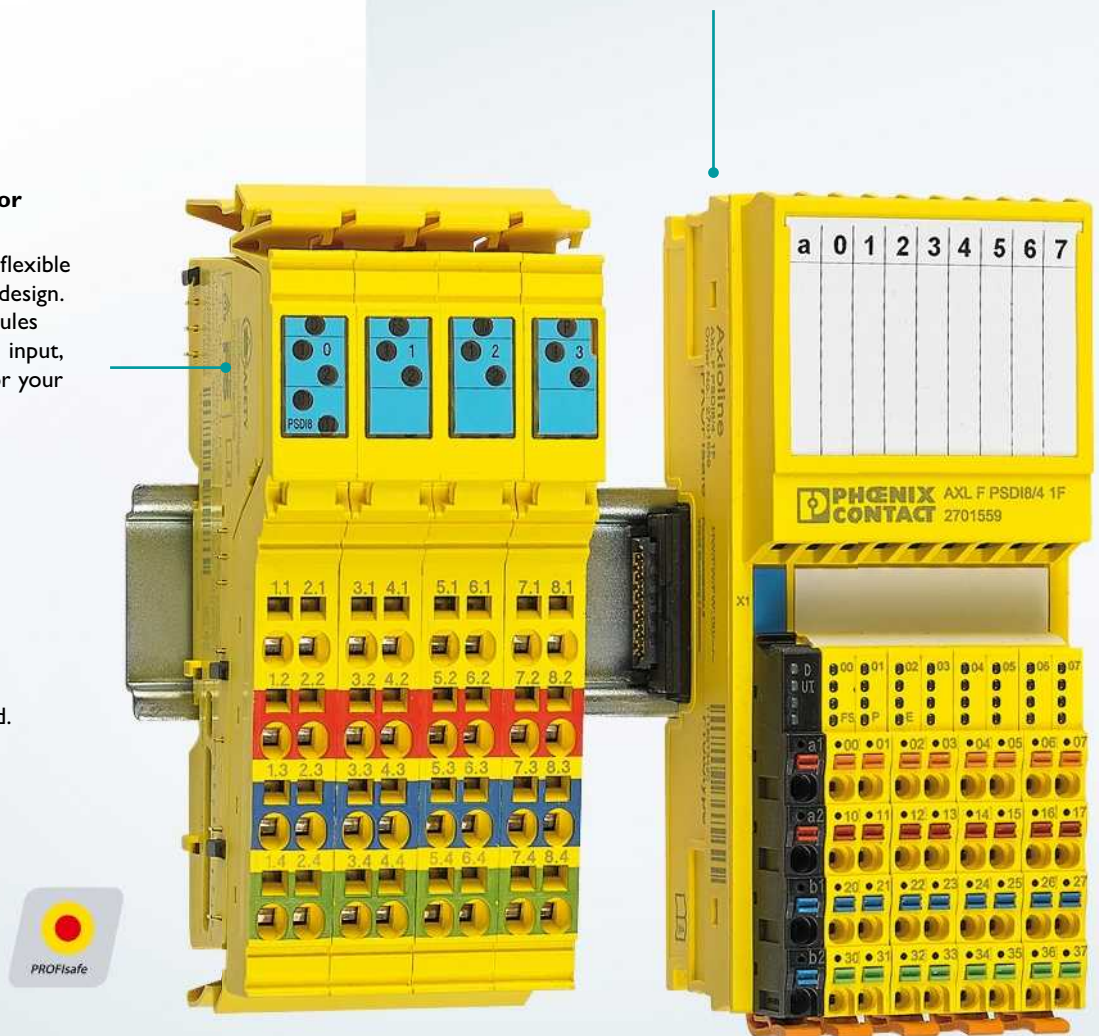
The Inline I/O system is the flexible all-rounder in a fine-grained design. The wide choice of I/O modules and function terminals offers input, output, and relay modules for your PROFIsafe application.

## Emphasis on modularity

The functions can be combined flexibly as required.

## PROFIsafe I/O modules for Axioline F

Axioline F is the robust I/O system that is characterized by its modular design. A safe input module and a safe output module are available for your PROFIsafe application.

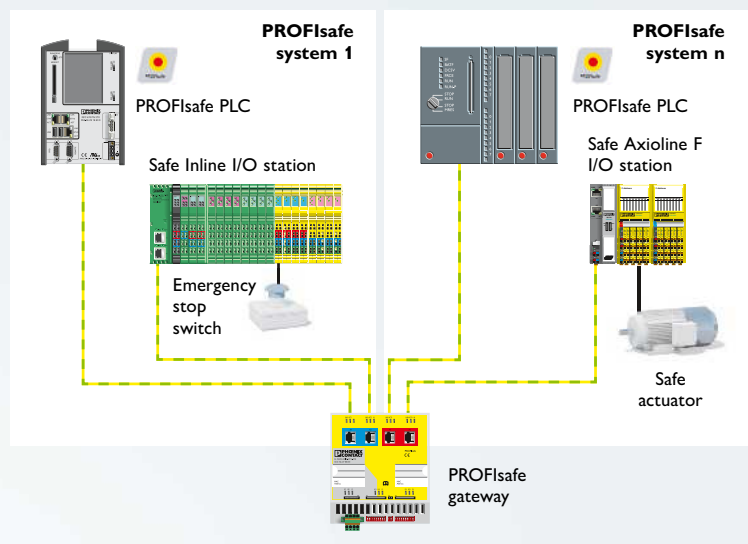




## Coupling of PROFINET/PROFIsafe systems

The safe PROFINET gateway represents two PROFIsafe devices. Standard I/O process data is exchanged between two PROFIsafe systems using PROFINET and safe I/O process data is exchanged via PROFIsafe.

This makes it possible to implement manufacturer-neutral emergency stop concepts across systems.



## PROFINET gateway

The safe PROFINET gateway for cross-network PROFINET/PROFIsafe applications.





# PROFIsafe control technology – compact high-performance controllers

The RFC 470S is the safety version of the most powerful class 400 PLC. It offers high performance at an attractive price.

An integrated diagnostics display shows information relevant to the process and event-controlled error messages directly on site. If a device needs to be replaced, simply insert the Flash memory of the faulty controller into the new device. It couldn't be easier.

Safe controller in use



## SAFETYPROG programming system

SAFETYPROG is the programming software for our high-performance controllers. You can use it to implement standard-compliant safety systems for PROIsafe or INTERBUS-Safety networks in functional safety applications.

We offer an additional solution package for safe software-based analog value processing, without safe I/O modules.

A demo version of SAFETYPROG is available to download on our website. You can install it on your Windows system.



### Diagnostics via the display

High-resolution display with plain text messages for quick and easy local diagnostics.

### The safety controller with power reserves

Controls large numbers of I/Os reliably thanks to powerful processor technology.

### The safety controller as a 2-in-1 combination

The RFC 470S is a PLC with integrated safety controller. It enables the integration of safety functions in your system or machine. You can therefore reduce installation time and wiring effort.

# Services for functional safety

Benefit from the comprehensive service offered by our certified safety experts: product and technology expertise from a single source.

Our services can help you to meet requirements for the safety of machinery. We will support you in the necessary steps and the verification documentation as well as all the requirements for functional safety.

## Our services:

Individual support on request

- Safety hotline
- Consultation and presentation on site or via the web
- Engineering and on-site service
- Seminars and workshops

For further information, see page 35.

## Machine operators

## Machine manufacturers

We provide support from **phase 0 to 7** for your specific concept:

- Machinery Directive
- EC Declaration of Conformity












## System integrators

We provide support from **phase 2 to 7** for:

- EN ISO 13849, EN 62061
- SISTEMA





## PSRmini – highly compact safety relays for machine building

 Type	Applications							Output contacts			Safety approvals		Overall width	Connection technology		
											PL EN ISO 13849-1	SILCL EN 62061		in mm	Screw connection technology	Spring-cage connection technology
PSR-MS20	●	●	–	●	–	–	A	1	–	1 DO	c <sup>1)</sup>	1 <sup>1)</sup>	6.8	<a href="#">2904950</a>	–	
PSR-MS21	Coupling module for safe controllers						–	A	1	–	1 DO	c <sup>1)</sup>	1 <sup>1)</sup>	6.8	<a href="#">2702192</a>	–
PSR-MS25	●	●	–	●	–	–	M	1	–	1 DO	c <sup>1)</sup>	1 <sup>1)</sup>	6.8	<a href="#">2904951</a>	–	
PSR-MS30	●	●	–	●	●	–	A	1	–	–	e	3	6.8	<a href="#">2904952</a>	–	
PSR-MS35	●	●	–	●	●	–	M	1	–	–	e	3	6.8	<a href="#">2904953</a>	–	
PSR-MS40	●	●	–	–	●	–	A	1	–	1 DO	e	3	6.8	<a href="#">2904954</a>	–	
PSR-MS45	●	●	–	–	●	–	M	1	–	1 DO	e	3	6.8	<a href="#">2904955</a>	–	
PSR-MS50	–	●	–	●	–	–	A	1	–	1 DO	e	3	6.8	<a href="#">2904956</a>	–	
PSR-MS55	–	●	–	●	–	–	M	1	–	1 DO	e	3	6.8	<a href="#">2904957</a>	–	
PSR-MS60	●	●	●	●	●	–	A	2	–	–	e	3	6.8	<a href="#">2904958</a>	–	
PSR-MC20	●	●	–	●	–	–	A/M	3	–	1 DO	c <sup>1)</sup>	1 <sup>1)</sup>	12.5	<a href="#">2700466</a>	<a href="#">2700467</a>	
PSR-MC30	●	●	–	●	●	–	A/M	2	–	1 DO	e	3	12.5	<a href="#">2700498</a>	<a href="#">2700499</a>	
PSR-MC34	●	●	–	●	●	–	A/M	3	–	1 DO	e	3	12.5	<a href="#">2700540</a>	<a href="#">2700548</a>	
PSR-MC40	●	●	●	●	●	–	A/M	3	–	1 DO	e	3	12.5	<a href="#">2700569</a>	<a href="#">2700570</a>	
PSR-MC50	●	●	–	●	●	–	A/M	3	–	1 DO	e	3	12.5	<a href="#">2700540</a>	<a href="#">2700548</a>	
PSR-MC60	–	–	–	–	–	●	A	2	–	1 DO	c	1	12.5	<a href="#">2700571</a>	<a href="#">2700572</a>	
PSR-MC62	–	–	–	–	–	●	A	2	–	1 DO	e	3	12.5	<a href="#">2700574</a>	<a href="#">2700575</a>	
PSR-MC70	●	●	●	●	●	–	A/M	1	1	1 DO	c <sup>1)</sup>	1 <sup>1)</sup>	12.5	<a href="#">2702094</a>	<a href="#">2702095</a>	
PSR-MC72	●	●	●	●	●	–	A/M	1	1	1 DO	e	3	12.5	<a href="#">2702096</a>	<a href="#">2702097</a>	
PSR-MC82	Contact extension						A	5	–	1 NC/1 DO	e <sup>2)</sup>	3 <sup>2)</sup>	12.5	<a href="#">2702382</a>	<a href="#">2702383</a>	

<sup>1)</sup> Up to PL e/SILCL 3 possible, depending on the application; <sup>2)</sup> In conjunction with suitable analysis device; <sup>3)</sup> 1-channel sensor circuit; <sup>4)</sup> Antivalent sensor circuit;

<sup>5)</sup> No cross-circuit detection; A = automatic start; M = manual, monitored start; DO = digital signal output; NC = N/C contact

## PSRmini – highly compact, safe coupling relays for the process industry





Type	Applications	Output contacts		Diagnostics/proof test				Safety approvals					Overall width in mm	Connection technology	
				Visual Diagnostic	Interlocking	Error Signal Generator	Safe readback of the N/C contact	SIL IEC 61508/61511	SIL IEC 50156	ATEX / IECEx / Class I Zone 2	G3 ANSI / ISA-571.04	GL		Screw connection technology	Spring-cage connection technology
PSR-PS20	Highly compact, safe coupling relay for fail-safe controllers...  ... for a safety-related shutdown (ESD)	1	1 NC / 1 DO	●	–	●	●	3	3	●	●	●	6.8	2700356	–
PSR-PS21		1	1 NC / 1 DO	●	–	●	●	2	2	●	●	●	6.8	2700357	–
PSR-PS40		1	1 DO	●	●	–	–	3	3	●	●	●	6.8	2700398	–
PSR-PC20		1	1 NC / 1 DO	●	–	●	●	3	3	●	●	●	12.5	2700577	2700578
PSR-PC32		2	1 NC	●	–	–	●	3	3	●	●	●	17.5	2700581	2700582
PSR-PC40		2	1 DO	●	●	●	–	3	3	●	●	●	12.5	2700588	2700589
PSR-PC50	...for safety-related switch on (F&G)	1	1 DO	–	–	●	●	3 <sup>1)</sup>	–	●	–	●	17.5	2904664	2904665

<sup>1)</sup> Low demand; NC = N/C contact; DO = Digital signal output





Customer-specific Termination Carriers are available on request



## PSRclassic – coupling relays with forced guidance for universal use

 Type	Applications	Output contacts			Input voltage	Connection technology			
						Screw connection technology	Spring-cage connection technology	Screw connection technology, fixed	Spring-cage connection technology, fixed
<b>PSR-URM</b>	Coupling relays for universal applications	5	2	–	24 V UC	<a href="#">2963747</a>	<a href="#">2963970</a>	–	–
					120 V UC	<a href="#">2981402</a>	<a href="#">2981415</a>	–	–
<b>PSR-URM/3X1</b>		3	3	–	24 V UC	<a href="#">2981839</a>	<a href="#">2981842</a>	–	–
					120 V UC	–	–	–	–
<b>PSR-URM/5X1</b>		5	1	–	24 V UC	<a href="#">2981952</a>	<a href="#">2981965</a>	–	–
					120 V UC	–	–	–	–
<b>PSR-URM/2X21</b>		–	–	2	24 V UC	–	–	<a href="#">2981363</a>	–
					120 V UC	–	–	<a href="#">2981376</a>	–
<b>PSR-URM/4X1</b>		4	2	–	24 V UC	–	–	<a href="#">2981444</a>	<a href="#">2981457</a>
					120 V UC	–	–	–	–

## PSRclassic – conventional safe coupling relays for the process industry










 Type Input voltage	Applications	Output contacts			Safety approvals			Connection technology	
					SIL IEC 61508	SIL IEC 61511	SIL IEC 50156	Screw connection technology	Spring-cage connection technology
<b>PSR-FSP</b> 24 V DC	Coupling relays for failsafe controllers	1	1	–	3	3	3	<a href="#">2981978</a>	<a href="#">2981981</a>
<b>PSR-FSP/2x1</b> 24 V DC		2	1	–	3	3	3	<a href="#">2986960</a>	<a href="#">2986957</a>
<b>PSR-FSP2/2x1</b> 24 V DC		2	1	–	2	2	2	<a href="#">2986575</a>	<a href="#">2986588</a>
<b>PSR-ETP</b> 24 V DC		1	–	–	3*	3*	–	<a href="#">2986711</a>	<a href="#">2986562</a>
<b>PSR-ESP4</b> 24 V DC		2	1	–	3	3	–	<a href="#">2981020</a>	<a href="#">2981017</a>

\*Low demand

## PSRclassic – Termination Carrier

<b>TC-DO16-ESD</b>	Termination Carrier for ESD applications with PSR-FSP	<a href="#">2902913</a>
<b>TC-C-PSR3-M</b>	Cable set if confirmation contact is used with the PSR-FSP	<a href="#">2903390</a>
<b>TC-C-PSR3</b>	Cable set if confirmation contact is not used with the PSR-FSP	<a href="#">2903389</a>
<b>TC-C-PTSM-J</b>	Bridge plug for occupying unused module slots	<a href="#">2903388</a>
<b>TC-DO16-F&amp;G</b>	Termination Carrier for F&G applications with PSR-ETP or PSR-PC50	<a href="#">2902914</a>
<b>TC-C-PSR3-24V</b>	Cable set with 24 V module supply for PSR-ETP	<a href="#">2903391</a>
<b>TC-C-PCX3-24V</b>	Cable set with 24 V module supply for PSR-PC50	<a href="#">2906003</a>










## PSRclassic – conventional safety relays for machine building

 <b>Type</b> Input voltage	Applications					Output contacts			Safety approvals			Connection technology	
									CAT/PL EN ISO 13849-1	SILCL EN 62061	SIL IEC 50156	Screw connection technology	Spring-cage connection technology
<b>PSR-ESA2-B</b> 24 V AC/DC	●	●	–	–	–	4	–	1	1/c <sup>4)</sup>	1 <sup>4)</sup>	–	2963802	2963954
<b>PSR-ESAM2/3x1-B</b> 230 V AC/DC	●	●	–	–	–	3	–	1	1/c <sup>4)</sup>	1 <sup>4)</sup>	–	2901430	2901431
<b>PSR-ESAM4/2x1</b> 24 V AC/DC	●	●	–	–	–	2	–	1	4/e	3	3	2900525	2900526
<b>PSR-ESAM4/3x1-B</b> 24 V AC/DC	●	●	–	–	–	3	–	1	4/e	3	3	2900509	2900510
<b>PSR-ESAM4/3x1-B</b> 42 ... 48 V AC/DC	●	●	–	–	–	3	–	1	4/e	3	3	2901416	2901417
<b>PSR-ESAM4/3x1-B</b> 60 V AC/DC	●	●	–	–	–	3	–	1	4/e	3	3	2901426	2901427
<b>PSR-ESAM4/3x1-B</b> 120 V AC/DC	●	●	–	–	–	3	–	1	4/e	3	3	2901422	2901425
<b>PSR-ESAM4/3x1-B</b> 230 V AC/DC	●	●	–	–	–	3	–	1	4/e	3	3	2901428	2901429
<b>PSR-ESAM4/3x1</b> 24 ... 230 V AC/DC	●	●	–	–	–	3	–	1	4/e	3	–	2981114	2981127
<b>PSR-ESAM4/8x1</b> 24 V AC/DC	●	●	–	–	–	8	–	1	4/e	3	–	2963912	2963996
<b>PSR-ESL4</b> 24 V AC/DC	●	●	●	–	–	3	–	1	4/e	3	–	2981059	2981062
<b>PSR-ESD-30</b> 24 V DC	●	●	●	–	–	2	2	–	4/e	3	–	2981800	2981813
<b>PSR-ESD-300</b> 24 V AC/DC	●	●	●	–	–	3	2	1	4 <sup>3)/e<sup>3)</sup></sup>	3 <sup>3)</sup>	–	2981428	2981431
<b>PSR-ESD-T</b> 24 V AC/DC	●	●	●	–	–	3	2	1	4 <sup>3)/e<sup>3)</sup></sup>	3 <sup>3)</sup>	–	Fixed times – see catalog for ordering data	
<b>PSR-THC4</b> 24 V AC/DC	–	●	–	–	●	2	–	1	4 <sup>2)/e</sup>	3	–	2963721	2963983
<b>PSR-URML4</b> 24 V DC	Contact extensions for electrosensitive protective equipment					3	–	1	4/e	3	–	2903583	2903584
<b>PSR-URM4</b> 42 ... 230 V AC/DC	Contact extensions					4	–	2	4 <sup>1)/e<sup>1)</sup></sup>	3 <sup>1)</sup>	3	2902935	2902936
<b>PSR-URM4</b> 24 V AC/DC	Contact extensions					5	–	2	4 <sup>1)/e<sup>1)</sup></sup>	3 <sup>1)</sup>	–	2963734	2964005
<b>PSR-URM4-B</b> 24 V AC/DC	Contact extensions					5	–	2	4 <sup>1)/e<sup>1)</sup></sup>	3 <sup>1)</sup>	–	2981033	2981046










<sup>1)</sup> = In conjunction with suitable basic device, <sup>2)</sup> = Type IIIC according to EN 574,


<sup>3)</sup> = Undelayed contacts: Cat. 4, PL e, SILCL 3, dropout delayed contacts: Cat. 3, PL d, SILCL 2, <sup>4)</sup> = Up to PL e possible depending on the application

## PSRmultifunction – safety relays

 Type Input voltage	Applications					Output contacts			Safety approvals			Connection technology		
									CAT/PL EN ISO 13849-1	SILCL EN 62061	SIL IEC 50156	Screw connection technology	Spring-cage connection technology	Push-in connection technology
<b>PSR-MXF1</b> 24 V DC	•	•	–	–	–	4	–	2	4/e	3	•	<a href="#">2902725</a>	<a href="#">2902726</a>	<a href="#">2903253</a>
<b>PSR-MXF2</b> 24 V DC	•	•	–	•	–	4	–	2	4/e	3	•	<a href="#">2903254</a>	<a href="#">2903255</a>	<a href="#">2903256</a>
<b>PSR-MXF3</b> 24 V DC	•	•	•	–	–	4	–	2	4/e	3	•	<a href="#">2903257</a>	<a href="#">2903258</a>	<a href="#">2903259</a>
<b>PSR-MXF4</b> 24 V DC	•	•	•	•	–	4	–	2	4/e	3	•	<a href="#">2903260</a>	<a href="#">2903261</a>	<a href="#">2903262</a>

## PSRmodular – modular safety relay system with wiring via system connector

 Type Input voltage	Applications					Output contacts			Safety approvals		Connection technology	
									CAT/PL EN ISO 13849-1	SILCL EN 62061	Screw connection technology	Spring-cage connection technology
<b>PSR-SDC4</b> 24 V DC	•	•	•	•	–	2	–	1 <sup>3)</sup>	4/e	3	<a href="#">2981486</a>	<a href="#">2981499</a>
<b>PSR-URM4/B</b> 24 V DC	Contact extensions					4	–	2	4/e	3	<a href="#">2981677</a>	<a href="#">2981680</a>
<b>PSR-URD3/3</b> 24 V DC	Contact extensions					–	4	2 delayed	3/d	2	<a href="#">2981732</a>	<a href="#">2981745</a>
<b>PSR-URD3/30</b> 24 V DC	Contact extensions					–	4	2 delayed	3/d	2	<a href="#">2981512</a>	<a href="#">2981525</a>
<b>PSR-URD3/T2</b> 24 V DC	Contact extensions					–	4	2 delayed	3/d	2	<a href="#">2981703</a>	<a href="#">2981729</a>
<b>PSR-SIM4</b>	IP20 input extension – interface module for up to 4 safety sensors										<a href="#">2981936</a>	<a href="#">2981949</a>









 PSR-SACB...	Description		Order designation	Order No.
	IP65/IP67 input extension – sensor box for up to 4 safety sensors	Cable length: 5 m	PSR-SACB-4/4-L-5,0PUR-SD	<a href="#">2981871</a>
		Cable length: 10 m	PSR-SACB-4/4-L-10,0PUR-SD	<a href="#">2981884</a>
		Blind plug for free slots	SAC-2P-M12MS ASI TR	<a href="#">1539570</a>

<sup>3)</sup> = Undelayed contacts: Cat. 4, PL e, SILCL 3, dropout delayed contacts: Cat. 3, PL d, SILCL 2

## PSRmodular – accessories





<b>PSR-TBUS</b>	DIN rail connector	PSR-TBUS	<a href="#">2890425</a>
	Blind plug	PSR-TBUS-TP	<a href="#">2981716</a>

## PSRmotion – zero-speed and over-speed safety relay

 <b>Type</b> Input voltage	Applications					Contacts		Safety approvals		Connection technology	
								CAT/PL EN ISO 13849-1	SILCL EN 62061	Screw connection technology	Spring-cage connection technology
<b>PSR-MM25</b> 24 V DC	●	–	–	●	–	1	2 DO	3/e	3	2702355	2702356
<b>PSR-RSM4</b> 24 V DC	–	●	●	●	●	4	3 DO	4/e	3	2981538	2981541
<b>PSR-CONF-WIN</b> for RSM4	Configuration software with connecting cable for PSR-RSM4									2981554	
<b>Cable-/...</b>	Adaptation of the zero-speed and over-speed safety relays to existing drive systems									on request	


<sup>3)</sup> = Undelayed contacts: Cat. 4, PL e, SILCL 3, dropout delayed contacts: Cat. 3, PL d, SILCL 2

## Trisafe – configurable safety modules

 <b>Type</b> Input voltage	Applications			Inputs/outputs					Safety approvals				Connection technology	
				Inputs	Safe control outputs	Ground switching outputs	Clock outputs	Signal outputs	CAT/PL EN ISO 13849-1	SILCL EN 62061	SIL IEC 61508	SIL IEC 50156	Screw connection technology	Spring-cage connection technology
<b>PSR-TRISAFE-S</b> 24 V DC	Master module (stand-alone)			20	4	2	2	4	4/e	3	3	3	2986229	2986232
<b>PSR-TRISAFE-M</b> 24 V DC	Master module (safe extension)			20	4	2	2	4	4/e	3	3	3	2986012	2986025
<b>PSR-TS-SDI8-SDIO4</b> 24 V DC	Safe digital I/O extension module			8	4*	–	(2)*	2*	4/e	3	3	3	2986038	2986041
<b>PSR-TS-SDOR4</b> 24 V DC	Safe relay module			–	4***	–	–	4	4**/ e**	3**	3**	3	2986096	2986106
<b>PSR-TRISAFE starter kit</b>	<b>Contents:</b> PSR-TRISAFE-M, prewired, international power supply, USB cable for device configuration, SAFECONF configuration software, quick start guide												2986300	
<b>EM-PB-GATEWAY-IFS</b>	PROFIBUS GATEWAY												2297620	–
<b>COPYSTATION-IFS</b>	Copy and delete station for IFS-CONFSTICK-type memory modules												2901985	


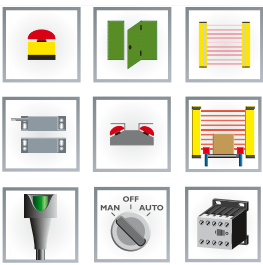
\*Configurable via software: outputs to inputs / signal outputs to clock outputs; \*\* Up to ... depending on connection; \*\*\* Configurable via software: 4 x 1-channel or 2 x 2-channel

## SAFECONF – configuration software

<b>IFS-CONFSTICK</b>		Memory module for Trisafe		2986122
	<b>SAFECONF</b>	Free configuration software for Trisafe and SafetyBridge modules. Download at <b>phoenixcontact.com</b>		
		Configuration package including software, USB cable, and quick start guide	Multilingual	2986119



## SafetyBridge – network safety solutions

 <b>Type</b> Input voltage	Applications	Inputs/outputs					Safety approvals			Order No.
		Safe inputs	Safe outputs	Clock outputs	Signal outputs	Relay outputs	CAT/PL EN ISO 13849-1	SILCL EN 62061	SIL IEC 61508	
<b>IB IL 24 LPSDO 8-PAC</b> 24 V DC	Logic module	–	8	–	–	–	4/e	3	3	<a href="#">2916024</a>
<b>IB IL 24 LPSDO 8 V2-PAC</b> 24 V DC	Logic module	–	8	–	–	–	4/e	3	3	<a href="#">2700606</a>
<b>IB IL 24 LPSDO 8 V3-PAC</b> 24 V DC	Logic module	–	8	–	–	–	4/e	3	3	<a href="#">2701625</a>
<b>ILC 130 SBT V2 starter kit</b>	ILC 130 ETH, IB IL 24 LPSDO 8 V2-PAC, IB IL 24 PSDI 8-PAC, fully wired, SAFECONF configuration software, quick start guide, and example project									<a href="#">2700993</a>
<b>MUX SD card</b>	Two of these SD cards, with two ILC 131 ETHs and the individually required input and output terminals, form a multiplexer system that requires no programming.									<a href="#">2701872</a>
<b>SD FLASH easy safe basic</b>	Program and configuration memory, plug-in, 2 GB, with license key and application program for easy web-based configuration and startup of a SafetyBridge solution.									<a href="#">2403297</a>
<b>SD FLASH easy safe pro</b>	Program and configuration memory, plug-in, 2 GB, with license key and application program for easy web-based configuration and startup of a SafetyBridge solution including communication via Modbus/TCP, PROFINET, and e-mail.									<a href="#">2403298</a>

## Inline SafetyBridge and PROFIsafe I/O modules


<b>IB IL 24 PSDI 8-PAC</b> 24 V DC	Input module	8	–	8	–	–	4/e	3	3	<a href="#">2985688</a>
<b>IB IL 24 PSDI 16-PAC</b> 24 V DC	Input module *	16	–	16	–	–	4/e	3	3	<a href="#">2700994</a>
<b>IB IL 24 PSDO 8-PAC</b> 24 V DC	Output module	–	8	–	–	–	4/e	3	3	<a href="#">2985631</a>
<b>IB IL 24 PSDO 4/4-PAC</b> 24 V DC	Output module – positive and negative switching	–	4	–	–	–	4/e	3	3	<a href="#">2916493</a>
<b>IB IL 24 PSDOR 4-PAC</b> 24 V DC / 230 V DC	Relay module	–	–	–	–	4	4/e	3	3	<a href="#">2985864</a>

\* Only compatible with IB IL 24 LPSDO V3-PAC logic module

## Axioline F PROFIsafe I/O modules

<b>AXL F LPSDO8/3 1F</b> 24 V DC	Logic module	–	8	–	–	–	4/e	3	3	<a href="#">2702171</a>
<b>AXL F SSDI8/4 1F</b> 24 V DC	Input module	8	–	–	–	–	4/e	3	3	<a href="#">2702263</a>
<b>AXL F SSDO8/3 1F</b> 24 V DC	Output module	–	8	–	–	–	4/e	3	3	<a href="#">2702264</a>
<b>AXL F PSDI8/4 1F</b> 24 V DC	Input module	8	–	–	–	–	4/e	3	3	<a href="#">2701559</a>
<b>AXL F PSDO8/3 1F</b> 24 V DC	Output module	–	8	–	–	–	4/e	3	3	<a href="#">2701560</a>

## PROFIsafe control technology

Type	Applications	Number of I/Os	Safety protocol	Software	Safety approvals			Order No.
					CAT/PL EN ISO 13849-1	SILCL EN 62061	SIL IEC 61508	
 <b>RFC 470S PN 3TX</b>	Safety controller that can be freely programmed using LD and FBD	Up to 170 safe devices	PROFIsafe via PROFINET	SAFETYPROG	4/e	3	3	<a href="#">2916794</a>
<b>FL PN/PN SDIO-2TX/2TX</b>	Safe PROFINET gateway	–	PROFIsafe via PROFINET	–	4/e	3	3	<a href="#">2700651</a>

## SAFETYPROG – programming software

	<b>SAFETYPROG Basic</b>	SAFETYPROG programming software, including certified PLCopen blocks	<a href="#">2700443</a>
	<b>SAFETYPROG Advanced</b>		<a href="#">2700441</a>
	<b>SAFETYPROG Professional</b>		<a href="#">2700442</a>
	<b>SAFE AI function block</b>	Function block library for safety-related analog value acquisition with standard I/O modules	<a href="#">2400057</a>

## Product support

### Safety hotline

Please speak to your personal sales partner directly or contact our headquarters in Blomberg.

### Safety support

- Startup support
- On-site service
- Hardware/software workshops

### Concept support

- Concept formulation
- Concept assessment

























### Functional Safety app

With our safety app, you can gain a basic overview of the safety of machinery and a quick status check on the Machinery Directive requirements you have implemented. Other features of the app include tools for risk assessment and calculating the probability of components failing. An interactive quiz can help you to see where you're at and identify gaps in your knowledge.

Search term: Phoenix Contact safety



### Key for applications, outputs, and safety approvals

 Emergency stop	 Transponder switch	 Safety door switch	 Operating mode selector switch	 Enabling current path / N/O contact	 Forced guidance
 Safety door switch, mechanical	 Start/restart	 Two-hand function	 Contactor control	 N/C contact	 Zero-speed safety relay
 Light grid	 Initiators	 Muting	 Encoder	 Changeover contact	 Over-speed safety relay
 Solenoid switch	 Expanded temperature range	 Enable switch	 Sensor-free motor monitoring	 Dropout delayed contact	 Switching capacity



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## Product range

- Cables and wires
- Connectors
- Controllers
- Electronics housings
- Electronic switchgear and motor control
- Fieldbus components and systems
- Functional safety
- HMIs and industrial PCs
- I/O systems
- Industrial communication technology
- Industrial Ethernet
- Installation and mounting material
- Lighting and signaling
- Marking and labeling
- Measurement and control technology
- Monitoring
- PCB terminal blocks and PCB connectors
- Power supply units and UPS
- Protective devices
- Relay modules
- Sensor/actuator cabling
- Software
- Surge protection and interference filters
- System cabling for controllers
- Terminal blocks
- Tools
- Wireless data communication

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