Functional safety

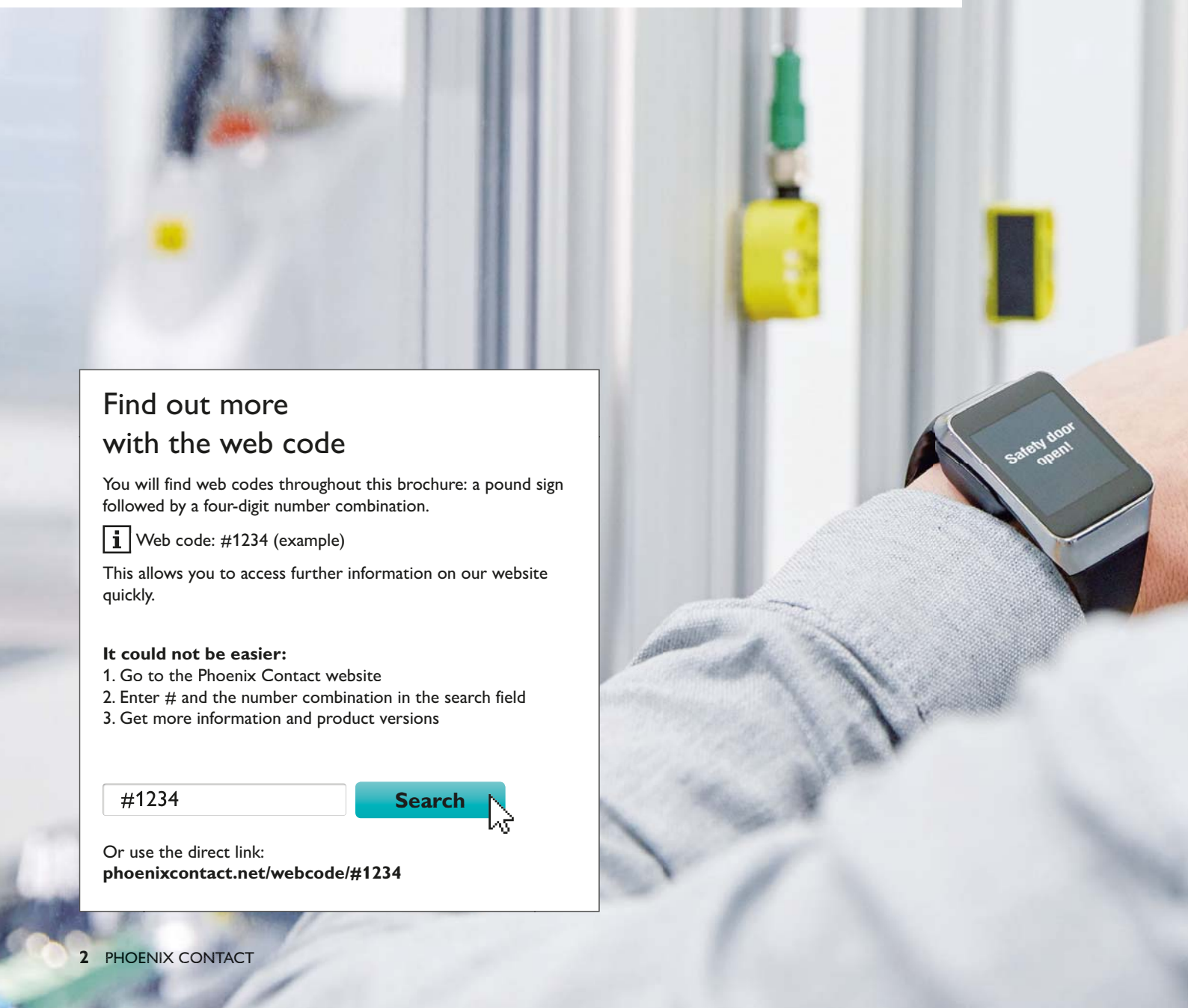
From the safety switch through to the safe controller

PHOENIX CONTACT
INSPIRING INNOVATIONS

Smart solutions for functional safety

The Internet of Things is extending into the processing industry. The networking of all units in a digital factory demands a holistic approach to processes and also includes functional safety.

We are working to ensure that our safety solutions always provide optimum protection for people and systems, even in the digital age. And you can further increase system availability by integrating safety into the modular automation. Read more on this on the following pages.



Find out more with the web code

You will find web codes throughout this brochure: a pound sign followed by a four-digit number combination.

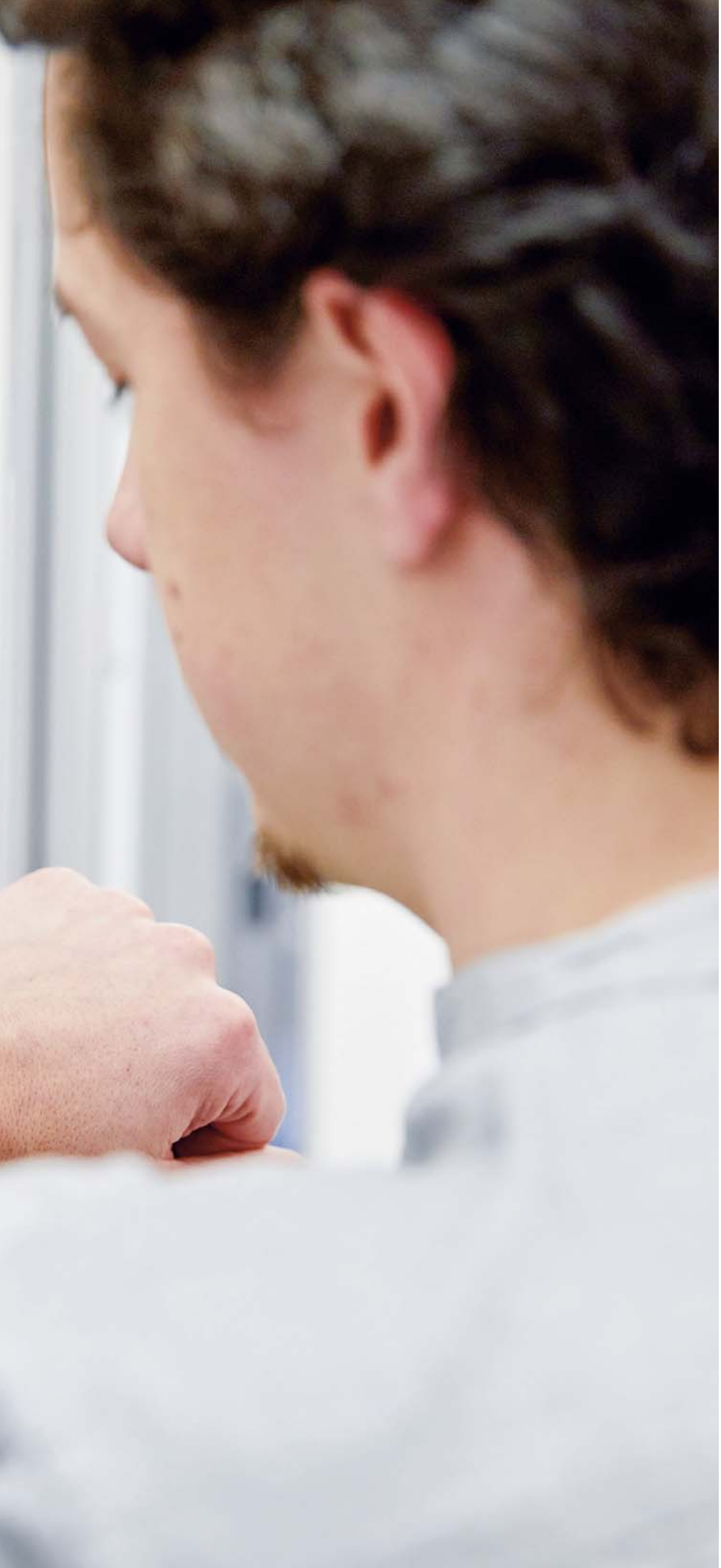
Web code: #1234 (example)

This allows you to access further information on our website quickly.

It could not be easier:
1. Go to the Phoenix Contact website
2. Enter # and the number combination in the search field
3. Get more information and product versions

#1234 **Search**

Or use the direct link:
phoenixcontact.net/webcode/#1234



Contents

Progress through innovative technologies

Cloud-based safety solutions for greater efficiency

Safeguard your competitive edge in a digital world. With the PROFINET-based cloud solution from Phoenix Contact, you can now also transmit safety-relevant data via the Internet into the cloud.
The ability to access safety data via the Internet in real time and to convert this into meaningful information unlocks enormous potential for you as a system operator or machine manufacturer.

You can improve your operational sequences, for example by analyzing user behavior. Or, you can optimize the machine design in respect of ergonomics. Furthermore, the real-time data analysis enables predictive maintenance, ensuring that the service life of your machines can be increased through the timely replacement of components susceptible to wear, such as relays.

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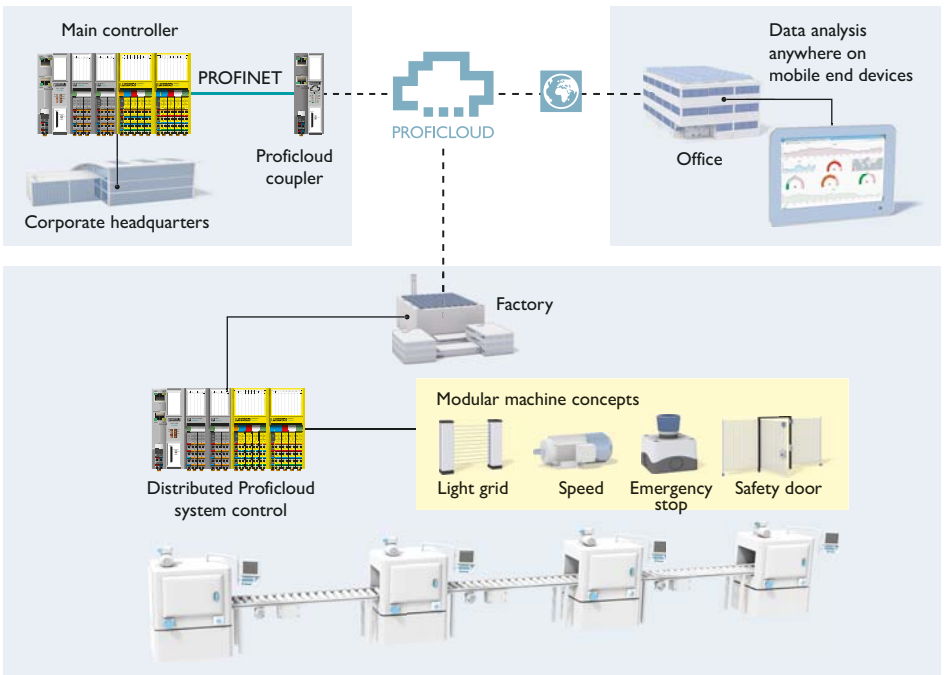

Your advantages

- Access process and safety data at any time and from anywhere
- Increase your productivity, thanks to the holistic consideration of data, resources, and machines
- Minimize disturbances and downtimes, thanks to predictive maintenance
- Communicate securely via the cloud, thanks to TLS encryption

SafetyBridge Technology – Safety without a safety controller

What is SafetyBridge Technology?
With SafetyBridge Technology, you can realize distributed safety solutions. And you can do this without a safety controller and regardless of the network installed. The technology is integrated into the Inline and Axioline F I/O systems and is compatible with all bus couplers of these systems. The safe I/Os are installed with the standard I/Os distributed in the equipment.

How does it work?
The system consists of safe input and output modules and a logic module. The latter captures and issues safe signals. It generates and monitors the safety-relevant SafetyBridge transmission protocol and processes the logical connections of the parameterized safety logic. The logic module therefore assumes the task of a safe controller.

Programming is implemented via the SAFECONF software.

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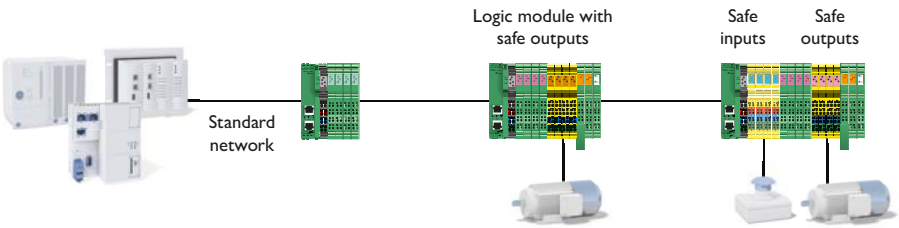


Transmitting safe data via wireless systems

SafetyBridge Technology also enables the safe and reliable wireless transmission of all safety-relevant data signals. You can choose between the two wireless technologies, Bluetooth and WLAN. Cable and slip ring transmission systems can thus be replaced, with wireless paths, without having to change the security passwords for the safety application.

The combination of safety and wireless has many advantages. This solution can be easily integrated into existing automation networks and helps to save on the costs of a distributed or mobile machine structure.

Furthermore, safety signals can be transmitted reliably over large distances.

Web code: #1943

Relay technology from Phoenix Contact – Developed to change

Phoenix Contact has developed a narrow, force-guided elementary relay which features full performance with an overall width of just 6 mm. The miniaturization of mechatronic functions enables modular safety concepts, as required for Industrie 4.0. With a switching capacity of 6 A, the relay ensures superior availability, thanks to a redundant diagnostic contact, and enabled us to develop the PSRmini safety relay in a 6 mm housing.

Web code: #1974

Successful use

Our safety products prove themselves daily in a wide variety of areas.

With almost 100 years of experience in the fields of machine building and automation, we are working on tomorrow's intelligent production today.

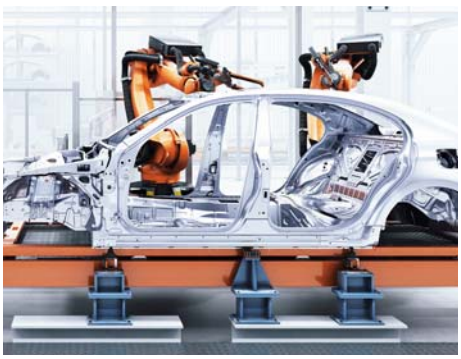
Furthermore, thanks to our extensive application expertise, we provide you with a broad product range for applications in the automotive industry and process industry.

Your advantages

- ☑ Many years of experience, innovative solutions, and the latest technologies
- ☑ Member of all key standardization committees
- ☑ Comprehensive knowledge of legal security
- ☑ A large number of TÜV-certified employees worldwide
- ☑ Active participation in steering committees and research projects

At home in machine building

- Broad product portfolio with a high level of sensor compatibility
- Approvals for global markets, such as EN ISO 13849-1 and EN 62061
- In-house machine building



Experience in the automotive industry

- Reliable automation for high-end applications
- EN ISO 13849-1 and EN 62061
- LABS-free components, ensuring that there are no imperfections on the end product

Partner for the process industry

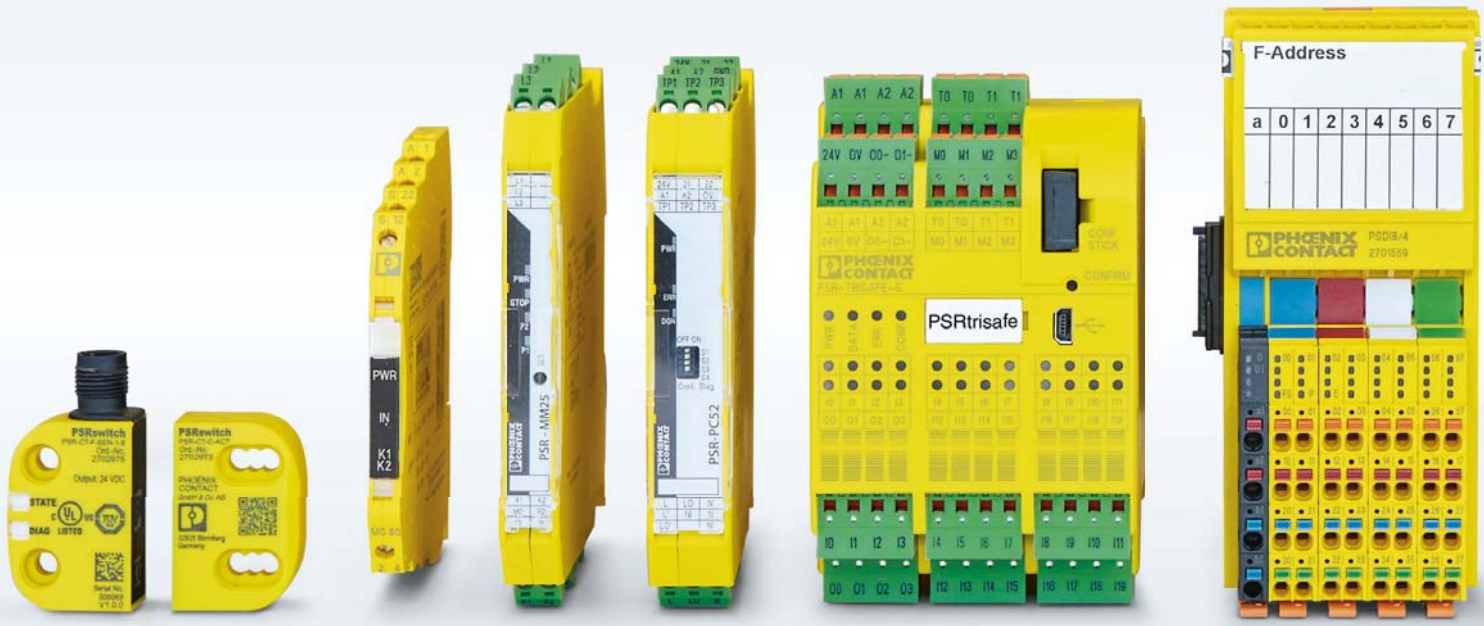
- Comprehensive diagnostic options
- IEC 61508/61511 and EN 50156 for applications in firing plants
- Germanischer Lloyd (GL) for the shipping industry
- ATEX

Product portfolio

We make functional safety easy. From non-contact safety switches through to complex controllers, all safety products from Phoenix Contact are SIL-certified. You can install and configure the modules easily.

Benefit from the comprehensive service offered by our certified safety experts. With our comprehensive services, we can help you to meet all machine safety requirements.

Web code: #0299



Safety switches

Use our non-contact safety switches with RFID technology for intelligent safety door and position monitoring.

Safety relay modules

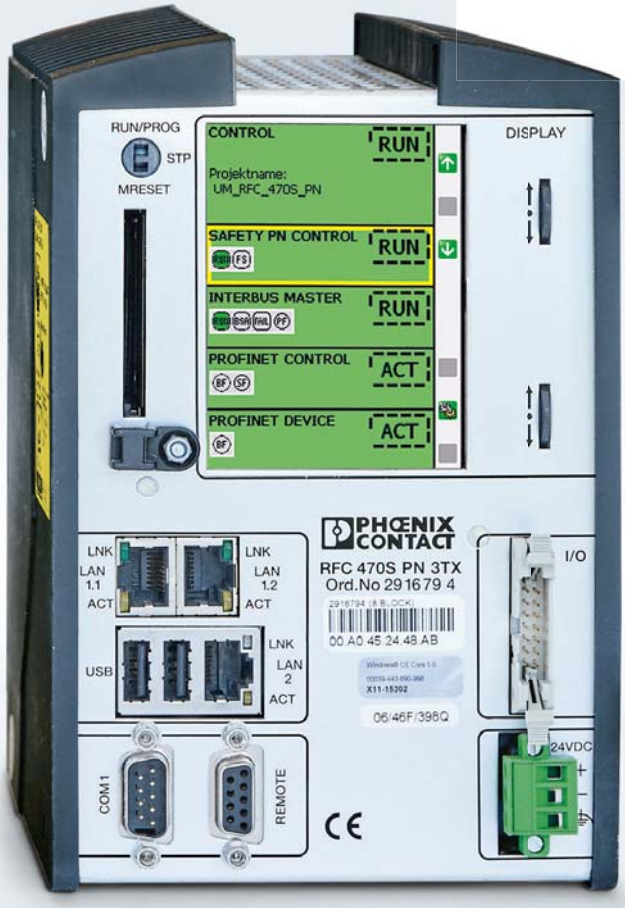
If you require just a small number of safety functions, a large range of safety relays, coupling relays, and zero-speed and over-speed safety relays are available.

Configurable safety modules

The configurable and extendable PSRtrisafe modules can be adapted to your safety requirements.

Service and support

The safety experts from Phoenix Contact will support in planning, building, operating, and modifying your machinery in accordance with legal requirements. The specialist knowledge of our TÜV-certified experts provides you with legal certainty regarding the safety of machinery and systems in machine building and in the process industry. Our support is manufacturer-independent.



Safe I/Os

With SafetyBridge Technology, the safety function is processed directly in the I/O modules.

Safe controller

With the safety controllers, you can reliably integrate functional safety into PROFIsafe networks.

Software

The safety software features the highest level of convenience in starting up your safety products.

Non-contact safety switches

The compact PSRswitch is an electronic, coded safety switch for flexible safety door and position monitoring. Thanks to the integrated RFID technology and intelligence, it provides maximum protection against manipulation and the highest level of safety in accordance with EN ISO 13849 and EN ISO 14119.

You receive a cost-effective complete solution with compatible evaluation units and sensor/actuator cabling.

Web code: #1940

Your advantages

- Compact design for flexible mounting on doors and hatches
- Safe series connection of up to 30 safety switches in a two-channel design
- M12 for easy installation and maintenance
- Three types of RFID coding for maximum manipulation protection
- Restart function locally on the switch saves wiring expenditure

Intelligent safety switch system with IO-Link

RFID

PSRswitch

RFID coded, non-contact safety switch

SAC cabling

Easy installation with M12 male connectors and SAC cables

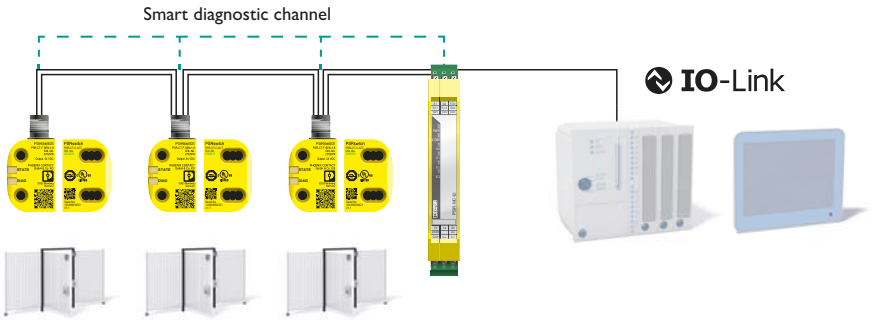
IO-Link

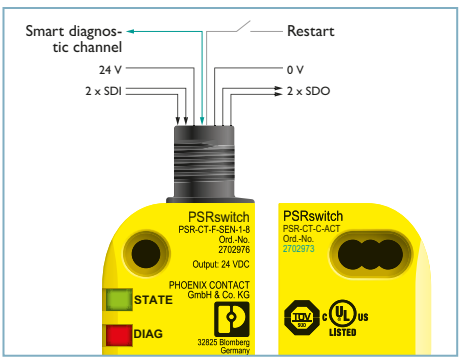
PSRmini

Highly compact safety relay with IO-Link interface

Integrated diagnostic channel

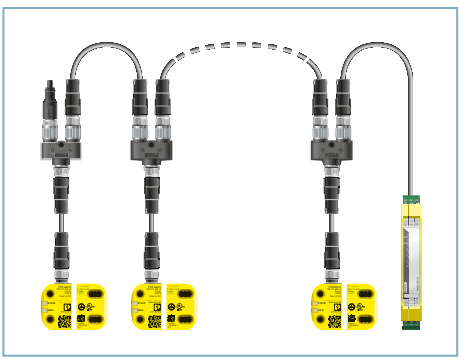
Our safety switch system comprises the PSRmini evaluation unit and PSRswitch safety switches. The safe series connection has a two-channel design. In parallel to this, status information on the individual switches is transmitted to the PSR-PC42 PSRmini safety relay via the integrated diagnostic channel. The safety relay transmits the non-safety-relevant diagnostic data of the switch via IO-Link to the controller. The data can then be evaluated centrally there.





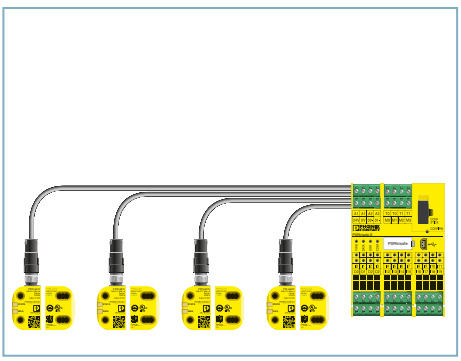
Smart sensor

The sensor has the properties of a safety relay. LEDs indicate the current status of the sensor at all times.



Series connection up to PL e

Up to 30 safety switches can be safely connected in series with PL e in accordance with EN ISO 13849.



Safe individual wiring

You can wire the safety switches individually. PSRtrisafe and safe I/Os are also suitable evaluation units.

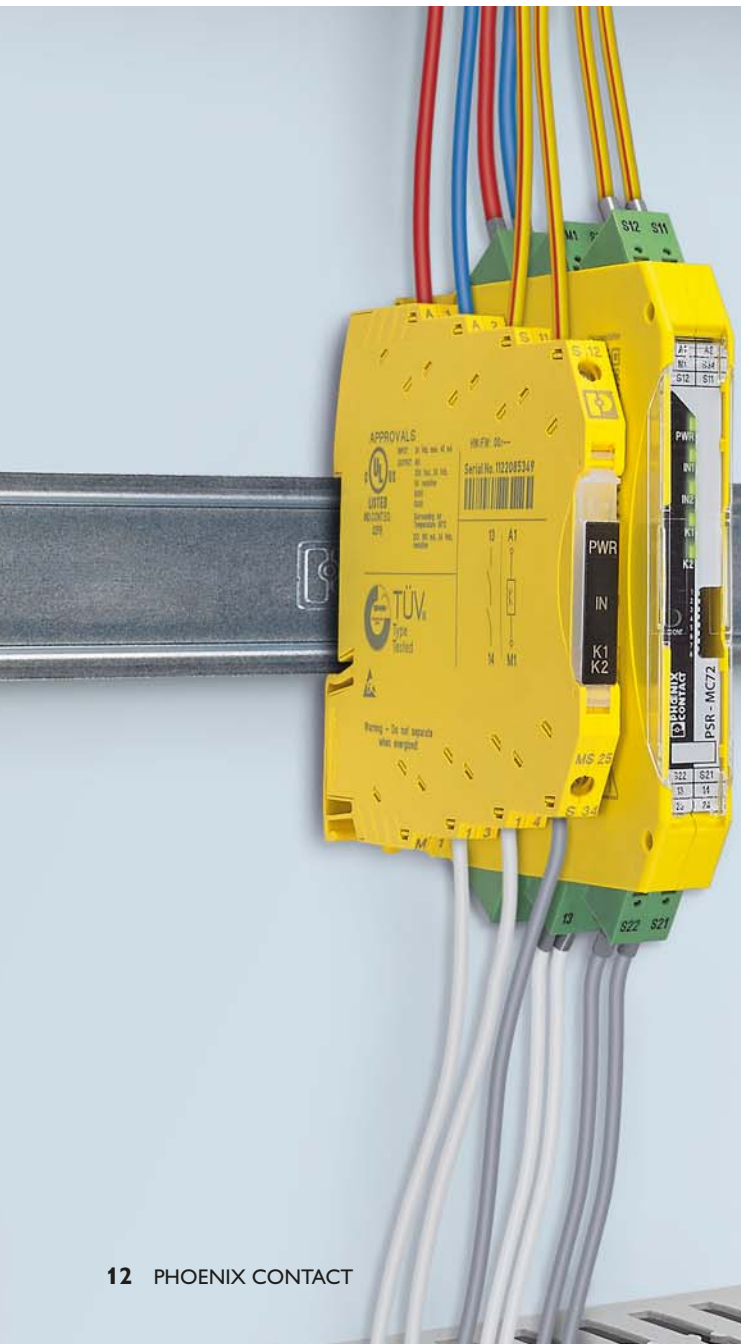
Safety relays

With the PSRmini and PSRclassic safety relays from Phoenix Contact, you can implement all safety functions for applications in which the motto is one function, one device.

The safety relays are compatible with many signal generators such as emergency stop units, safety door switches, and light grids.

The modules are available in various sizes, with various connection technologies, and a wide range input.

Web code: #1944



Relay Technology

Designed by PHOENIX CONTACT

Your advantages

- Space savings of up to 70%, thanks to the compact design
- Relay technology developed in-house features proven safety, thanks to force-guided relay contacts
- High level of scalability, from one enable contact
- Compatibility with many safety signal generators

Safety relays for machine building

PSRmini highly compact safety relay

PSRmini safety relays are the narrowest on the market. With overall widths of just 6 and 12 mm, we provide you with proven safety, thanks to relay technology developed in-house with force-guided contacts. Thanks to an innovative DIP switch concept, you can implement selected settings directly on the module. The needs-based structure starting at one enable path also ensures increased flexibility of your application without limiting performance.

Main features

- Overall width 6 mm and 12 mm
- Proven safety, thanks to force-guided relay contacts
- TÜV-certified
- Approvals for all global markets
- PL e in accordance with ISO 13849 and SILCL 3 in accordance with IEC 62061
- High level of scalability, from one enable contact

Web code: #0495

PSRclassic conventional safety relay

The PSRclassic safety relays have a long proven track record. Thanks to the 2-channel wiring and force-guided contacts, you can reliably switch functions such as two-hand control devices or light grids. Screw or spring connection technology and status LEDs ensure fast wiring of contacts and easy diagnostics.

Main features

- Overall width from 17.5 mm
- Large selection of versions
- Proven safety, thanks to force-guided relay contacts
- TÜV-certified
- Approvals for all global markets
- PL e in accordance with ISO 13849 and SILCL 3 in accordance with IEC 62061

Web code: #1409

PSRmodular safety relay system

With PSRmodular, you can design your safety system exactly as required. The modular safety relays can be extended easily and flexibly based on the modular principle. The PSR-TBUS DIN rail connector combines the master safety relay with up to ten extension modules directly on the DIN rail. This eliminates the need for the usual cross-wiring and configuration.

Main features

- Overall width 22.5 mm
- Can be extended to up to 42 contacts
- Proven safety, thanks to force-guided relay contacts
- TÜV-certified
- Approvals for all global markets
- PL e in accordance with ISO 13849 and SILCL 3 in accordance with IEC 62061

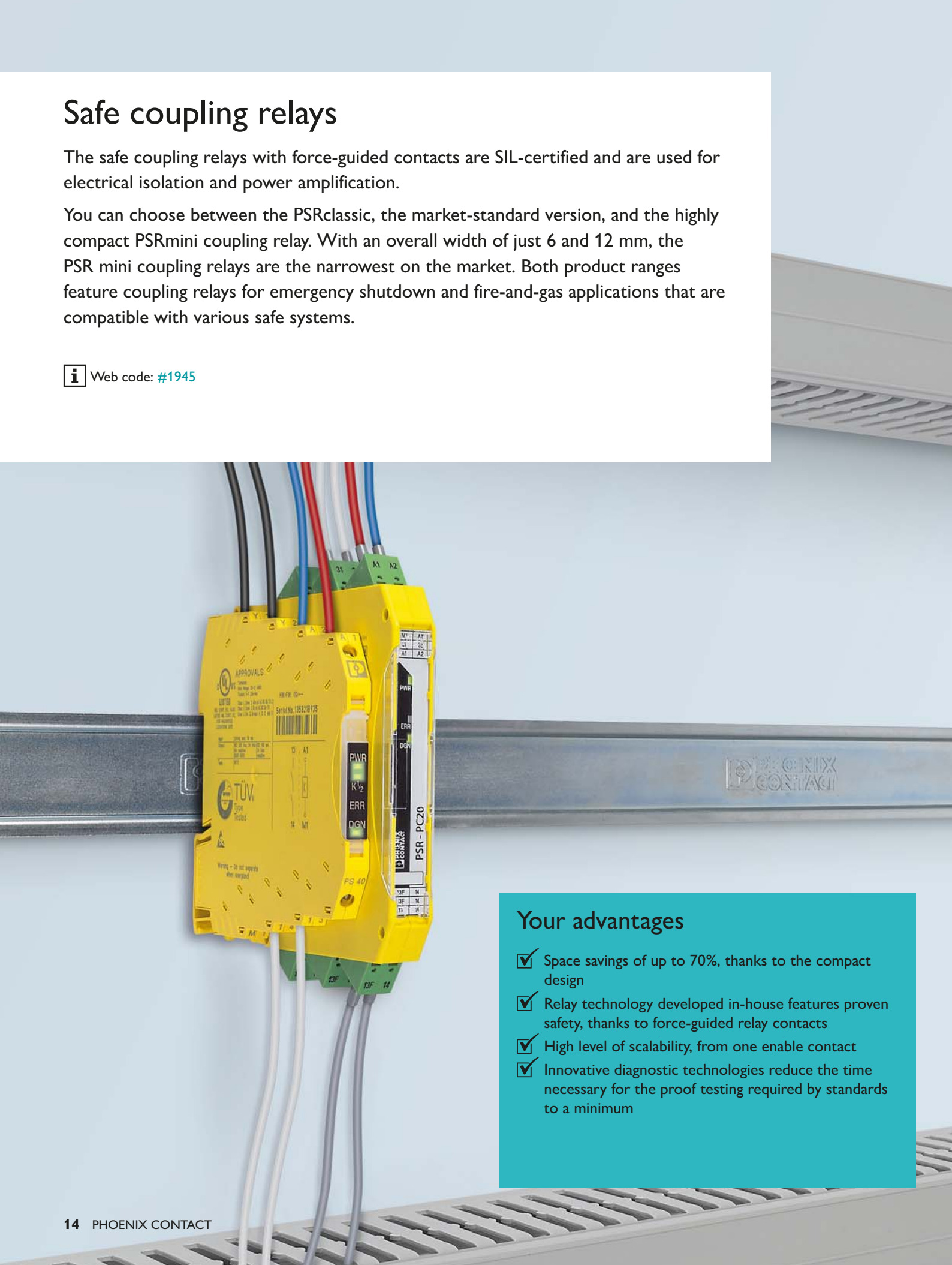
Web code: #1408

Safe coupling relays

The safe coupling relays with force-guided contacts are SIL-certified and are used for electrical isolation and power amplification.

You can choose between the PSRclassic, the market-standard version, and the highly compact PSRmini coupling relay. With an overall width of just 6 and 12 mm, the PSR mini coupling relays are the narrowest on the market. Both product ranges feature coupling relays for emergency shutdown and fire-and-gas applications that are compatible with various safe systems.

Web code: #1945



Your advantages

- Space savings of up to 70%, thanks to the compact design
- Relay technology developed in-house features proven safety, thanks to force-guided relay contacts
- High level of scalability, from one enable contact
- Innovative diagnostic technologies reduce the time necessary for the proof testing required by standards to a minimum

Safe coupling relays for the process industry

PSRmini highly compact safe coupling relays

Thanks to the relay technology developed in-house, the PSRmini coupling relays are the narrowest coupling relays in the world for safe startup and shutdown.
The force-guided contacts enable easy and fast diagnostics. Thanks to visual LED diagnostics, SIL 3-qualified inspection is possible directly on the module. Furthermore, active error messaging to the controller ensures short downtimes during planned maintenance phases.

Main features
- Overall width 6 mm and 12 mm
- Safe diagnostics and easy proof test in accordance with IEC 61508
- Proven safety, thanks to force-guided relay contacts
- TÜV-certified
- Approvals for all global markets
- SIL 3 in accordance with IEC 61508 / IEC 61511 / EN 50156

Web code: #0507

PSRclassic conventional safe coupling relays

In the PSRclassic series, you will find the conventional coupling relays with force-guided contacts for safe shut down. The conventional coupling relays are characterized by a wide range of features and versions. They are compatible with standard safe systems.
With a housing width starting from 17.5 mm, they correspond with market-standard housing dimensions.

Main features
- Overall width from 17.5 mm
- Proven safety, thanks to force-guided relay contacts
- Safe diagnostics and easy proof test in accordance with IEC 61508
- Approvals for all global markets
- SIL 3 in accordance with IE 61508 / IEC 61511 / EN 50156

Web code: #1548

Standardized system cabling

The Termination Carrier from Phoenix Contact enables 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.

Main features
- Compact, for a high packing density
- Robust, for high system availability
- Flexible, for optimum adaptation
- Fast, thanks to Plug and Play cabling

Multifunctional safety relays

PSRmultifunction provides you with one superordinate sensor circuit and two local sensor circuits in one safety relay. You can implement common applications with up to three safety functions such as emergency stop, safety door, and light grid monitoring using just one device.

The compatibility with all important signal generators and safety-relevant systems enables a wide range of applications.

Web code: #1547

Your advantages

- Space requirement cut by two thirds, thanks to three safety functions in one safety relay
- Reduction in potential wiring errors, thanks to pre-connected safety functions in the device
- Compatible with all important signal generators and safety-relevant systems

Multifunctional safety relays with three functions

PSRmultifunction multifunctional safety relays

Three safety functions are combined in one narrow housing. This reduces your costs for warehousing and logistics and saves space in the application. Safety functions already connected in the device reduce potential wiring errors.
Four device versions with three connection technologies are available for monitoring various types of sensors.

Main features

- Overall width 22.5 mm
- Proven safety, thanks to force-guided relay contacts
- No software configuration required
- TÜV-certified
- Approvals for all global markets
- PL e in accordance with ISO 13849 and SILCL 3 in accordance with IEC 62061
- Screw, spring-cage, and Push-in connection
- Compatible connections to the hybrid motor starter

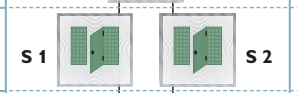
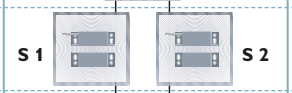
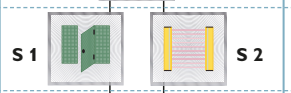
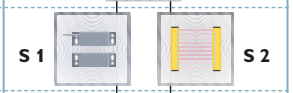
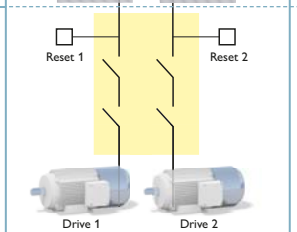
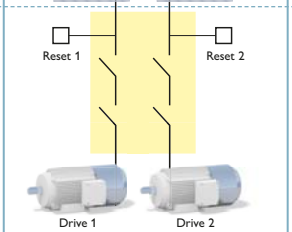
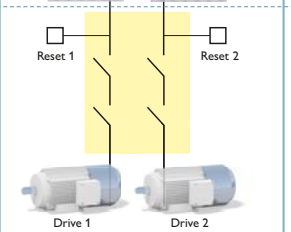
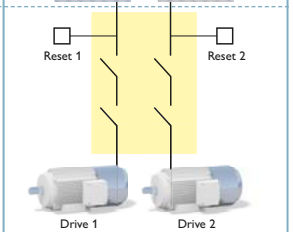
Web code: #1547

Use of three different safety functions

The PSRmultifunction safety relays have three sensor circuits which are all 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 one function. 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 triggered, the safety circuits protected by S1 and S2 are both shut down.

	MXF1	MXF2	MXF3	MXF4
Superordinate sensor circuit				
Local sensor circuits				
Safety circuits				


Electromechanical signal generator
(e.g., emergency stop)


Electromechanical signal generator
(e.g., mechanical safety door locks)


Signal generator, OSSD
(e.g., light grid, transponder switch, failsafe outputs)


Magnetic and non-contact signal generator
(e.g. reed contacts)

Zero-speed and over-speed safety relays

Excessive speeds pose a danger to people and machinery. The compact PSRmotion zero-speed and over-speed safety relays shut down rotating machine parts safely in the event of an emergency. Combined with a safety door unit, the PSR-MM25 zero-speed safety relay without sensor ensures that the door remains locked until the dangerous motion stops. The PSR-MM30 zero-speed and over-speed safety relay also monitors the speed and disconnects safely in the event of danger.

Web code: #1546

Relay Technology

Designed by PHOENIX CONTACT

Your advantages

- Space savings of up to 75%, thanks to compact design
- Relay technology developed in-house features proven safety, thanks to force-guided relay contacts
- Easy configuration via buttons on the product
- Fast configuration and live monitoring with the PSRmotion software

Zero-speed and over-speed safety relays for motion monitoring

PSRmotion zero-speed and over-speed safety relay

With the combined PSR-MM30 zero-speed and over-speed safety relay, you can monitor up to three different operating modes in addition to zero-speed mode. The PSR-MM30 ensures high system availability, thanks to the reliable measuring procedure. The integrated safety door monitoring system makes it compatible with PSRswitch non-contact safety switches.

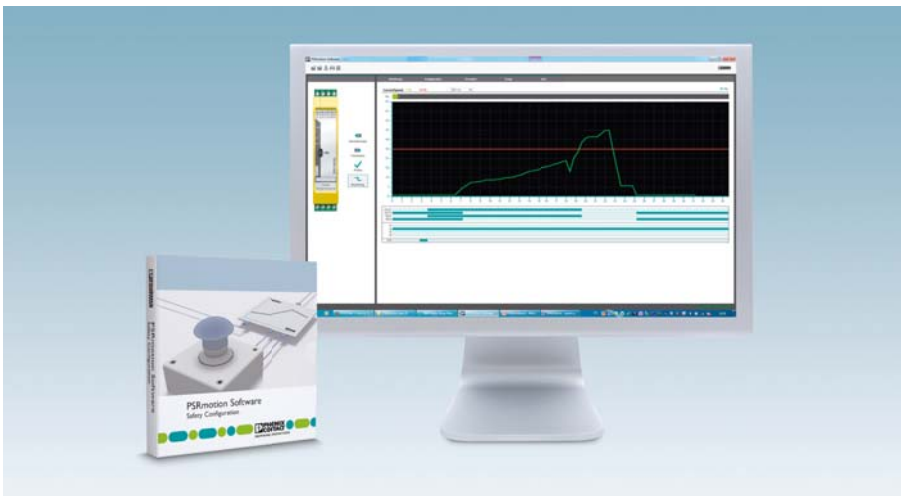
Main features

- Overall width 22.5 mm
- Compatible with modern safety encoders up to SIL 3
- Up to SIL 3 and PL e
- Startup via USB connection
- Force-guided relay outputs
- Configurable signal outputs

Web code: #1546

Live monitoring with the PSRmotion software

The PSR-MM30 zero-speed and over-speed safety relay can be commissioned, configured, and monitored conveniently with the PSRmotion software.
In live measuring operation, you can visualize the motion sequences of your machine. You can download the Windows-based software free-of-charge. Adaptations are implemented via a USB interface.



PSRmotion zero-speed safety relay

The highly compact PSR-MM25 safety relay module monitors the downtime of single and three-phase AC and DC motors without additional sensor technology.
The residual voltage induced by the motor windings is analyzed in order to detect zero speed.

Main features

- Overall width 12.5 mm
- Easy startup via configuration button
- Can be used for machines with or without frequency converters
- Force-guided relay outputs
- Two signal outputs

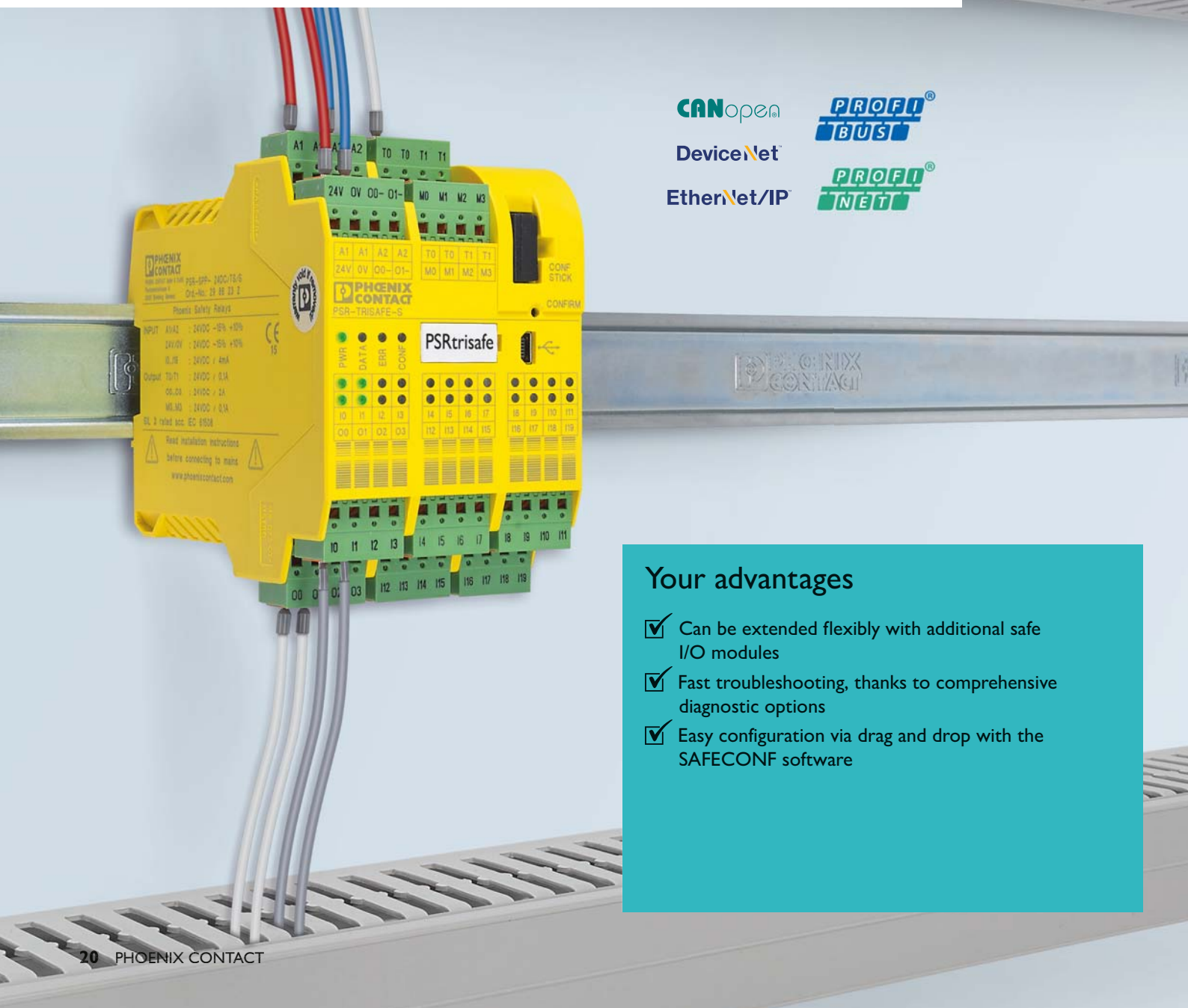
Web code: #1546

Configurable safety modules

Use the configurable PSRtrisafe safety modules to combine all safety functions in accordance with your requirements.

You can adapt the PSRtrisafe system to your application requirements flexibly using various safe extension modules and fieldbus couplers. The safety logic is created very easily with the SAFECONF configuration software via drag and drop.

Web code: #1257



CANopen
DeviceNet
EtherNet/IP
PROFIBUS
PROFINET

Your advantages

- Can be extended flexibly with additional safe I/O modules
- Fast troubleshooting, thanks to comprehensive diagnostic options
- Easy configuration via drag and drop with the SAFECONF software

Configurable safety modules with the SAFECONF software

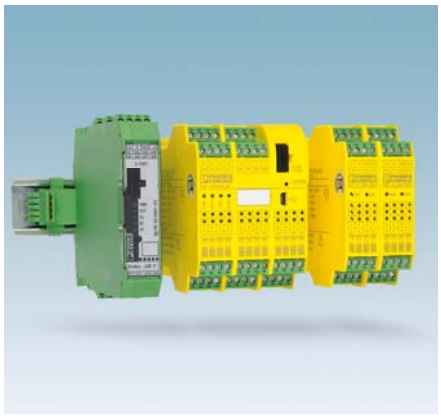
Configurable PSRtrisafe safety modules

The PSR-TRISAFE-S stand alone version is available with twenty safe inputs and four safe outputs. The PSR-TRISAFE-M master module can be extended with additional digital inputs and outputs. You can integrate additional relay outputs with the PSR-TS-SDOR4 extension module. The diagnostic LEDs indicate the states of all inputs and outputs. The safety module can communicate with the superordinate controller via a fieldbus coupler and enables convenient remote diagnostics.

Master module main features

- Safe I/O modules available for modular extensions
- Diagnostic LEDs indicate the I/O states
- Signal outputs indicate switching states
- TÜV-certified
- PL e in accordance with ISO 13849 and SILCL 3 in accordance with IEC 62061

Web code: #1257

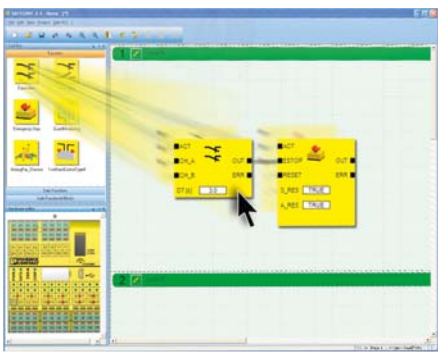


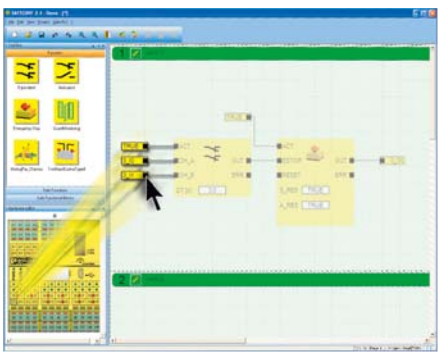
Create the safety logic for PSRtrisafe in three steps

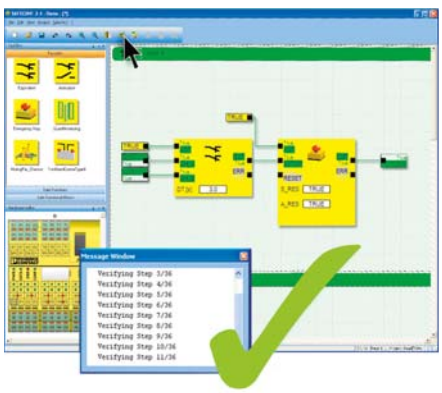
Step 1
Select the safety functions and configure via drag and drop.

Step 2
Connect the module I/Os to the safety functions.

Step 3
Check and save the safety functions – and you're done!







Easy configuration
With SAFECONF, you can create the safety logic for PSRtrisafe easily with TÜV-certified blocks via drag and drop. All tools are arranged in one window, enabling you to work intuitively with the software.

E-learning tutorials and application help
Integrated e-learning tutorials provide support in various areas, such as determining the performance level. They enable easy familiarization with the software.

Simulation and diagnostics
Thanks to the integrated simulation mode, you can reduce your project processing times and the standardized implementation of safety circuits. The safety logic can be tested and validated directly on the PC.

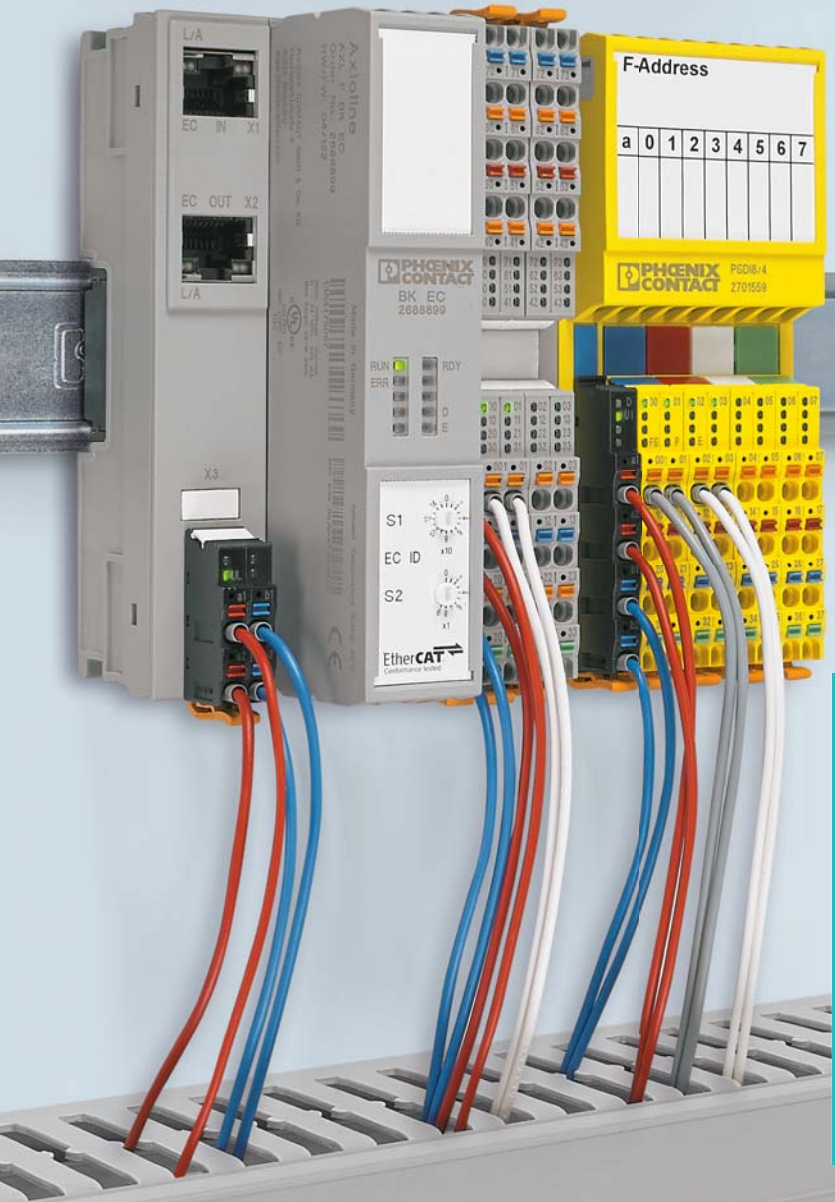
You will find e-learning tutorials and videos for the configurable PSRtrisafe safety modules and the SAFECONF configuration software on the Phoenix Contact website.

Web code: #1942

Safe I/Os

Integrate functional safety into your network with the Inline and Axioline F I/O systems. You do not need a safety controller for this. You can still use your preferred standard network and your standard controller. The logic module with SafetyBridge Technology monitors the safety-relevant communication between the safe I/O modules distributed throughout the network. The I/O extension modules capture the safety signals and issue these exactly where they are required.

Web code: #1544



EtherCAT
EtherNet/IP
IEC 61850
Modbus
PROFIBUS
PROFINET
sercos
the automation bus

SafetyBridge Technology
Designed by PHOENIX CONTACT

Your advantages

- Easy integration into all common fieldbus and Ethernet-based networks
- You can continue to benefit from the advantages of your existing network solution
- Save time and money when designing machines and systems, as no additional safety networks are required
- Easily create the safety logic with the SAFECONF software via drag and drop

Safe I/Os for the control cabinet

Axioline F – Particularly robust

The shielding concept and special design of Axioline F enable particularly high-level EMC protection and reduced radiation. In addition, it features a good mechanical robustness. Axioline F therefore increases the availability of your system.

Main features

- Increased machine output, thanks to particularly fast and synchronous signal acquisition
- Particularly robust mechanics, shock and vibration resistance withstand even the most adverse conditions and increase system availability
- Installation time is reduced, thanks to fast wiring and easy handling

Web code: #1948

Inline – Particularly flexible

Inline offers not only a particularly large choice of function terminals, but also enables you to use a tailor-made number of channels on modules, and supports local bus extension to the field, thanks to the branch terminal. You can therefore create your own individual I/O solution. The Inline ECO Safe I/O terminal is particularly cost-effective. It takes on the function of two safety relays and disconnects connected standard output modules in the event of an error.

Main features

- Maximum flexibility, thanks to a large selection of I/O terminals, function terminals, bus couplers, and controllers
- The narrow overall width and tailored number of terminal channels save space in the control cabinet
- Local bus extension into the field without additional bus coupler, thanks to the branch terminal

Web code: #1949

Easy central solution with Inline ECO Safe

With the Inline ECO Safe I/O terminal, you can integrate safety functions into your Inline I/O station. Digital output terminals are mounted to the right on the safe I/O terminal. In the event of an error, the actuator voltage for the I/O terminals arranged in a block is disconnected safely. Up to two dual-channel sensor circuits can be connected to one Inline ECO Safe. Status and error messages are forwarded to the controller.

Web code: #1242

Safe control technology

Our RFC 470S safety controller is the solution for both complex safety applications and standard applications. Thanks to the integrated PROFINET interface, the controller communicates directly with PROFIsafe Inline or Axioline F I/O modules. The transmission of control and safety protocols via an Ethernet cable reduces your wiring expenditure. The PROFIsafe gateway enables safe combination between two PROFINET systems.

Web code: #1543

Your advantages

- Controls large numbers of I/Os reliably, thanks to high-performance process technology
- Uniform configuration worldwide, thanks to standardized programming in accordance with IEC 61131
- Precise diagnostic options, thanks to the integrated display
- Maximum flexibility, thanks to the wide range of interfaces and PROFIsafe support

Safe control technology for complex systems

Safety controller with PROFIsafe

The RFC 470S is a programmable logic controller with integrated safety controller, and enables fast processing of safety-relevant signals from PROFIsafe devices. For safe analog value processing, we provide the SAFE AI software-based solution package. With this, you can process safety-relevant analog values with standard I/O modules. You can therefore implement safety functions up to SIL 3 and PL e.

Main features

- Diagnostic display with plain text messages
- Powerful processor technology
- Numerous protocols supported such as: HTTP, FTP, SNTP, SNMP, SMTP, SQL, MySQL, etc.
- Engineering with PC Worx in accordance with IEC 61131-3
- SafetyProg programming software available for Windows

Web code: #1543

Safe I/Os with PROFIsafe

Our safety-relevant I/O modules are highly flexible in application. Depending on the bus coupler and safety controller, the I/O modules work with PROFIsafe in PROFINET and PROFIBUS systems. We provide digital input and output modules as well as relay modules.

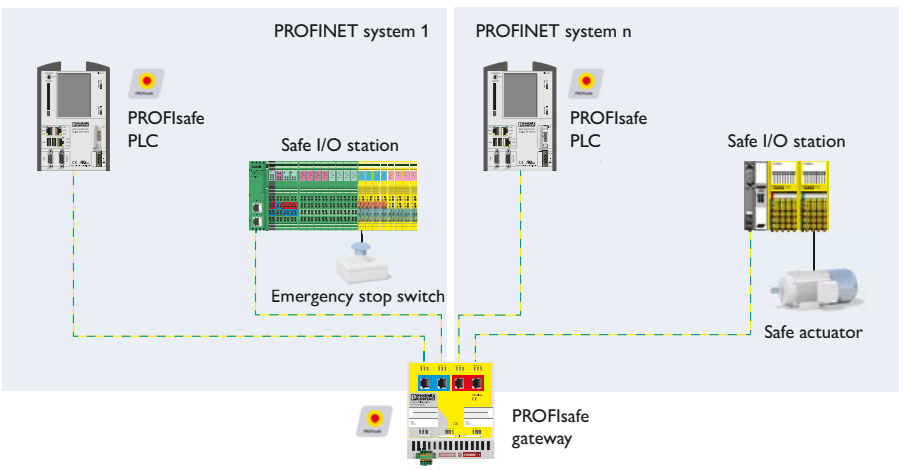
Main features

- Large selection of input, output, and relay modules
- Up to PL e in accordance with ISO 13849-1
- Up to SIL 3 in accordance with EN 61508
- Up to SILCL 3 in accordance with EN 62061

Web code: #1544

Coupling PROFINET/PROFIsafe systems

The safe PROFINET gateway represents two PROFIsafe devices. Standard I/O process data is exchanged between two PROFIsafe systems via PROFINET, and safe I/O process data is exchanged via PROFIsafe. This makes it possible to implement manufacturer-neutral emergency stop concepts across systems. The PROFINET gateway supports safety functions up to SIL 3 and PL e.

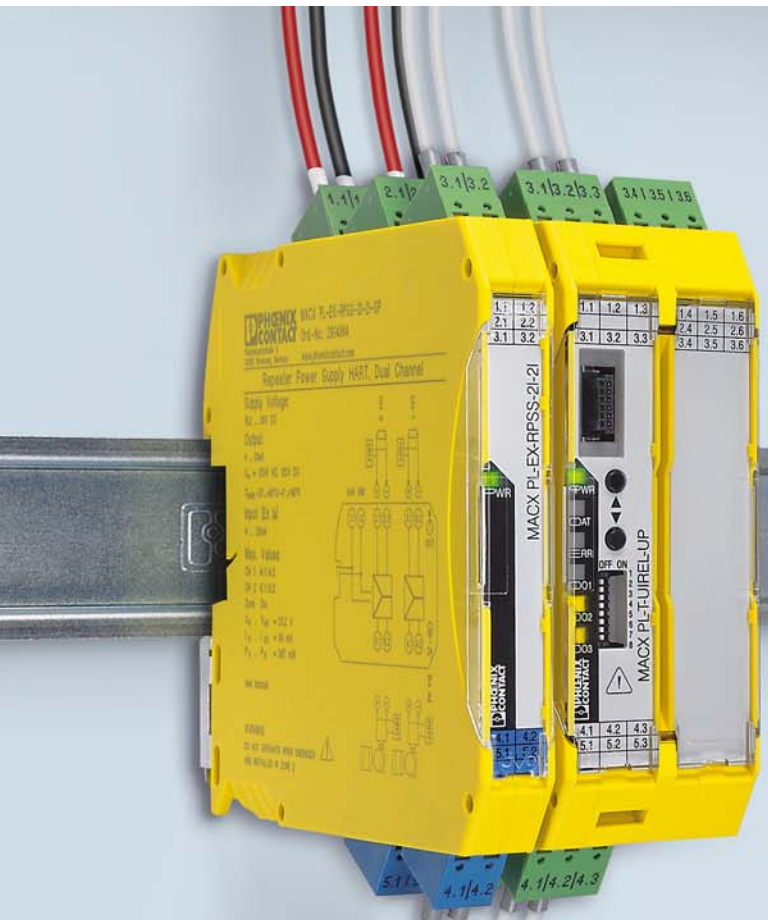


Safe signal conditioners

Easily integrate analog signals into your safety application in accordance with the Machinery Directive. The MACX Safety analog signal conditioners are all SIL-certified and equipped with performance level PL d in accordance with EN ISO 13849-1.

The Ex i versions provide you with maximum explosion protection for intrinsically safe circuits up to zone 0 and zone 20, thanks to the international approvals package.

Web code: #1137



Push-in Technology

Designed by PHOENIX CONTACT

Your advantages

- Easy integration of analog signals into the safety chain, thanks to performance level PL d
- Direct, safe switching of limit values possible without an additional safety controller
- Easy planning of the safety application via SISTEMA
- Easy to combine active or passive analog signals with other safety modules

Safe signal conditioners with functional safety

Signal conditioners with SIL and PL functional safety

Select the appropriate MACX safety signal conditioner for your application: HART-compatible supply and input signal conditioners with two outputs, universal temperature transducers for resistance temperature detectors, resistance-type sensors, potentiometers, thermocouples, and mV sources, with safe limit value relays.

Main features

- SIL certified
- PL d in accordance with EN ISO 13849-1
- Versions with wide range input for worldwide power supply networks
- Push-in connection technology

Web code: #1946

Ex i signal conditioners with SIL and PL functional safety

With MACX Safety Ex, selected PL d-certified device types are available that are also ATEX- and IECEx-certified. They provide maximum explosion protection for all Ex zones and gas groups. With these, you can easily integrate analog Ex i signals into your safety application.

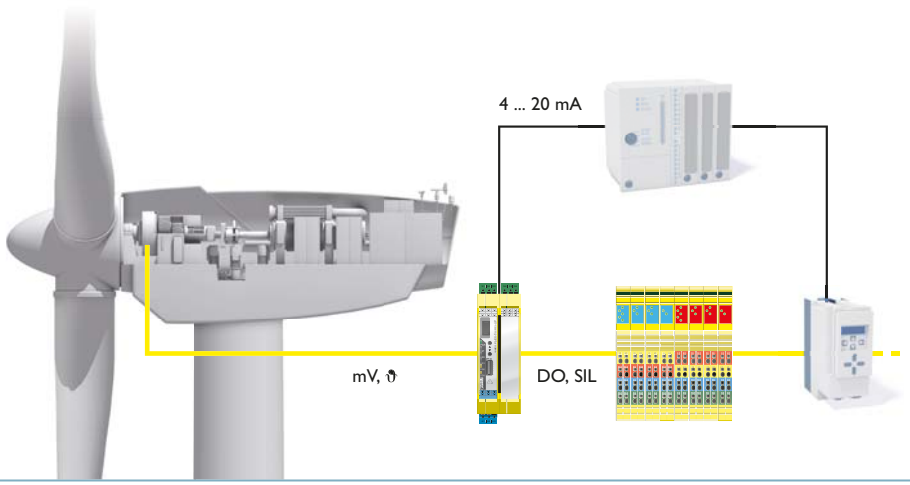
Main features

- SIL certified
- PL d in accordance with EN ISO 13849-1
- Ex approvals in accordance with ATEX and IECEx
- Versions with wide range input for worldwide power supply networks
- Push-in connection technology

Web code: #1947

Safety-relevant temperature monitoring

The MACX T-UIREL universal temperature transducer has two switching outputs, in addition to a current output. The safety-relevant switching output, to which two relays are connected, switches limit values directly and safely without an additional safety controller.



Safe hybrid motor starters

The CONTACTRON safe hybrid motor starters combine up to four functions in one device: emergency stop, motor starter, reversing function, and motor protection against overload. In addition to standard devices for parallel wiring, network-capable versions are also available that can be integrated into fieldbus environments.

Web code: #0568

Your advantages

- Safe shutdown, thanks to integrated safety function up to SIL 3 and Category 3 / PL e
- Significant space savings of up to 89%, thanks to the narrow design with an overall width of 22.5 mm
- Service life up to ten times longer, thanks to gentle switching with CONTACTRON hybrid motor starter technology
- Adjustable motor protection with bimetal function up to 9 A
- Easy wiring, thanks to integrated locking circuit and load wiring

Safe motor starter for modern motor control

Clever switching and reliable protection

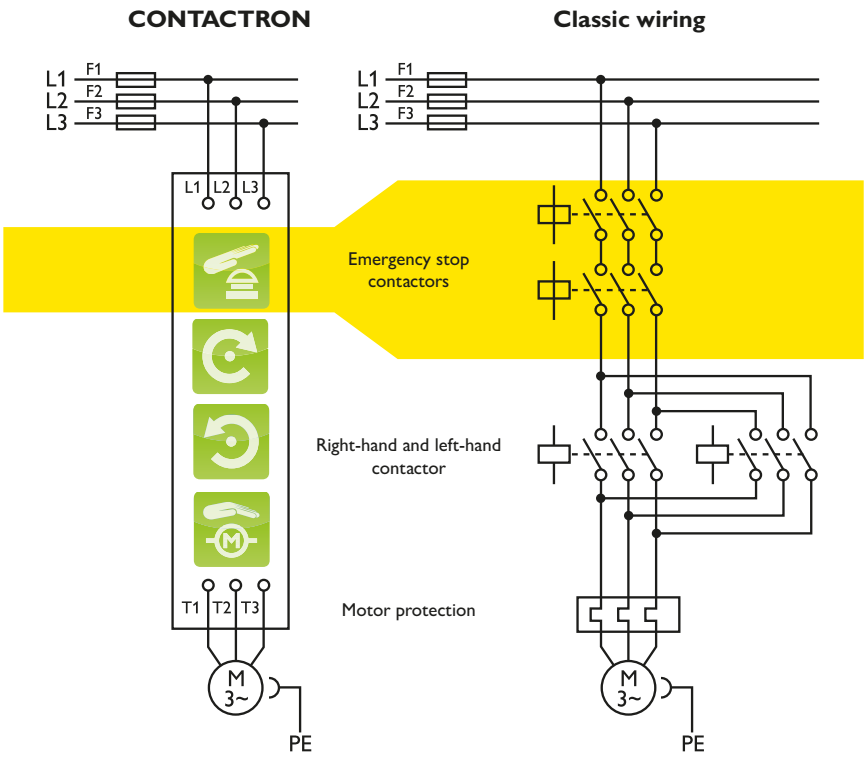
Emergency stop
The integrated safety function enables use in safety-relevant emergency stop applications.

Forward running
Easy control directly via 24 V PLC output cards or 230 V AC signal.

Reverse running
Optional: reversing function including locking circuit and load wiring.

Motor protection
Convenient protection, thanks to the electronic motor protection relay with automatic and remote reset function.

Web code: #1077

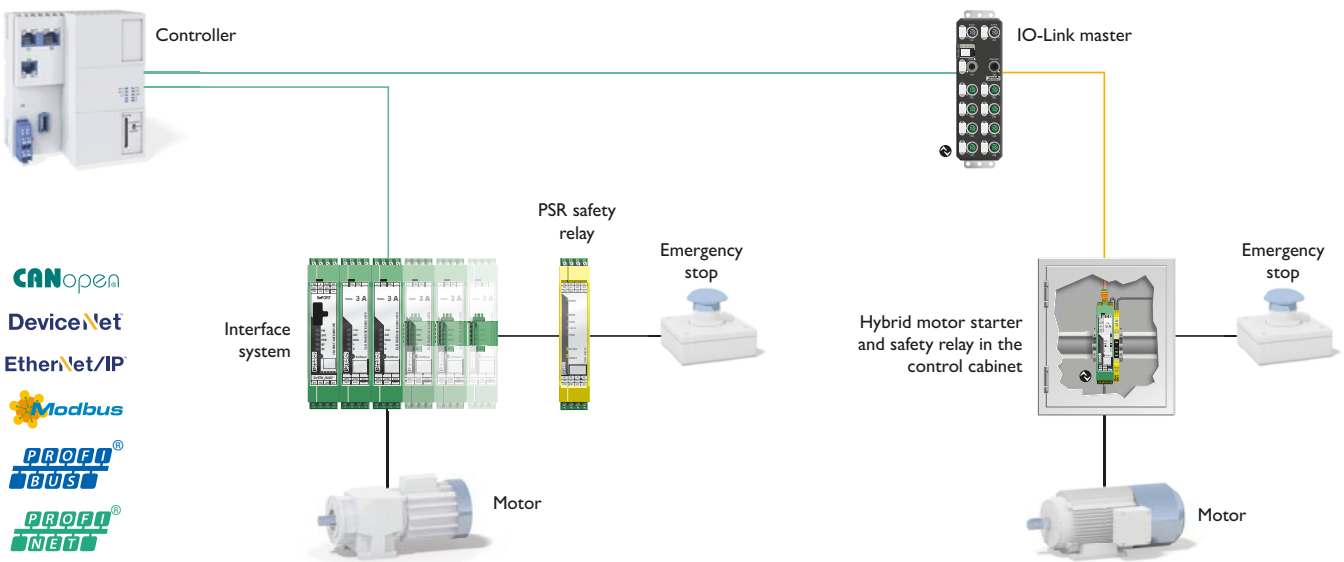


Consistent networking via the interface system or IO-Link

The new network-capable versions enable consistent communication between the field and control level.

Integration into all common fieldbus systems is realized via the interface system or IO-Link.

Web code: #1994



Safe power supply

The high-performance QUINT POWER power supplies ensure superior availability of your system, thanks to high-level functionality.

QUINT POWER satisfies the requirements in accordance with functional safety (SIL) and ensures maximum operational safety. Whether in parallel operation or connected to different phases, the load is reliably supplied even in the event of problems with the input voltage.

Web code: #1513

Your advantages

- Superior system availability, thanks to SFB Technology and preventive function monitoring
- Safe supply for your application, thanks to SIL certification in accordance with IEC 61508
- Fully functional monitoring, thanks to redundant system

Power supplies with maximum functionality

QUINT POWER for maximum operational safety

The powerful QUINT POWER power supplies increase the availability of your application, thanks to SFB Technology and preventive function monitoring. The QUINT4-PS/1AC/24DC/20 power supply can be integrated into applications with functional safety based on IEC 61508 and a safety integrity level of SIL 2.

Main features

- Strongest output side, thanks to static boost, dynamic boost and SFB Technology
- Comprehensive signaling with analog, digital, and relay contact
- Integrated gas-filled surge arrester
- Temperature range of -40°C ... +70°C
- SIL 2 in accordance with IEC 61508

Web code: #1513

Increased demands on functional safety

QUINT S-ORING is an active redundancy module for decoupling and monitoring your application.
The QUINT4-PS/1AC/24DC/20 power supply in combination with the QUINT4-S-ORING/12-24DC/1X40/+ redundancy module satisfies the requirements of SIL 3. It can be integrated into applications with functional safety based on IEC 61508 and a safety integrity level of SIL 3.

Main features

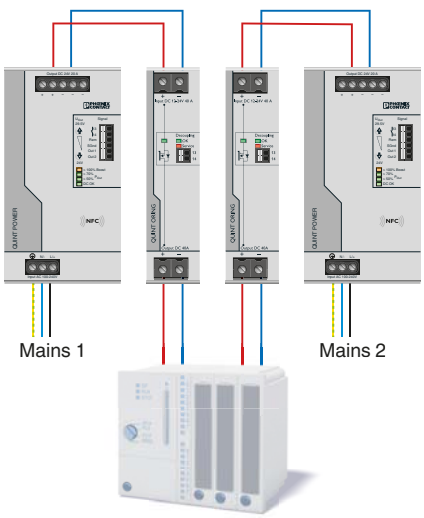
- Preventive function monitoring, thanks to constant monitoring of the input voltage and decoupling section
- Active decoupling with MOSFET
- Surge protection for protection against overvoltages at the output in excess of 30 V DC
- SIL 3 in accordance with IEC 61508

Web code: #1993

Redundant system for functional safety

The 1+1 redundant power supply system provides symmetrical load distribution and increases system availability. Thanks to isolated conductor routing, consistent redundancy through to the load is assured.

Thanks to the SIL 3 certification in accordance with IEC 61508, the system can be integrated into redundant applications with the greatest demands on functional safety and superior system availability.



Software

Integrate functional safety into your system with just a click of the mouse. Phoenix Contact enables you to start up, configure, and program your safety products with the highest level of convenience.

The appropriate software package with useful features such as live monitoring is available to you. Preprogrammed function blocks simplify the engineering process.

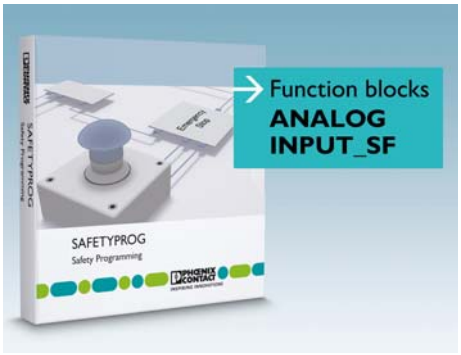
PSRmotion software

The PSR-MM30 zero-speed and over-speed safety relay can be commissioned, configured, and monitored conveniently with the software.

SAFECONF software

Create the safety logic for the PSRtrisafe safety modules and the safe I/Os with SafetyBridge Technology via drag and drop.

Web code: #1259



SAFETYPROG software

With the programming software for our safe controllers, you can integrate functional safety into your automation with just a click of the mouse.

Web code: #1976

Function blocks

Our function block library enables safety-relevant analog value acquisition with standard I/O modules.

Web code: #1977

Services and support

We will support you in all aspects of functional safety with out flexible range of services. Choose between industry-specific services for machine and system safety or services for safety in the process industry.

Our certified safety experts will be happy to advise you and support you during the necessary work steps and in the creation of the verification documentation.

Web code: #1075

Your advantages

- Expert contact partners with solid technical expertise
- Fast and ongoing support
- Selection of the ideal safety solution
- Wide range of seminars and workshops

Range of services for machine and system safety

Consultation

We provide advice on various subjects in the planning and implementation of your system:

- Design of the safety lifecycle: standards and their implementation
- Machinery Directive
- Changes to machinery and systems

Engineering

To assess the safety integrity, we determine the SIL of the safety functions with the help of your technical documentation. These must be sufficiently robust to withstand random errors. In the case of Machinery Directive requirements, we implement the entire safety lifecycle process.

Product support

We will provide support regarding any Phoenix Contact safety hardware and software questions. You can contact our support team regarding anything – from the preliminary technical clarification, through planning and implementation, right through to operation.

Seminars

We provide instruction and practical training that is tailored to your individual requirements, e.g.:

Safety application software:

- Demands on safety-related software
- Specification of safety requirements and software
- Realization of safety functions
- Development of function blocks

Functional safety in the process industry in accordance with EN 6155:

- Risk analysis
- Safety lifecycle
- Creation of PLT safety functions

Demands on safety in the process industry

Design guidelines relating to functional safety are in place for the requirements on the safe operation of systems in the process industry. The internationally harmonized procedure is described in IEC 61511.

A significant component of this is the safety lifecycle in conjunction with functional safety management.

Product overview

Directives and standards

Software

Signal processing

Safety relay modules	Configurable safety modules	Safe I/Os	Safe controllers
Relay Technology Designed by PHOENIX CONTACT		SafetyBridge Technology Designed by PHOENIX CONTACT	

Sensors	Signal conditioning	Actuators	Power
Safety switches	Safe signal conditioners	Safe motor starters	Safe power supplies

Services and support

Legend for applications, outputs, and safety approvals

- Emergency stop
- Safety door switch, mechanical
- Light grid
- Solenoid switch
- Transponder switch
- Start/restart
- Initiators
- Extended 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
- N/C contact
- Changeover contact
- Contact with dropout delay

RFID-coded safety switches

RFID is short for Radio Frequency Identification, and means that objects can be identified without physical or visual contact. In the PSRswitch safety switch, RFID technology enables the coded exchange of signals between the sensor and actuator.

The EN ISO 14119 standard demands the coding of RFID safety switches for protection against manipulation. The PSRswitch supports the highest coding level. Thus, no additional measures are necessary, e.g. a concealed installation, which is prescribed for switches with a low coding level.

PSRswitch: Non-contact safety switches and accessories

Type	Description	Coding type / function	Connection technology		
			Screw connection	Spring-cage connection	M12 connection
PSR-CT-F-SEN-1-8	Safety sensor	Fixcode: The sensor accepts a single actuator. This actuator is taught-in by the user during commissioning. It is not possible to teach-in further actuators.	–	–	2702976
PSR-CT-C-SEN-1-8		Unicode: The sensor accepts one actuator. The actuator is taught-in by the user during commissioning. It is possible to teach-in an unlimited number of further actuators in succession. Previously taught-in actuators are blocked by the sensor. They can no longer be used.	–	–	2702972
PSR-CT-M-SEN-1-8		Multicode: The sensor accepts all actuators. Teach-in is not necessary during commissioning.	–	–	2702975
PSR-CT-C-ACT	Actuator	Coded, suitable for all coding types	–	–	2702973
PSR-MC42	Safety relay	With integrated IO-Link interface	2702901*	2702902*	–
SAC-8PY-M/2XF BK 1-PSR	Y distributor	Type 1 for series connection of PSR-CT safety circuits	–	–	1054338
SAC-8PY-M/2XF BK 2-PSR		Type 2 for manual startup behavior	–	–	1054339
SAC-8PY-M/2XF BK 3-PSR		Type 3 for integrated diagnostics via signal contact with PSR-CT safety circuits	–	–	1054341
SAC-5P-M12MS BK BR 1-2-4	Bridge plug	Dummy plug for every sensor circuit	–	–	1054366

* Available as of 4th quarter, 2018

You will find a large selection of SAC cables in our online configurator at phoenixcontact.com:

Web code: #1975

Product overview

PSRmini: Highly compact safety relays for machine building																
Type	**Applications**							**Output contacts**				**Safety approvals**		**Overall width**	**Connection technology**	
												PL in accordance with EN ISO 13849-1	SILCL in accordance with EN 62061	In mm	Screw connection technology	Spring-cage connection technology
PSR-MS20[1] 24 V DC	●	●	–	●	–	–	A	1	–	–	1	c[4]	1[4]	6.8	2904950	–
PSR-MS21 24 V DC	Coupling module for safe controllers						A	1	–	–	1	e	3	6.8	2702192	–
PSR-MS25[1] 24 V DC	●	●	–	●	–	–	M	1	–	–	1	c[4]	1[4]	6.8	2904951	–
PSR-MS30 24 V DC	●	●	–	●	–	●	A	1	–	–	–	e	3	6.8	2904952	–
PSR-MS35 24 V DC	●	●	–	●	–	●	M	1	–	–	–	e	3	6.8	2904953	–
PSR-MS40[3] 24 V DC	●	●	–	–	–	●	A	1	–	–	1	e	3	6.8	2904954	–
PSR-MS45[3] 24 V DC	●	●	–	–	–	●	M	1	–	–	1	e	3	6.8	2904955	–
PSR-MS50[2] 24 V DC	●	●	–	●	–	–	A	1	–	–	1	e	3	6.8	2904956	–
PSR-MS55[2] 24 V DC	●	●	–	●	–	–	M	1	–	–	1	e	3	6.8	2904957	–
PSR-MS60[3] 24 V DC	●	●	●	●	–	●[10]	A	2	–	–	–	e	3	6.8	2904958	–
PSR-MC20[1] 24 V DC	●	●	–	●	–	–	A/M	3	–	–	1	c[4]	1[4]	12.5	2700466	2700467
PSR-MC30 24 V DC	●	●	–	●	–	●	A/M	2	–	–	1	e	3	12.5	2700498	2700499
PSR-MC32 24...230 V DC	●	●	●	●	–	●[10]	A/M	3	–	1	–	e	3	22.5	2700524	2700525
PSR-MC34 24 V DC	●	●	–	●	–	●	A/M	3	–	–	1	e	3	12.5	2700540	2700548
PSR-MC37[5] 24 V DC	●	●	–	●	–	–	A	3	–	1	1	e	3	22.5	2702411	2702412
PSR-MC40[3] 24 V DC	●	●	●	●	–	●[10]	A/M	3	–	–	1	e	3	12.5	2700569	2700570
PSR-MC50[2] 24 V DC	●	●	–	●	–	–	A/M	3	–	–	1	e	3	12.5	2700553	2700564
PSR-MC60[8] 24 V DC	–	–	–	–	●	–	A	2	–	–	1	c	1	12.5	2700571	2700572
PSR-MC62[9] 24 V DC	–	–	–	–	●	–	A	2	–	–	1	e	3	12.5	2700574	2700575
PSR-MC70 24 V DC	●	●	●	●	–	●[10]	A/M	1	1	–	1	c[4]	1[4]	12.5	2702094	2702095
PSR-MC72 24 V DC	●	●	●	●	–	●[10]	A/M	1	1	–	1	e	3	12.5	2702096	2702097
PSR-MC82 24 V DC	Contact extension						–	5	–	1	1	e[6]	3[6]	17.5	2702382	2702383

[1] 1-channel sensor circuit [2] Non-equivalent sensor circuit [3] Without cross-circuit detection [4] Up to PL e / SILCL 3 possible depending on the application
[5] EN 81 approval [6] In conjunction with suitable evaluating device [7] Undelayed contacts: Cat. 4 / PL e, SILCL 3; contacts with dropout delay: Cat. 3 / PL d, SILCL 2
[8] Type IIIA in accordance with EN 574 [9] Type IIIC in accordance with EN 574 [10] Also compatible with PSRswitch
A = autostart, M = manual, monitored start

PSRclassic: Conventional safety relays for machine building

Type	Applications							Output contacts				Safety approvals		Connection technology	
												PL in accordance with EN ISO 13849-1	SILCL in accordance with EN 62061	Screw connection technology	Spring-cage connection technology
PSR-ESA2-B 24 V AC/DC	●	●	–	–	–	–	A	4	–	1	–	c[2)]	1[2)]	2963802	2963954
PSR-ESAM2/3X1-B 230 V AC/DC	●	●	–	–	–	–	A/M	3	–	1	–	c[2)]	1[2)]	2901430	2901431
PSR-ESAM4/2X1 24 V AC/DC	●	●	–	–	–	–	A/M	2	–	1	–	e	3	2900525	2900526
PSR-ESAM4/3X1-B Voltage variants	●	●	–	–	–	–	A/M	3	–	1	–	e	3	See catalog for ordering data	
PSR-ESAM4/8X1 24 V AC/DC	●	●	–	–	–	–	A/M	8	–	1	–	e	3	2963912	2963996
PSR-ESD-30 24 V DC	●	●	●	●	–	●	A/M	2	2	–	–	e	3	2981800	2981813
PSR-ESD-300 24 V DC	●	●	●	–	–	●	A/M	3	2	1	–	e[4)]	3[4)]	2981428	2981431
PSR-ESD-T 24 V AC/DC	●	●	●	–	–	●	A/M	3	2	1	–	e[4)]	3[4)]	Fixed times, see catalog for ordering data	
PSR-ESL4[1)] 24 V AC/DC	●	●	●	–	–	●	A/M	3	–	1	–	e	3	2981059	2981062
PSR-THC4[5)] 24 V AC/DC	–	●	–	–	●	–	A	2	–	1	–	e	3	2963721	2963983
PSR-URML4[1)] 24 V DC	Contact extension for OSSD signals							3	–	1	–	e	3	2903583	2903584
PSR-URM4 42 ... 230 V AC/DC	Contact extension							4	–	2	–	e[3)]	3[3)]	2702924	2702925
PSR-URM4 24 V AC/DC	Contact extension							5	–	2	–	e[3)]	3[3)]	2963734	2964005
PSR-URM4-B 24 V AC/DC	Contact extension							5	–	2	–	e[3)]	3[3)]	2981033	2981046

[1)] Without cross-circuit detection [2)] Up to PL e / SILCL 3 possible depending on the application [3)] In conjunction with suitable evaluating device
[4)] Undelayed contacts: Cat. 4 / PL e, SILCL 3, contacts with dropout delay: Cat. 3 / PL d, SILCL 2 [5)] Type IIIC in accordance with EN 574
A = autostart, M = manual, monitored start

Product overview

PSRmodular: Modular safety switch system

Type	Applications							Output contacts				Safety approvals		Connection technology	
												PL in accordance with EN ISO 13849-1	SILCL in accordance with EN 62061	Screw connection technology	Spring-cage connection technology
PSR-SDC4 24 V DC	●	●	●	●	–	●	A/M	2	–	–	1	e	3	2981486	2981499
PSR-URM4/B 24 V DC	Contact extension							4	–	2	–	e	3	2981677	2981680
PSR-URD3/3 24 V DC	Contact extension							–	4	2[1)]	–	d	2	2981732	2981745
PSR-URD3/30 24 V DC	Contact extension							–	4	2[1)]	–	d	2	2981512	2981525
PSR-URD3/T2 24 V DC	Contact extension							–	4	2[1)]	–	d	2	2981703	2981729
PSR-SIM4	IP20 input extension – interface module for up to four safety sensors													2981936	2981949
PSR-SACB…	IP65 / IP67 input extension – sensor box for up to four safety sensors, available with 5 m and 10 m cable lengths													5 m	2981871
														10 m	2981884

[1)] Delayed, A = autostart, M = manual, monitored start

PSRmini: Classic safe coupling relays for the process industry

Type	Applications	Output contacts			Diagnostic / proof test				Safety approvals					Overall width	Connection technology	
	Highly compact, safe coupling relays for failsafe controllers:				Visual via LED[1)2)]	Active error acknowledgment via A1[2)]	Measurement on the device	Self-monitoring with interlocking[1)]	SIL in accordance with IEC 61508 / 61511	SIL in accordance with IEC 50156	ATEX / IECEx / Class I Zone 2	G3 in accordance with ANSI / ISA-S71.04	GL	In mm	Screw connection technology	Spring-cage connection technology
PSR-PS20 24 V DC	For safety-related shutdown (ESD)	1	1	1	●	●	●	–	3	3	●	●	●	6.8	2700356	–
PSR-PS21 24 V DC		1	1	1	●	●	●	–	2	2	●	●	●	6.8	2700357	–
PSR-PS22 24 V DC		1	1	–	●	●	●	–	3	3	●	●	●	6.8	2702524	–
PSR-PS40 24 V DC		1	–	1	●	–	–	●	3	3	●	●	●	12.5	2700398	–
PSR-PC20 24 V DC		1	1	1	●	●	●	–	3	3	●	●	●	12.5	2700577	2700578
PSR-PC32 24 ... 230 V		2	1	–	●	–	●	–	3	3	●	●	●	17.5	2700581	2700582
PSR-PC40 24 V DC		2	–	1	●	●	–	●	3	3	●	●	●	12.5	2700588	2700589
PSR-PC50 24 V DC	For safety-relevant startup (F and G)	1	–	1	–	●	●	–	3[1)]	–	●	–	●	17.5	2904664	2904665

[1)] Low demand [2)] With suitable controller

PSRclassic: Highly compact, safe coupling relays for the process industry

Type	Applications	Output contacts			Diagnostic / proof test				Safety approvals					Overall width	Connection technology	
	Highly compact, safe coupling relays for failsafe controllers:				Visual via LED	Active error acknowl-edgment via A1	Measurement on the device	Self-monitoring with interlocking	SIL in accordance with IEC 61508 / 61511	SIL in accordance with IEC 50156	ATEX / IECEx / Class I Zone 2	G3 in accordance with ANSI / ISA-S71.04	GL	In mm	Screw connection technology	Spring-cage connection technology
PSR-FSP 24 V DC	For safety-related shutdown (ESD)	1	1	–	–	–	●	–	3	3	–	–	●	17.5	2981978	2981981
PSR-FSP/2x1 24 V DC		2	1	–	–	–	●	–	3	3	–	–	●	17.5	2986960	2986957
PSR-FSP2/2x1 24 V DC		2	1	–	–	–	●	–	2	2	–	–	●	17.5	2986575	2986588
PSR-ESP4 24 V DC		2	1	–	–	–	–	●	1[1)]	–	–	–	●	22.5	2981020	2981017

1) Depending on the application up to PL e / SILCL 3 possible

PSRclassic: Classic safe coupling relays for universal applications

Type	Applications	Output contacts			Safety approvals		Input voltage	Connection technology			
					PL in accordance with EN ISO 13849-1	SILCL in accordance with EN 62061		Screw connection technology	Spring-cage connection technology	Screw connection technology, fixed	Spring-cage connection technology, fixed
PSR-URM	Coupling relays for universal applications	5	2	–	c	1	24 V AC/DC	2963747	2963970	–	–
							120 V AC/DC	2981402	2981415	–	–
PSR-URM/3X1		3	3	–	c	1	24 V AC/DC	2981839	2981842	–	–
PSR-URM/5X1		5	1	–	c	1	24 V AC/DC	2981952	2981965	–	–
PSR-URM/2X21		–	–	2	c	1	24 V AC/DC	–	–	2981363	–
							120 V AC/DC	–	–	2981376	–
PSR-URM/4X1		4	2	–	c	1	24 V AC/DC	–	–	2981444	2981457

Product overview

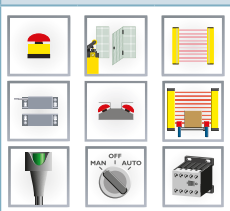
PSRmultifunction: Multifunctional safety relays

Type	Applications							Output contacts		Safety approvals		Connection technology		
										PL in accordance with EN ISO 13849-1	SILCL in accordance with EN 62061	Screw connection technology	Spring-cage connection technology	Push-in connection technology
PSR-MXF1 24 V DC	●	●	–	–	–	–	A/M	4	2	e	3	2902725	2902726	2903253
PSR-MXF2 24 V DC	●	●	–	●	–	–	A/M	4	2	e	3	2903254	2903255	2903256
PSR-MXF3 24 V DC	●	●	●	–	–	●	A/M	4	2	e	3	2903257	2903258	2903259
PSR-MXF4 24 V DC	●	●	●	●	–	●	A/M	4	2	e	3	2903260	2903261	2903262

PSRmotion: Zero-speed and over-speed safety relays

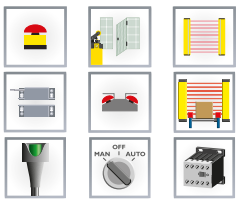
Type	Applications					Output contacts		Safety approvals			Connection technology	
				n=0	$n<n_{max}$			Cat. in accordance with EN ISO 13849-1	PL in accordance with EN ISO 13849-1	SILCL in accordance with EN 62061	Screw connection technology	Spring-cage connection technology
PSR-RSM4 24 V DC	–	●	●	●	●	4	3	4	e	3	2981538	2981541
PSR-MM25 24 V DC	●	–	–	●	–	1	2	3	e	3	2702355	2702356
PSR-MM30 24 V DC	–	●	●	●	●	2	2	4	e	3	2702357*	2702358*

PSRtrisafe: Configurable safety modules

Type	Applications	Inputs/outputs					Safety approvals					Connection technology	
		Inputs	Safe control outputs	Ground switching outputs	Clock outputs	Signal outputs	Category in accordance with EN ISO 13849-1	PL in accordance with EN ISO 13849-1	SILCL in accordance with EN 62061	SIL in accordance with IEC 61508	SIL in accordance with IEC 50156	Screw connection technology	Spring-cage connection technology
PSR-Trisafe-S 24 V DC	Master module (not extendable)	20	4	2	2	4	4	e	3	3	3	2986229	2986232
PSR-Trisafe-M 24 V DC	Master module (safely extendable)	20	4	2	2	4	4	e	3	3	3	2986012	2986025
PSR-TS-SDI8-SDIO4 24 V DC	Safe digital I/O extension module	8	4[1)]	–	2[1)]	2[1)]	4	e	3	3	3	2986038	2986041
PSR-TS-SDOR4 24 V DC	Safe relay module	–	4[3)]	–	–	4	4[2)]	e[2)]	3[2)]	3[2)]	3	2986096	2986106

[1)] Configurable via software: outputs to inputs / signal outputs to clock outputs [2)] Up to ... depending on connection
[3)] Configurable via software: 4 x 1-channel or 2 x 2-channel * Available as of third quarter of 2018

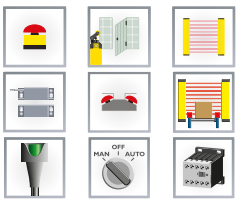
Axioline F and Inline: Safe I/Os for all common bus systems

Type	Applications	Inputs/outputs				Protocol		Safety approvals				Order No.
		Safe inputs	Safe outputs	Clock outputs	Relay outputs	SafetyBridge Technology	PROFIsafe	Category in accordance with EN ISO 13849-1	PL in accordance with EN ISO 13849-1	SILCL in accordance with EN 62061	SIL in accordance with IEC 61508	
Logic modules												
IB IL 24 LPSDO 8 V2-PAC 24 V DC	Logic module with SafetyBridge Technology V2	–	8	–	–	●	–	4	e	3	3	2700606
IB IL 24 LPSDO 8 V3-PAC 24 V DC	Logic module with SafetyBridge Technology V3	–	8	–	–	●	–	4	e	3	3	2701625
AXL F LPSDO8/3 IF 24 V DC	Logic module with SafetyBridge Technology V3	–	8	–	–	●	–	4	e	3	3	2702171
Safe I/Os for Inline												
IB IL 24 PSDI 8-PAC 24 V DC	Input module	8	–	8	–	●	●	4	e	3	3	2985688
IB IL 24 PSDI 16-PAC 24 V DC	Input module[1)]	16	–	16	–	●	●	4	e	3	3	2700994
IB IL 24 PSDO 8-PAC 24 V DC	Output module	–	8	–	–	●	●	4	e	3	3	2985631
IB IL 24 PSDO 4/4-PAC 24 V DC	Output module (positive and negative switching)	–	4	–	–	●	●	4	e	3	3	2916493
IB IL 24 PSDOR 4-PAC 24 V DC / 230 V DC	Relay module	–	–	–	4	●	●	4	e	3	3	2985864
IB IL SAFE 2-ECO 24 V DC	Input module with two sensor circuits	–	–	–	–	–	–	4	e	3	3	2702446
Safe I/Os for Axioline F												
AXL F SSDI8/4 1F 24 V DC	Input module	8	–	–	–	●	–	4	e	3	3	2702263
AXL F SSDO8/3 1F 24 V DC	Output module	–	8	–	–	●	–	4	e	3	3	2702264
AXL F PSDI8/4 1F 24 V DC	Input module	8	–	–	–	–	●	4	e	3	3	2701559
AXL F PSDO8/3 1F 24 V DC	Output module	–	8	–	–	–	●	4	e	3	3	2701560

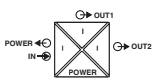
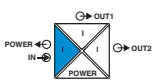
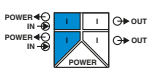
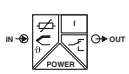
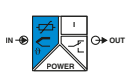
[1)] Only compatible with IB IL 24 LPSDO V3-PAC.

Product overview

PROFIsafe control technology

Type	Applications	Inputs/outputs	Protocol	Safety approvals				Order No.
				Category in accordance with EN ISO 13849-1	PL in accordance with EN ISO 13849-1	SILCL in accordance with EN 62061	SIL in accordance with IEC 61508	
								
RFC 470S PN 3TX	Safety controller that can be freely programmed using LD and FBD	Up to 170 safe devices	PROFIsafe via PROFINET	4	e	3	3	2916794
FL PN/PN SDIO-2TX/2TX	Safe PROFINET gateway	–	PROFIsafe via PROFINET	4	e	3	3	2700651

MACX Safety: Safe signal conditioners

Type	Application	Analog input	Output	Safety approvals			Overall width	Connection technology	
				SILCL EN 62061	Ex approval	HART-compatible	In mm	Screw connection technology	Push-in connection technology
									
	Repeater power supply and input signal conditioner with two outputs	Repeater power supply operation: 4 … 20 mA Input isolator operation: 4 … 20 mA Transmitter supply voltage: > 16 V (20 mA)	2 x 0 … 20 mA, 2 x 4 … 20 mA; IN = OUT	2	–	●	12.5	2904961	2904962
				2	●	●	12.5	2904959	2904960
	Repeater power supply, two-channel	Repeater power supply operation: 4 … 20 mA per channel Transmitter supply voltage: > 16 V (20 mA) per channel	2 x 4 … 20 mA; IN = OUT Load: ≤450 Ω (20 mA)	3	●	●	12.5	2904963	2904964
	Temperature transducer, universally configurable with limit value relay	RTD, TC, potentiometer, linear resistors ± 1000 mV, ± 20 mA	Analog: 4 … 20 mA, active Digital: 1 PDT relay; 1 PDT relay, functionally safe	2	–	–	35	2904901	2904903
				2	●	–	35	2904910	2904912

CONTACTRON: Hybrid motor starters

Type	Applications	Functions						Maximum load current								Connection technology	
		Direct starter	Reversing starter	Motor protection	Emergency stop	With IFS connection[1]	Without networking	0.6 A		2.4 A		3 A		9 A		Screw connection technology	Push-in connection technology
								24 V DC	230 V AC	24 V DC	230 V AC	24 V DC	Remove	24 V DC	230 V AC		
ELR H3-IES	Hybrid motor starters	●	–	●	●	●	–	●	–	–	–	–	–	–	–	2905154	2905141
ELR H3-IES		●	–	●	●	–	●	●	–	–	–	–	–	–	–	2900566	2903914
ELR H5-IES		●	●	●	●	●	–	●	–	–	–	–	–	–	–	2905151	2905138
ELR H5-IES		●	●	●	●	–	●	●	–	–	–	–	–	–	–	2900582	2903902
ELR H3-IES		●	–	●	●	–	●	–	●	–	–	–	–	–	–	2900689	2900692
ELR H3-IES		●	–	●	●	–	●	–	–	●	–	–	–	–	–	2900567	2903916
ELR H5-IES		●	●	●	●	–	●	–	–	●	–	–	–	–	–	2900414	2903904
ELR H3-IES		●	–	●	●	–	●	–	–	–	●	–	–	–	–	2900568	–
ELR H5-IES		●	●	●	●	–	●	–	–	–	●	–	–	–	–	2900420	–
ELR H3-IES		●	–	●	●	●	–	–	–	–	–	●	–	–	–	2905155	2905142
ELR H5-IES		●	●	●	●	●	–	–	–	–	–	●	–	–	–	2905152	2905139
ELR H3-IES		●	–	●	●	–	●	–	–	–	–	–	–	●	–	2900569	2903918
ELR H5-IES		●	●	●	●	–	●	–	–	–	–	–	–	●	–	2900421	2903906
ELR H3-IES		●	–	●	●	●	–	–	–	–	–	–	–	●	–	2905156	2905143
ELR H5-IES		●	●	●	●	●	–	–	–	–	–	–	–	●	–	2905153	2905140
ELR H3-IES		●	–	●	●	–	●	–	–	–	–	–	–	–	●	2900570	–
ELR H5-IES		●	●	●	●	–	●	–	–	–	–	–	–	–	●	2900422	–
ELR-H51	Short-circuit-proof hybrid motor starters for busbar mounting	Classic set > 1 cm rail width						●	–	–	–	–	–	–	–	2904334	–
ELR-H51								–	–	●	–	–	–	–	–	2904336	–
ELR-H51								–	–	–	–	–	–	●	–	2904338	–
ELR-H51		Compact set > 1 cm rail width						●	–	–	–	–	–	–	–	2904333	–
ELR-H51								–	–	●	–	–	–	–	–	2904335	–
ELR-H51								–	–	–	–	–	–	●	–	2904337	–
ELR-H51	Short-circuit-proof hybrid motor starters for DIN rail mounting	Set including DIN rail adapter						●	–	–	–	–	–	–	–	2902952	–
ELR-H51								–	–	●	–	–	–	–	–	2902953	–
ELR-H51								–	–	–	–	–	–	●	–	2902954	–

[1] Select the gateway to match the bus system.

Product overview

QUINT POWER: Safe power supplies

Type	Application	Output current				Safety approvals						Dimensions W x H x D	Order No.
		Nominal output current	Static boost	Dynamic boost	SFB Technoloy	IEC 60950-1	SIL in accordance with IEC 61508	ATEX / IECEx / Class I Zone 2	UL ANSI / ISA-12.12.01 Class I Division 2	DNV GL	HART-compatible	[mm]	
High-performance power supplies, single phase													
Input voltage: 85 V AC … 264 V AC, 90 V DC … 350 V DC Output voltage: 24 V DC … 29.5 V DC													
QUINT4-PS/ 1AC/24DC/20	For the safe supply of your systems	20 A	25 A	30 A (5 s)	120 A (15 ms)	●	●	–	●	●	●	70 x 130 x 125	2904602
Active redundancy module, plus variant													
Input voltage: 8 V DC … 26 V DC Output voltage: U_{in} – 0.1 V DC													
QUINT4-S-ORING/ 12-24DC/1X40/+	For decoupling	40 A	45 A	60 A (5 s)	240 A (15 ms)	●	–	●	●	●	–	32 x 130 x 125	2907753

Configuration and programming software

	Type	Applications	Order No.
	IFS-CONFSTICK	Memory modules for PSRtrisafe	2986122
	SAFECONF	Free configuration software for PSRtrisafe and SafetyBridge modules. Download at phoenixcontact.com	–
		Configuration package including software, USB cable, and quick start guide; multi-lingual	2986119
	SAFETYPROG Basic	SafetyProg programming software including certified PLCopen blocks	2700443
	SAFETYPROG Advanced		2700441
	SAFETYPROG Professional		2700442
	SAFE AI function block	Function block library for safety-relevant analog value acquisition with standard I/O modules	2400057
	PSRmotion	Free configuration software for PSRmotion PSR-MM30 zero-speed and over-speed safety relay. Download at phoenixcontact.com	–

SD cards		
Type	**Applications**	**Order No.**
SD card MUX	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.	2701872
SD FLASH easy safe basic	Program and configuration memory, plug-in, 2 GB, with license key and user program for easy web-based configuration and startup of a SafetyBridge solution.	2403297
SD FLASH easy safe pro	As per SD FLASH easy safe basic, plus communication via Modbus/TCP, PROFINET, and e-mail.	2403298

Product support

Safety hotline
- Telefon: +49 5281 946 2777
- E-mail: safety-service@phoenixcontact.com
- For application questions regarding products
- For safety technology questions
- Free of charge 24 hrs / 365 days

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

Concept support
- Concept formulation
- Concept assessment
- Software check (SAFETYPROG/SAFECONF)

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Printed in Germany

ION04-18.000.L3
MNR 5106873/2018-04-01/05

INSPIRING INNOVATIONS