



# Safe from 6 mm

## Size newly defined: PSRmini safety relays



# The new generation of safety relays Narrow. Narrower. PSRmini.

PSRmini are the narrowest safety relays in the world with the performance of a large safety relay. In a compact 6 mm design, they offer tried-and-tested safety thanks to force-guided contacts.

This is made possible by the new relay technology from Phoenix Contact.

The unique features of the PSRmini product range make it ideal for use in machine building and in the process industry.

Benefit from our experience and design your application under completely new space and cost aspects.

## What is a safety relay?

Safety relays consist of at least two force-guided elementary relays and enable the potential-free activation of safety-related signals. They evaluate signal sensors such as emergency stops, door switches or light grids.

Typical monitoring functions include:

- Plausibility monitoring of input signals
- Cross-circuit detection
- Start and feedback circuit monitoring



**PSRmini safety relay**

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PHOENIX CONTACT**

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# Narrow safety relays – Full performance in half the width

The complete PSRmini product line consists of 6 mm and 12 mm versions.

Despite their highly compact design, they exhibit high performance features: switching loads up to 6 A, compatibility with many signal sensors, versatile use thanks to comprehensive approvals and much more.

This ensures maximum safety through force-guided contacts. You save on space and gain flexibility, without the need to make compromises in the application.

## The forced guidance

Elementary relays with force-guided contacts are used to ensure maximum safety for both person and machine. How do they do this?

The N/O and N/C contacts of an elementary relay are connected to one another mechanically through forced guidance. This prevents N/O and N/C contacts from closing at the same time. In conjunction with a suitable circuit, a failure to open can be reliably detected and then safely interlocked with a second independent shut-off path.

## Highly compatible

Compatibility with all important signal transmitters and safety-relevant systems enables a wide range of applications.



## Comprehensive approvals

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

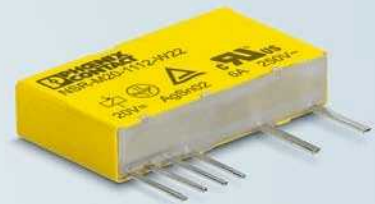
## Convenient connection methods

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



### Highly compact in 6 mm and 12 mm

The narrowest safety relay with force-guided contacts saves up to 70% on space.



### Relay Technology

Designed by PHOENIX CONTACT

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



6A



### Available for one or more contacts

Fine-grained architecture makes a modular design of safety concepts possible: the 6 mm version comes with 1 to 2 enable paths, the 12 mm version with 2 to 3.

# Relay technology from PHOENIX CONTACT – developed for change

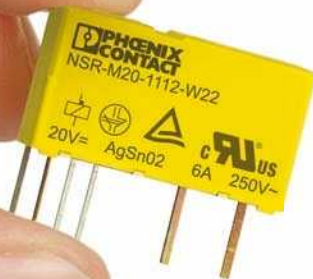
The centerpiece of the new safety relay is the elementary relay with force-guided contacts developed by Phoenix Contact.

With its development, our team achieved the impossible: low space requirements, low energy consumption and superior system availability in an extremely narrow, high-performance elementary relay.

## Progress through precision

The new elementary relay from Phoenix Contact boasts many outstanding technological details:

- Switching capacity of up to 6 A
- Superior availability thanks to the redundant diagnostics contact
- Installation in the hazardous area



## Relay Technology

Designed by PHOENIX CONTACT



Robust steel springs for  
constant contact force over  
the entire service life

Optimized design of  
power contact ensures  
short-circuit protection

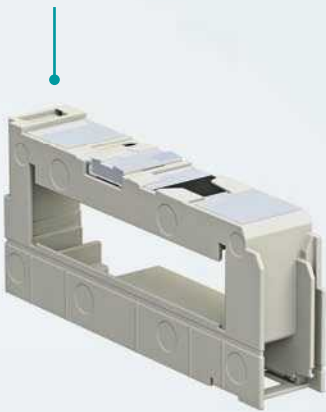
Safe contact distance of  
more than 0.5 mm for  
maximum dielectric strength



Unique extrusion coating technology ensures precise mounting for high contact reliability

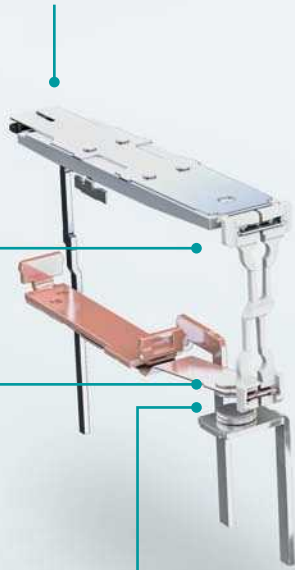
Symmetric magnet system for absolute robustness in the event of mechanical strain

Redundant diagnostics contact provides maximum reliability



Patent covered operating principle of the motor enables the lowest power consumption

Tried-and-tested forced guidance in accordance with the EN 50205 standard guarantees maximum safety





# PSRmini – Modular safety solutions for machine building

As a machine builder, you are familiar with the dynamics and requirements of your market. Safety technology is playing an increasingly significant role in this area, and standards and guidelines also make an important contribution.

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

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



Scalable safety relay solution  
with PSRmini

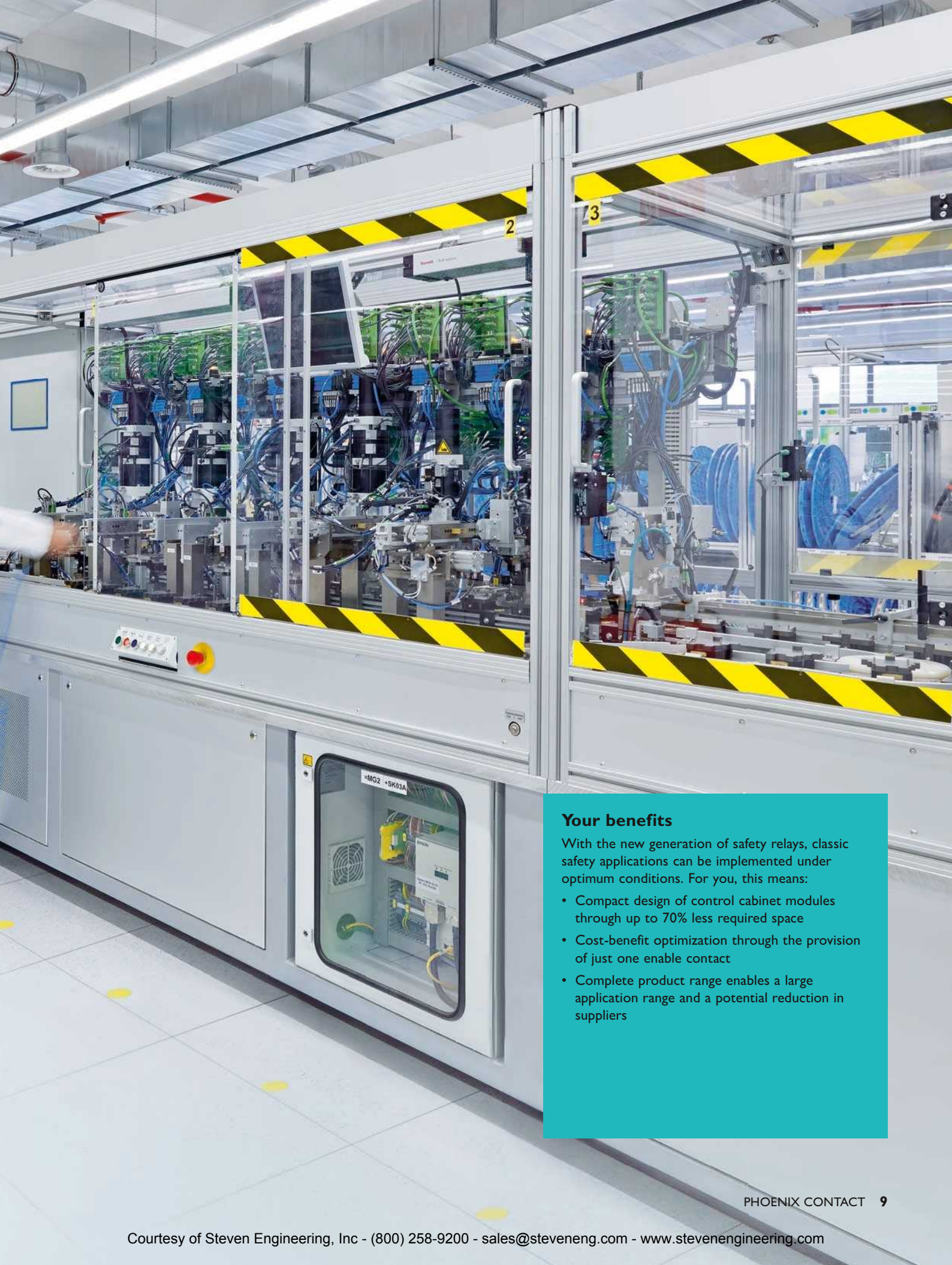


## What we offer

Phoenix Contact is closely associated with the machine building industry. From our in-house machine building department, we are well aware of the daily challenges of machine building. Our solution is the highly compact PSRmini safety relay:

- Low space requirements and high scalability
- Compatibility with a wide range of signal sensors such as emergency stop equipment, safety door switches and light grids
- Force-guided contacts enable maximum safety levels up to PL e in accordance with ISO 13849 and SILCL 3 in accordance with IEC 62061





### Your benefits

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

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



# PSRmini – for reliable availability in the process industry

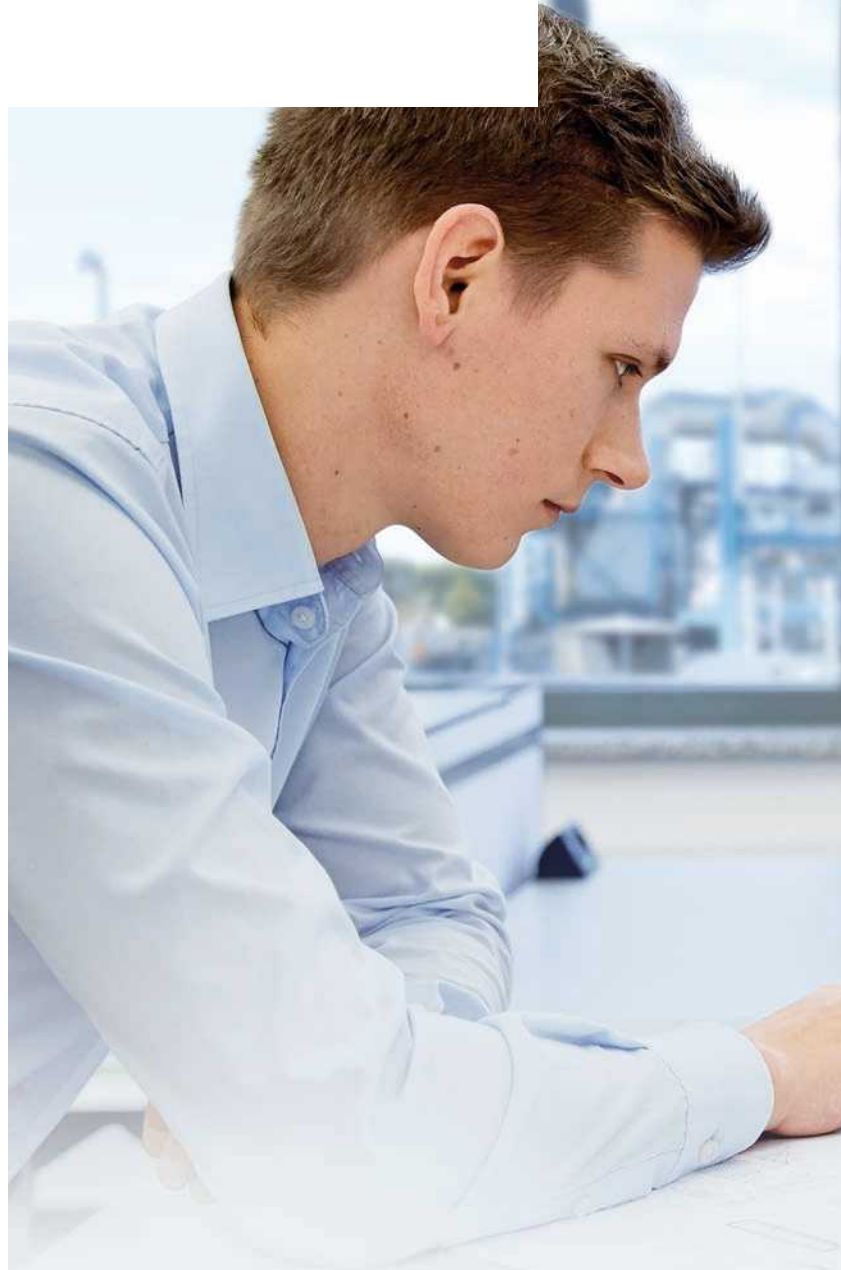
As a specialist in the process industry, you count compatibility and reliability among the primary requirements for your systems and components.

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

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



Combined with the PSRmini, the Termination Carrier provides a unique packing density in the control cabinet



## What we offer

Phoenix Contact has been a partner of the process industry for many years. The new, safe PSRmini coupling relays are the result of close cooperation and boast unique product features:

- Low space requirements and high scalability
- Simple diagnostics directly on the device and the controller thanks to forced guidance
- Comprehensive approval package and expanded temperature range across the entire device series
- Customer-specific Termination Carrier with system cabling



### Your benefits

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

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



# PSR safety relay modules – The success story continues

If you need one device with one function, PSR safety relay modules are the perfect solution. Our modules operate with force-guided contacts in accordance with EN 50205. Your advantage: fast fault detection and a high level of safety.

To this day, we have consistently continued to develop our tried-and-tested technology to meet the market requirements of tomorrow. One result of our years of experience in the area of functional safety is our diverse PSR product line.

This page highlights selected innovations from the PSR range.



**2000**

#### **PSRclassic**

Market entry: coupling relay with force-guided contacts and plug-in, coded connection terminal blocks.

**2002**

#### **PSRclassic**

Expansion of the product line with classic safety relays for monitoring of emergency stop functions and safety doors.

**2003**

#### **PSRclassic**

First classic safety relay with SIL3 certification on the market, with screw and spring connection.



**2005**

**PSRmotion**

Speed monitoring and standstill monitors certified up to SIL3 – easy to configure using software.



**2006**

**PSRmodular**

Modular safety relay system, easily expandable through DIN rail connector – with twin spring connection and push-in technology.



**2012**

**PSRclassic**

Coupling relay for safe switching on – certified up to SIL3.



**2013**

**PSRmultifunction**

Multifunctional safety relay with three functions in new housing design.





**2015**

**PSRmini**

Safety relay and safe coupling relay – more compact than ever, always high-performance.

# PSRmini – Product overview and order-related document

## Highly compact, safe coupling relays for the process industry

Application	Output contacts		Diagnostics/ proof test				Safety approval					Type/ overall width	Connection method	
Highly compact, safe coupling relay for fail-safe controllers...			Visual via LED	Active fault acknowledgment via A1	Measurement on the device	Self-monitoring with integrated locking mechanism	SIL IEC 61508/61511	SIL IEC 50156	ATEX / IECEx / Class I Zone 2	G3 ANSI / ISA-S71.04	GL	PSR-PS = 6.8 mm PSR-PC = from 12.5 mm	Screw, plug-in	Push-in spring connection, plug-in
... for a safety-related switching off (ESD)	1	1 NC / 1 DO	X	X	X	–	3	3	X	X	X	PSR-PS20	2700356	–
	1	1 NC / 1 DO	X	X	X	–	2	2	X	X	X	PSR-PS21	2700357	–
	1	1 DO	X	–	–	X	3	3	X	X	X	PSR-PS40	2700398	–
	1	1 NC / 1 DO	X	X	X	–	3	3	X	X	X	PSR-PC20	2700577	2700578
	2	1 DO	X	X	–	X	3	3	X	X	X	PSR-PC40	2700588	2700589
... for safety-related switching on (F&G)	1	1 DO	–	X	X	–	3 <sup>1)</sup>	–	X	–	X	PSR-PC50	2904664	2904665

<sup>1)</sup> Low demand  
NC = N/C contact; DO = digital signal output  
Customer-specific Termination Carrier available on request

## The safety product portfolio



### Safety relay

If you require just a small number of safety functions, the extensive PSRclassic product line is available in addition to the PSRmini.



### Multifunctional safety relays

With PSRmultifunction, you can easily implement safety functions such as emergency stop, safety door or light grid monitoring – all in one device.











### Configurable safety modules

The configurable, expandable module TRISAFE can be adapted individually to meet your safety requirements.



## Highly compact safety relays for machine building

Application						Output contacts		Safety approval		Type/ overall width	Connection method	
								PL EN ISO 13849-1	SILCL EN 62061	PSR-MS = 6.8 mm PSR-MC = 12.5 mm	Screw, plug-in	Push-in spring connection, plug-in
X	X	–	X	–	A	1	1 DO	c <sup>1)</sup>	1 <sup>1)</sup>	PSR-MS20	2904950	–
X	X	–	X	–	M	1	1 DO	c <sup>1)</sup>	1 <sup>1)</sup>	PSR-MS25	2904951	–
X	X	–	X	X	A	1	–	e	3	PSR-MS30	2904952	–
X	X	–	X	X	M	1	–	e	3	PSR-MS35	2904953	–
X	X	–	–	X	A	1	1 DO	e	3	PSR-MS40	2904954	–
X	X	–	–	X	M	1	1 DO	e	3	PSR-MS45	2904955	–
–	X	–	X	–	A	1	1 DO	e	3	PSR-MS50	2904956	–
–	X	–	X	–	M	1	1 DO	e	3	PSR-MS55	2904957	–
X	X	X	X	X	A	2	–	e	3	PSR-MS60	2904958	–
X	X	–	X	–	A/M	3	1 DO	c <sup>1)</sup>	1 <sup>1)</sup>	PSR-MC20	2700466	2700467
X	X	–	X	X	A/M	2	1 DO	e	3	PSR-MC30	2700498	2700499
X	X	–	X	X	A/M	3	1 DO	e	3	PSR-MC34	2700540	2700548
X	X	X	X	X	A/M	3	1 DO	e	3	PSR-MC40	2700569	2700570
–	X	–	X	–	A/M	3	1 DO	e	3	PSR-MC50	2700553	2700564

<sup>1)</sup> Possible up to PL e/SILCL 3 depending on the application

A = automatic start; M = manual, monitored start; DO = digital signal output



### Network safety solutions

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




### Safe control technology

With the safety controllers, you can reliably integrate functional safety into PROFI-safe or INTERBUS networks.



### Safety brochure

For additional information on the safety product portfolio, just enter the web code into the search field on our website.

 Web code: #0299



Always up-to-date, always available to you. Here you'll find everything on our products, solutions and service:

[phoenixcontact.com](http://phoenixcontact.com)

## Product range

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

PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstraße 8  
32825 Blomberg, Germany  
Phone: + 49 5235 3-00  
Fax: + 49 5235 3-41200  
E-mail: [info@phoenixcontact.com](mailto:info@phoenixcontact.com)  
[phoenixcontact.com](http://phoenixcontact.com)

Printed in Germany  
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ION04-15.000.L2  
MNR 52007076/2015-03-01/00