



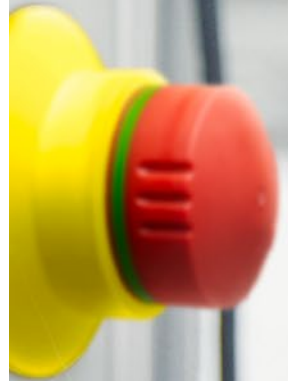
Functional safety

From the safety switch to the safe controller

Smart solutions for functional safety

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

We work continuously to ensure that our safety solutions always provide the ideal protection for people and systems as we move into the digital age. And you can further increase system availability by integrating safety into your modular automation systems. Read more about this on the following pages.



Find out more with the web code

For detailed information, use the web codes provided in this brochure. Simply enter # and the four-digit number in the search field on our website.



Web code: #1234 (example)

Or use the direct link:

phoenixcontact.com/webcode/#1234



Contents

| | |
|--|----|
| Progress through innovative technologies | 4 |
| IO-Link Safety: the new standard | 6 |
| Successful in application | 8 |
| Product portfolio | 10 |
| Non-contact safety switches | 12 |
| Emergency stop switches | 14 |
| Safety relays | 16 |
| Safe coupling relays | 18 |
| Over-speed and zero-speed safety relays | 20 |
| Safe signal conditioners and measuring transducers | 22 |
| Safe motor starters | 24 |
| Configurable safety systems | 26 |
| Safe I/Os | 28 |
| Safe control technology | 30 |
| Safe power supplies | 32 |
| Services and support | 34 |
| Product overview | 36 |

COMPLETE line

COMPLETE line is a system comprising coordinated hardware and software products, consulting services, and system solutions that help you optimize your processes in control cabinet building.

Progress through innovative technologies

Those who want to play a leading role in technology must make a decisive contribution to current trends and developments.

For Phoenix Contact, innovations are a pioneering bridge to the future. Take a look at the technologies we offer in functional safety and the advantages they provide.



Relay Technology

Designed by Phoenix Contact

Relay technology – developed to change

Phoenix Contact has developed a force-guided elementary relay that delivers full performance with an overall width of just 6 mm. The miniaturization of mechatronic functions enables modular safety concepts, such as those required for Industry 4.0.

With a switching capacity of 6 A, the relay offers maximum availability with the redundant diagnostic contact and enabled us to develop the PSRmini safety relay in a 6 mm housing.

 Web code: #1974

SafetyBridge Technology – safe without a safety controller

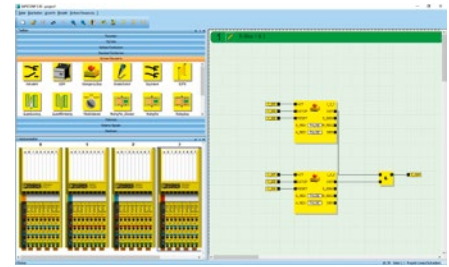
What is SafetyBridge Technology?

SafetyBridge Technology enables you to realize decentral safety solutions. You can do this without a safety controller and regardless of the network used. The technology is integrated into the Inline and Axioline I/O systems and is compatible with all bus couplers of these systems. The safe I/Os are installed remotely with the standard I/Os in the equipment.

The system consists of safe input modules, safe output modules, and one logic module. The logic module acquires and outputs safe signals. It generates and monitors the safety-related SafetyBridge transmission protocol and processes the logical links of the configured safety logic. The logic

module therefore assumes the task of a safe controller.

You create the SafetyBridge safety logic easily by drag and drop with our SAFECONF configuration software. The intuitive operation allows you to configure your safety logic in accordance with the standards, without any need for programming knowledge.

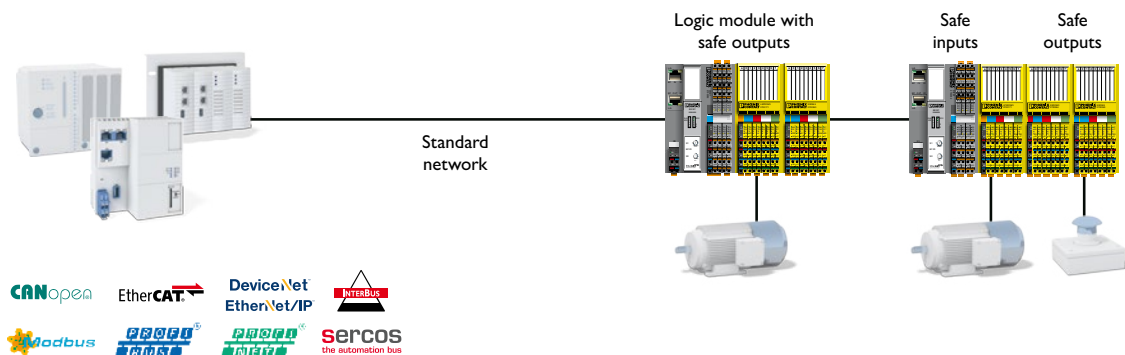


Easy configuration using SAFECONF

SAFECONF
Configuration Software

SafetyBridge Technology

Designed by Phoenix Contact

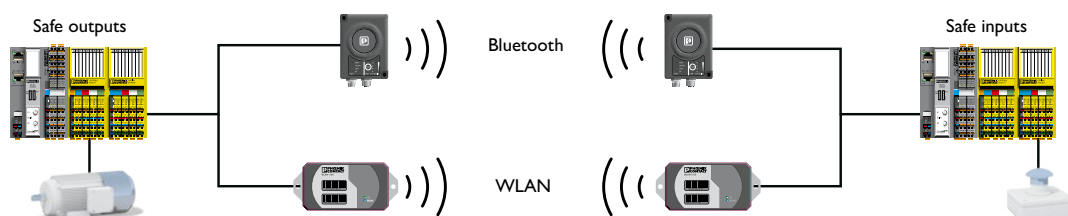


Transmitting safe data via wireless systems

SafetyBridge Technology makes it possible for you to transmit all safety-relevant data signals wirelessly. You can choose between the two wireless technologies, Bluetooth and WLAN. This lets you replace cable and slip ring transmission systems with

wireless paths without altering the safety characteristics of the safety application. The combination of safety and wireless has many advantages. This solution can be easily integrated into existing automation networks and helps save on the costs of a

distributed or mobile machine structure. Furthermore, safety signals can be transmitted reliably over large distances.



IO-Link Safety: the new standard

With IO-Link Safety, you can benefit from all the familiar advantages of IO-Link. Now that IO-Link technology has been extended to include safety, you can connect safety technology and automation via a universal interface. This enables you to introduce new, manufacturer-independent machine and system concepts with safety-related sensors and actuators.

 Web code: [#3256](#)



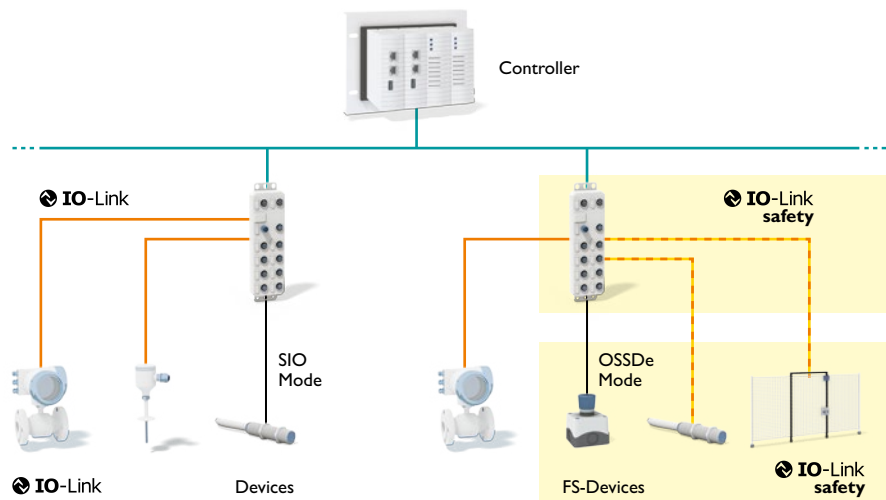
Your advantages

- ✓ Increase productivity through detailed condition data
- ✓ Simplify installation, maintenance, and replacement processes with implemented standards
- ✓ Increase data availability and accuracy through simple A/D conversion
- ✓ Fast configuration and troubleshooting with remote diagnostics

Safe communication from start to finish

End-to-end safety from the sensor to the controller

The IO-Link Safety technology enables consistent communication from the control level right through to the connection of safe sensors and actuators. The safety-related system expansion is based on the use of IO-Link Safety masters and IO-Link Safety devices. You can now benefit from all the valued IO-Link advantages, such as the network independence of sensors and actuators, standardized connection technology, the use of an IODD for parameterization, or the simple replacement of devices.



IO-Link Safety master

The IO-Link Safety master is intended as an interface between safe/non-safe IO-Link sensors and actuators and safe PROFINET control systems.

A total of eight safe IO-Link Safety ports are available for integrating IO-Link and IO-Link Safety devices (4 x Class B ports and 4 x Class A ports).

Main features

- PROFINET/PROFIsafe communication
- Easy integration with multifunctional ports
- Connection of actuators of up to 4 A
- Series connection using power supply with standardized L-coded M12 connection technology
- IO-Link specification V1.1.3
- Connection with M12 connectors with push-pull fast connection or screw connection
- 2 Ethernet ports (with integrated switch)
- IP65/IP67/IP69K degree of protection



IO-Link Safety device

The IO-Link Safety I/O box enables the integration of safe sensors and actuators into IO-Link Safety systems. There are eight safe digital inputs and four safe digital outputs available for this purpose. They allow easy connection of sensors and actuators in the field and provide access to extended diagnostic data.

Main features

- 1 IO-Link port Class A
- 8 safe digital inputs
- 4 safe digital outputs
- M12 connectors (A-coded)
- Enables IO-Link Safety communication



Successful in application

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

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

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

Your advantages

- ✓ Many years of experience, innovative solutions, and the latest technologies
- ✓ Member of all key standardization committees
- ✓ Comprehensive knowledge of legal safety
- ✓ Numerous TÜV-certified employees worldwide
- ✓ Active participation in steering committees and research projects

Safety technology for your needs

At home in machine building

Phoenix Contact has close ties with the machine building industry. Because we have our own machine building facilities in house, we completely understand your daily challenges.

We provide:

- A broad range of safety technology, approved globally in accordance with EN ISO 13849-1 and EN IEC 62061
- A high level of sensor compatibility and easy installation for the fast and economical realization of your safety concepts



Experience in the automotive industry

As a long-term partner of the Automotive Industry, Phoenix Contact provides fully developed automation solutions for robust, open, and consistent automation solutions.

We provide:

- A broad range of safety technology, approved globally in accordance with EN ISO 13849-1 and EN IEC 62061
- Comprehensive diagnostic options
- Reliable automation for high-end applications
- No imperfections on the end product, with the use of PWIS-free components



Partner for the process industry

With pioneering solutions in connection and automation technology, Phoenix Contact is your key partner for ensuring exceptionally high availability in the process industry.

We provide:

- ATEX-certified, robust safety technology
- XC product versions for use under extreme conditions
- Safe components for use in furnaces (in accordance with IEC 61508/61511 and EN 50156) and in the shipping industry (DNV)



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 meet all safety of machinery requirements.

i Web code: #0299



Safety switches

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



Emergency stop switches

With our TÜV-certified emergency stop switches, you can immediately put your machine or system in a safe state if there is an emergency.



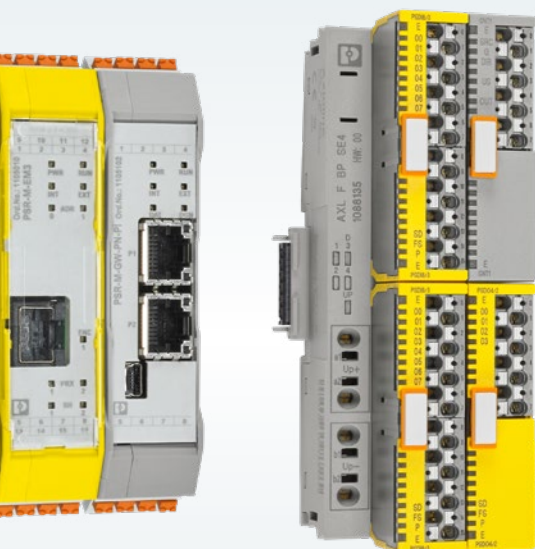
Safety relay modules

If your application demands just a small number of safety functions, there is a large selection of safety relays, safe signal conditioners, and safe motor starters at your disposal.



Configurable safety systems

The configurable PSRmodular safety system is a flexible safety solution for monitoring your machine or system.



Safe I/Os

Integrate functional safety into your existing network, whether in the control cabinet or in the field. With SafetyBridge Technology, the safety function is processed directly in the I/O modules.



Safe control technology

With our safe high-performance controllers, you can integrate reliable functional safety into PROFI-safe networks for applications with special demands on safety and availability.



Safe power supplies

Our high-performance QUINT POWER power supplies ensure the maximum availability of your system and satisfy all of the functional safety requirements.

Non-contact safety switches

The compact PSRswitch is an electronic, coded safety switch for flexible safety door and position monitoring. With the integrated RFID technology and intelligence, it offers 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 overlay


Intelligent safety switch system with IO-Link



PSRswitch
RFID coded, non-contact safety switch



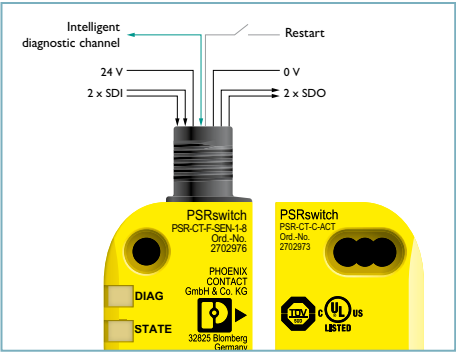
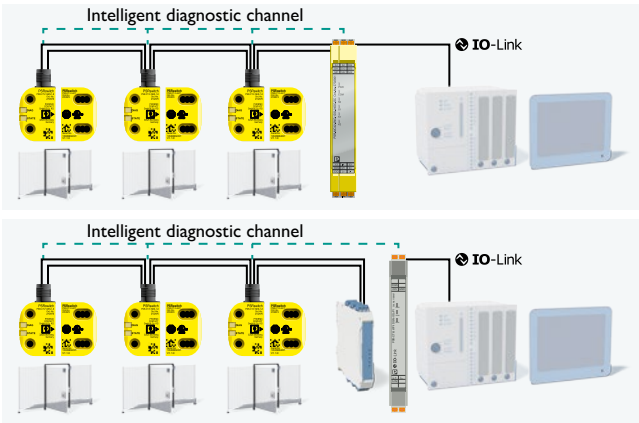
SAC cabling
Easy installation with M12 male connectors and SAC cables



IO-Link
PSRmini
Highly compact safety relay with IO-Link interface

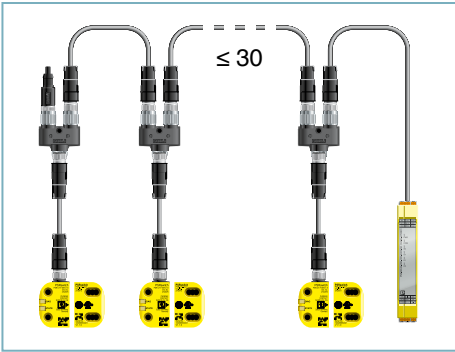
Integrated diagnostic channel

Our safety switch system consists of the PSRmini evaluation unit and the PSRswitch safety switches. The safe series connection is in a two-channel design. Parallel to this, status information from the individual switches is transmitted to the PSRmini PSR-MC42 safety relay via the integrated diagnostics channel. Regardless of the safety concept, the non-safety-relevant diagnostic data of the PSRswitch is transmitted to the controller via the intelligent diagnostics channel and an IO-Link gateway. The data can be evaluated centrally there.



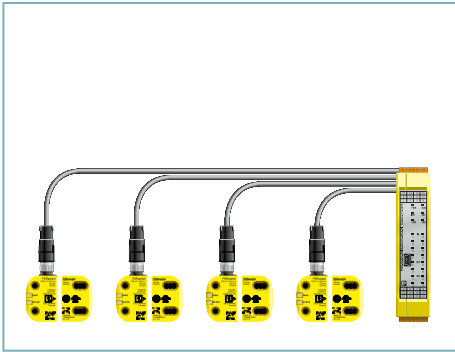
Smart sensor

The sensor has the properties of a safety relay. LEDs constantly display the current state of the sensor.



Series connection up to PL e

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



Safe individual wiring

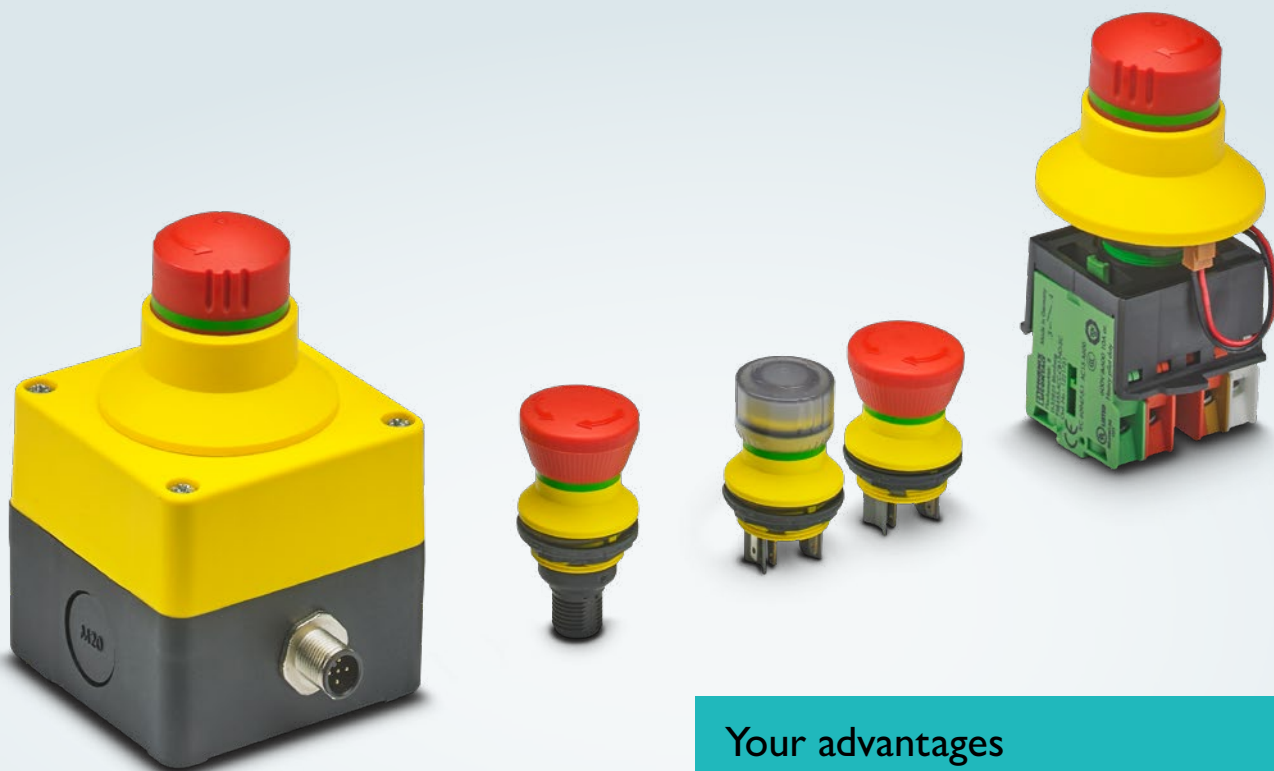
You can wire the safety switches individually. PSRmodular and safe I/Os are also suitable evaluation units.

Emergency stop switches

With our TÜV-certified emergency stop switches, you can immediately put your machine or system in a safe state if there is an emergency. Our control devices with emergency stop function or emergency switching off function are suitable for applications in accordance with EN ISO 13850 and EN 60204-1.

Choose our ready-to-use solutions for your standard application. Create the ideal emergency stop solution to satisfy your requirements.

i Web code: [#2859](#)



Your advantages

- ✓ Increased occupational safety with the illuminated active/inactive status indicator
- ✓ Rapid on-site diagnostics with color-coded switching position indicator
- ✓ Protection against installation errors with self-monitoring emergency stop contact module

Emergency stop switches for every application

Ready-to-use solutions for your standard application

Create your emergency stop equipment quickly and easily by using our preassembled switches.

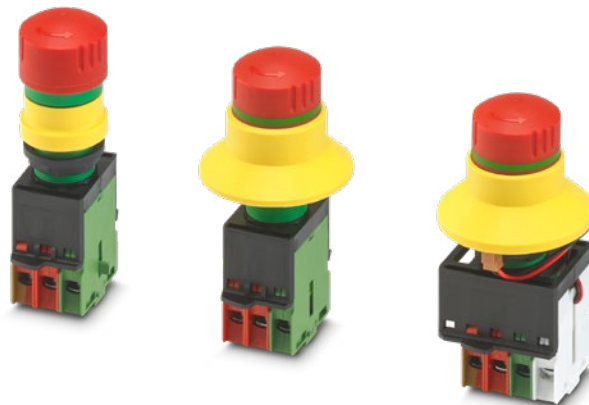
Our portfolios enable quick and easy installation, whatever the demand: Install the solution directly in the field, in the operator panel, or in the machine control cabinet. As an option, our emergency stop button is available with a 5-pos. M12 connector, enabling plug-and-play installation.



Modular system for customer-specific applications

Our modular emergency stop control devices enable efficient safety solutions tailored to your requirements.

Combine actuators, module holders, and contact modules to meet your needs. Upon request, integrate additional functions such as illuminated anti-lock collars, for a particularly high level of safety.



Increased occupational safety

Illuminated emergency stop switches identify active machine parts in accordance with EN ISO 13850 and provide additional safety.



Rapid on-site diagnostics

All emergency stop control devices are equipped with a colored switching position indicator for time-saving on-site diagnostics.



Protection against installation errors

Self-monitoring emergency stop contact modules automatically switch your machine to a safe state in the event of errors or damage.

Safety relays

With the PSRmini and PSRclassic safety relays from Phoenix Contact, you can implement all safety functions for applications where the motto is one function, one device. The safety relays are compatible with many signal generators such as emergency stop devices, safety door switches, and light grids. The modules are available in various sizes, with multiple connection technologies and a wide range input.

i Web code: [#1944](#)



Relay Technology [?]

Designed by Phoenix Contact

Your advantages

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

Safety relays for machine building

Highly compact PSRmini safety relays

PSRmini safety relays are the smallest on the market. With overall widths of just 6 mm and 12 mm, we provide proven safety with our in-house developed relay technology featuring force-guided contacts. The innovative DIP switch concept enables you to make selected settings directly on the module. In addition, the needs-based structure starting from an enabling path ensures increased flexibility in your application – without performance restrictions.

Main features

- Overall width 6 mm and 12 mm
- Proven safety with force-guided relay contacts
- TÜV certified
- Approvals for all global markets
- PL e in accordance with ISO 13849 and SIL 3 in accordance with EN IEC 62061
- High level of scalability, starting at just one enabling path



PSRclassic conventional safety relays

The PSRclassic safety relays have a long proven track record. With two-channel wiring and force-guided contacts, they reliably switch functions such as two-hand controls and 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 with force-guided relay contacts
- TÜV certified
- Approvals for all global markets
- PL e in accordance with ISO 13849 and SIL 3 in accordance with EN IEC 62061



Modular safety relay system

Design your safety system exactly as required. Our 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 of 22.5 mm
- Can be extended to up to 42 contacts
- Proven safety with force-guided relay contacts
- TÜV certified
- Approvals for all global markets
- PL e in accordance with ISO 13849 and SIL 3 in accordance with EN IEC 62061



Safe coupling relays

The safe coupling relays with force-guided contacts are SIL-certified and are used for electrical isolation and power amplification. Choose between PSRclassic, the market-standard version, and the highly compact PSRmini coupling relays. The latter, with overall widths of 6 and 12 mm, are the narrowest coupling relays on the market. Both product families include coupling relays for emergency shutdown and fire and gas applications that are compatible with various safety systems.

i Web code: #1945



Relay Technology ²

Designed by Phoenix Contact

Your advantages

- ✓ Space savings of up to 70% with the compact design
- ✓ Relay technology developed in-house features proven safety with force-guided relay contacts
- ✓ High level of scalability, starting at just one enable contact
- ✓ Innovative diagnostics technologies reduce the time needed for the normatively-specified proof test to a minimum

Safe coupling relays for the process industry

PSRmini highly compact safe coupling relays

With the relay technology developed in-house, the PSRmini coupling relays are the narrowest in the world for safe startup and shutdown.

The force-guided contacts enable quick and easy diagnostics. The visual LED diagnostics enable SIL 3-qualified control directly on the module. Furthermore, active error feedback 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 with force-guided relay contacts
- TÜV certified
- Approvals for all global markets
- SIL 3 in accordance with IEC 61508 / IEC 61511 / EN 50156



PSRclassic conventional safe coupling relays

In the PSRclassic series, you will find 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 the common safe systems. With a housing width starting from 17.5 mm, they are in accordance with the market-standard housing dimensions.

Main features

- Overall width from 17.5 mm
- Proven safety with 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 IEC 61508 / IEC 61511 / EN 50156



Flexible I/O marshalling system

Smart I/Os, in other words, I/O modules, gives users entirely new possibilities in the process industry, both for new systems and for retrofitting.

The flexible I/O marshalling system from Phoenix Contact helps make Universal I/O truly “universal” on the interface and marshalling level. The system comprises a combination of a standardized basic module and replaceable input-output accessories (IOAs) with various electrical functions.

Main features

- Flexible channel configuration for special functions with replaceable IOAs
- Easy handling and quick replacement of plug-in IOAs
- Error-free wiring with special codings
- Reliable signal protection with integrated shielding in the base element
- SIL 3 in accordance with IEC 61508



Over-speed and zero-speed safety relays

Excessive speeds pose a danger to people and machinery. The compact PSRmotion over-speed and zero-speed safety relays shut down rotating machine parts safely if there is an emergency. The sensor-free PSR-MM35 over-speed safety relay reliably monitors speeds and thus protects against dangerous motion. Connected to a safety door device, the PSR-MM25 sensor-free zero-speed safety relay ensures locking until the dangerous motion comes to a standstill. The PSR-MM30 combined over-speed and zero-speed safety relay combines all functions for safe motion monitoring in one device.

i Web code: [#1546](#)



Relay Technology 
Designed by Phoenix Contact

Your advantages

- ✓ Space savings of up to 75% with the compact design
- ✓ Relay technology developed in-house features proven safety with force-guided relay contacts
- ✓ Easy configuration via button on the device
- ✓ Fast configuration and live monitoring with the PSRmotion software
- ✓ Efficient motion monitoring in combination with additional sensor technology or sensor-free technology

Over-speed and zero-speed safety relays for motion monitoring

PSRmotion over-speed and zero-speed safety relays

With the PSR-MM30 combined over-speed and zero-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 with the reliable measuring procedure. The integrated safety door monitoring function makes it compatible with the PSRswitch contact-free safety switches. The device can be commissioned, configured, and monitored conveniently with the free-of-charge PSRmotion configuration software.

Main features

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



PSRmotion

Configuration Software

Sensor-free PSRmotion over-speed safety relay

The safe PSR-MM35 over-speed safety relay monitors speeds without additional sensor technology. Based on the rotary field measurement of the drive, the integrated safety functions STO (Safe Torque Off), SLS (Safely Limited Speed), SSM (Safe Speed Monitor), and SSR (Safe Speed Range) are reliably implemented up to SIL 3 or PL e. At only 12.5 mm, the device has an impressively compact design.

Main features

- Overall width of 12.5 mm
- Safe motion monitoring up to SIL 3/PL e
- Force-guided relay outputs



PSRmotion

Configuration Software

Sensor-free 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

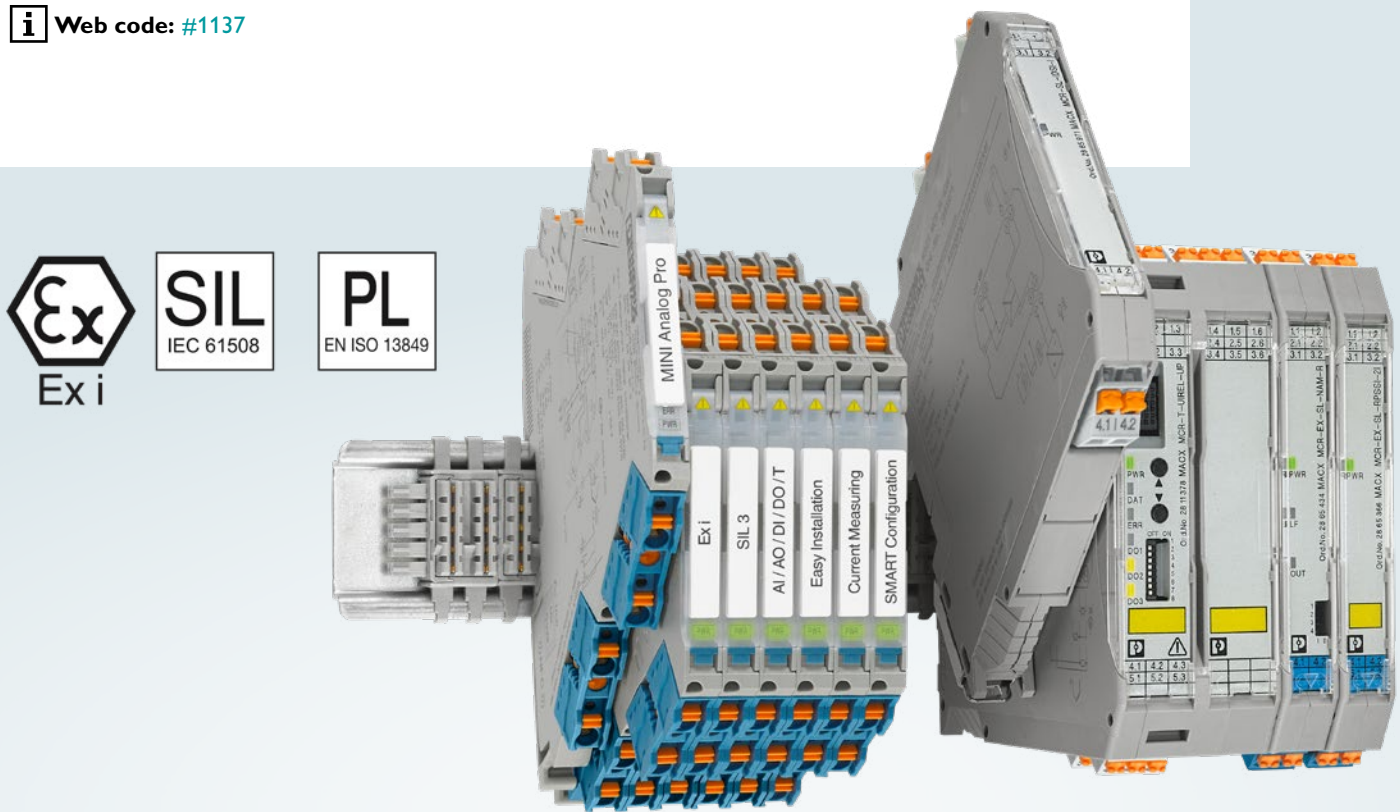
- Overall width of 12.5 mm
- Safe zero-speed monitoring through SIL 3/PL e
- Easy startup via configuration button
- Can be used for machines with or without frequency converters
- Force-guided relay outputs
- Two signal outputs



Safe signal conditioners and measuring transducers

With our signal conditioners and measuring transducers, you can disconnect, convert, filter, and amplify signals and cover any kind of interference-free signal transmission task. Our products, developed consistently for IEC/EN 61508 and PL EN ISO 13849 safety applications, ensure the safety of people, the environment, and the system. In intrinsically safe circuits, our Ex i signal conditioners and measuring transducers provide you with explosion protection in up to all zones and substance groups.

 Web code: #1137



Your advantages

- ✓ Safe and reliable: international Ex approvals and functional safety in accordance with SIL and PL
- ✓ High signal quality with safe electrical isolation and a long service life with low self-heating
- ✓ Overall width of just 12.5 mm for single and two-channel standard functions
- ✓ Easy 24 V power bridging with group error messaging or wide-range input up to 230 V AC/DC
- ✓ Service-friendly connection technology: coded, pluggable terminal blocks

Signal conditioners with functional safety and explosion protection

Functional safety for the process industry and machine building and systems manufacturing

Phoenix Contact implements the requirements of functional safety in accordance with IEC/EN 61508. The MINI Analog Pro Ex i signal conditioners and measuring transducers have a safety integrity level up to SIL 3 1001, the MACX Analog product family up to SIL 2 SC 3 or SIL 3. Selected MACX Analog signal conditioners are also certified in accordance with EN ISO 13849-1 and provide a performance level starting from PL c right up to PL d.

Maximum explosion protection

All signal conditioners and measuring transducers in the MINI Analog Pro and MACX Analog product families are designed for installation in zone 2. Moreover, the Ex i variants are ATEX and IECEx approved. As such, they can be used universally for any Ex zone and all material groups.

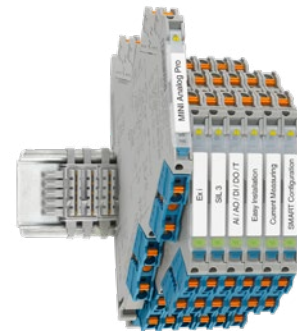


Highly compact MINI Analog Pro signal conditioners and measuring transducers

Simple as ever, slim and safe as never before: The highly compact MINI Analog Pro signal conditioners and measuring transducers combine intrinsically safe explosion protection and functional safety up to SIL 3 1001 in an overall width of just 6.2 mm. In your application, benefit from the particularly user-friendly design and operating concept, the wide range of configuration options, and end-to-end digitalization.

Main features

- Ex i and SIL 3 in a uniquely compact design
- A safe solution up to SIL 3 1001 for every signal type and direction
- Plug-in connection terminal blocks with disconnect function
- User-friendly design and operating concept as well as versatile configuration options
- Pluggable communication gateways and other digital services and features

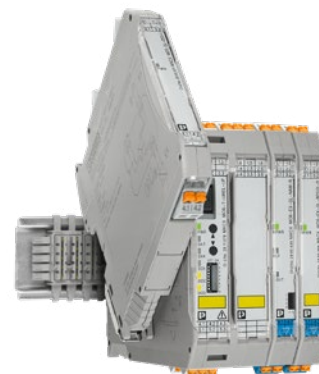


MACX Analog signal conditioners and measuring transducers

The MACX Analog signal conditioners and measuring transducers offer you a comprehensive range of solutions for safe and reliable signal conditioning. The products, developed consistently for IEC/EN 61508 and PL EN ISO 13849 safety applications, ensure the safety of people, the environment, and the system. In intrinsically safe circuits, the Ex i versions provide you with explosion protection in up to all zones and substance groups.

Main features

- Broad international Ex approval package, including mining and marine approvals
- For all safety-related applications through SIL 2 SC 3 or SIL 3
- Versions with Performance Level certification in accordance with EN ISO 13849
- Overall width of just 12.5 mm for single and two-channel products with standard functions
- Flexible supply: modular 24 V power bridging with group error messaging or wide range input up to 230 V AC/DC



Safe motor starters

The safe CONTACTRON hybrid motor starters combine up to four functions in one device: emergency stop, motor start, 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.

The CONTACTRON Speed Starter, with intuitive operation, is the new device class between motor starters and complex frequency converters. This compact solution provides functions for different speeds, soft start, and safe stopping with the Safe Torque Off (STO) function.

i Web code: #0568, #2820



Your advantages

- ✓ Less space required with the narrow design
- ✓ Cost-effective solution for different speeds and soft start
- ✓ Service life up to 10 times longer with CONTACTRON hybrid motor starter technology
- ✓ Adjustable motor protection with bimetal function
- ✓ Safe shutdown with the integrated safety function up to SIL 3 and PL e

Easy, safe, and efficient

Hybrid motor starters: stand-alone

Hybrid motor starter – standard

Switch motors safely and reliably with the compact hybrid motor starters. Use the devices wherever three-phase asynchronous motors from 50 W to 3 kW need to be reversed and protected. Our product range of hybrid motor starters consists of direct and reversing starters that are available with various functions such as emergency stop and motor protection.

Hybrid motor starters – modular

CONTACTRON pro is the new version from the CONTACTRON family, offering simple safety integration and modular extension options. Everything on the basis of hybrid technology – for an increased level of simplicity in functional safety, high system availability, and easy handling.



Hybrid motor starters: network-capable

Integration into fieldbus systems is realized via the interface system connection. Corresponding gateways are available for all common fieldbus systems. Transfer your process data easily and network your devices within the framework of digitalization and Industry 4.0 quickly, both with the interface system (IFS) and also the available IO-Link versions.

Main features

- Up to 32 devices per gateway possible
- The easy-to-assemble solution for networking, communication, data transmission, and 24 V power supply
- Transfer of status messages to the controller, e.g., overload, underload advance warning, symmetry, etc.
- Safe shutdown possible via enable inputs



Speed starters

The CONTACTRON Speed Starters are available in a wide range of versions: performance classes between 0.25 and 1.5 kW, with and without EMC filter, and with 1- or 3-phase mains input. Select the appropriate product for your application.

Main features

- Variable speed
- Ramp function
- Analog input
- Safe Torque Off function
- Intuitive operating concept



Configurable safety systems

With configurable safety systems from Phoenix Contact, you can adapt your safety technology so it is tailored to your needs. Use our high-performance basic modules as a stand-alone solution. Or extend the system flexibly with extension modules including motion and analog value data monitoring. Our configurable safety systems combine functionality and flexibility. At the same time, they close the gap between simple safety relays and programmable safety controllers.

i Web code: #1257



CANopen

EtherCAT

PROFI
NET

PROFI
BUS

CC-Link

DeviceNet

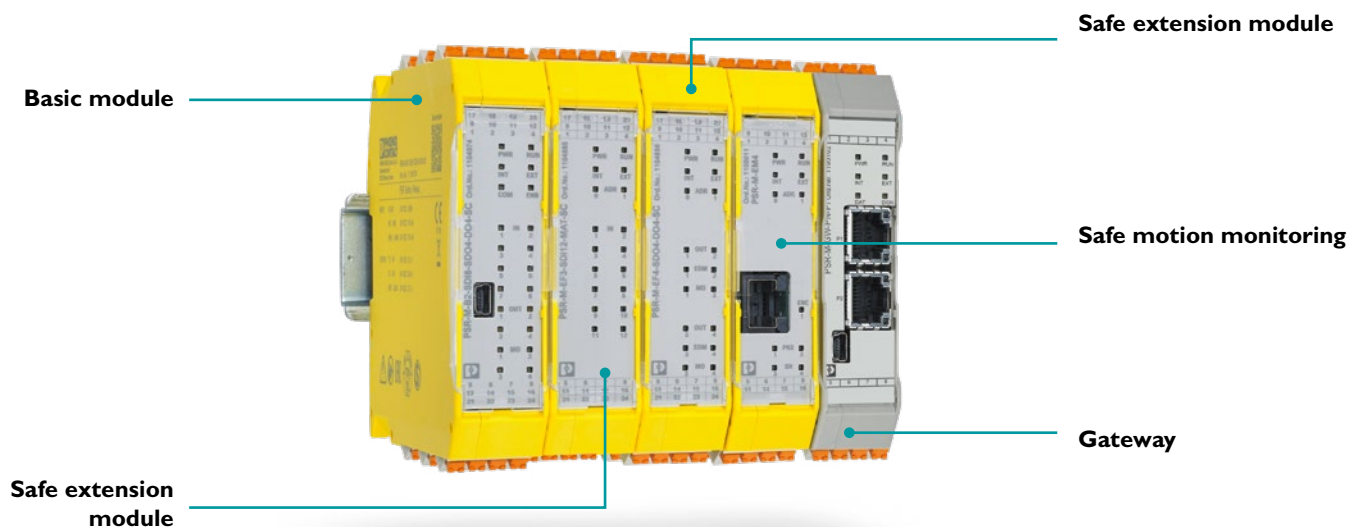
Modbus

EtherNet/IP

Your advantages

- ✓ Cost-effective safety solution with a high level of adaptability to individual requirements
- ✓ Fast startup with easy hardware and software configuration
- ✓ Minimized machine downtimes with comprehensive, easy-to-understand diagnostics

Configurable safety system for your specific application



PSRmodular safety system

PSRmodular is a flexible safety solution for monitoring your machine or system. In addition to monitoring classic safety functions such as emergency stop signals, safety door interlocks, light grids, and safety mats, you can also realize safety functions such as speed, zero-speed, direction of rotation, and safe analog value monitoring.

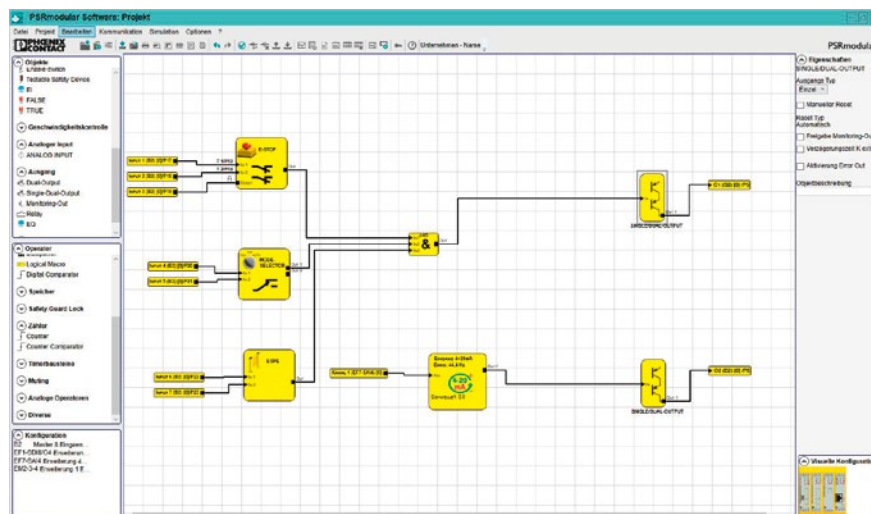
Main features

- Modular extension possible up to 160 I/Os
- Applications up to PL e or SIL 3
- TÜV certified
- Overall width of 22.5 mm
- COMPLETE line standard
- A wide range of extension modules
- XC product versions for use under extreme conditions
- Push-in Technology
- TBUS DIN rail connectors



Comprehensive diagnostic functions that can be configured easily

PSRmodular gives you comprehensive function and diagnostic options and can easily be configured without prior programming knowledge. Use our configuration software comprised of preconfigured and TÜV-certified software blocks. Design your safety system easily by drag and drop. A detailed simulation and a reporting function are available for validation.



PSRmodular
Configuration Software

Safe I/Os

With our I/O systems, integrate functional safety easily and reliably into your favored network, whether in the control cabinet or in the field. Use our safe PROFIsafe I/O modules as normal in combination with your safety controller in a PROFINET or PROFIBUS environment. As an alternative, SafetyBridge Technology enables you to realize simple and network-independent decentral safety solutions, without the need for a safety controller.

i Web code: #1544



Safety over
EtherCAT

SafetyBridge Technology
Designed by Phoenix Contact

EtherCAT

EtherNet/IP

sercos
the automation bus

Modbus

**PROFI
NET**

**PROFI
BUS**

Your advantages

- ✓ Easy integration into all common networks through PROFIsafe or SafetyBridge communication
- ✓ Realization of efficient safety solutions without additional safety controllers due to SafetyBridge Technology
- ✓ Maximum system availability with real-time access to safety-related status and diagnostic information

Safe I/Os for the control cabinet and field installation

Safe I/Os for the control cabinet: Axioline

Axioline F

Axioline F is the I/O system with a block-based modular design. With its particularly short response times, Axioline F is ideal for fast and synchronous processes. The safe SafetyBridge I/O modules provide the ability to realize safe, decentral communications solutions without a safe PLC. In PROFIBUS and PROFINET networks, the PROFIsafe modules are used to acquire and output safety-related signals.

Axioline Smart Elements

Axioline Smart Elements are compact, plug-in, system-independent I/O elements. Combine safe input and output modules, plus non-safe Smart Elements on a single backplane to save a great deal of space. Satisfy the highest safety requirements up to PL e and SIL 3 with our TÜV-certified and PROFIsafe-enabled I/O modules.



Safe I/Os for the control cabinet: Inline

Inline offers not only an especially large selection of function terminals, but also allows you to use a tailor-made number of channels on modules and has a branch terminal to support local bus extension to the field. You can therefore create your own individual I/O solution.

Main features

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



Safe I/Os for field installation

Our safe Axioline E I/O modules are designed for signal processing outside the control cabinet. The extension of the IO-Link technology enables consistent communication from the control level right through to the connection of safety-related sensors and actuators. With IO-Link Safety, you will benefit from the IO-Link advantages you have become accustomed too in the field of functional safety as well, including universal use, data accuracy, and data availability. This enables you to introduce new, manufacturer-independent machine and system concepts.

Main features

- IO-Link Safety master for PROFINET/PROFIsafe communication
- IO-Link Safety device for integrating safe sensors and actuators into IO-Link Safety systems
- Simple connection with the M12 connection technology
- Flexible use with multifunctional ports



Safe control technology

Realize your automation applications up to SIL 3 with our high-performance PROFIsafe controllers. Use our safe extension module for your standard PLCnext Control. Or select our high-performance controller for high demands on safety and availability.

 Web code: #1543



PLCnext Technology 
Designed by Phoenix Contact

Your advantages

- ✓ Integration of PLCnext Technology
- ✓ Standard and safety programming with PLCnext Engineer
- ✓ Realization of the highest safety requirements in accordance with SIL 3 or PL e
- ✓ Connection to Proficloud and use of apps from the PLCnext Store
- ✓ Integration into the modular Axioline system with the PLC extension module

Safe control technology for complex systems

Modular PROFIsafe extension

Take advantage of the individual extension option for the compatible, modular PLCnext Control. With its left-alignable functionality, the PLCnext Control can be extended with a safety-related SPLC for PROFIsafe networks. This transforms the PLC into a fully-fledged safety controller up to SIL 3/PL e that communicates as an F-host via PROFIsafe. At the same time, it can be operated under a superordinate PROFIsafe controller as an F-device.

Main features

- Support of PROFIsafe profile V2.6.1
- PLC extension module for AXC F 2152 and AXC F 3152
- Direct I/O communication
- Integrated PROFIsafe F-Device
- SPLC 1000 safety CPU:
 - 1 x Arm® Cortex®-M4, 180 MHz,
 - 1 x Arm® Cortex®-M4, 100 MHz,
 - 32 F-Devices
- SPLC 3000 safety CPU:
 - 1 x Arm® Cortex®-A9, 800 MHz,
 - 1 x Arm® Cortex®-A8, 600 MHz,
 - 300 F-Devices



Safe PLCnext Control

The first PLCnext Control that combines standard and safety-relevant calculations in one device. As a part of the open PLCnext Technology ecosystem, parallel programming based on established software tools is possible. This enables you to combine, for example, functions in accordance with IEC 61131-3 with routines from C/C++, C#, and MATLAB® Simulink® in any way and to merge them into an overall system. You can connect to Proficloud directly and integrate individual cloud services.

Main features

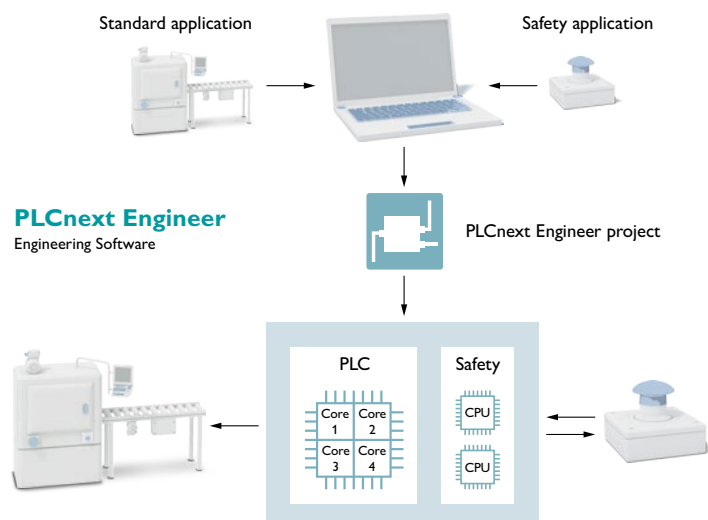
- PROFINET controller and device
- Support of PROFIsafe profile V2.6.1
- Integrated PROFIsafe F-Device
- Safety CPU:
 - 1 x Arm® Cortex®-A9, 800 MHz,
 - 1 x Arm® Cortex®-A8, 600 MHz
- Standard CPU:
 - Intel® Core™ i5-6300U
 - (Dual Core, 2.4 GHz)
- M2M system networking with OPC UA



Safety programming

With PLCnext Engineer, both standard PLC functions and the full range of safety functions can be programmed in just one editor.

The PLC and safety programming are then installed on the PLCnext Control in one project. This automatically unpacks and automates the programs into two parts: the PLC code and the safety code.



Safe power supplies

The high-performance QUINT POWER power supplies ensure superior availability of your system with maximum functionality. QUINT POWER satisfies the requirements in accordance with functional safety (SIL) and ensures maximum operational safety. In parallel operation and connected to different phases, the load is still supplied reliably even when there are problems with the input voltage.

i Web code: #1513



Your advantages

- ✓ Superior system availability, thanks to SFB Technology and preventive function monitoring
- ✓ Safe supply for your application with SIL certification in accordance with IEC 61508 and IEC 61511
- ✓ Fully functional monitoring with redundant system

Power supplies with maximum functionality

QUINT POWER for maximum operational safety

The QUINT POWER Plus version satisfies functional safety requirements (SIL 3, HFT = 1 in accordance with IEC 61508 and IEC 61511). They can therefore be used in safety-related applications.

The TÜV-certified double OVP (overvoltage protection) switches the output off in the event of an error in order to protect the load against overvoltage.

With an integrated decoupling MOSFET, this power supply is suitable for 1+1 and n+1 redundancy and increases system availability.

The protective coating and ATEX, IECEx, and HazLoc approvals enables it to also be used within potentially explosive areas.

The solution is completed an approved temperature range of -40°C to +75°C.

Main features

- Strongest output side with static boost, dynamic boost, and SFB Technology
- Exceptionally robust input side with integrated gas discharge tube
- Comprehensive signaling with analog, digital, and relay contact
- 1+1- and n+1 redundancy with integrated decoupling MOSFET
- Double OVP with SIL 3 certification in accordance with IEC 61508 and IEC 61511
- Protective coating and ATEX/IECEx approval
- UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location)
- Wide temperature range of -40°C to +75°C



Redundant system for functional safety

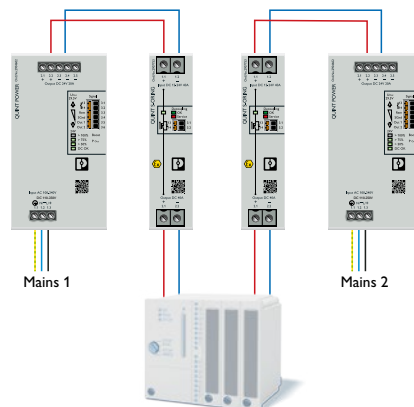
Phoenix Contact gives you two options for designing a safe, redundant power supply system. In both cases, the functional safety requirements are satisfied with a safety integrity level of SIL 3. As such, it is suitable for safety-related applications.

Whether in parallel operation or when connected to different phases, the load is reliably supplied even despite problems with the input voltage. In order to detect errors at an early stage and thus increase system availability, both systems also feature complete, preventive function monitoring.

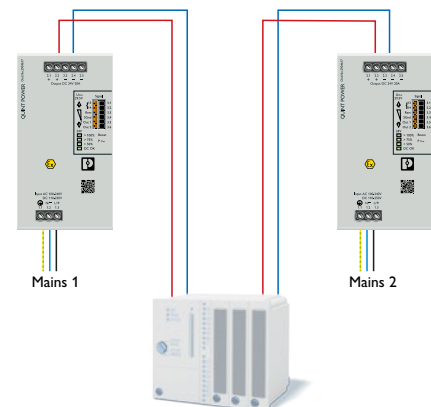
In addition to symmetrical load distribution, the 1+1 redundant power supply system comprising QUINT POWER 20 A and QUINT POWER Single ORING also provides separate cable routing right through to the consumer.

The QUINT POWER Plus version with integrated decoupling MOSFET for 1+1 and n+1 redundancy does not require an additional redundancy module, saving space and installation costs in the control cabinet.

The Plus version is available in 10 A, 20 A, and 40 A versions.



Safe power supply system with QUINT POWER Single ORING



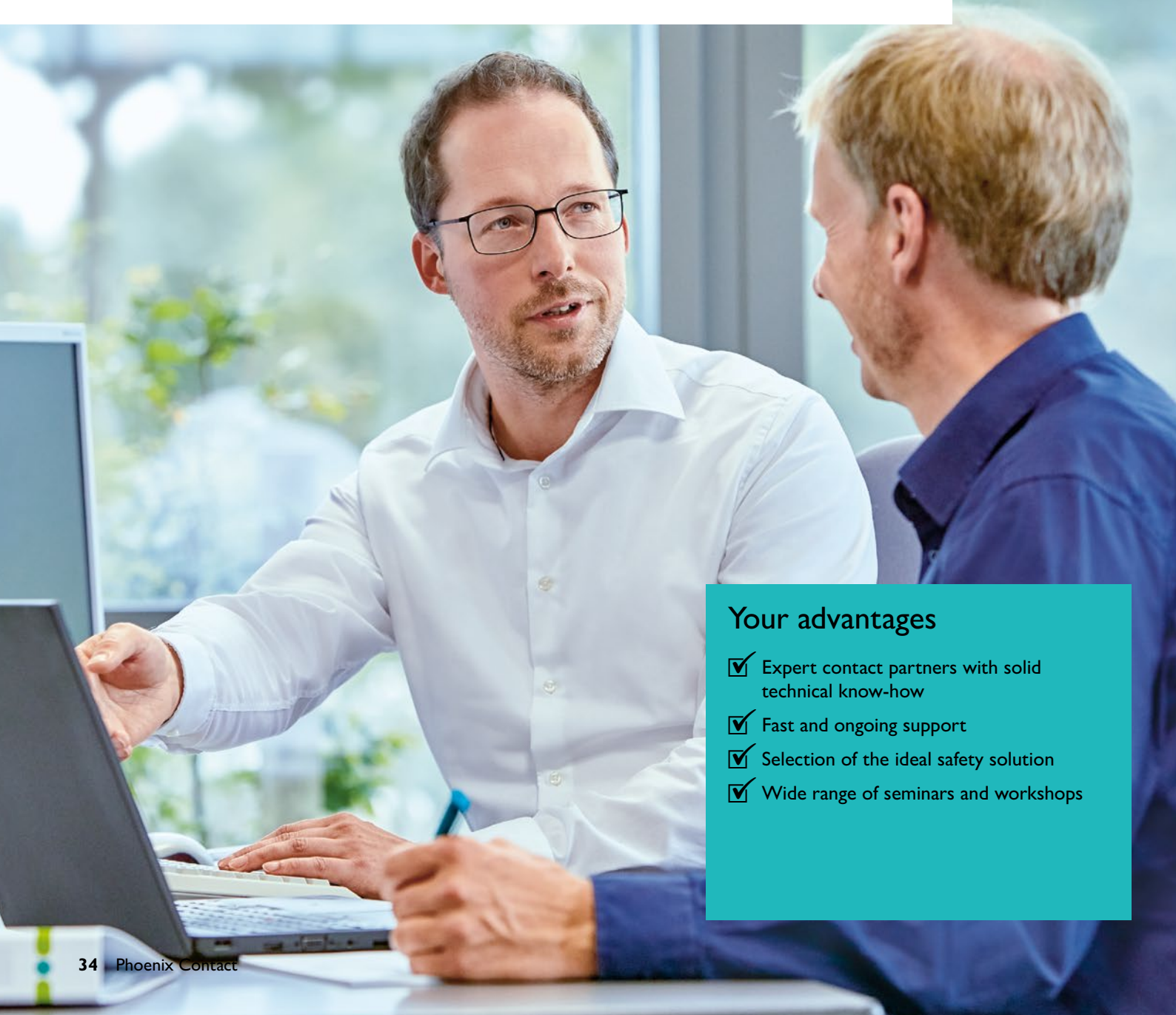
Safe power supply with integrated decoupling MOSFET

Services and support

With our flexible range of services, we support you in all aspects of functional safety. 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 as you create the verification documentation.

 Web code: #1075



Your advantages

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

Range of services for machine and system safety



Consulting

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

- Design of the safety lifecycle: standards and their implementation
- Machinery Directive
- Retrofitting machines and systems
- Interlinking machinery



Engineering

To assess safety integrity, we determine the PL or SIL of the safety functions with the help of your technical documentation. This must be sufficiently robust to withstand random errors. In the case of Machinery Directive requirements, we implement the entire safety lifecycle process, from the risk assessment all the way through to the operating instructions.



Product support

We give you support if you have any questions on the safety hardware and software from Phoenix Contact. You can contact our support team about anything, from preliminary technical clarifications, through planning and implementation, right through to full operation.

Seminars

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

Safety application software:

- Requirements on safety-related software
- Specification of safety requirements and software
- Implementation of safety functions
- Development of function blocks

Functional safety in the process industry in accordance with EN 61511:

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

Safety requirements 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 international, harmonized procedure is described in IEC 61511.


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



Product overview

Legend for applications, outputs, and safety approvals

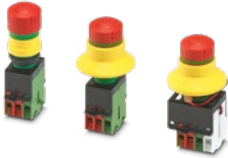



| | | | | | | | | | |
|---|--------------------------------|---|----------------------------|---|--------------------|--|---------------------------------|---|-----------------------------------|
|  | Emergency stop |  | Transponder switch |  | Safety door switch |  | Operating modes selector switch |  | Enabling current path/N/O contact |
|  | Safety door switch, mechanical |  | Start/restart |  | Two-hand function |  | Contactor control |  | N/C contact |
|  | Light grid |  | Initiators |  | Muting |  | Encoder |  | Changeover contact |
|  | Solenoid switch |  | Extended temperature range |  | Enable switch |  | Sensor-free motor monitoring |  | Off-delayed contact |
|  | Safety shut-off mats | | | | | | | | |

| PSRswitch: non-contact safety switches | | | | | |
|---|---------------|---|-----------------------|--------------------|----------------|
| Type | Description | Coding type/function | Connection technology | | |
|  | | | Screw connection | Push-in 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 additional 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 additional 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. It is not necessary to teach them in during commissioning. | — | — | 2702975 |
| PSR-CT-C-ACT | Actuator | Coded, suitable for all sensor coding types | — | — | 2702973 |
| PSR-MC42 | Safety relay | With integrated IO-Link interface | 2702901 | 2702902 | — |
| PSR-CT-GWY | Gateway | Acquisition of non-safe state and diagnostic data from PSR-CT safety switches and the forwarding of data packets to an IO-Link master. | — | 1106407 | — |
| SAC-8PY-M/2XF BK 1-PSR | Y distributor | Type 1 for the series connection of PSR-CT safety switches | — | — | 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 the signal contact with PSR-CT safety switches | — | — | 1054341 |
| SAC-5P-M12MS BK BR 1-2-4 | Bridge plug | Dummy plug for every sensor circuit | — | — | 1054366 |


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

 **Web code:** #1975














Modular emergency stop system

| Actuator | Applications | | | | Safety approvals | Degree of protection | Item no. |
|---|---|---|----------------------------|----------|--|----------------------|-------------------------|
|  | Foolproof | Anti-lock collars | Status indicator | Lighting | In conjunction with suitable evaluation device | | |
| PSR-ESS-M0-H100 | ● | – | ● | – | – | IP65 / IP67 / IP69K | 1221758 |
| PSR-ESS-M0-H110 | ● | ● | ● | – | – | IP65 / IP67 / IP69K | 1221757 |
| PSR-ESS-M0-H120 | ● | ● | ● | ● | – | IP65 / IP67 / IP69K | 1221753 |
| Contact modules and accessories | Applications | | | | Safety approvals | Degree of protection | Item no. |
|  |  |  | Number of positive openers | Lighting | In conjunction with suitable evaluation device | | |
| PSR-ESS-ACC-CB1-NC-SC | – | ● | 1 | – | PL e | IP20 | 1221752 |
| PSR-ESS-ACC-CB1-NC-EF-SC | – | ● | 1 | – | PL e | IP20 | 1396559 |
| PSR-ESS-ACC-CB1-NO-SC | ● | – | – | – | – | IP20 | 1221751 |
| PSR-ESS-ACC-CB1-SM-SC | ● | ● | 1 | – | – | IP20 | 1221749 |
| PSR-ESS-ACC-CB1-I-SC | – | – | – | ● | – | IP20 | 1221748 |
| PSR-ESS-ACC-CB1-C3 | – | – | – | – | – | IP20 | 1221747 |
| PSR-ESS-ACC-CB1-C5 | – | – | – | – | – | IP20 | 1221745 |

Preconfigured emergency stop switches

| Type | Applications | | | | | Safety approvals | Degree of protection | Item no. |
|--|--------------|----------------------------|------------|------------------|----------|--|----------------------|-------------------------|
|  | Foolproof | Number of positive openers | Connection | Status indicator | Lighting | In conjunction with suitable evaluation device | | |
| PSR-ESS-M0-H200-2000-C | ● | 2 | FT | ● | – | PL e | IP65 / IP67 | 1221740 |
| PSR-ESS-M0-H220-2001-C | ● | 2 | FT | ● | ● | PL e | IP65 / IP67 | 1221739 |
| PSR-ESS-M0-H210-2000-A | ● | 2 | M12 | ● | – | PL e | IP65 / IP67 | 1221737 |
| PSR-ESS-M2-H110-2000-A | ● | 2 | M12 | ● | – | PL e | IP65 | 1221735 |

Product overview

| PSRmini: highly compact safety relays for machine building | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|--|---|--------------------------------------|-------------------------------------|----------------|-----------------------|--------------------|---|
| Type | Applications | | | | | | | | Output contacts | | | | Safety approvals | | Over-all width | Connection technology | | |
|  |  |  |  |  |  |  |  |  |  |  |  |  | PL in accordance with EN ISO 13849-1 | SIL in accordance with EN IEC 62061 | In mm | Screw connection | Push-in connection | |
| 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-MC31 24 V DC | ● | ● | ● | ● | – | ● | ● | A/M | 2 (pnp) | – | – | 1 | e | 3 | 12.5 | 1015520 | 1015503 | |
| PSR-MC32 24 ... 230 V DC | ● | ● | ● | ● | – | ● ¹⁰⁾ | – | A/M | 3 | – | 1 | – | e | 3 | 22.5 | 2700524 | 2700525 | |





¹⁾ Single-channel sensor circuit ²⁾ Antivalent sensor circuit ³⁾ Without cross-circuit detection ⁴⁾ Up to PL e/SIL 3 possible depending on the application

⁵⁾ EN-81 approval ⁶⁾ In conjunction with suitable evaluation device ⁷⁾ Non-delayed contacts: Cat. 4/PL e, SIL 3, off-delayed contacts: Cat. 3/PL d, SIL 2

⁸⁾ Type IIIA in accordance EN ISO 13851 ⁹⁾ Type IIIC in accordance with EN ISO 13851 ¹⁰⁾ Also compatible with PSRswitch ¹¹⁾ IO-Link device ¹²⁾ Safety relay for CONTACTRON pro

A = autostart, M = manual, monitored start

PSRmini: highly compact safety relays for machine building

| Type | Applications | | | | | | | | Output contacts | | | | Safety approvals | | Over- all width | Connection technology | |
|--|---|---|---|---|---|---|---|---|---|---|---|--|---|--|-----------------------|--------------------------|--------------------|
|  |  |  |  |  |  |  |  |  |  |  |  |  | PL in accordance with EN ISO 13849-1 | SIL in accordance with EN IEC 62061 | In mm | Screw connection | Push-in connection |
| PSR-MC34 24 V DC | ● | ● | – | ● | – | ● | – | A/M | 3 | – | – | 1 | e | 3 | 12.5 | 2700540 | 2700548 |
| PSR-MC35- Exi 24 V DC | ● | ● | – | ● | – | – | – | A/M | 2 | – | – | 1 | e | 3 | 17.5 | 1332276 | 1332281 |
| PSR-MC37 ⁵⁾ 24 V DC | ● | ● | – | ● | – | – | – | A | 3 | – | 1 | 1 | e | 3 | 22.5 | 2702411 | 2702412 |
| PSR-MC38 ¹²⁾ 24 V DC | ● | ● | ● | ● | – | ● ¹⁰⁾ | – | A/M | 2 | – | – | 1 | e | 3 | 22.5 | 1009831 | 1009832 |
| PSR-MC40 ³⁾ 24 V DC | ● | ● | ● | ● | – | ● ¹⁰⁾ | – | A/M | 3 | – | – | 1 | e | 3 | 12.5 | 2700569 | 2700570 |
| PSR-MC42 ¹¹⁾ 24 V DC | ● | ● | ● | ● | – | ● ¹⁰⁾ | – | A/M | 2 | – | – | 1 | e | 3 | 17.5 | 2702801 | 2702902 |
| PSR-MC43 ¹¹⁾ 24 V DC | ● | ● | ● | ● | – | ● ¹⁰⁾ | – | A/M | 2 (pnp) | – | – | 1 | e | 3 | 17.5 | 1087561 | 1087569 |
| PSR-MC45 24 V DC | ● | ● | ● | ● | – | ● | – | A/M | 3 | – | – | 1 | e | 3 | 22.5 | 1082024 | 1082029 |
| PSR-MC50 ²⁾ 24 V DC | ● | ● | – | ● | – | – | – | A/M | 3 | – | – | 1 | e | 3 | 12.5 | 2700553 | 2700564 |
| 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-MC73 24 V DC | ● | ● | ● | ● | – | ● ¹⁰⁾ | – | A/M | 3 | 2 | – | 1 | e | 2 | 22.5 | 1015533 | 1015526 |
| PSR-MC82 24 V DC | Contact extension | | | | | | – | – | 5 | – | 1 | 1 | e ⁶⁾ | 3 ⁶⁾ | 17.5 | 2702382 | 2702383 |

¹⁾ Single-channel sensor circuit ²⁾ Antivalent sensor circuit ³⁾ Without cross-circuit detection ⁴⁾ Up to PL e/SIL 3 possible depending on the application













⁵⁾ EN-81 approval ⁶⁾ In conjunction with suitable evaluation device ⁷⁾ Non-delayed contacts: Cat. 4/PL e, SIL 3, off-delayed contacts: Cat. 3/PL d, SIL 2

⁸⁾ Type IIIA in accordance with EN 574 ⁹⁾ Type IIIC in accordance with EN 574 ¹⁰⁾ Also compatible with PSRswitch ¹¹⁾ IO-Link device ¹²⁾ Safety relay for

CONTACTRON pro

A = autostart, M = manual, monitored start

Product overview













| PSRclassic: conventional safety relays for machine building | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|--|-------------------------|-------------------------|
| Type | Applications | | | | | | | Output contacts | | | | Safety approvals | | Connection technology | |
|  |  |  |  |  |  |  |  |  |  |  |  | PL in accordance with EN ISO 13849-1 | SIL in accordance with EN IEC 62061 | Screw connection | Push-in connection |
| PSR-ESA2-B 24 V 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 DC | ● | ● | – | – | – | – | A/M | 2 | – | 1 | – | e | 3 | 2900525 | 2900526 |
| PSR-ESAM4/8X1 24 V 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-ESL4 ¹⁾ 24 V 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 DC | Contact extension | | | | | | | 5 | – | 2 | – | e ³⁾ | 3 ³⁾ | 1442021 | 1442026 |
| PSR-URM4-B 24 V DC | Contact extension | | | | | | | 5 | – | 2 | – | e ³⁾ | 3 ³⁾ | 1442344 | 1442342 |

¹⁾ Without cross-circuit detection ²⁾ Up to PL e/SIL 3 possible depending on the application ³⁾ In conjunction with suitable evaluation device

⁴⁾ Non-delayed contacts: Cat. 4/PL e, SIL 3, off-delayed contacts: Cat. 3/PL d, SIL 2 ⁵⁾ Type IIIC in accordance with EN 574





A = autostart, M = manual, monitored start

Modular safety relay system

| Type | Applications | | | | | | | Output contacts | | | | Safety approvals | | Connection technology | |
|--|---|---|---|---|---|---|---|---|---|--|---|---|--|-------------------------|-------------------------|
|  |  |  |  |  |  |  |  |  |  |  |  | PL in accordance with EN ISO 13849-1 | SIL in accordance with EN IEC 62061 | Screw connection | Push-in connection |
| 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⁾ | – | e | 3 | 2981732 | 2981745 |
| PSR-URD3/30 24 V DC | Contact extension | | | | | | | – | 4 | 2 ¹⁾ | – | e | 3 | 2981512 | 2981525 |
| PSR-SIM4 | IP20 input extension – interface module for up to four safety sensors | | | | | | | | | | | | | 2981936 | 2981949 |





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

Product overview

| PSRmini: highly compact, safe coupling relays for the process industry | | | | | | | | | | | | | | | | |
|---|--|---|---|---|----------------------------|---|------------------------------|--------------------------------------|---|-------------------------------------|----------------------------------|--|-----|-----------------------|--------------------------|-------------------------|
| Type | Applications | Output contacts | | | Diagnostics/ proof test | | | | Safety approvals | | | | | Over- all width | Connection technology | |
|  | Highly compact, safe coupling relays for failsafe controllers: |  |  |  | Visual via LED | Active error feedback via A1 ²⁾ | 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 | DNV | In mm | Screw connection | Push-in connection |
| PSR-PS20 24 V DC | For safety-related switch off (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-PS23 24 V DC | | 1 | 1 | – | ● | – | ● | – | 3 | 3 | ● | ● | ● | 6.8 | 2702663 | – |
| PSR-PS40 24 V DC | | 1 | – | 1 | ● | – | – | ● | 3 | 3 | ● | ● | ● | 6.8 | 2700398 | – |
| PSR-PC20 24 V DC | | 1 | 1 | 1 | ● | ● | ● | – | 3 | 3 | ● | ● | ● | 12.5 | 2700577 | 2700578 |
| PSR-PC21 24 V DC | | 2 | 2 | – | ● | – | ● | – | 3 | – | ● | ● | – | 12.5 | 1086945 | 1086946 |
| 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-related Switch on (F&G) | 1 | – | 1 | – | ● | ● | – | 3 ¹⁾ | – | ● | – | ● | 17.5 | 2904664 | 2904665 |
| PSR-PC51 24 V DC | | 1 | 1 | – | – | ● | ● | – | 3 | 3 | ● | ● | ● | 17.5 | 2702522 | 2702523 |
| PSR-PC52 24 V DC | | 1 | 1 | – | – | ● | ● | – | 3 | 3 | ● | ● | ● | 17.5 | 1017062 | 1017064 |





¹⁾ Low demand mode ²⁾ With suitable controller

PSRclassic: conventional safe coupling relays for the process industry









| Type | Applications | Output contacts | | | Diagnostics/ proof test | | | | Safety approvals | | | | Over- all width | Connection technology | | |
|--|--|---|---|---|----------------------------|---------------------------------|------------------------------|--------------------------------------|---|-------------------------------------|----------------------------------|--|-----------------------|--------------------------|------------------|--------------------|
|  | Classic, safe coupling relays for failsafe controllers: |  |  |  | Visual via LED | Active error feedback 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 | DNV | In mm | Screw connection | Push-in connection |
| PSR-FSP 24 V DC | For safety-related switch off (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⁾ Up to PL e/SIL 3 possible depending on the application


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 | SIL in accordance with EN IEC 62061 | | Screw connection | Spring-cage connection | Screw connection, fixed | Push-in connection |
| 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 |
| PSR-PLC21 | | – | – | 2 | c | 2 | 24 V DC | – | – | 1480226 | 1480212 |

Product overview

| PSRmotion: zero-speed and over-speed safety relays | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|--|--------------------------------------|-------------------------------------|-----------------------|--------------------|
| Type | Applications | | | | | Output contacts | | Safety approvals | | | Connection technology | |
|  |  |  |  |  |  |  |  | Category in accordance with EN ISO 13849-1 | PL in accordance with EN ISO 13849-1 | SIL in accordance with EN IEC 62061 | Screw connection | Push-in connection |
| PSR-MM25 24 V DC | ● | – | – | ● | – | 1 | 2 | 3 | e | 3 | 2702355 | 2702356 |
| PSR-MM30 24 V DC | – | ● | ● | ● | ● | 2 | 2 | 4 | e | 3 | 2702357 | 2702358 |
| PSR-MM35 24 V DC | ● | – | – | – | ● | 1 | 1 | 4 | e | 3 | 1249515 | 1249516 |


| PSRmotion: configuration software | | |
|-----------------------------------|---|----------|
| Type | Applications | Item no. |
| PSRmotion | Free configuration software for PSRmotion PSR-MM30 over-speed and zero-speed safety relay and PSR-MM35 sensor-free over-speed safety relay. Download at phoenixcontact.com | – |

| MACX Analog: safe signal conditioners | | | | | | | |
|---|------------------|---|----------------------------------|--------------------------------------|--------------------------------------|---------|---------|
| Type | Signal direction | Product description | Functional safety | | Item no. | | |
|  | | | SIL in accordance with IEC 61508 | PL in accordance with EN ISO 13849-1 | Ex i in accordance with IEC 60079-11 | No Ex i | |
| MACX MCR-SL-I-I-ILP | AI | Input-loop-powered 2-way isolator | 3 | – | – | | 2905279 |
| MACX MCR-SL-2I-2I-ILP | AI | Input-loop-powered 2-way isolator, two-channel | 3 | – | – | | 2905281 |
| MACX MCR-SL-I-I-HV-ILP | AI | Input-loop-powered 2-way isolator with increased isolating voltage | 3 | – | – | | 2907705 |
| MACX MCR-SL-2I-2I-HV-ILP | AI | Input-loop-powered 2-way isolator with increased isolating voltage, two-channel | 3 | – | – | | 2907707 |
| MACX MCR(-EX)-SL-UI-REL | AI | Limit value switch, configurable | 2 (SC3) | c | 2906165 | | 2906170 |

The item numbers refer to the Push-in versions without pre-configuration.

Other versions of the MACX Analog product family can be found on our website or in the "Signal conditioning and explosion protection" Selection Guide.


MACX Analog: safe signal conditioners

| Type | Signal direction | Product description | Functional safety | | Item no. | |
|---|------------------|---|----------------------------------|--------------------------------------|--------------------------------------|---------|
|  | | | SIL in accordance with IEC 61508 | PL in accordance with EN ISO 13849-1 | Ex i in accordance with IEC 60079-11 | No Ex i |
| MACX MCR Analog | | | | | | |
| MACX MCR(-EX)-SL-RPSSI-I | AI | Repeater power supply and input signal conditioner | 2 (SC3) | – | 2924016 | 2924207 |
| MACX MCR(-EX)-SL-RPSS-2I-2I | AI | Repeater power supply, two-channel | 3 | d | 2924676 | 2904090 |
| MACX MCR(-EX)-SL-RPSSI-2I | AI | Repeater power supply and input signal conditioner, signal duplicator | 2 (SC3) | d | 2924236 | 2924838 |
| MACX MCR(-EX)-SL-RPSSI-I-UP | AI | Repeater power supply and input signal conditioner with wide-range power supply | 2 (SC3) | d | 2924029 | 2924210 |
| MACX MCR-UI-UI ¹⁾ | AI/AO | Universal signal conditioner | 2 (SC3) | – | – | 2811572 |
| MACX MCR-UI-UI-UP ¹⁾ | AI/AO | Universal signal conditioner with wide-range power supply | 2 (SC3) | – | – | 2811585 |
| MACX MCR(-EX)-IDS-I-I | AO | Output signal conditioners | 2 (SC3) | – | 2908062 | 2908064 |
| MACX MCR(-EX)-IDS-2I-2I | AO | Output signal conditioner, two-channel | 2 (SC3) | – | 2904931 | 2908066 |
| MACX MCR(-EX)-SL-NAM-R | DI | NAMUR signal conditioner, relay output (changeover contact) | 2 (SC3) | – | 2924045 | 2924252 |
| MACX MCR(-EX)-SL-NAM-2RO | DI | NAMUR signal conditioner, signal duplicator with relay output | 2 (SC3) | – | 2924061 | 2924265 |
| MACX MCR(-EX)-SL-2NAM-RO | DI | NAMUR signal conditioner, two-channel, relay output (N/O contact) | 2 (SC3) | – | 2924087 | 2924294 |
| MACX MCR(-EX)-SL-2NAM-R-UP | DI | NAMUR signal conditioner, two-channel, wide-range power supply, relay output (changeover contact) | 2 (SC3) | – | 2924249 | 2924304 |
| MACX MCR(-EX)-SL-NAM-2T | DI | NAMUR signal conditioner, signal duplicator with transistor output | 2 (SC3) | – | 2924074 | 2924278 |
| MACX MCR(-EX)-SL-2NAM-T | DI | NAMUR signal conditioner, two-channel with transistor output | 2 (SC3) | – | 2924090 | 2924281 |
| MACX MCR(-EX)-SL-NAM-NAM | DI | NAMUR signal conditioner, NAMUR output | 2 (SC3) | – | 2924883 | – |
| MACX MCR-EX-SL-SD-21-25-LP | DO | Solenoid driver, current limitation 25 mA, loop-powered | 3 | – | 2924113 | – |
| MACX MCR-EX-SL-SD-21-40-LP | DO | Solenoid driver, current limitation 40 mA, loop-powered | 3 | – | 2924139 | – |
| MACX MCR-EX-SL-SD-24-48-LP | DO | Solenoid driver, current limitation 48 mA, loop-powered | 3 | – | 2924126 | – |
| MACX MCR-EX-SL-SD-21-60-LP | DO | Solenoid driver, current limitation 58 mA, loop-powered | 3 | – | 2924100 | – |
| MACX MCR-EX-SL-SD-21-25-LFD | DO | Solenoid driver, current limitation 25 mA, line fault detection | 3 | – | 2905674 | – |
| MACX MCR-EX-SL-SD-23-48-LFD | DO | Solenoid driver, current limitation 48 mA, line fault detection | 3 | – | 2924867 | – |
| MACX MCR-EX-SL-SD-24-48-LFD | DO | Solenoid driver, current limitation 48 mA, line fault detection | 3 | – | 2906156 | – |

The item numbers refer to the Push-in versions without pre-configuration.

¹⁾ Other versions of the MACX Analog product family can be found on our website or in the “Signal conditioning and explosion protection” Selection Guide.


Product overview

| MACX Analog: safe signal conditioners | | | | | | |
|---|------------------|--|----------------------------------|--------------------------------------|--------------------------------------|---------|
| Type | Signal direction | Product description | Functional safety | | Item no. | |
|  | | | SIL in accordance with IEC 61508 | PL in accordance with EN ISO 13849-1 | Ex i in accordance with IEC 60079-11 | No Ex i |
| MACX MCR(-EX)-RTD-I ¹⁾ | Temp IN | Temperature measuring transducer, resistance thermometer | 2 | – | 1050252 | 1050201 |
| MACX MCR(-EX)-TC-I ¹⁾ | Temp IN | Temperature measuring transducer, thermocouple | 2 | – | 1050233 | 1050228 |
| MACX MCR(-EX)-T-UI-UP ¹⁾ | Temp IN | Temperature measuring transducer, universal, with analog output and 1 limit value relay, with wide-range power supply | 2 | d | 2924689 | 2811860 |
| MACX MCR(-EX)-T-UIREL-UP ¹⁾ | Temp IN | Temperature measuring transducer, universal, with analog output and 3 limit value relays, with wide-range power supply | 2 | d | 2924799 | 2811828 |
| MACX MCR-EX-AP-RPSS-I-I | AI | Supply and input signal conditioner, feeds 2 or 3-conductor measuring transducers | 3 | – | 1291191 | – |
| MACX MCR-EX-AP-2REL-2DI-LP | DI | Relay module for intrinsically safe control of Ex i field circuits | 2 | – | 1292331 | – |
| MACX MCR-EX-AP-IDS-2I-2I-LP | AO | Output isolating transformer, loop-powered | 3 | – | 1291963 | – |
| MACX MCR-EX-AP-2SD-25-35-LP | DO | Solenoid driver, two-channel, current limitation 35 mA, loop-powered | 3 | – | 1291176 | – |
| MACX MCR-EX-AP-RPSS-I-IR | AI | Supply and input signal conditioner with 2 limit value relays, feeds 2- or 3-conductor measuring transducers | 2 | – | 1290774 | – |
| MINI Analog Pro Ex i | | | | | | |
| MINI MCR-EX-SD-16-50-LP | DO | Solenoid driver, current limitation 50 mA, loop-powered | 3 | – | 1157869 | – |
| MINI MCR-EX-SD-20-25-LP | DO | Solenoid driver, current limitation 25 mA, loop-powered | 3 | – | 1157867 | – |
| MINI MCR-EX-SD-21-48-LP | DO | Solenoid driver, current limitation 48 mA, loop-powered | 3 | – | 2908810 | – |
| MINI MCR-EX-SD-23-38-LP | DO | Solenoid driver, current limitation 38 mA, loop-powered | 3 | – | 1277111 | – |
| MINI MCR-EX-SD-21-48-LFD | DO | Solenoid driver, current limitation 48 mA, line fault detection | 3 | – | 1175877 | – |
| MINI MCR-EX-SD-20-25-LFD | DO | Solenoid driver, current limitation 25 mA, line fault detection | 3 | – | 1175891 | – |
| MINI MCR-EX-SD-16-50-LFD | DO | Solenoid driver, current limitation 50 mA, line fault detection | 3 | – | 1175902 | – |
| MINI MCR-EX-SD-23-38-LFD | DO | Solenoid driver, current limitation 38 mA, line fault detection | 3 | – | 1277116 | – |
| MINI MCR-EX-NAM-T | DI | NAMUR signal conditioner with transistor output | 3 | – | 2908807 | – |
| MINI MCR-EX-NAM-2T | DI | NAMUR signal conditioner, signal duplicator with transistor output | 3 | – | 1157852 | – |
| MINI MCR-EX-NAM-RO | DI | NAMUR signal conditioners with solid state relay output | 3 | – | 1157862 | – |
| MINI MCR-EX-RPSS-I-I | AI | Repeater power supplies | 3 | – | 2908803 | – |
| MINI MCR-EX-IDS-I-I | AO | Output signal conditioners | 3 | – | 2908805 | – |
| MINI MCR-EX-T-I | Temp IN | Temperature measuring transducer, universal, with analog output | 2 (SC3) | – | 2908813 | – |


The item numbers refer to the Push-in versions without pre-configuration.

¹⁾ Other versions of the MACX Analog product family can be found on our website or in the “Signal conditioning and explosion protection” Selection Guide.

CONTACTRON: safe motor starters


| Type | Functions | | | | | | | | | | | | | | | Maximum load current | | | | Connection technology | |
|--|----------------|-------------------|------------------|----------------|---------|------------------|---------------------|---------------------|--------------------|---------------------|---------------------|----------------------|--|--------------------------------------|----------------------------------|----------------------|-------|-----|-----|-----------------------|--------------------|
|  | Direct starter | Reversing starter | Motor protection | Emergency stop | Modular | Can be networked | Cannot be networked | Short-circuit-proof | >1 cm busbar width | Classic adapter set | Compact adapter set | DIN rail adapter set | Category in accordance with EN ISO 13849-1 | PL in accordance with EN ISO 13849-1 | SIL in accordance with IEC 61508 | 0.6 A | 2.4 A | 3 A | 9 A | Screw connection | Push-in connection |
| | 24 V DC | 24 V DC | 24 V DC | 24 V DC | | | | | | | | | | | | | | | | | |
| ELR H3-IES | ● | – | ● | ● | – | ● | – | – | – | – | – | – | 3 | e | 3 | ● | – | – | – | 2905154 | 2905141 |
| ELR H5-IES | ● | ● | ● | ● | – | ● | – | – | – | – | – | – | 3 | e | 3 | ● | – | – | – | 2905151 | 2905138 |
| ELR H3-IES | ● | – | ● | ● | – | ● | – | – | – | – | – | – | 3 | e | 3 | – | – | ● | – | 2905155 | 2905142 |
| ELR H5-IES | ● | ● | ● | ● | – | ● | – | – | – | – | – | – | 3 | e | 3 | – | – | ● | – | 2905152 | 2905139 |
| ELR H3-IES | ● | – | ● | ● | – | ● | – | – | – | – | – | – | 3 | e | 3 | – | – | – | ● | 2905156 | 2905143 |
| ELR H5-IES | ● | ● | ● | ● | – | ● | – | – | – | – | – | – | 3 | e | 3 | – | – | – | ● | 2905153 | 2905140 |
| ELR H3-IS | ● | – | ● | ● | ● | – | ● | – | – | – | – | – | 3 | e | 3 | – | – | ● | – | 2908700 | 2909570 |
| ELR H5-IS | ● | ● | ● | ● | ● | – | ● | – | – | – | – | – | 3 | e | 3 | – | – | ● | – | 2908699 | 2909569 |
| ELR H3-IS | ● | – | ● | ● | ● | – | ● | – | – | – | – | – | 3 | e | 3 | – | – | – | ● | 2908698 | 2909568 |
| ELR H5-IS | ● | ● | ● | ● | ● | – | ● | – | – | – | – | – | 3 | e | 3 | – | – | – | ● | 2908697 | 2909567 |
| ELR H3-IES | ● | – | ● | ● | – | – | ● | – | – | – | – | – | 3 | e | 3 | ● | – | – | – | 2900566 | 2903914 |
| ELR H5-IES | ● | ● | ● | ● | – | – | ● | – | – | – | – | – | 3 | e | 3 | ● | – | – | – | 2900582 | 2903902 |
| ELR H3-IES | ● | – | ● | ● | – | – | ● | – | – | – | – | – | 3 | e | 3 | – | ● | – | – | 2900567 | 2903916 |
| ELR H5-IES | ● | ● | ● | ● | – | – | ● | – | – | – | – | – | 3 | e | 3 | – | ● | – | – | 2900414 | 2903904 |
| ELR H3-IES | ● | – | ● | ● | – | – | ● | – | – | – | – | – | 3 | e | 3 | – | – | – | ● | 2900569 | 2903918 |
| ELR H5-IES | ● | ● | ● | ● | – | – | ● | – | – | – | – | – | 3 | e | 3 | – | – | – | ● | 2900421 | 2903906 |
| ELR-H51 | ● | ● | ● | ● | – | – | ● | ● | ● | ● | – | – | 3 | e | 3 | ● | – | – | – | 2904334 | – |
| ELR-H51 | ● | ● | ● | ● | – | – | ● | ● | ● | ● | – | – | 3 | e | 3 | – | ● | – | – | 2904336 | – |
| ELR-H51 | ● | ● | ● | ● | – | – | ● | ● | ● | ● | – | – | 3 | e | 3 | – | – | – | ● | 2904338 | – |
| ELR-H51 | ● | ● | ● | ● | – | – | ● | ● | ● | – | ● | – | 3 | e | 3 | ● | – | – | – | 2904333 | – |
| ELR-H51 | ● | ● | ● | ● | – | – | ● | ● | ● | – | ● | – | 3 | e | 3 | – | ● | – | – | 2904335 | – |
| ELR-H51 | ● | ● | ● | ● | – | – | ● | ● | ● | – | ● | – | 3 | e | 3 | – | – | – | ● | 2904337 | – |
| ELR-H51 | ● | ● | ● | ● | – | – | ● | ● | – | – | – | ● | 3 | e | 3 | ● | – | – | – | 2902952 | – |
| ELR-H51 | ● | ● | ● | ● | – | – | ● | ● | – | – | – | ● | 3 | e | 3 | – | ● | – | – | 2902953 | – |
| ELR-H51 | ● | ● | ● | ● | – | – | ● | ● | – | – | – | ● | 3 | e | 3 | – | – | – | ● | 2902954 | – |

Product overview

| PSRmodular: configurable safety system | | | | | | | | | |
|---|--|---|-------------------------------------|---------------|-----------------|---------------------------------------|--|-----------------------|--------------------|
| Type | Description | Inputs/outputs | | | | Safety approvals | | Connection technology | |
|  | | Inputs/ EDM reset inputs | Outputs | Clock outputs | Signal outputs | PL in accordance with EN ISO 13849 | SIL in accordance with EN IEC 62061/IEC 61508 | Screw connection | Push-in connection |
| Basic modules | | | | | | | | | |
| PSR-M-B1 | Basic module | 8/2 | 2 (pairs) | 4 | 2 | e | 3 | 1104981 | 1104972 |
| PSR-M-B2 | Basic module (with large program memory) | 8/4 ¹⁾ | 2 (pair) or 4 (single) | 4 | 4 ¹⁾ | e | 3 | 1104974 | 1104975 |
| Safe extension modules | | | | | | | | | |
| PSR-M-EF1 | Failsafe extension module | 8/4 ¹⁾ | 2 (pair) or 4 (single) | 4 | 4 ¹⁾ | e | 3 | 1104890 | 1104889 |
| PSR-M-EF2 | Failsafe extension module | 16 | – | 4 | – | e | 3 | 1104888 | 1104887 |
| PSR-M-EF3 | Failsafe extension module for safety shut-off mats | 12 | – | 8 | – | e | 3 | 1104885 | 1104884 |
| PSR-M-EF4 | Failsafe extension module | -/4 | 4 pairs | – | 4 | e | 3 | 1104856 | 1104868 |
| PSR-M-EF5 | Failsafe extension module | -/4 | 2 (pair) or 4 (single), each 2 A | – | 8 | e | 3 | 1104976 | 1104977 |
| PSR-M-EF6 | Failsafe extension module | -/4 | 4 relays | – | – | e | 3 | 1104982 | 1104983 |
| PSR-M-EF7 | Failsafe extension module | 4 analog | – | – | – | e | 3 | 1104985 | 1104986 |
| PSR-M-EF8 | Failsafe extension module | 8/2 | 2 (pairs) | 4 | 2 | e | 3 | 1105522 | 1105523 |
| PSR-M-E1 | Non-safe extension module | – | – | – | 8 | – | – | 1105132 | 1105133 |
| PSR-M-E2 | Non-safe extension module | – | – | – | 16 | – | – | 1105134 | 1105136 |
| PSR-M-TBUS1 | TBUS extension module | 1 connection channel for local bus extension (up to 50 m per segment) | | | | e | 3 | 1105095 | 1105096 |
| PSR-M-TBUS2 | TBUS extension module | 2 connection channels for local bus extension (up to 50 m per segment) | | | | e | 3 | 1105097 | 1105098 |


¹⁾ Configurable

PSRmodular: configurable safety system

| Type | Description | Safety function in accordance with EN 61800-5-2 | | | | Sensor type | | | | Encoder interfaces | Safety approval | | Connection technology | |
|--|--|---|-----|-----|-----|------------------|-----|-----|---------|--------------------|------------------------------------|---|-----------------------|--------------------|
|  | | SOS | SLS | SSR | SDI | Proximity switch | TTL | HTL | Sin/Cos | | PL in accordance with EN ISO 13849 | SIL in accordance with EN IEC 62061/IEC 61508 | Screw connection | Push-in connection |
| Safe motion monitoring | | | | | | | | | | | | | | |
| PSR-M-EM1 | Motion – PROXIMITY extension module | ● | ● | ● | – | ● | – | – | – | – | e | 3 | 1104987 | 1104988 |
| PSR-M-EM2 | Motion – TTL extension module | ● | ● | ● | ● | ● | ● | – | – | 1 | e | 3 | 1104989 | 1104990 |
| PSR-M-EM3 | Motion – HTL extension module | ● | ● | ● | ● | ● | – | ● | – | 1 | e | 3 | 1105009 | 1105010 |
| PSR-M-EM4 | Motion – SINCOS extension module | ● | ● | ● | ● | ● | – | – | ● | 1 | e | 3 | 1105011 | 1105012 |
| PSR-M-EM5 | Motion – TTL extension module | ● | ● | ● | ● | ● | ● | – | – | 2 | e | 3 | 1105014 | 1105015 |
| PSR-M-EM5.1 | Extension module Motion – TTL without voltage monitoring | ● | ● | ● | ● | ● | ● | – | – | 2 | e | 3 | 1300906 | 1300905 |
| PSR-M-EM6 | Motion – HTL extension module | ● | ● | ● | ● | ● | – | ● | – | 2 | e | 3 | 1105016 | 1105017 |
| PSR-M-EM7 | Motion – SINCOS extension module | ● | ● | ● | ● | ● | – | – | ● | 2 | e | 3 | 1105018 | 1105093 |
| Gateways ¹⁾ | | | | | | | | | | | | | | |
| PSR-M-GW-PB | Gateway – PROFIBUS | | | | | | | | | | | | 1105099 | 1105100 |
| PSR-M-GW-PN | Gateway – PROFINET | | | | | | | | | | | | 1105101 | 1105102 |
| PSR-M-GW-DNET | Gateway – DeviceNet™ | | | | | | | | | | | | 1105103 | 1105473 |
| PSR-M-GW-CAN | Gateway – CANopen® | | | | | | | | | | | | 1105104 | 1105105 |
| PSR-M-GW-ETH | Gateway – EtherNet/IP™ | | | | | | | | | | | | 1105106 | 1105107 |
| PSR-M-GW-MODTCP | Gateway – Modbus/TCP | | | | | | | | | | | | 1105108 | 1105127 |
| PSR-M-GW-CCLINK | Gateway – CC-Link | | | | | | | | | | | | 1105128 | 1105129 |
| PSR-M-GW-ECAT | Gateway – EtherCAT® | | | | | | | | | | | | 1105130 | 1105131 |

¹⁾ Configurable

Product overview

| PSRmodular: configurable safety system | | | | | | | | | | | | |
|---|---|-----------------------------|---------------------------|---------------|-----------------|---------------------------------------|--|-------------------------|--|-----|-------------------------------|--------------------|
| Type | Description | Inputs/outputs | | | | Safety approvals | | | | | Connection technology | |
|  | | Inputs/ EDM reset inputs | Outputs | Clock outputs | Signal outputs | PL in accordance with EN ISO 13849 | SIL in accordance with EN IEC 62061/IEC 61508 | ATEX, Class I Zone 2 | G3 in accordance with ANSI/ISA-S71.04 | DNV | Thermal processing systems | Push-in connection |
| Safe motion monitoring | | | | | | | | | | | | |
| PSR-M-B2-XC | Basic module (with large program memory) | 8/4 ¹⁾ | 2 (pair) or 4 (single) | 4 | 2 | e | 3 | In preparation | ● | ● | In preparation | 1337849 |
| PSR-M-B3-XC | Basic module (B2) with integrated gateway function (PROFINET, EtherNet/IP™, Modbus/TCP, EtherCAT®) | 8/4 ¹⁾ | 2 (pair) or 4 (single) | 4 | 4 ¹⁾ | e | 3 | | ● | – | | 1337855 |
| PSR-M-EF1-XC | Failsafe extension module | 8/4 ¹⁾ | 2 (pair) or 4 (single) | 4 | 4 ¹⁾ | e | 3 | | ● | – | | 1337850 |
| PSR-M-EF7-XC | Failsafe extension module | 4 analog | – | – | – | e | 3 | | ● | – | | 1337851 |
| PSR-M-GW-CAN-XC | Gateway – CANopen | – | – | – | – | – | – | | ● | – | | 1337853 |

All XC modules have an extended temperature range and a painted printed circuit board.

¹⁾ Configurable


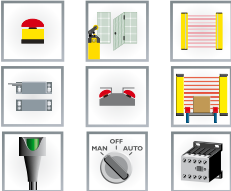
PSRmodular: accessories

| Type | Description | Item no. |
|------------------------------|--|---------------------|
| PSR-M-MEMORY | Optional external memory | 1105142 |
| TBUS | DIN rail connector for basic module | 1225375 (1 piece) |
| | | 2200244 (50 pieces) |
| PSR-M-CABLE50 | Cable for TBUS extension module | 1104841 |
| CABLE-25/8/250/ PSR-M/001 | Cable adapter for PSRmodular (PSR-M-EM...) | 1571214 or 1574602 |


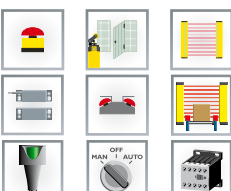
PSRmodular: configuration software

| Type | Applications | Item no. |
|------------|---|----------|
| PSRmodular | Free configuration software for the configurable PSRmodular safety system. Download at phoenixcontact.com | — |


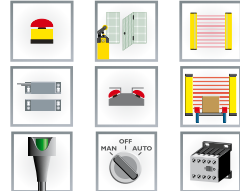
Product overview

| Axioline F: safe I/Os | | | | | | | | | | | |
|---|---|---------------------|----------------------|---------------|---------------|--------------------|-------------------------|-----------|---|--|-------------------------|
| Type | Applications | Inputs/outputs | | | | | Protocol | | Safety approvals | | Item no. |
|  |  | Safe digital inputs | Safe digital outputs | Clock outputs | Relay outputs | Safe analog inputs | SafetyBridge Technology | PROFIsafe | Category/PL in accordance with EN ISO 13849-1 | SIL in accordance with EN IEC 62061/ IEC 61508 | |
| AXL F SSDI8/4 1F | Input module | 8 | – | 8 | – | – | ● | – | 4/e | 3 | 2702263 |
| AXL F PSDOR4/2 1F | Relay module | – | – | – | 4 | – | – | ● | 4/e | 3 | 2702858 |
| AXL F SSDOR4/2 1F | Relay module | – | – | – | 4 | – | ● | – | 4/e | 3 | 2702589 |
| AXL F SSDO8/3 1F | Output module | – | 8 | – | – | – | ● | – | 4/e | 3 | 2702264 |
| AXL F PSDI8/4 1F | Input module | 8 | – | 8 | – | – | – | ● | 4/e | 3 | 2701559 |
| AXL F PSDO8/3 1F | Output module | – | 8 | – | – | – | – | ● | 4/e | 3 | 2701560 |
| AXL F LPSDO8/3 1F | Logic module with SafetyBridge Technology V3 | – | 8 | – | – | – | ● | – | 4/e | 3 | 2702171 |
| AXL F PSAI8/2 1F | Input module for current measurement | – | – | – | – | 8 | – | ● | 4/e | 3 | 1061424 |
| AXL F PSRTD8 1F ¹⁾ | Input module for temperature measurement | – | – | – | – | 8 | – | ● | 4/e | 3 | 1374265 |
| AXL F PSDI8/4 XC 1F | Input module | 8 | – | 8 | – | – | – | ● | 4/e | 3 | 1369866 |
| AXL F PSDO8/3 XC 1F | Output module | – | 8 | – | – | – | – | ● | 4/e | 3 | 1369867 |

¹⁾ Available from April 2024


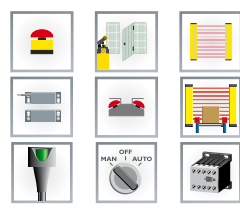
| Axioline Smart Elements: safe I/Os | | | | | | | | | | | |
|---|---|----------------|--------------|---------------|---------------|-------------------------|-----------|------|---|--|-------------------------|
| Type | Applications | Inputs/outputs | | | | | Protocol | | Safety approvals | | Item no. |
|  |  | Safe inputs | Safe outputs | Clock outputs | Relay outputs | SafetyBridge Technology | PROFIsafe | FSoE | Category/PL in accordance with EN ISO 13849-1 | SIL in accordance with EN IEC 62061/ IEC 61508 | |
| AXL SE PSDI8/3 | Input module | 8 | – | 2 | – | – | ● | – | 4/e | 3 | 1079241 |
| AXL SE PSDO4/2 2A | Output module | – | 4 | – | – | – | ● | – | 4/e | 3 | 1079231 |
| AXL SE SSDI8/3 | Input module | 8 | – | 2 | – | ● | – | – | 4/e | 3 | 1190012 |
| AXL SE SSDO4/2 2A | Output module | – | 4 | – | – | ● | – | – | 4/e | 3 | 1190017 |
| AXL SE FSDI8/3 | Input module | 8 | – | 2 | – | – | – | ● | 4/e | 3 | 1090203 |
| AXL SE FSDO4/2 | Output module | – | 4 | – | – | – | – | ● | 4/e | 3 | 1090205 |

Inline: safe I/Os

| Type | Applications | Inputs/outputs | | | | Protocol | | Safety approvals | | Item no. |
|---|---|----------------|--------------|---------------|---------------|-------------------------|----------|---|---|-------------------------|
|  |  | Safe inputs | Safe outputs | Clock outputs | Relay outputs | SafetyBridge Technology | PROIsafe | Category/PL in accordance with EN ISO 13849-1 | SIL in accordance with EN IEC 62061/IEC 61508 | |
| IB IL 24 PSDI 8-PAC 24 V DC | Input module | 8 | – | 8 | – | ● | ● | 4/e | 3 | 2985688 |
| IB IL 24 PSDI 16-PAC 24 V DC | Input module ¹⁾ | 16 | – | 16 | – | ● | ● | 4/e | 3 | 2700994 |
| IB IL 24 PSDO 8-PAC 24 V DC | Output module | – | 8 | – | – | ● | ● | 4/e | 3 | 2985631 |
| IB IL 24 PSDO 4/4-PAC 24 V DC | Output module (positive and negative switching) | – | 4 | – | – | ● | ● | 4/e | 3 | 2916493 |
| IB IL 24 PSDOR 4-PAC 24 V DC / 230 V DC | Relay module | – | – | – | 4 | ● | ● | 4/e | 3 | 2985864 |
| IB IL 24 LPSDO 8 V2-PAC 24 V DC | Logic module with SafetyBridge Technology V2 | – | 8 | – | – | ● | – | 4/e | 3 | 2700606 |
| IB IL 24 LPSDO 8 V3-PAC 24 V DC | Logic module with SafetyBridge Technology V3 | – | 8 | – | – | ● | – | 4/e | 3 | 2701625 |


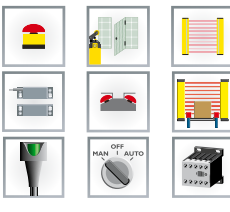
¹⁾ Only compatible with IB IL 24 LPSDO V3-PAC.

Axioline E: safe I/Os

| Type | Applications | Inputs/outputs | | | | Protocol | | Safety approvals | | Item no. |
|---|---|----------------|--------------|---------------|---------------|----------------|----------|---|---|-------------------------|
|  |  | Safe inputs | Safe outputs | Clock outputs | Relay outputs | IO-Link Safety | PROIsafe | Category/PL in accordance with EN ISO 13849-1 | SIL in accordance with EN IEC 62061/IEC 61508 | |
| AXL E IOL SDI8 SDO4 2A M12 L | Input and output module for PROIsafe over IO-Link | 8 | 4 | 8 | – | – | ● | 4/e | 3 | 1185380 |
| AXL E PS IOLS4/4 EF M12 6M-L | IO-Link Safety master | 8 | 4 | 8 | – | ● | ● | 4/e | 3 | 1379164 |
| AXL E IOLS SDI8 SDO4 2A M12 L | IO-Link Safety device | 8 | 4 | 8 | – | ● | – | 4/e | 3 | 1379166 |

Product overview


| Software | | |
|------------------|---|----------|
| Type | Applications | Item no. |
| SAFECONF | Free configuration software for SafetyBridge modules. Download at phoenixcontact.com | — |
| PLCnext Engineer | Free engineering software platform for automation controllers from Phoenix Contact. Extension with add-ins at a charge, for example, safety programming in accordance with IEC 61508. Download at phoenixcontact.com | 1046008 |

| PLCnext Control: safe control technology | | | | | | | | |
|--|--|------------------------|------------------------|--|--------------------------------------|-------------------------------------|----------------------------------|----------|
| Type | Applications | Inputs/outputs | Protocol | Safety approvals | | | | Item no. |
|  |  | | | Category in accordance with EN ISO 13849-1 | PL in accordance with EN ISO 13849-1 | SIL in accordance with EN IEC 62061 | SIL in accordance with IEC 61508 | |
| AXC F XT SPLC 1000 ¹⁾ | Safety controller freely programmable via LD and FBD with PLCnext Engineer | Up to 32 safe devices | PROFIsafe via PROFINET | 4 | e | 3 | 3 | 1159811 |
| AXC F XT SPLC 3000 ¹⁾ | Safety controller that can be freely programmable via LD and FBD with PLCnext Engineer | Up to 300 safe devices | PROFIsafe via PROFINET | 4 | e | 3 | 3 | 1160159 |
| RFC 4072S | Safety controller that can be freely programmable via LD and FBD with PLCnext Engineer | Up to 300 safe devices | PROFIsafe via PROFINET | 4 | e | 3 | 3 | 1051328 |
| FL PN/PN SDIO-2TX/2TX | Safe PROFINET gateway | — | PROFIsafe via PROFINET | 4 | e | 3 | 3 | 2700651 |

¹⁾ Extension module for the modular AXC F 2152 and AXC F 3152 controllers from the PLCnext Control series

| SD cards | | |
|------------------------------|---|----------|
| Type | Applications | Item no. |
| SD FLASH 2GB EASY SAFE BASIC | Programming and configuration memory, plug-in, 2 GB, with license key and user program for easy web-based configuration and commissioning of a SafetyBridge solution. | 2403297 |
| SD FLASH 2GB EASY SAFE PRO | Like SD FLASH 2GB EASY SAFE BASIC, including communication via Modbus/TCP, PROFINET, and email. | 2403298 |

QUINT POWER: safe power supplies

| Type | Applications | Output current | | | | Safety approvals | | | | | Dimensions W x H x D | Item no. |
|---|--------------|------------------------|--------------|---------------|----------------|------------------|----------------------------------|-------------------------------|---|-----|-------------------------|----------|
|  | | Nominal output current | Static boost | Dynamic boost | SFB Technology | IEC 61010-1 | SIL in accordance with IEC 61508 | ATEX / IECEx / Class I Zone 2 | UL ANSI / ISA-12.12.01 Class I Division 2 | DNV | [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, 24 V DC ... 28 V DC (Plus version)

| | | | | | | | | | | | | |
|-------------------------|-------------------------------------|------|--------|---------------|------------------|---|-------|---|---|---|-----------------|-------------------------|
| QUINT4-PS/1AC/24DC/10/+ | For the safe supply of your systems | 10 A | 12.5 A | 20 A (5 s) | 60 A (15 ms) | ● | SIL 3 | ● | ● | ● | 50 x 130 x 125 | 2904616 |
| QUINT4-PS/1AC/24DC/20 | For the safe supply of your systems | 20 A | 25 A | 30 A (5 s) | 120 A (15 ms) | ● | SIL 2 | — | ● | ● | 70 x 130 x 125 | 2904602 |
| QUINT4-PS/1AC/24DC/20/+ | For the safe supply of your systems | 20 A | 25 A | 30 A (5 s) | 120 A (15 ms) | ● | SIL 3 | ● | ● | ● | 70 x 130 x 125 | 2904617 |
| QUINT4-PS/1AC/24DC/40/+ | For the safe supply of your systems | 40 A | 45 A | 60 A (5 s) | 215 A (15 s) | ● | SIL 3 | ● | ● | ● | 120 x 130 x 140 | 2904618 |

High-performance DC/DC converter

Input voltage: 18 V DC ... 33.6 V DC
Output voltage: 24 V DC ... 28 V DC

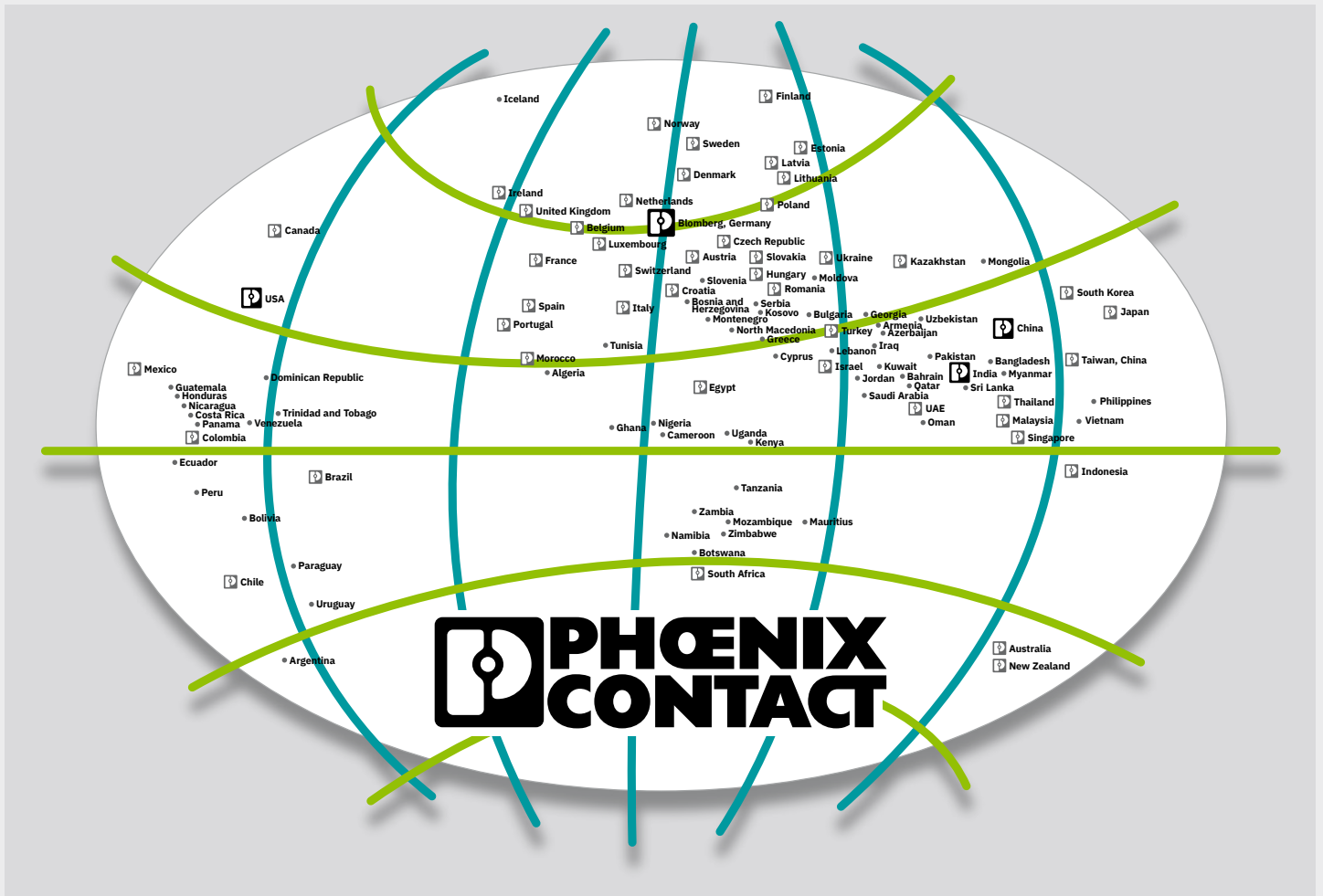
| | | | | | | | | | | | | |
|-----------------------------|-------------------------------------|------|------|---------------|-----------------|---|-------|---|---|---|----------------|-------------------------|
| QUINT4-PS/24DC/24DC/20/SC/+ | For the safe supply of your systems | 20 A | 25 A | 30 A (5 s) | 60 A (15 ms) | ● | SIL 2 | ● | ● | ● | 70 x 130 x 125 | 1046881 |
|-----------------------------|-------------------------------------|------|------|---------------|-----------------|---|-------|---|---|---|----------------|-------------------------|

Active redundancy module, Plus version

Input voltage: 8 V DC ... 26 V DC
Output voltage: $U_m - 0.1$ V DC

| | | | | | | | | | | | | |
|-------------------------------|----------------|------|------|---------------|------------------|---|---------------------|---|---|---|----------------|-------------------------|
| QUINT4-S-ORING/12-24DC/1X40/+ | For decoupling | 40 A | 45 A | 60 A (5 s) | 240 A (15 ms) | ● | SIL 3 ¹⁾ | ● | ● | ● | 32 x 130 x 125 | 2907753 |
|-------------------------------|----------------|------|------|---------------|------------------|---|---------------------|---|---|---|----------------|-------------------------|

¹⁾ In combination with QUINT4-PS/1AC/24DC/20 or QUINT4-PS/24DC/24DC/20/SC/+



Open communication with customers and partners worldwide

Phoenix Contact is a global market leader based in Germany. We are known for producing future-oriented products and solutions for the electrification, networking, and automation of all sectors of the economy and infrastructure. With a global network reaching across more than 100 countries with over 21,000 employees, we maintain close relationships with our customers, something we believe is essential for our common success.

Our wide range of innovative products makes it easy for our customers to implement the latest technology in a variety of applications and industries. This especially applies to the target markets of energy, infrastructure, industry, and mobility.

You can find your local partner at
phoenixcontact.com