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

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**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.

Diagnostics technologies

<table>
<thead>
<tr>
<th>Application</th>
<th>ESD</th>
<th>ESD with interlocking</th>
<th>F&amp;G</th>
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<tbody>
<tr>
<td>Product</td>
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<td>PS40 PC40</td>
<td>PC50</td>
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<td>✔️</td>
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<td>Error Signal Generator</td>
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<td>–</td>
<td>✔️</td>
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<tr>
<td>Interlocking</td>
<td>–</td>
<td>✔️</td>
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</tr>
</tbody>
</table>

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

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.
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

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.

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.

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

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.

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.

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 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.

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

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

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

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

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

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

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**Convenient connection methods**

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

**Highly compact at 12.5 mm**

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

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**Control of electromechanical guard locks**
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 SAFECNF configuration software using drag and drop.

**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.
**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

**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
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 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 theSAFECONF software, please refer to pages 22 and 23.

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.

**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.
SAFETYPROG programming system
SAFETYPROG is the programming software for our high-performance controllers. You can use it to implement standard-compliant safety systems for PROFlsafe 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.
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 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

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<tr>
<th>Type</th>
<th>Applications</th>
<th>Output contacts</th>
<th>Safety approvals</th>
<th>Overall width</th>
<th>Connection technology</th>
</tr>
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<tbody>
<tr>
<td>PSR-MS20</td>
<td>Coupling module for safe controllers</td>
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</table>

1) Up to PL cl/SIL CL possible, depending on the application; 2) In conjunction with suitable analysis device; 3) 1-channel sensor circuit; 4) 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

<table>
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<tr>
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<th>Output contacts</th>
<th>Diagnostics/proof test</th>
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1) 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

<table>
<thead>
<tr>
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<th>Input voltage</th>
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<td>120 V UC</td>
<td>2981842</td>
</tr>
<tr>
<td>PSR-URM/5X1</td>
<td></td>
<td></td>
<td>24 V UC</td>
<td>2981952</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>120 V UC</td>
<td>2981965</td>
</tr>
<tr>
<td>PSR-URM/2X2I</td>
<td></td>
<td></td>
<td>24 V UC</td>
<td>2981363</td>
</tr>
<tr>
<td>PSR-URM/4X1</td>
<td></td>
<td></td>
<td>24 V UC</td>
<td>2981444</td>
</tr>
</tbody>
</table>

# PSRclassic – conventional safe coupling relays for the process industry

<table>
<thead>
<tr>
<th>Type</th>
<th>Applications</th>
<th>Output contacts</th>
<th>Safety approvals</th>
<th>Connection technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSR-FSP</td>
<td></td>
<td></td>
<td>SIL IEC 61508</td>
<td>2981978</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SIL IEC 61511</td>
<td>2981981</td>
</tr>
<tr>
<td>PSR-FSP/2x1</td>
<td></td>
<td></td>
<td>SIL IEC 50156</td>
<td>2986957</td>
</tr>
<tr>
<td>PSR-FSP2/2x1</td>
<td>Coupling relays for failsafe controllers</td>
<td></td>
<td></td>
<td>2986588</td>
</tr>
<tr>
<td>PSR-ETP</td>
<td></td>
<td></td>
<td>3*</td>
<td>2986711</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3*</td>
<td>2986562</td>
</tr>
<tr>
<td>PSR-ESP4</td>
<td></td>
<td></td>
<td>3</td>
<td>29881020</td>
</tr>
</tbody>
</table>

*Low demand

# PSRclassic – Termination Carrier

<table>
<thead>
<tr>
<th>Type</th>
<th>Applications</th>
<th>Connection technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC-DO16-ESD</td>
<td>Termination Carrier for ESD applications with PSR-FSP</td>
<td>2902913</td>
</tr>
<tr>
<td>TC-C-PSR3-M</td>
<td>Cable set if confirmation contact is used with the PSR-FSP</td>
<td>2903930</td>
</tr>
<tr>
<td>TC-C-PSR3</td>
<td>Cable set if confirmation contact is not used with the PSR-FSP</td>
<td>2903839</td>
</tr>
<tr>
<td>TC-C-PTSM-J</td>
<td>Bridge plug for occupying unused module slots</td>
<td>2903888</td>
</tr>
<tr>
<td>TC-DO16-F&amp;G</td>
<td>Termination Carrier for F&amp;G applications with PSR-ETP or PSR-PC50</td>
<td>2902914</td>
</tr>
<tr>
<td>TC-C-PSR3-24V</td>
<td>Cable set with 24 V module supply for PSR-ETP</td>
<td>2903891</td>
</tr>
<tr>
<td>TC-C-PCX3-24V</td>
<td>Cable set with 24 V module supply for PSR-PC50</td>
<td>2906003</td>
</tr>
<tr>
<td>Type</td>
<td>Input voltage</td>
<td>Applications</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------</td>
<td>--------------</td>
</tr>
<tr>
<td>PSR-ESA2-B</td>
<td>24 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-ESAM2/3x1-B</td>
<td>230 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-ESAM4/2x1</td>
<td>24 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-ESAM4/3x1-B</td>
<td>42 ... 48 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-ESAM4/3x1-B</td>
<td>60 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-ESAM4/3x1-B</td>
<td>120 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-ESAM4/3x1</td>
<td>230 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-ESAM4/8x1</td>
<td>24 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-ESL4</td>
<td>24 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-ESD-30</td>
<td>24 V DC</td>
<td></td>
</tr>
<tr>
<td>PSR-ESD-300</td>
<td>24 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-ESD-T</td>
<td>24 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-THC4</td>
<td>24 V AC/DC</td>
<td></td>
</tr>
<tr>
<td>PSR-URML4</td>
<td>24 V DC</td>
<td>Contact extensions for electrosensitive protective equipment</td>
</tr>
<tr>
<td>PSR-URM4</td>
<td>42 ... 230 V AC/DC</td>
<td>Contact extensions</td>
</tr>
<tr>
<td>PSR-URM4</td>
<td>24 V AC/DC</td>
<td>Contact extensions</td>
</tr>
<tr>
<td>PSR-URM4-B</td>
<td>24 V AC/DC</td>
<td>Contact extensions</td>
</tr>
</tbody>
</table>

1) = In conjunction with suitable basic device, 2) = Type IIIIC according to EN 574, 3) = Undelayed contacts: Cat. 4, PL e, SILCL 3, dropout delayed contacts: Cat. 3, PL d, SILCL 2, 4) = Up to PL e possible depending on the application
### PSRmultifunction – safety relays

<table>
<thead>
<tr>
<th>Type</th>
<th>Input voltage</th>
<th>Applications</th>
<th>Output contacts</th>
<th>Safety approvals</th>
<th>Connection technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSR-MXF1</td>
<td>24 V DC</td>
<td>● ● ● – – – 4 – 2</td>
<td>4/e 3 ●</td>
<td>2902725</td>
<td></td>
</tr>
<tr>
<td>PSR-MXF2</td>
<td>24 V DC</td>
<td>● ● ● – – – 4 – 2</td>
<td>4/e 3 ●</td>
<td>2903254</td>
<td></td>
</tr>
<tr>
<td>PSR-MXF3</td>
<td>24 V DC</td>
<td>● ● ● – – – 4 – 2</td>
<td>4/e 3 ●</td>
<td>2903257</td>
<td></td>
</tr>
<tr>
<td>PSR-MXF4</td>
<td>24 V DC</td>
<td>● ● ● ● – – 4 – 2</td>
<td>4/e 3 ●</td>
<td>2903260</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Input voltage</th>
<th>Applications</th>
<th>Output contacts</th>
<th>Safety approvals</th>
<th>Connection technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSR-SDC4</td>
<td>24 V DC</td>
<td>● ● ● ● – – 2 – 1</td>
<td>4/e 3</td>
<td>2981486</td>
<td></td>
</tr>
<tr>
<td>PSR-URM4/B</td>
<td>24 V DC</td>
<td>Contact extensions</td>
<td>4 – 2</td>
<td>4/e 3</td>
<td>2981677</td>
</tr>
<tr>
<td>PSR-URD3/3</td>
<td>24 V DC</td>
<td>Contact extensions</td>
<td>– 4</td>
<td>2 delayed</td>
<td>2981732</td>
</tr>
<tr>
<td>PSR-URD3/30</td>
<td>24 V DC</td>
<td>Contact extensions</td>
<td>– 4</td>
<td>2 delayed</td>
<td>2981512</td>
</tr>
<tr>
<td>PSR-URD3/T2</td>
<td>24 V DC</td>
<td>Contact extensions</td>
<td>– 4</td>
<td>2 delayed</td>
<td>2981703</td>
</tr>
<tr>
<td>PSR-SIM4</td>
<td>24 V DC</td>
<td>IP20 input extension – interface module for up to 4 safety sensors</td>
<td>2981936</td>
<td>2981949</td>
<td></td>
</tr>
</tbody>
</table>

### Description

- IP65/IP67 input extension – sensor box for up to 4 safety sensors
- Cable length: 5 m
- Cable length: 10 m
- Blind plug for free slots

### PSRmodular – accessories

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Order designation</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSR-TBUS</td>
<td>DIN rail connector</td>
<td>PSR-TBUS</td>
<td>2890425</td>
</tr>
<tr>
<td></td>
<td>Blind plug</td>
<td>PSR-TBUS-TP</td>
<td>2981716</td>
</tr>
</tbody>
</table>

3) = Undelayed contacts: Cat. 4, PL e, SILCL 3, dropout delayed contacts: Cat. 3, PL d, SILCL 2
### PSRmotion – zero-speed and over-speed safety relay

<table>
<thead>
<tr>
<th>Type</th>
<th>Input voltage</th>
<th>Applications</th>
<th>Contacts</th>
<th>Safety approvals</th>
<th>Connection technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSR-MM25</td>
<td>24 V DC</td>
<td>⬠ – ⬠ ⬠</td>
<td>1 ⬠</td>
<td>2 DO</td>
<td>3</td>
</tr>
<tr>
<td>PSR-RSM4</td>
<td>24 V DC</td>
<td>⬠ ⬠ ⬠ ⬠</td>
<td>4 ⬠</td>
<td>3 DO</td>
<td>4</td>
</tr>
<tr>
<td>PSR-CONF-WIN</td>
<td></td>
<td>Configuration software with connecting cable for PSR-RSM4</td>
<td></td>
<td></td>
<td>2981554</td>
</tr>
<tr>
<td>Cable-…</td>
<td></td>
<td>Adaptation of the zero-speed and over-speed safety relays to existing drive systems</td>
<td></td>
<td></td>
<td>on request</td>
</tr>
</tbody>
</table>

*Undelayed contacts: Cat. 4, PL e, SILC 3; dropout delayed contacts: Cat. 3, PL d, SILC 2

### Trisafe – configurable safety modules

<table>
<thead>
<tr>
<th>Type</th>
<th>Input voltage</th>
<th>Applications</th>
<th>Inputs/outputs</th>
<th>Safety approvals</th>
<th>Connection technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSR-TRISAFE-S</td>
<td>24 V DC</td>
<td>Master module (stand-alone)</td>
<td>20 4 2 2 4 4/e</td>
<td>3 3 3</td>
<td>2986229</td>
</tr>
<tr>
<td>PSR-TRISAFE-M</td>
<td>24 V DC</td>
<td>Master module (safe extension)</td>
<td>20 4 2 2 4 4/e</td>
<td>3 3 3</td>
<td>2986012</td>
</tr>
<tr>
<td>PSR-TS-SDI8-SDIO4</td>
<td>24 V DC</td>
<td>Safe digital I/O extension module</td>
<td>8 4* – (2)* 2* 4/e</td>
<td>3 3 3</td>
<td>2986038</td>
</tr>
<tr>
<td>PSR-TS-SDOR4</td>
<td>24 V DC</td>
<td>Safe relay module</td>
<td>– 4*** – – 4 4**/e**</td>
<td>3** 3* 3</td>
<td>2986096</td>
</tr>
<tr>
<td>PSR-TRISAFE starter kit</td>
<td></td>
<td>Contents: PSR-TRISAFE-M, prewired, international power supply, SAFECONfiguration software, quick start guide</td>
<td></td>
<td></td>
<td>2986300</td>
</tr>
<tr>
<td>EM-PB-GATEWAY-IFS</td>
<td></td>
<td>PROFIBUS GATEWAY</td>
<td></td>
<td></td>
<td>2297620</td>
</tr>
<tr>
<td>COPYSTATION-IFS</td>
<td></td>
<td>Copy and delete station for IFS-CONFSTICK-type memory modules</td>
<td></td>
<td></td>
<td>2901985</td>
</tr>
</tbody>
</table>

*Configurerable 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

| SAFECONF | Memory module for Trisafe | 2986122 |
|          | Free configuration software for Trisafe and SafetyBridge modules. Download at phoenixcontact.com | |
|          | Configuration package including software, USB cable, and quick start guide | Multilingual | 2986119 |
### SafetyBridge – network safety solutions

<table>
<thead>
<tr>
<th>Type</th>
<th>Input voltage</th>
<th>Applications</th>
<th>Inputs/outputs</th>
<th>Safety approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IB IL 24 LPSDO 8-PAC</strong> 24 V DC</td>
<td>Logic module</td>
<td>– 8 – – –</td>
<td>4/e 3 3</td>
<td>2916024</td>
</tr>
<tr>
<td><strong>IB IL 24 LPSDO 8 V2-PAC</strong> 24 V DC</td>
<td>Logic module</td>
<td>– 8 – – –</td>
<td>4/e 3 3</td>
<td>2700606</td>
</tr>
<tr>
<td><strong>IB IL 24 LPSDO 8 V3-PAC</strong> 24 V DC</td>
<td>Logic module</td>
<td>– 8 – – –</td>
<td>4/e 3 3</td>
<td>2701625</td>
</tr>
<tr>
<td><strong>ILC 130 SBT V2 starter kit</strong></td>
<td>ILC 130 ETH, IB IL 24 LPSDO 8 V2-PAC, IB IL 24 PSDK 8-PAC, fully wired, SAFECONF configuration software, quick start guide, and example project</td>
<td></td>
<td></td>
<td>2700993</td>
</tr>
<tr>
<td><strong>MUX SD card</strong></td>
<td>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.</td>
<td></td>
<td></td>
<td>2701872</td>
</tr>
<tr>
<td><strong>SD FLASH easy safe basic</strong></td>
<td>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.</td>
<td></td>
<td></td>
<td>2403297</td>
</tr>
<tr>
<td><strong>SD FLASH easy safe pro</strong></td>
<td>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.</td>
<td></td>
<td></td>
<td>2403298</td>
</tr>
</tbody>
</table>

### Inline SafetyBridge and PROFIsafe I/O modules

<table>
<thead>
<tr>
<th>Type</th>
<th>Input voltage</th>
<th>Applications</th>
<th>Inputs/outputs</th>
<th>Safety approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IB IL 24 PSDI 8-PAC</strong> 24 V DC</td>
<td>Input module</td>
<td>8 – 8 – – –</td>
<td>4/e 3 3</td>
<td>2985688</td>
</tr>
<tr>
<td><strong>IB IL 24 PSDI 16-PAC</strong> 24 V DC</td>
<td>Input module</td>
<td>16 – 16 – – –</td>
<td>4/e 3 3</td>
<td>2700994</td>
</tr>
<tr>
<td><strong>IB IL 24 PSDO 8-PAC</strong> 24 V DC</td>
<td>Output module</td>
<td>– 8 – – –</td>
<td>4/e 3 3</td>
<td>2985631</td>
</tr>
<tr>
<td><strong>IB IL 24 PSDO 4/4-PAC</strong> 24 V DC</td>
<td>Output module – positive and negative switching</td>
<td>– 4 – – –</td>
<td>4/e 3 3</td>
<td>2916493</td>
</tr>
<tr>
<td><strong>IB IL 24 PSDOR 4-PAC</strong> 24 V DC / 230 V DC</td>
<td>Relay module</td>
<td>– – – – 4</td>
<td>4/e 3 3</td>
<td>2985864</td>
</tr>
</tbody>
</table>

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

### Axioline F PROFIsafe I/O modules

<table>
<thead>
<tr>
<th>Type</th>
<th>Input voltage</th>
<th>Applications</th>
<th>Inputs/outputs</th>
<th>Safety approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AXL F LPSDO8/3 1F</strong> 24 V DC</td>
<td>Logic module</td>
<td>– 8 – – –</td>
<td>4/e 3 3</td>
<td>2702171</td>
</tr>
<tr>
<td><strong>AXL F SSD18/4 1F</strong> 24 V DC</td>
<td>Input module</td>
<td>8 – – – –</td>
<td>4/e 3 3</td>
<td>2702263</td>
</tr>
<tr>
<td><strong>AXL F SSD08/3 1F</strong> 24 V DC</td>
<td>Output module</td>
<td>– 8 – – –</td>
<td>4/e 3 3</td>
<td>2702264</td>
</tr>
<tr>
<td><strong>AXL F PSD18/4 1F</strong> 24 V DC</td>
<td>Input module</td>
<td>8 – – – –</td>
<td>4/e 3 3</td>
<td>2701559</td>
</tr>
<tr>
<td><strong>AXL F PSD08/3 1F</strong> 24 V DC</td>
<td>Output module</td>
<td>– 8 – – –</td>
<td>4/e 3 3</td>
<td>2701560</td>
</tr>
</tbody>
</table>
### SAFETYPROG – programming software

<table>
<thead>
<tr>
<th></th>
<th>SAFETYPROG Basic</th>
<th>SAFETYPROG Advanced</th>
<th>SAFETYPROG Professional</th>
<th>SAFE AI function block</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>SAFETYPROG Basic</td>
<td>SAFETYPROG Advanced</td>
<td>SAFETYPROG Professional</td>
<td>SAFE AI function block</td>
</tr>
<tr>
<td>Applications</td>
<td>SAFETYPROG Basic</td>
<td>SAFETYPROG Advanced</td>
<td>SAFETYPROG Professional</td>
<td>SAFE AI function block</td>
</tr>
<tr>
<td>Number of I/Os</td>
<td>Up to 170 safe devices</td>
<td>PROFIsafe via PROFINET</td>
<td>PROFIsafe via PROFINET</td>
<td>Safe PROFINET gateway</td>
</tr>
<tr>
<td>Safety protocol</td>
<td>PROFIsafe via PROFINET</td>
<td>SAFETYPROG</td>
<td>SAFETYPROG</td>
<td>SAFETYPROG</td>
</tr>
<tr>
<td>Software</td>
<td>SAFETYPROG</td>
<td>SAFETYPROG</td>
<td>SAFETYPROG</td>
<td>SAFETYPROG</td>
</tr>
<tr>
<td>Safety approvals</td>
<td>CAT/PL EN 13849-1</td>
<td>EN 62061</td>
<td>EN 62061</td>
<td>EN 62061</td>
</tr>
<tr>
<td>SIL</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>IEC 61508</td>
<td>3</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td>Order No.</td>
<td>2916794</td>
<td>2700443</td>
<td>2700441</td>
<td>2400057</td>
</tr>
</tbody>
</table>

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

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- 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