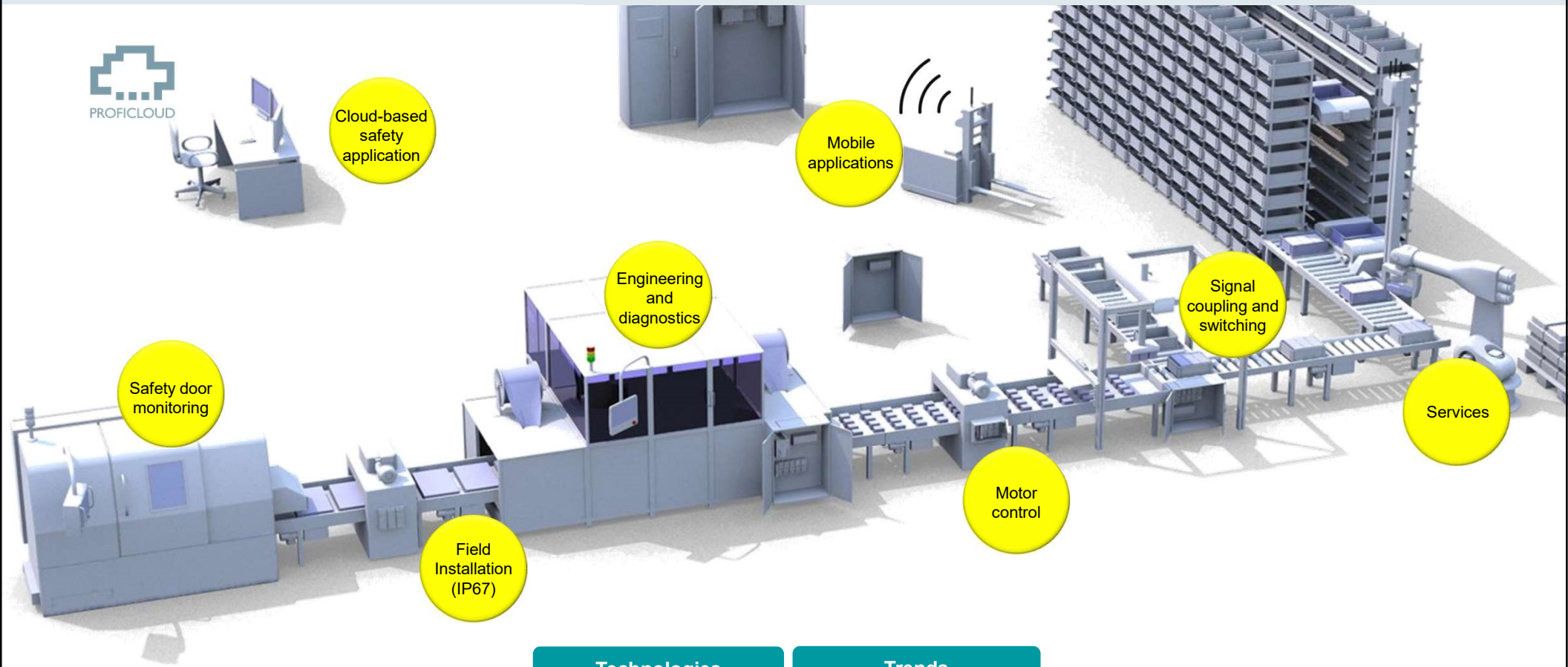
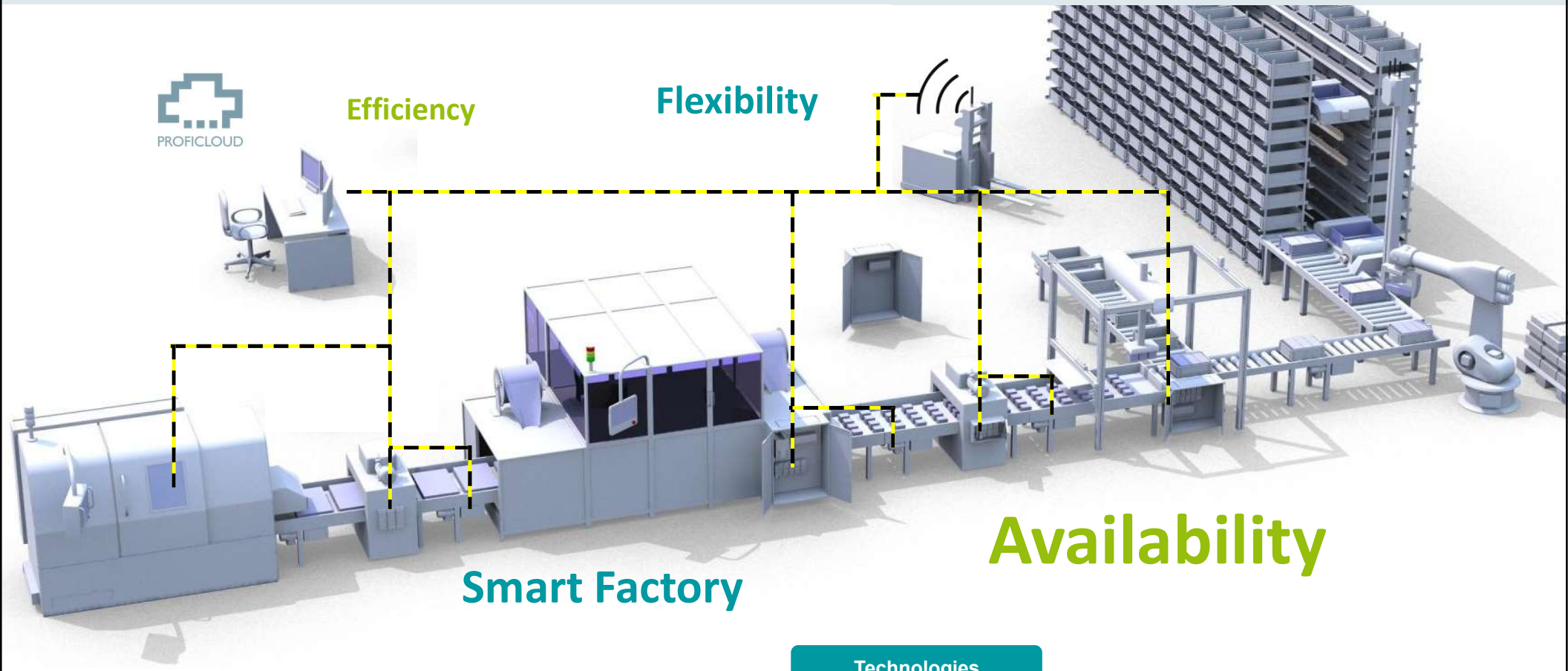

Start
PL
Functional Safety
EN ISO 12100
PL e
SIL

Smart safety solutions
Best fit for market needs



Trends

Inspiring safety technologies



Safety product portfolio

From safety switches to safe controllers

Configuration software

- PSRmotion

- PSRmodular

- SAFECONF

Programming software

- PLCnext Engineer

Signal processing

Safety relay modules
PSRmini, PSRclassic, PSRmotion and PSRmultifunction

Configurable safety system
PSRmodular

Safe I/O's
Axioline and Inline

Performance controllers
RFC

Sensors

Safety switches
PSRswitch

Signal conditioning

Safe signal conditioners
MACX Safety

Actuators

Safe motor starters
CONTACTRON

Power

Safe power supplies
QUINT POWER

Progressive through innovative technologies
Relay Technology

Relay Technology from Phoenix Contact

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

Watch movie

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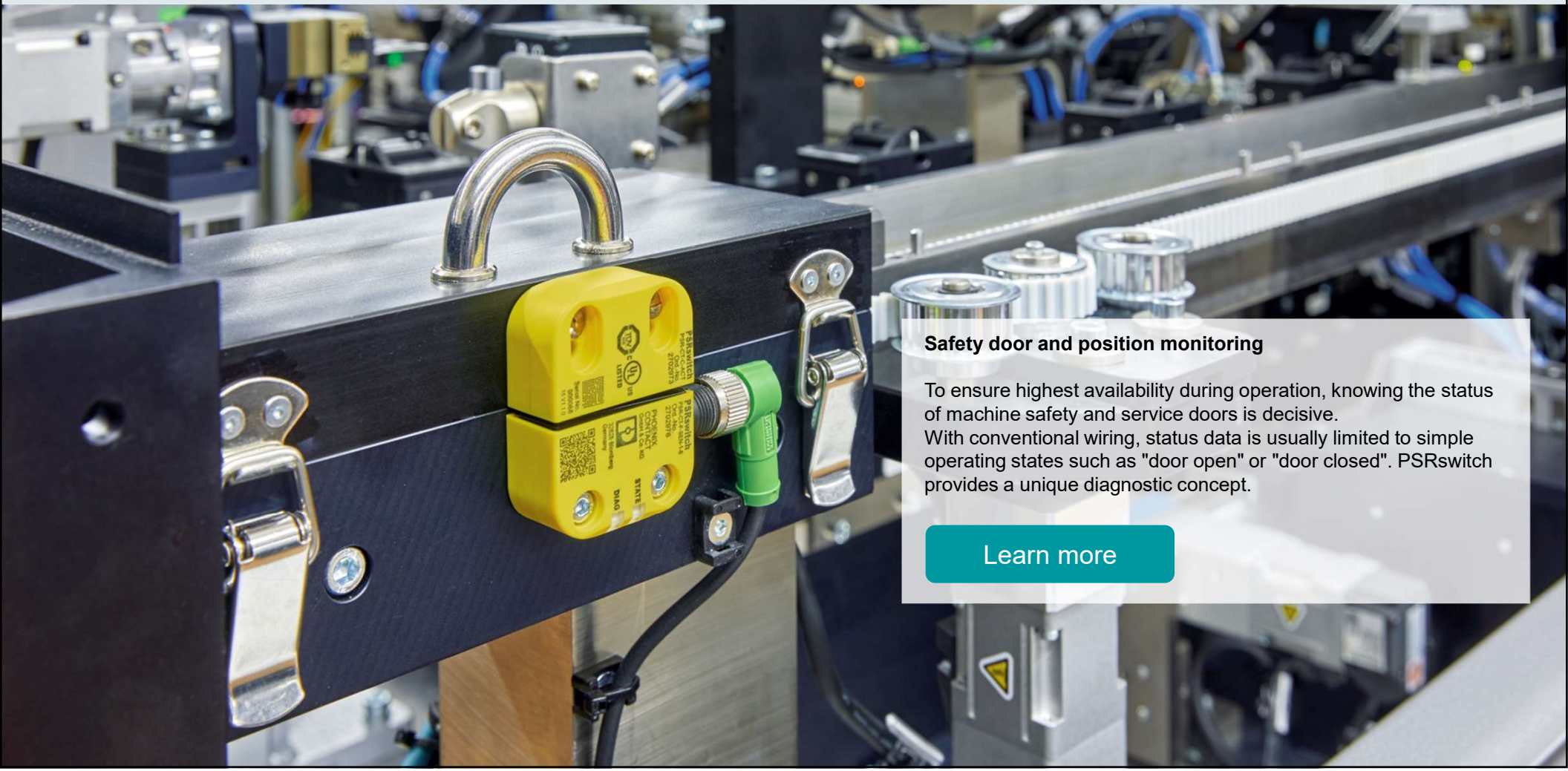
Relay Technology
Designed by PHOENIX CONTACT

Smart safety solutions

Safety door and position monitoring



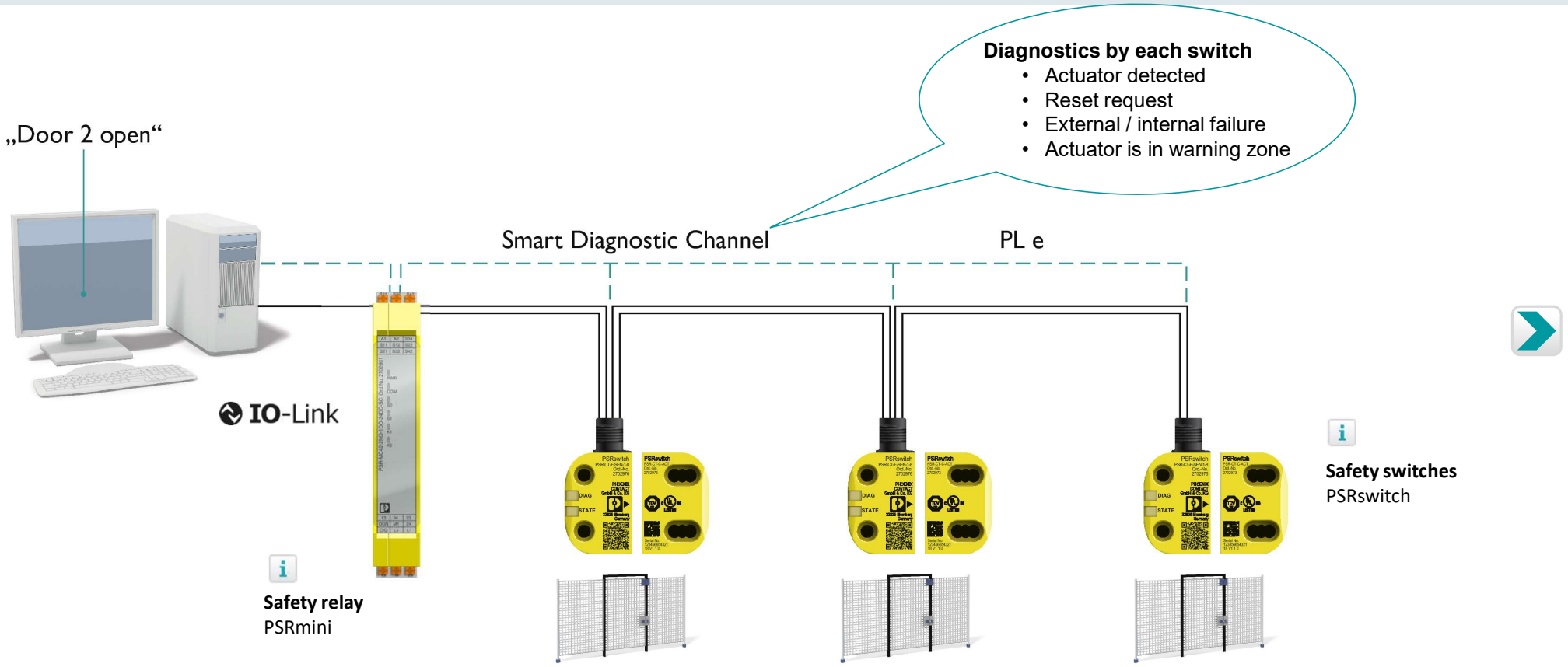
Safety door and position monitoring

To ensure highest availability during operation, knowing the status of machine safety and service doors is decisive.
With conventional wiring, status data is usually limited to simple operating states such as "door open" or "door closed". PSRswitch provides a unique diagnostic concept.

Learn more

Smart safety solutions

Safety door and position monitoring



Smart safety solutions

Safety door and position monitoring

Safety switches
PSRswitch

Safety relay
PSRmini

Intelligent safety switch system

Our safety switch system comprises the PSRmini evaluation unit and PSRswitch safety switches.

- Safe series connection of switches with two-channel design
- Status information of the switches is transmitted to the safety relay (PSR-MC42) via integrated diagnostic channel
- Safety relay transmits the non-safety-relevant diagnostic data of the switch via IO-Link to the controller
- Data can then be evaluated centrally there

Watch movie

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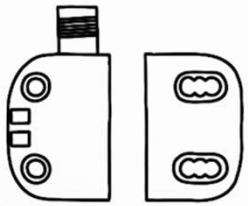
Safety door and position monitoring



Products

Non-contact safety switch

Non-contact safety switches PSRswitch

The PSRswitch non-contact safety switch safely disconnects machines or systems while a movable guard, e.g. a hatch or door, is not closed correctly. Furthermore, the PSR switch can also reliably monitor several machine positions, e.g. of robots.
Each compact switching unit comprises an RFID-coded sensor and an actuator.

Your advantages

- ✓ Flexible use, thanks to the compact design
- ✓ Maximum protection against tampering, thanks to **three RFID encoding levels**
- ✓ Safe series connection with comprehensive **diagnostic information**
- ✓ Consistent M12 connection technology for convenient installation
- ✓ Safe, **cost-effective complete solution** for the digital factory

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Non-contact safety switch

Coding types

The sensor is available in three encoding levels: Fixcode, Unicode and Multicode.

Fixcode	• sensor accepts a single actuator • actuator is taught by the user during commissioning • not possible to teach further actuators
Unicode	• sensor accepts one actuator • actuator is taught by the user during commissioning • unlimited number of actuators can be taught in one after another • Actuators that were previously taught in are blocked by the sensor
Multicode	• sensor accepts all actuators • not necessary to train them during commissioning

Watch movie

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Products

Non-contact safety switch

Products
Non-contact safety switch

Selection guide for complete solution

	**Safety sensors** 3 coding types	Unicode Multicode Fixcode	PSR-CT-C-SEN-1-8 PSR-CT-M-SEN-1-8 PSR-CT-F-SEN-1-8	2702972 2702975 2702976
	**Actuator**	Compatible with all coding types	PSR-CT-C-ACT	2702973
	**Bridge plug**	Dummy plug for every sensor circuit	SAC-5P-M12MS BK BR 1-2-4	1054366
	**Y distributor**	Type 1 for series connection Type 2 for manual start-up Type 3 for integrated diagnostics	SAC-8PY-M/2XF BK 1-PSR SAC-8PY-M/2XF BK 2-PSR SAC-8PY-M/2XF BK 3-PSR	1054338 1054339 1054341
	**Safety relay**	PSR-MC42 with IO-Link interface	Screw connection Spring-cage connection	2702901 2702902

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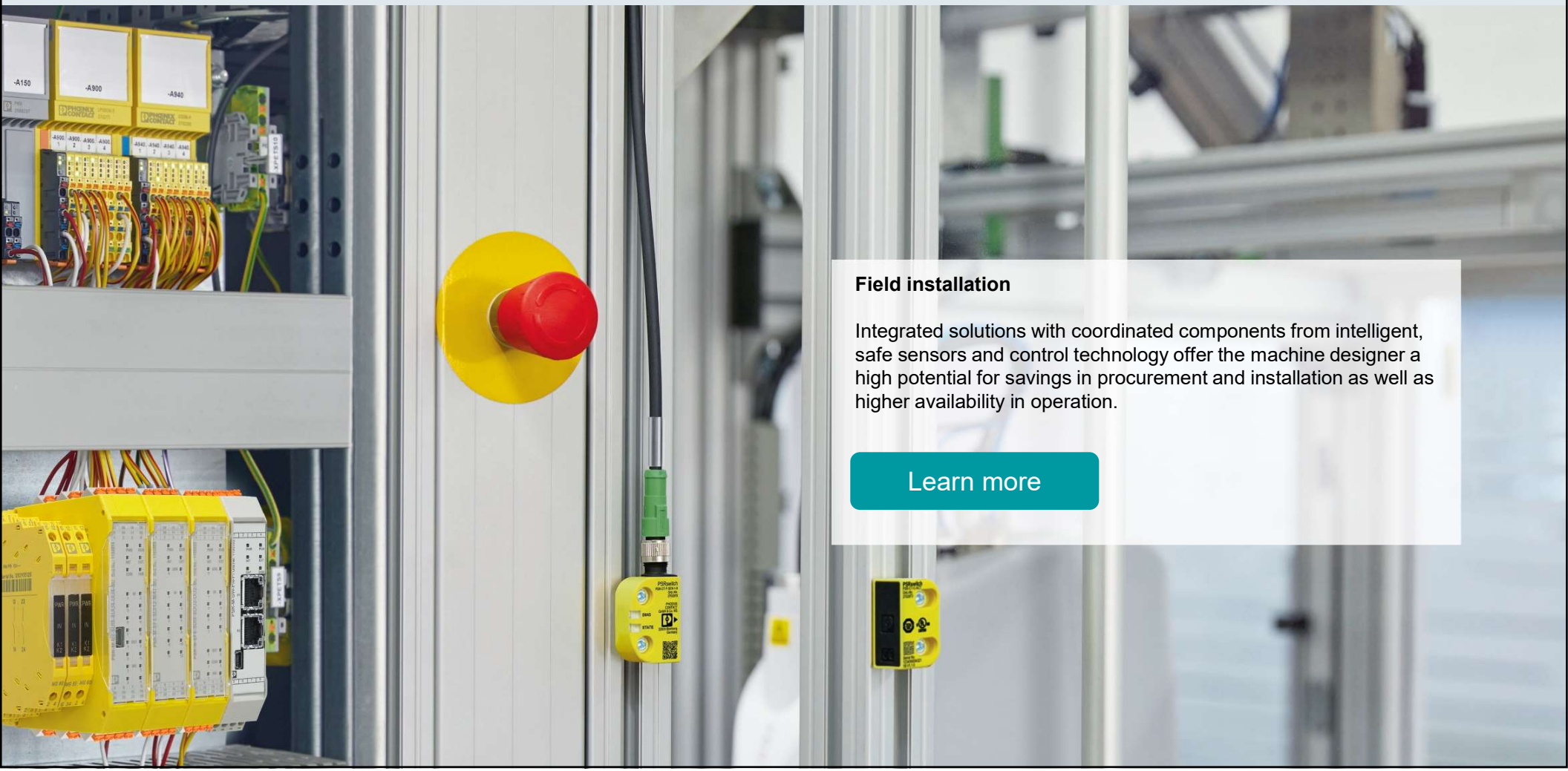
Smart safety solutions

Field installation (IP67)



Field installation

Integrated solutions with coordinated components from intelligent, safe sensors and control technology offer the machine designer a high potential for savings in procurement and installation as well as higher availability in operation.

Learn more

PSR-ESS Emergency Stop Switches

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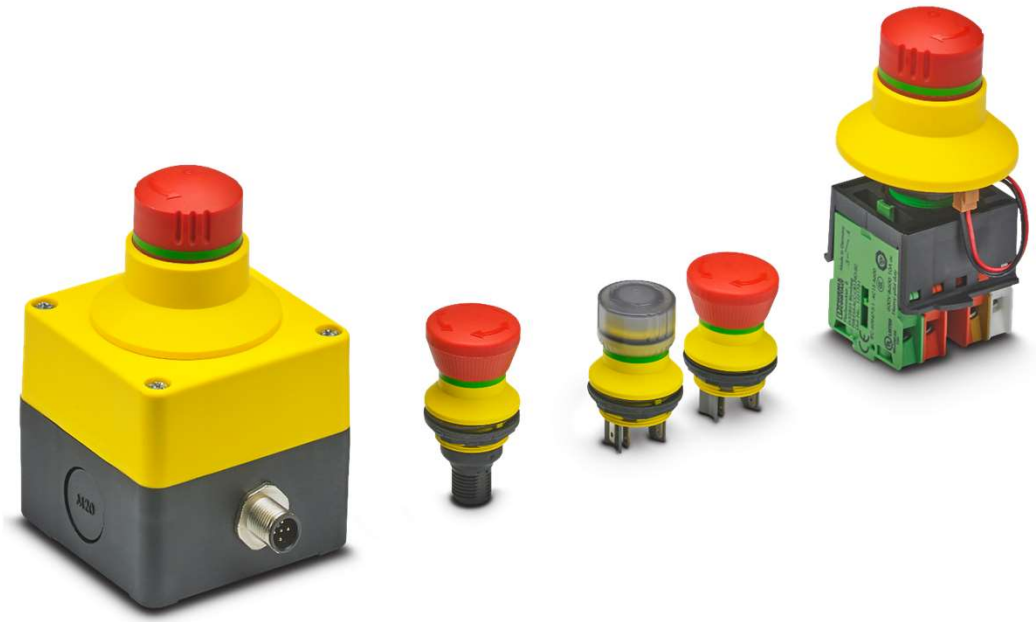
PSR-ESS Emergency Stop Switches

Why we need a E-Stop in our Portfolio?



“An Emergency Stop in every machine”.”

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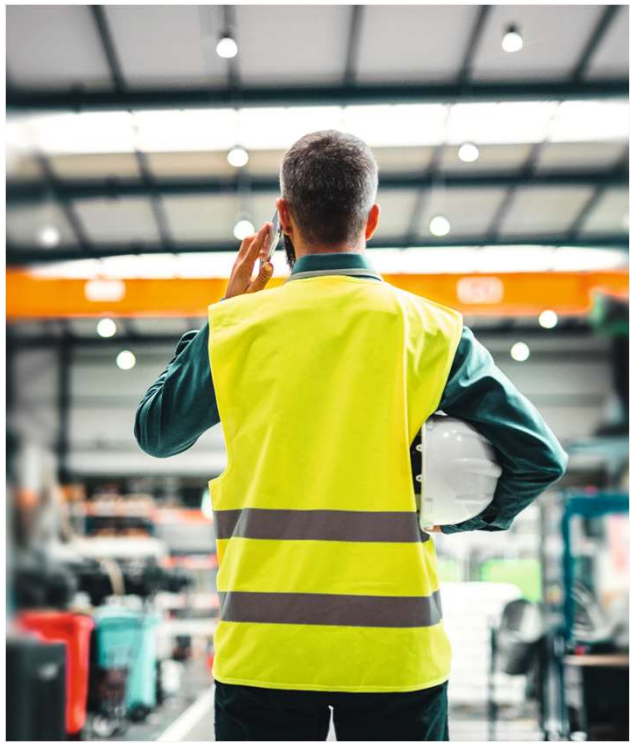
PSR-ESS Emergency Stop Switches

Agenda – PSR-ESS

- Product Overview
- Modular System Hands on
- Applications



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PSR-ESS Emergency Stop Switches

Portfolio Overview

Modular System

Surface Installation

Spade Connection

13 new articles

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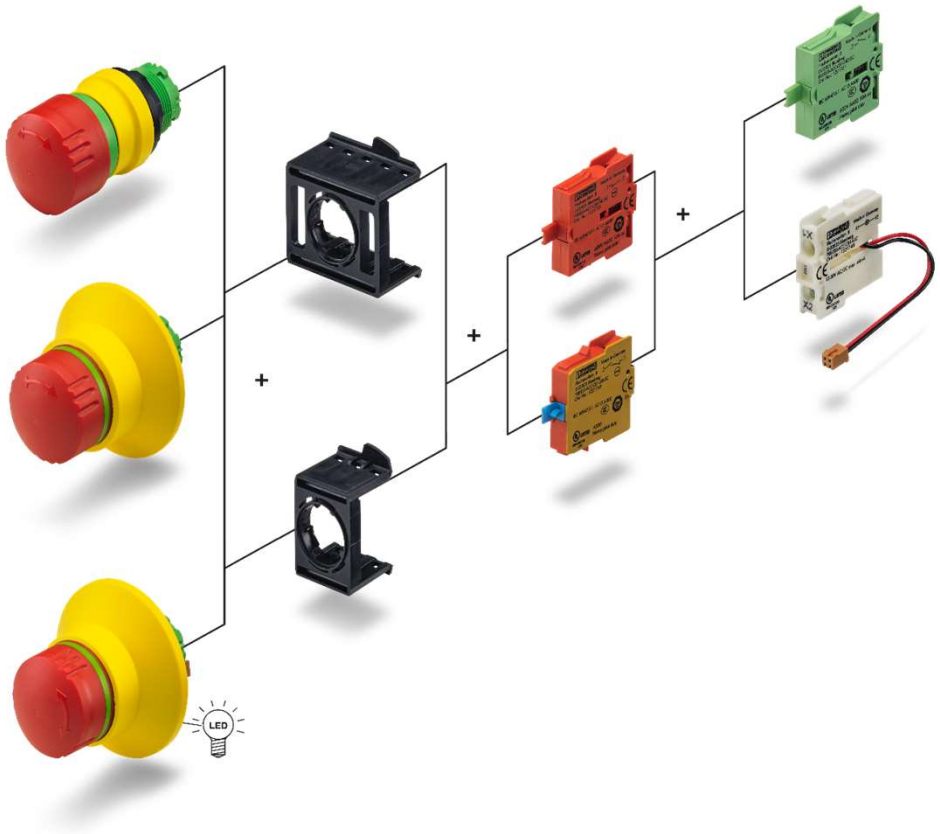
PSR-ESS Emergency Stop Switches

Overview modular system



Find the right solution for your application

Choose between:

- 3 different actuators
- 2 module holders
- 2 different safety contact blocks for safe shutdown
- 2 optional contact blocks for feedback function or illumination

Supports 240V /3A

Approvals

TÜV SÜD

c UL us LISTED

CCC

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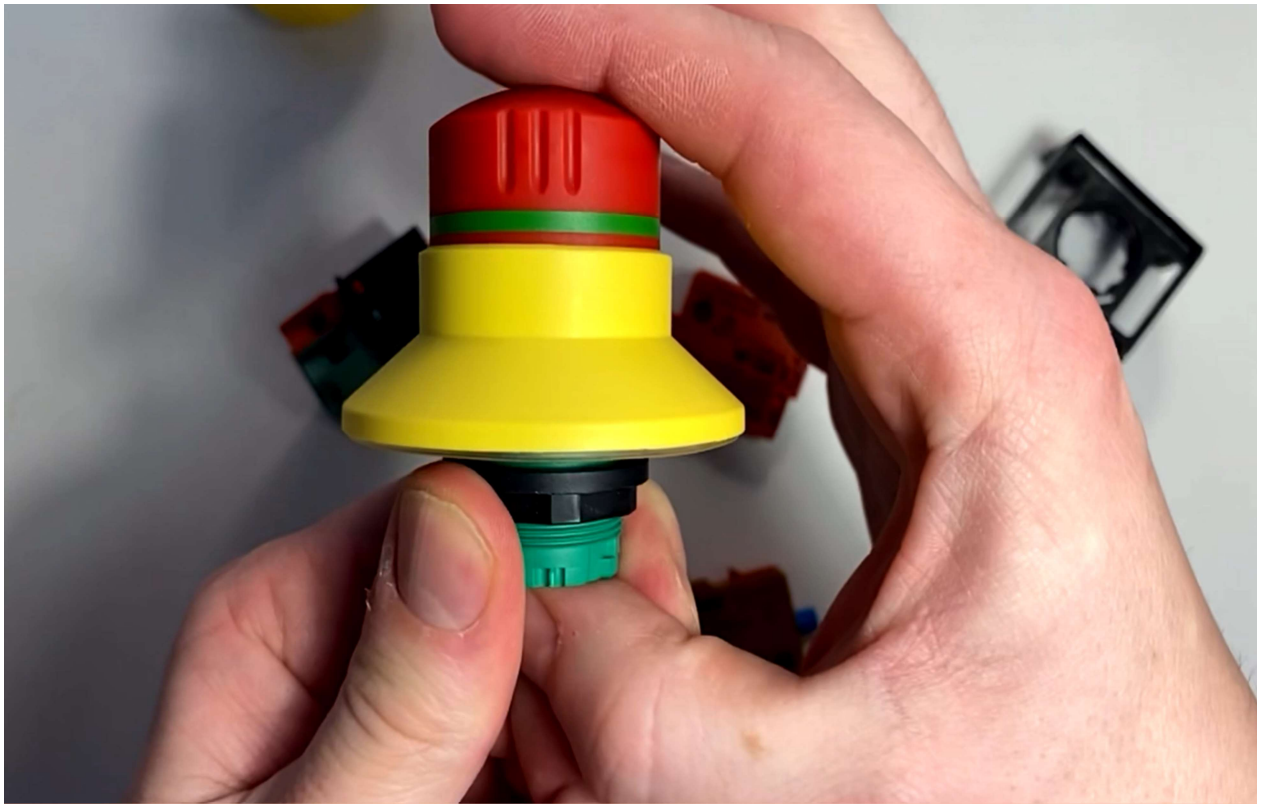
PSR-ESS Emergency Stop Switches

Hands On



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PSR-ESS Emergency Stop Switches

Portfolio overview

- For surface installation in an IP65 housing with M12 connection
- 2 force guided contact (NC)

- For panel installation, IP65/IP67 protection with M12 connection
- 2 force guided contact (NC)

- For panel installation, IP65/IP67 protection with fast terminals
- 2 force guided contact (NC)

- For panel installation, IP65/IP67 protection with fast terminals
- 2 force guided contact (NC)
- Lighting to indicate the ready state

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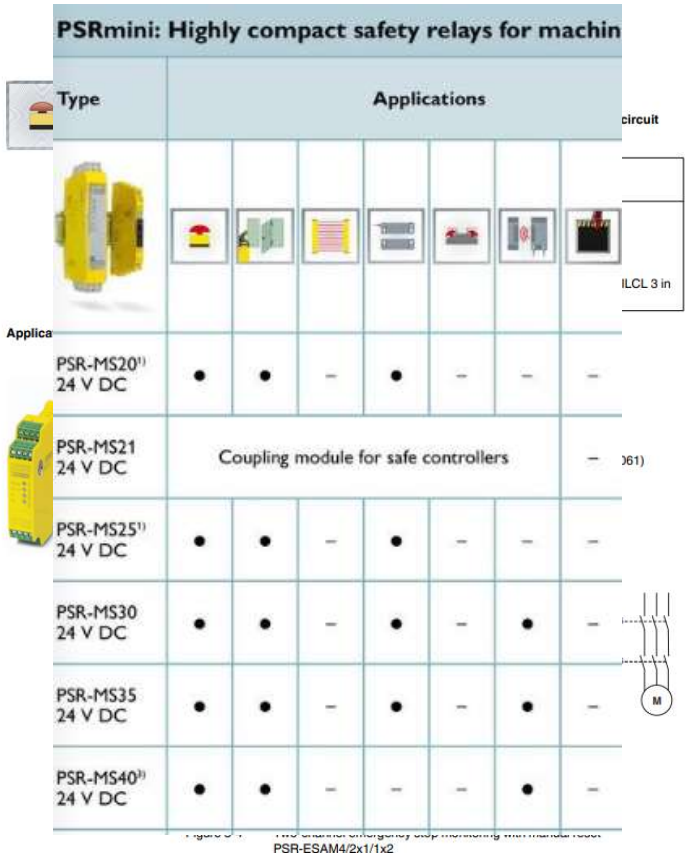
Applications

Applications for Safety Relays

- Use our functional safety E-Paper (Link)
- You can also use the manual of a product



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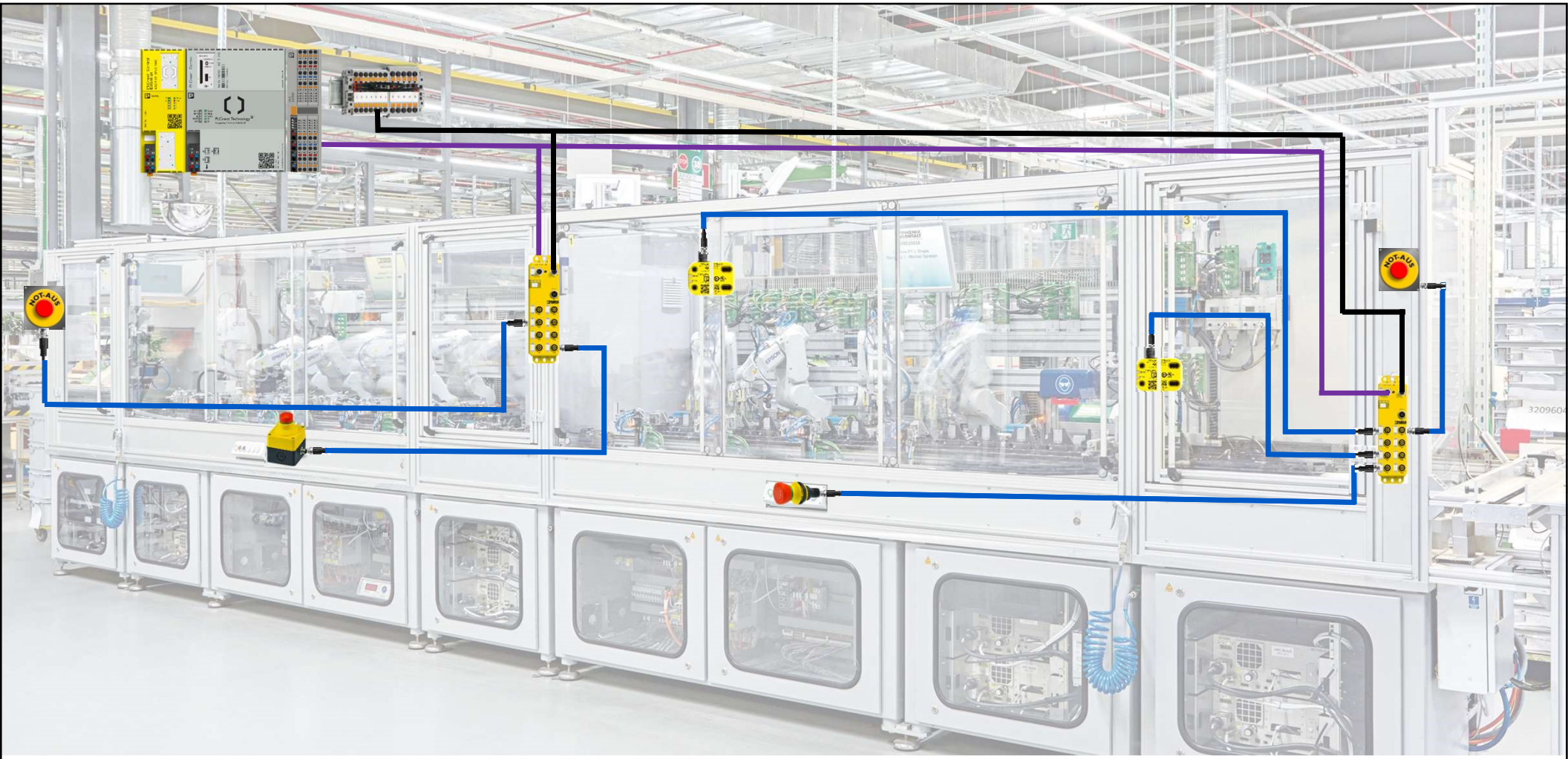

M12 Connection | PROFINET | IO-Link | Supply voltage

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PSR-ESS Emergency Stop Switches

Portfolio Overview

Modular System

Surface Installation

Spade Connection

13 new articles

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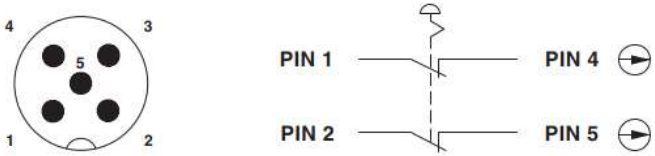
PSR-ESS Emergency Stop Switches

Surface Instillation

Product overview

PSR-ESS-M2-H110-2000-A



Surface installation with M12

- Emergency Stop Switch in IP65 housing
- 2 positive opening contact
- M12 Connection 5-pos.
- 35V / 3A

Ambient temperature (operation)

- -25 °C ... 60 °C

Approvals

TÜV SÜD

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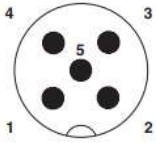
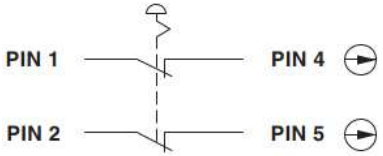
INSPIRING INNOVATIONS

Surface Instillation

Product overview

PSR-ESS-M0-H210-2000-A





Front panel E-Stop via M12

- IP65/IP67
- 2 positive opening contact
- 35V / 3A

Ambient temperature (operation)

- -25 °C ... 70 °C

Approvals

TÜV SÜD

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PHOENIX CONTACT
INSPIRING INNOVATIONS

Surface Instillation

Product overview

PSR-ESS-M0-H200-2000-C

E-Stop with Fast Terminals

- IP65/ IP67
- 2 positive opening contact
- 240V / 1.5A

Ambient temperature (operation)

- -25 °C ... 70 °C

Approvals

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INSPIRING INNOVATIONS

Surface Instillation

Product overview

PSR-ESS-M2-H110-2000-A

Inactive / active

- IP65/ IP67
- 2 positive opening contact
- 35V / 3A

Ambient temperature (operation)

- -25 °C ...70 °C

Approvals

TÜV SÜD

c UL us LISTED

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Competitive

Pricing and availability soon

Article Nr.	Description	
1221758	PSR-ESS-M0-H100	
1221757	PSR-ESS-M0-H110	
1221753	PSR-ESS-M0-H120	
1221752	PSR-ESS-ACC-CB1-NC-SC	
1221751	PSR-ESS-ACC-CB1-NO-SC	
1221749	PSR-ESS-ACC-CB1-SM-SC	
1221748	PSR-ESS-ACC-CB1-I-SC	

Article Nr.	Description	
1221747	PSR-ESS-ACC-CB1-C3	
1221745	PSR-ESS-ACC-CB1-C5	
1221740	PSR-ESS-M0-H200-2000-C	
1221739	PSR-ESS-M0-H220-2001-C	
1221737	PSR-ESS-M0-H210-2000-A	
1221735	PSR-ESS-M2-H110-2000-A	

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Tecnología de seguridad SafetyBridge Technology SBT

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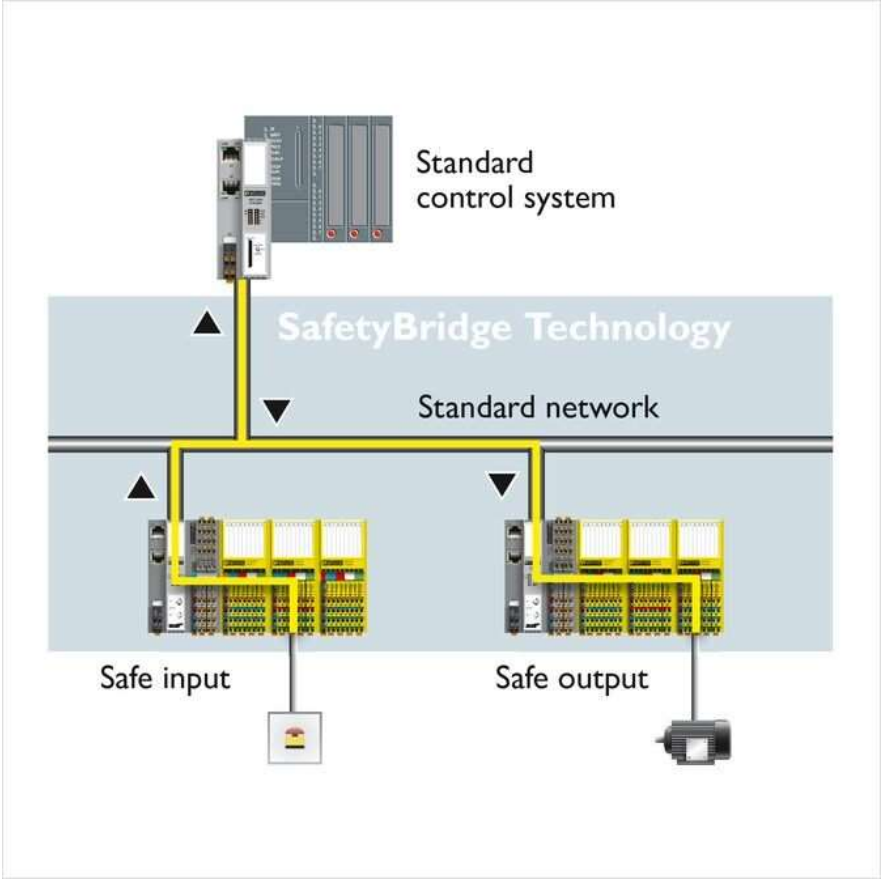
SafetyBridge Technology

Definition

SafetyBridge Technology means that input and output modules exchange safety-related signals with each other. Since the modules process the safety functions themselves, they use the standard controller and network only for transport purposes.

Without a safety controller or safe fieldbus system, this is a cost-effective solution for functional safety in standard applications.

The safe I/O modules with SafetyBridge Technology meet all safety requirements up to SIL 3 or PL e.



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SBT SafetyBridge Technology

SafetyBridge Technology

- **Safe with your plc**
  - realize a network safety solution without a safe plc
- **Flexible usage**
  - use your preferred networks
- **Easily configured**
  - create safety functions per drag & drop with Safeconf

DeviceNet™ EtherNet/IP™ INTERBUS Modbus PROFIBUS® PROFINET® sercos the automation bus

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Definition

SafetyBridge Technology

Do you want to integrate functional safety, independent of the network, without additional safety controllers? Then choose safe I/Os with SafetyBridge Technology.

The highlight is distributing the yellow, safe I/Os as required in your system. The modules work centrally or peripherally using a standard control system.

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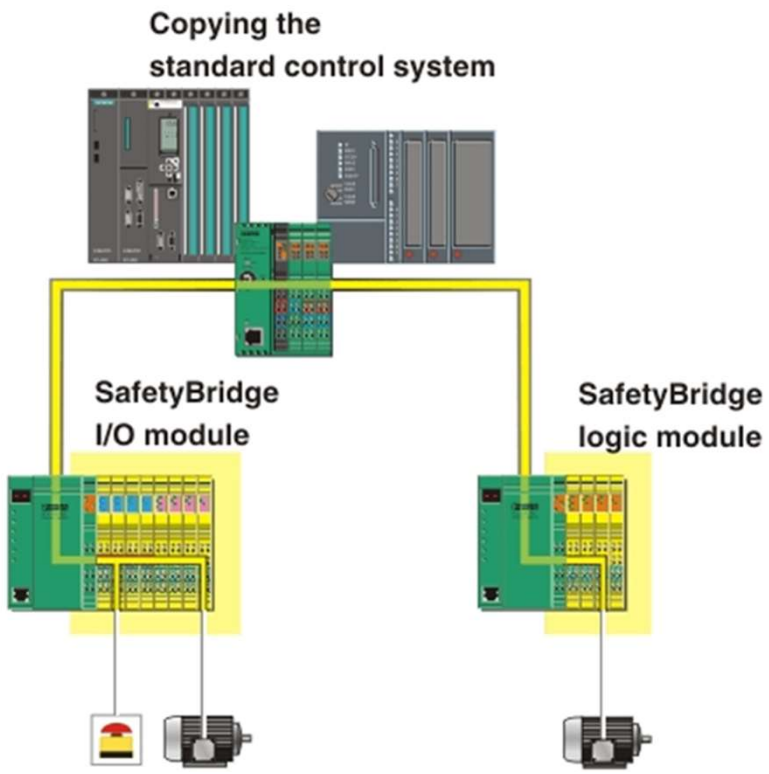
SafetyBridge Technology

Inline

The standard PLC and network are only used for transportation of data

The logic module generates and monitors the safety protocol and proceses the safety logic



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SafetyBridge Technology

Inline

IB IL 24 LPSDO 8 V3-PAC
2701625

	SBT V1	SBT V2	SBT V3
Memory [Byte]	5000	20000	64000
Satellite	3 In	5 In/Out	16 In/Out
Max. Inputs	24	40	256
Networks	IB, PB & PN	All	All
Cross com.	-	-	Yes
Onlinemode	-	-	Yes

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SafetyBridge

Inline

	SBT V3
	LPSDO 8 V3
	PSDI 8
	PSDO 8
	PSDO 4/4
	PSDOR 4
	PSDI 16

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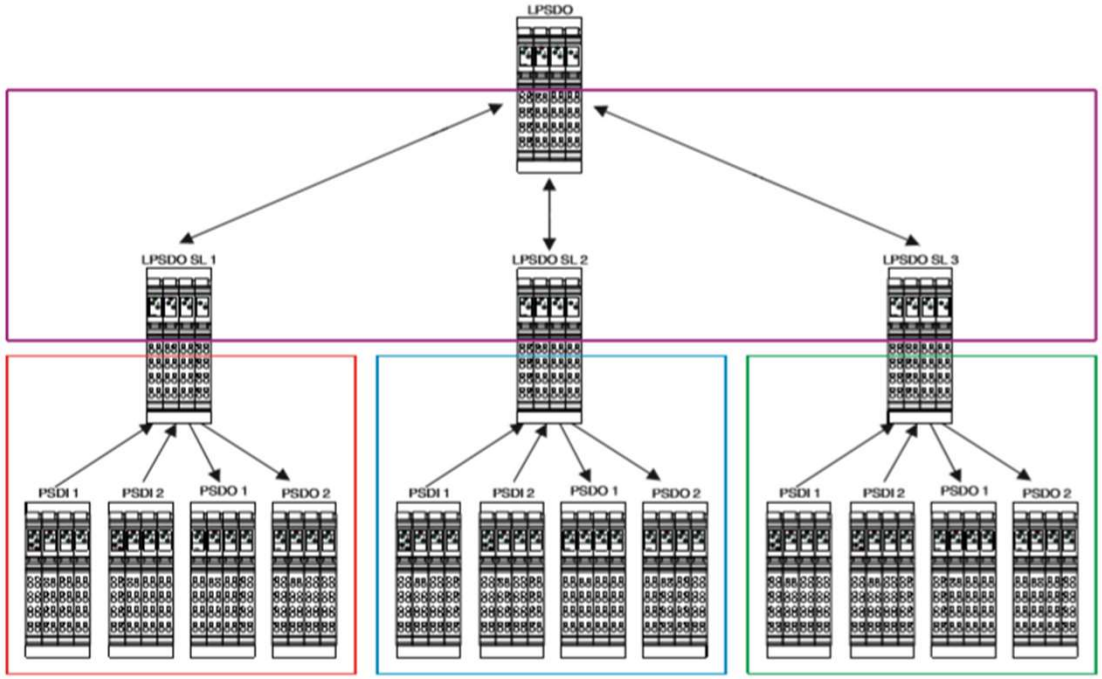
Hierarchical Topology

Tree structure

Island	Master	Slave			
Island 1	LPSDO	LPSDO SL 1	LPSDO SL 2	LPSDO SL 3	
Island 2	LPSDO SL 1	PSDI 1	PSDI 2	PSDO 1	PSDO 2
Island 3	LPSDO SL 2	PSDI 1	PSDI 2	PSDO 1	PSDO 2
Island 4	LPSDO SL 3	PSDI 1	PSDI 2	PSDO 1	PSDO 2



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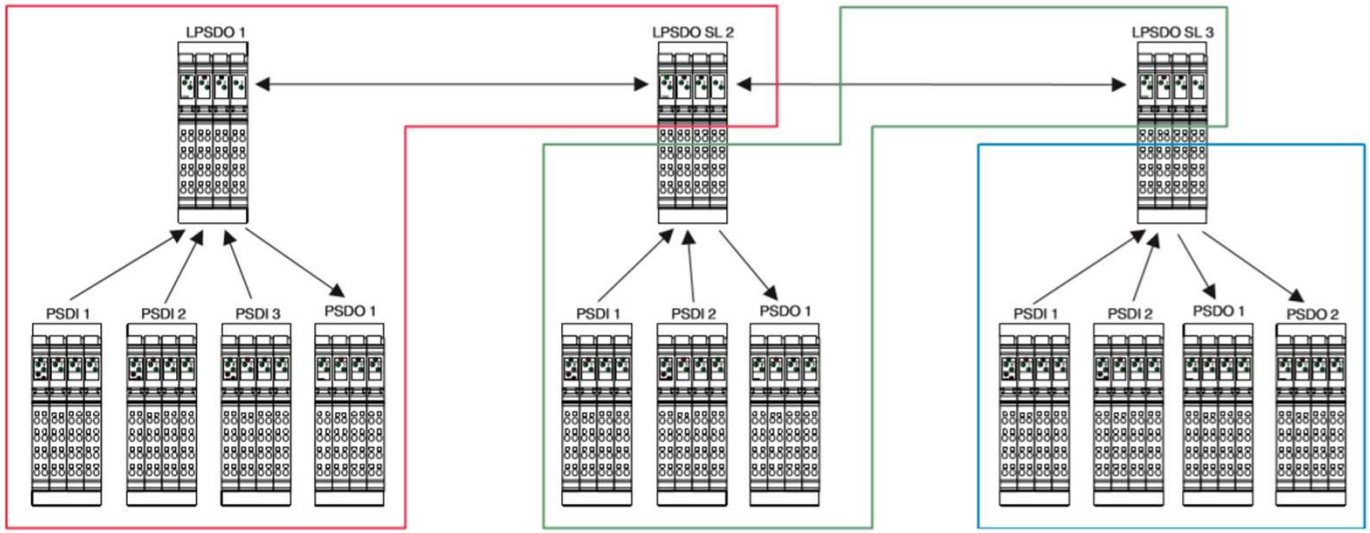
Flat Topology

Line structure

Island	Master	Slave				
Island 1	LPSDO 1	LPSDO SL 2	PSDI 1	PSDI 2	PSDI 3	PSDO 1
Island 2	LPSDO SL 2	LPSDO SL 3	PSDI 1	PSDI 2	PSDO 1	
Island 3	LPSDO SL 3	PSDI 1	PSDI 2	PSDO 1	PSDO 2	



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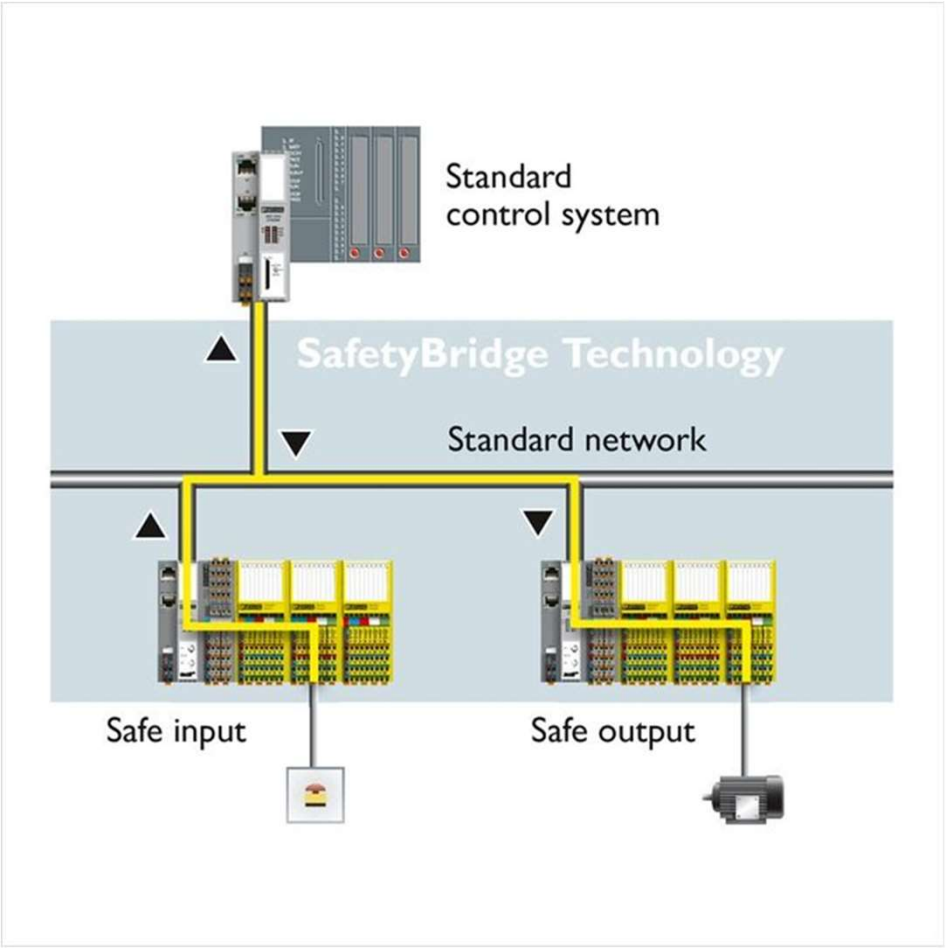
SafetyBridge Technology

Axioline F

Axioline F module with integrated safety logic and safe digital outputs

AXL F LPSDO8/3 1F



- Up to SIL 3 according to IEC 61508
- Up to SILCL 3 according to EN 62061
- Up to Cat. 4/PL e according to EN ISO 13849-1

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Axioline F

Modules SafetyBridge Technology

AXL F LPSDO8/3 1F

AXL F SSDI8/4 1F

AXL F SSDO8/3 1F

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Axioline F

Functionality of AXL LPSDO8/3 1F

Functionality	AXL F LPSDO8/3 1F
Supported satellites  	– AXL F SSDI8/4 1F – AXL F SSDO8/3 1F – AXL F LPSDO8/3 1F – IB IL 24 PSDI 16-PAC – IB IL 24 PSDI 8-PAC[1] – IB IL 24 PSDO 8-PAC[1] – IB IL 24 PSDO 4/4-PAC[1] – IB IL 24 PSDOR 4-PAC[1] – IB IL 24 LPSDO 8 V3-PAC The AXL F LPSDO8/3 1F logic module from the Axioline F series can operate satellites from the Inline series. A logic module from the Inline series **cannot** operate satellites from the Axioline F series.

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Axioline F

Independence of Network

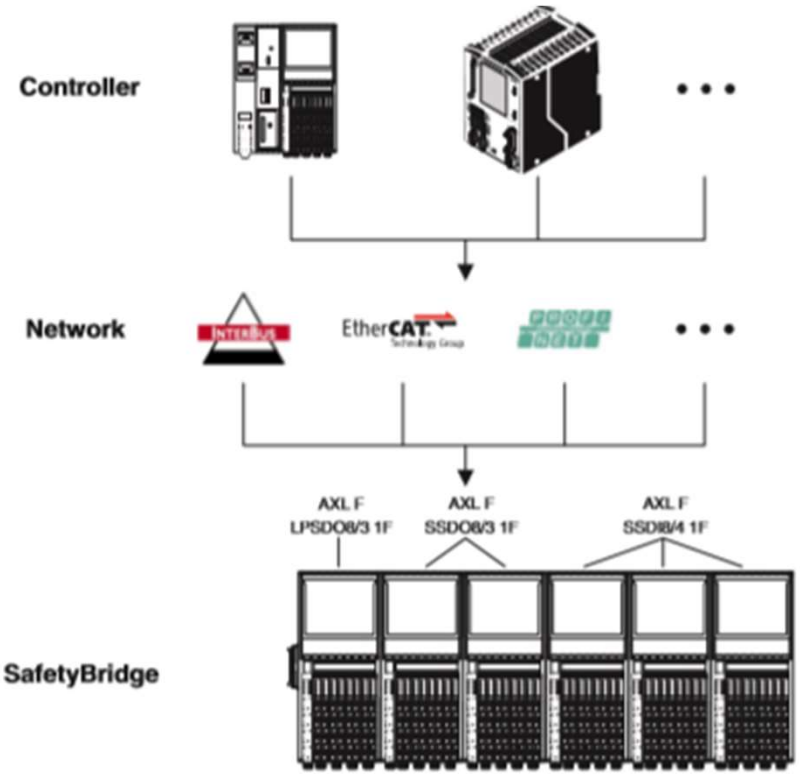
The SafetyBridge system does not place any special requirements on the standard controller. However, it must be able to perform the following tasks:

Network:

- Deterministic network

Controller:

- Fast enough that it can meet time expectations for the response time
- Sufficient memory to store the configuration and parameter data record
- Data consistency is ensured over 24 words



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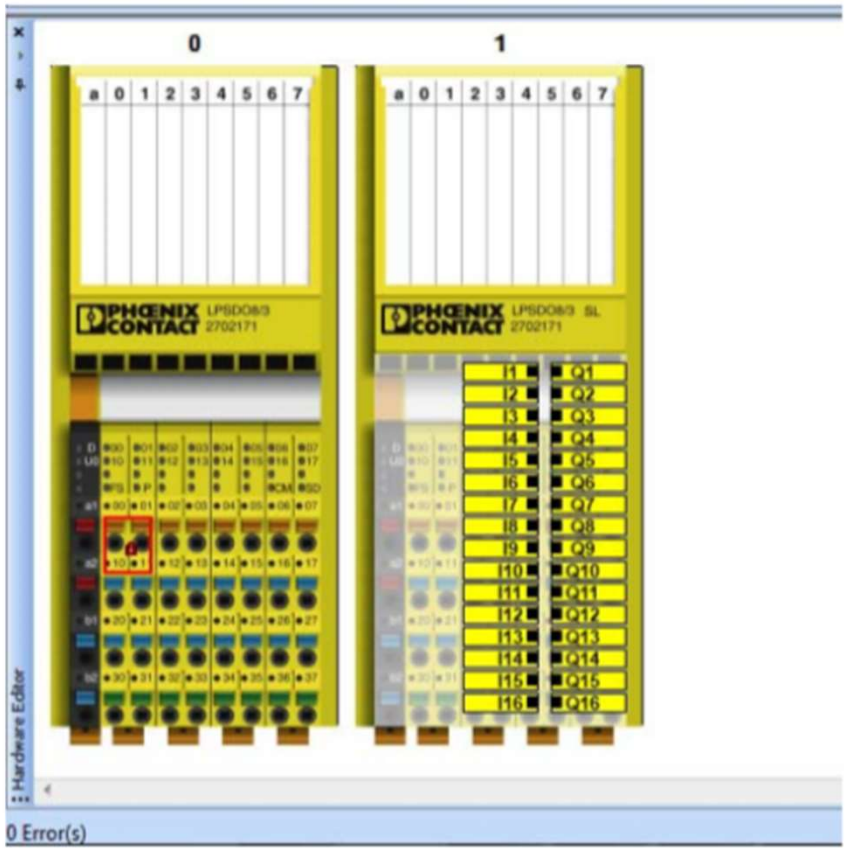
Axioline F

Cross communication

Figure A-2 SAFECONF hardware toolbox



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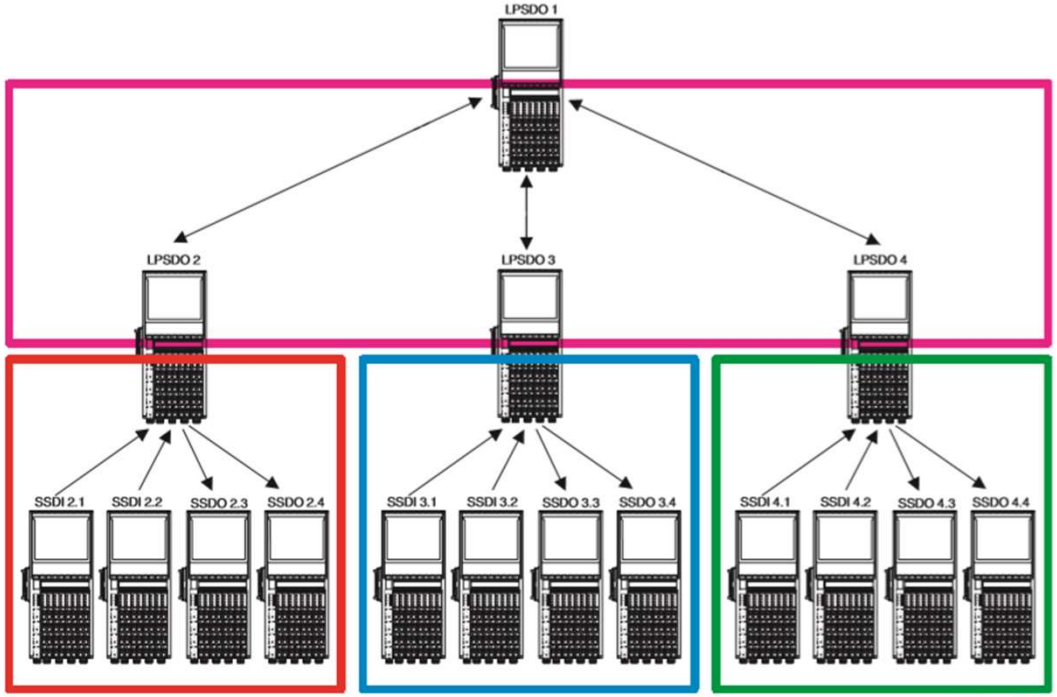
Tree structure Axioline F SBT

Hierarchical Topology

Island	Master	Slave			
Island 1	LPSDO 1	LPSDO 2	LPSDO 3	LPSDO 4	-
Island 2	LPSDO 2	SSDI 2.1	SSDI 2.2	SSDO 2.3	SSDO 2.4
Island 3	LPSDO 3	SSDI 3.1	SSDI 3.2	SSDO 3.3	SSDO 3.4
Island 4	LPSDO 4	SSDI 4.1	SSDI 4.2	SSDO 4.3	SSDO 4.4



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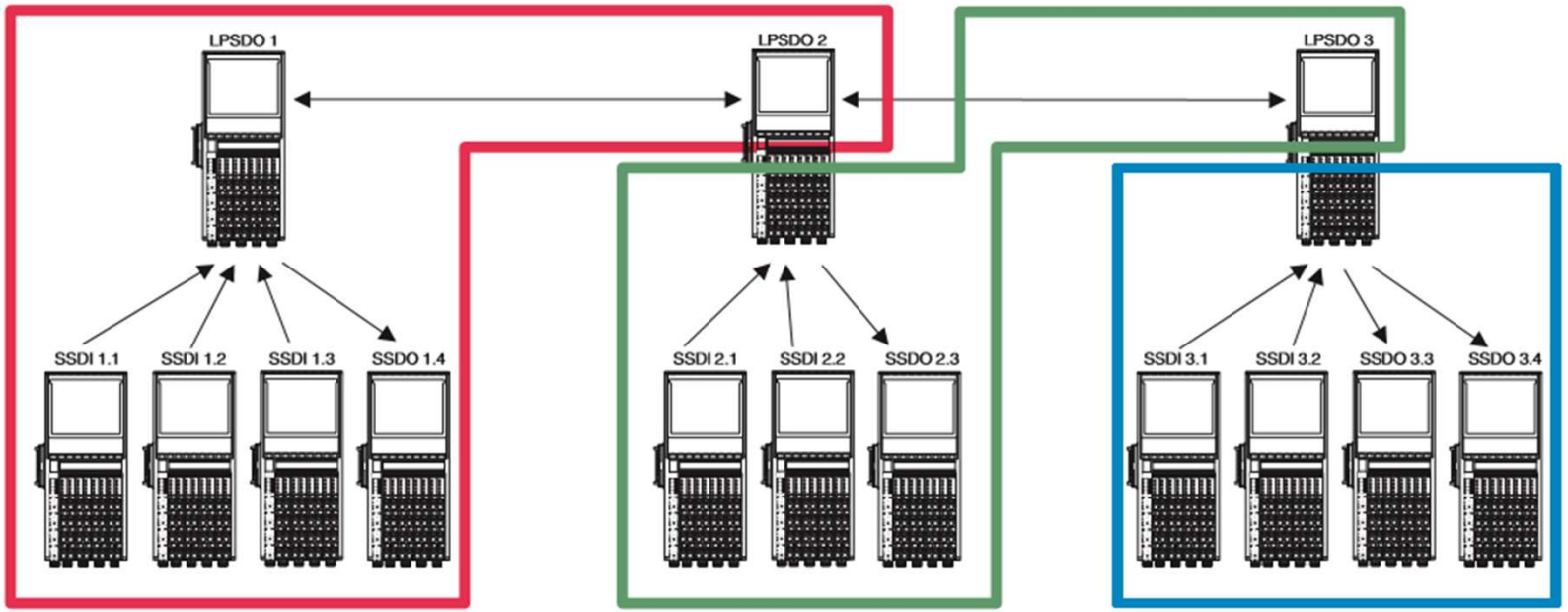
Line Structure Axioline F SBT

Flat Topology

Island	Master	Slave				
Island 1	LPSDO 1	LPSDO 2	SSDI 1.1	SSDI 1.2	SSDI 1.3	SSDO 1.4
Island 2	LPSDO 2	LPSDO 3	SSDI 2.1	SSDI 2.2	SSDO 2.3	-
Island 3	LPSDO 3	SSDI 3.1	SSDI 3.2	SSDO 3.3	SSDO 3.4	-



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Software for SBT and other Safety products

SAFECON

Configuration software for SafetyBridge technology
and PSR-TRISAFE modules

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E-Learning

SAFECON

SAFECONF

The main functions at a glance

In this tutorial, you will learn the basics of the SAFECONF software: the user interface, basic operation, and the help system.

▸ Start tutorial

Easy configuration and testing of safety logic

In this tutorial, you will find out how to create a new project with the SAFECONF software and then how to configure and test your safety logic.

▸ Start tutorial

Simulate hardware in order to test safety functions

In this tutorial, you will find out how to use simulation mode within the SAFECONF software to test the safety functions of your project without connected hardware and how to simulate an error.

▸ Start tutorial

Testing safety logic and loading it on the switching device

In this tutorial, you will find out how to use the SAFECONF software to check a previously created safety project and transfer it to a safety device via USB cable.

▸ Start tutorial

Forcing outputs for easy machine setup

In this tutorial, you will find out how to use startup mode within the SAFECONF software to force the outputs of a safety device in order to start up your system or machine safely and easily.

▸ Start tutorial

Entering and printing information about the project

In this tutorial, you will find out how to use the SAFECONF software to create and print standard-compliant documentation for your safety project.

▸ Start tutorial

Easy configuration of safety logic with SAFECONF

You will interactively learn about the advantages and possibilities of the SAFECONF configuration software. After working through this learning module, you will be able to independently configure and test safety functions and simulate your own project.

▸ Start learning module

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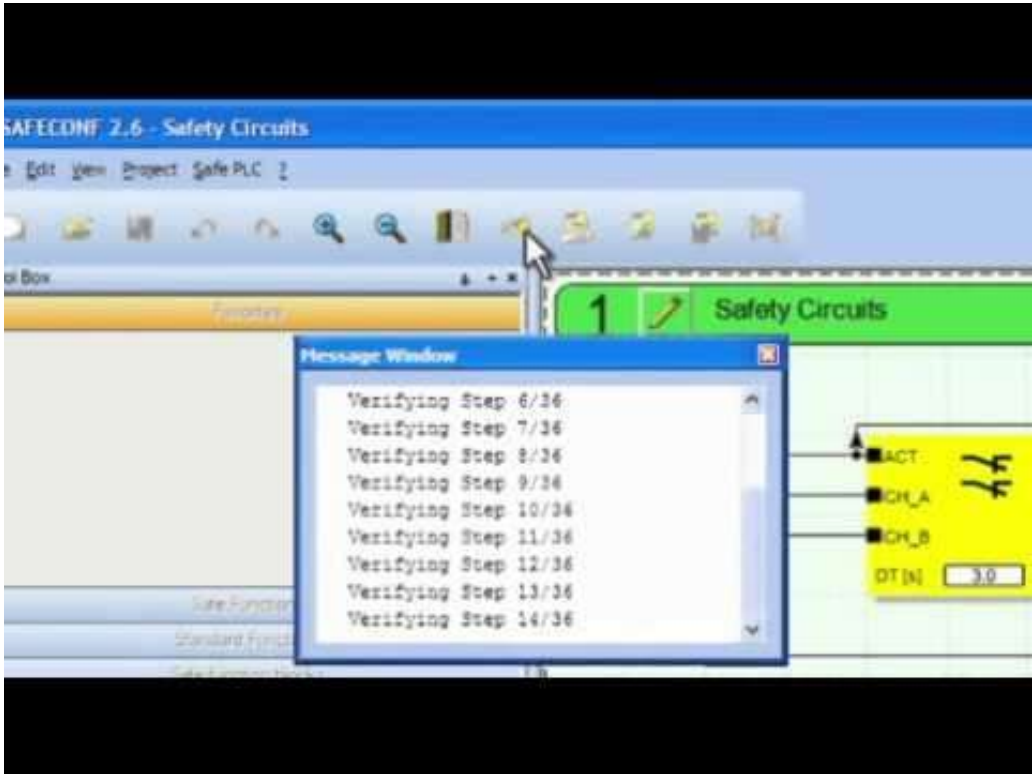

How to use Safety Controller by SAFECON (Trisafe, SBT (Inline or Axioline F)

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SAFECONF

Configuration Software

Basics

The most important functions at a glance

SAFECON

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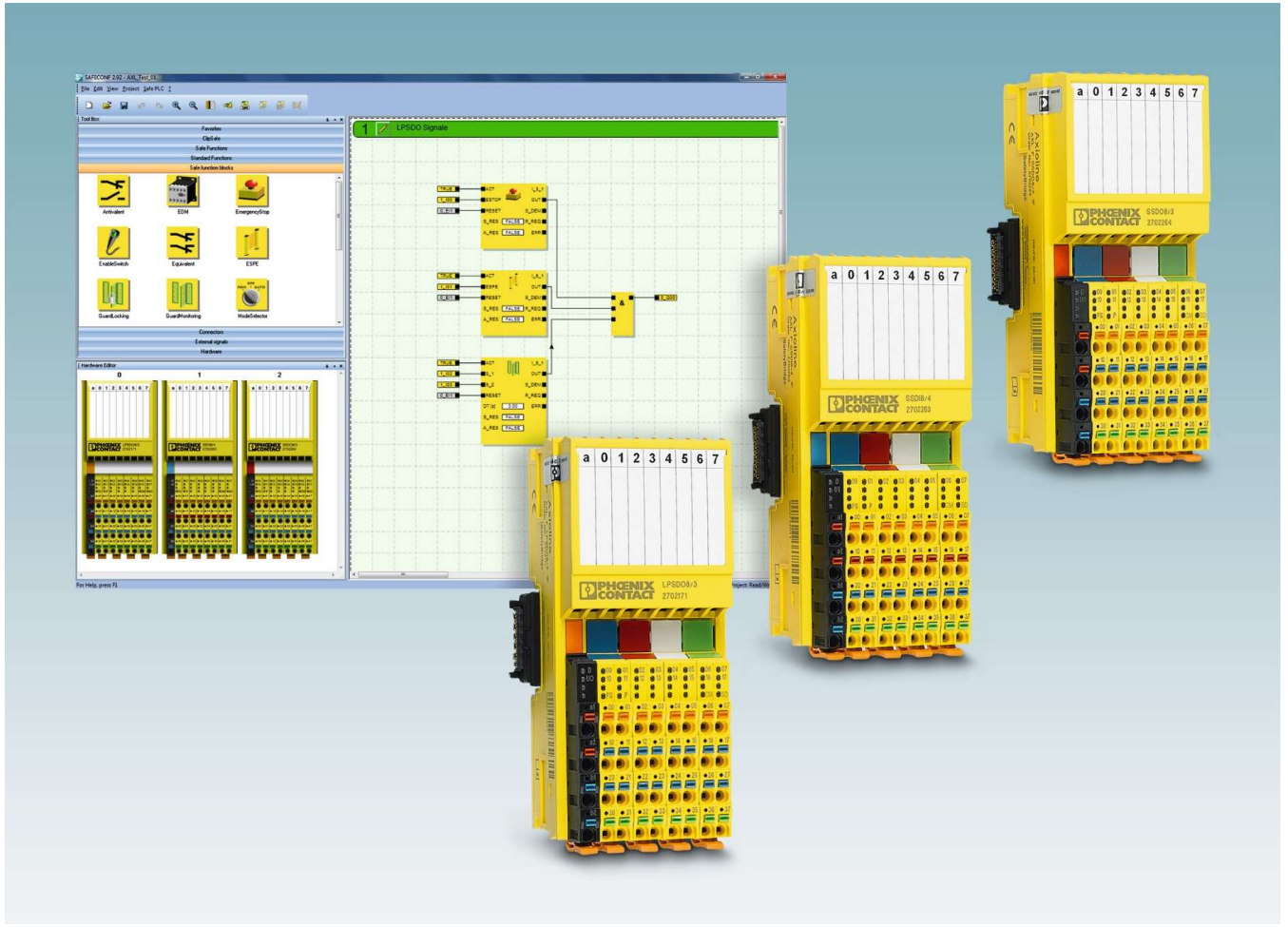
SafetyBridge Technologies

SAFECON



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SafetyBridge Technologies

Aplicaciones

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SafetyBridge Technologies

Aplicaciones

Bluetooth	FL EPA 2 FL EPA 2 RSMA
SBT	IB IL 24 LPSDO 8 V3-PAC IB IL 24 PSDI 16-PAC

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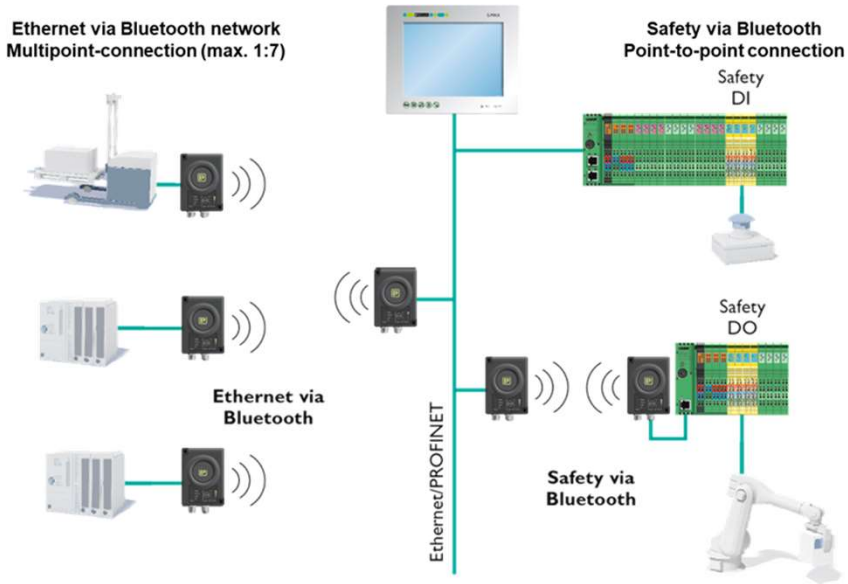
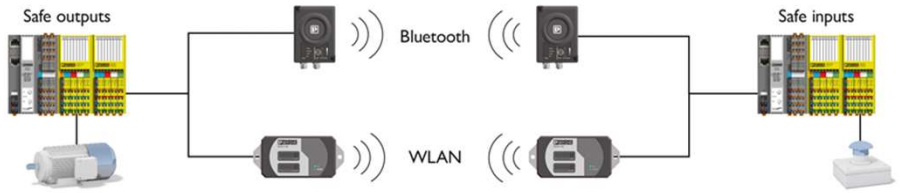
Aplicaciones Cableadas, Inalámbricas, Bluetooth, WLAN.

SafetyBridge Technology





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SafetyBridge Technologies

Aplicaciones

SafetyBridge Technologies

Aplicaciones

Few operators

Distributed Emergency Stops

Network Safety concept

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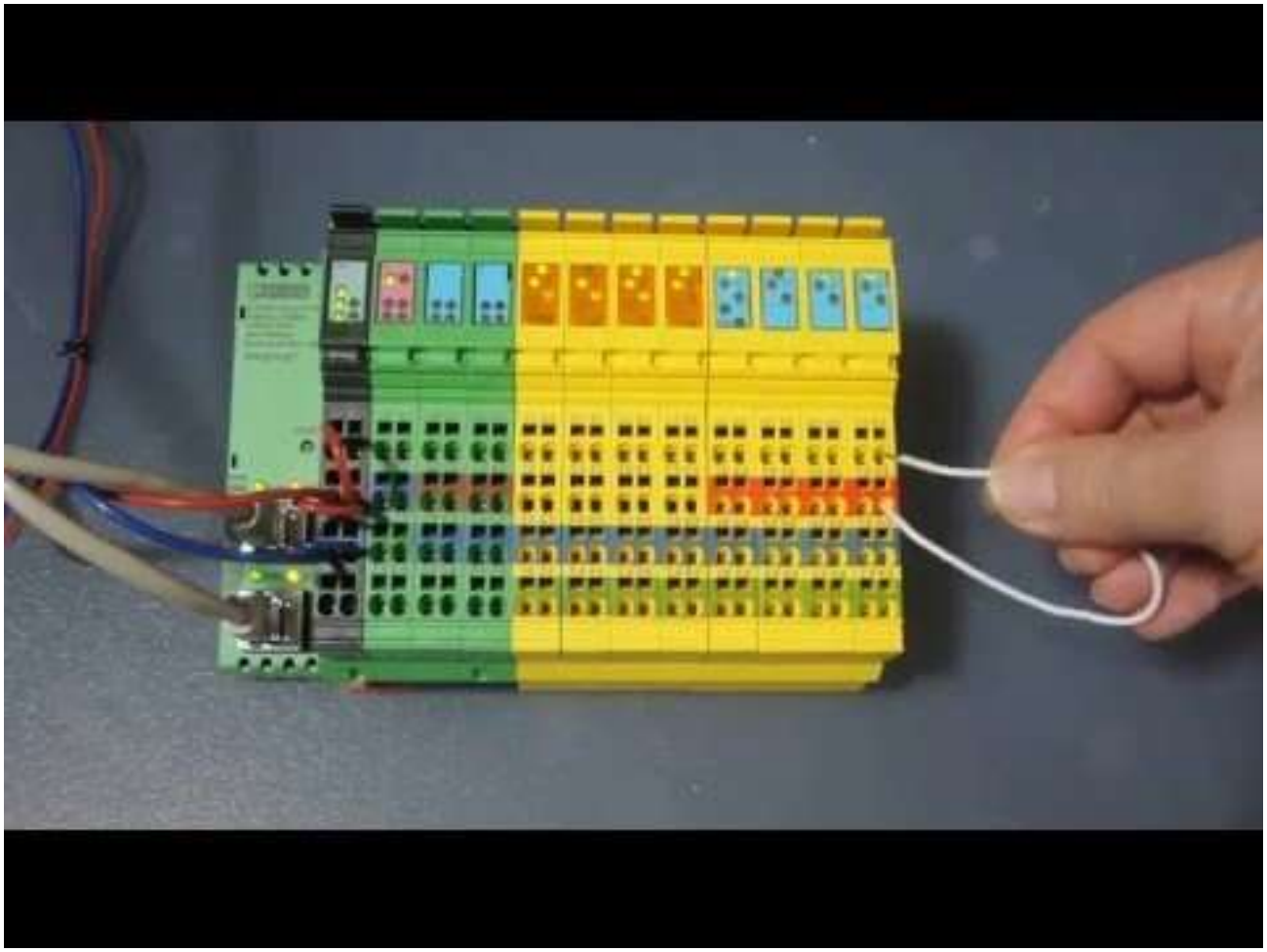

SafetyBridge Technology with Simatic S7-1200

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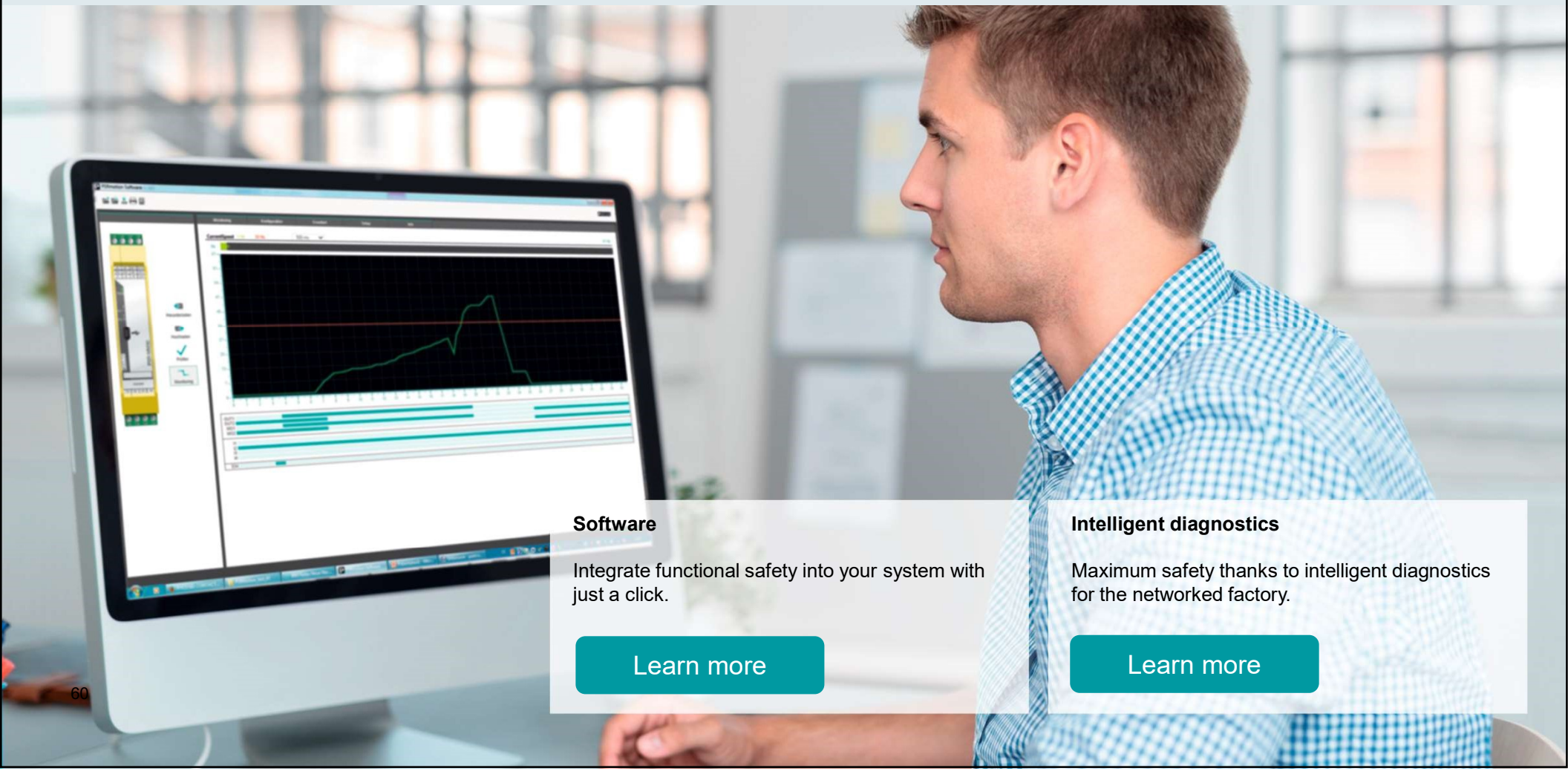
Smart safety solutions

Engineering and diagnostics



Software

Integrate functional safety into your system with just a click.

Learn more

Intelligent diagnostics

Maximum safety thanks to intelligent diagnostics for the networked factory.

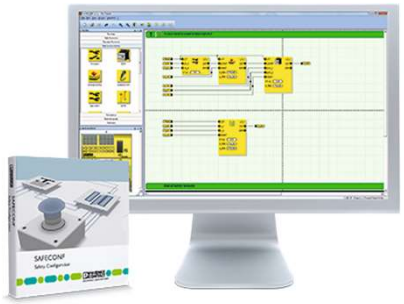
Learn more

Smart safety solutions

Safety software

Configuration software
PSRmotion

Configuration software
PSRmodular



Configuration software
SAFECONF

Programming software
PLCnext Engineer

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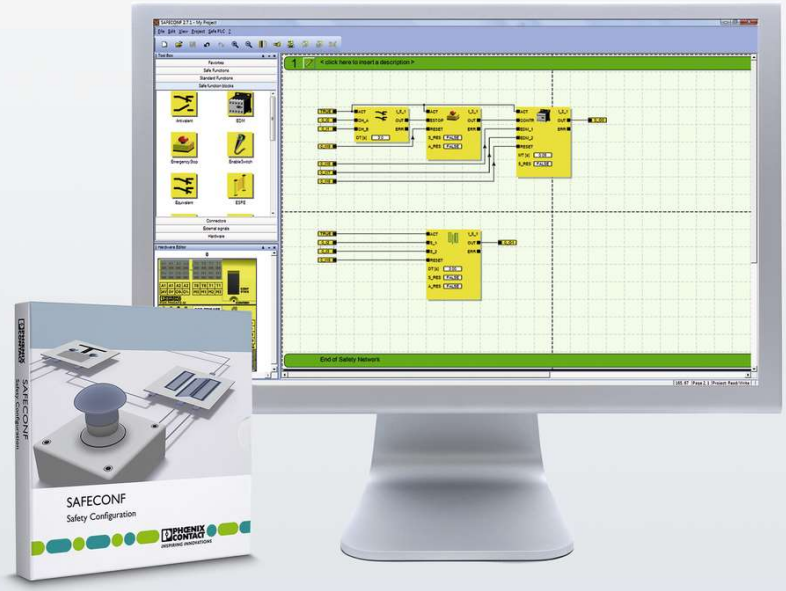
Smart safety solutions

Easy configuration with software SAFECONF



Configuration software SAFECONF

- Easily create the safety logic for TRISAFE and SafetyBridge I/O modules using drag-and-drop
- Intuitive operation and certified blocks
- Simulation and diagnostics
- Application help
- Integrated e-learnings

Free download

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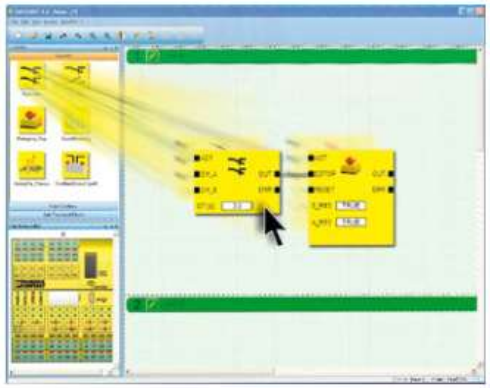
Smart safety solutions

Easy configuration with software SAFECONF

Easy configuration in three steps and with TÜV certified functions blocks

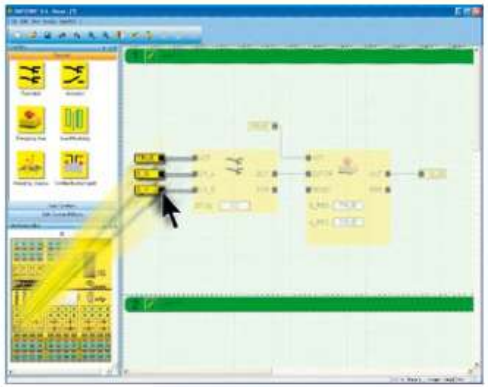
1

Select and drag and drop security features to configure.



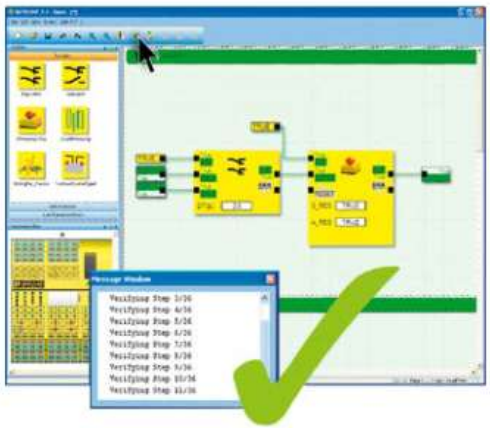
2

Connect the inputs and outputs of the modules to the safety functions.



3

Check and save safety functions. Done!



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Smart safety solutions

Mobile applications

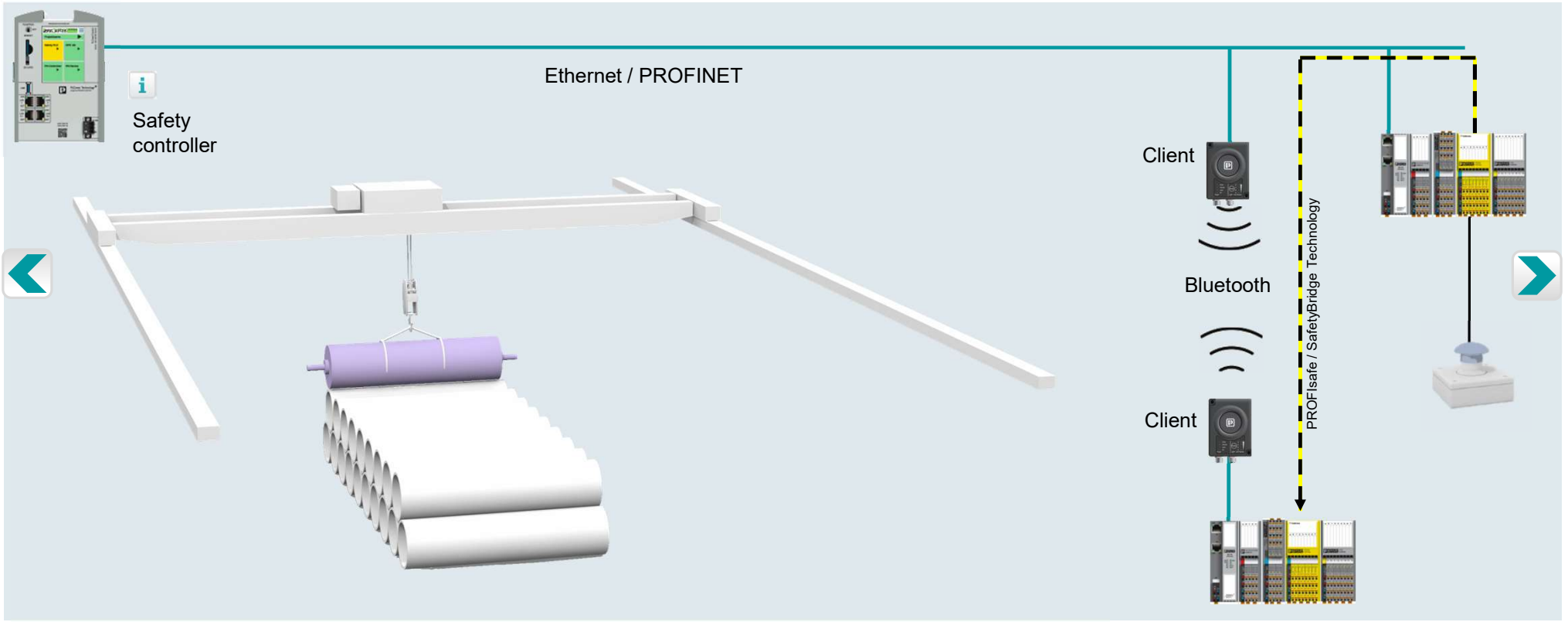
Mobile applications

With regard to passengerless transport systems, airport bridges or the like, functional safety is also becoming increasingly important. In addition, the combination of safety and wireless has many advantages.

Learn more

Smart safety solutions

Transmitting safe data via wireless systems



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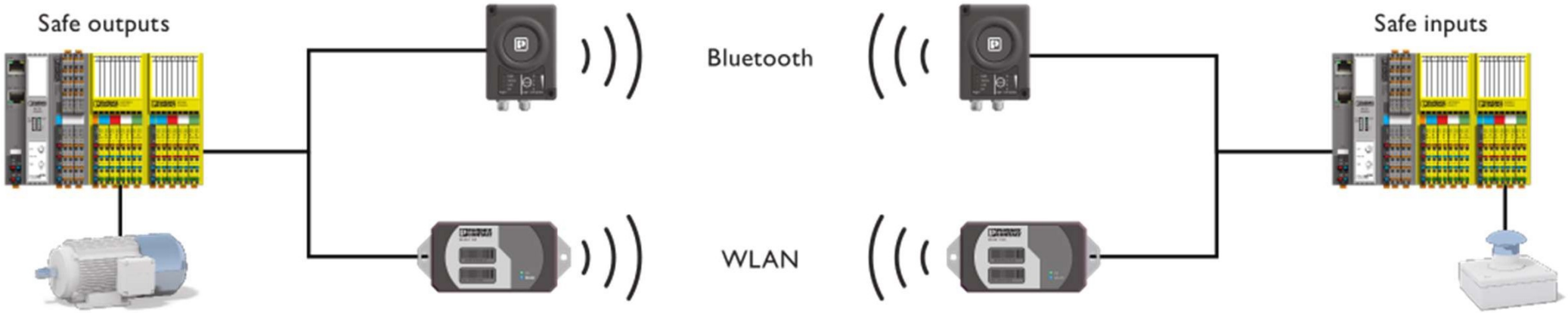
Smart safety solutions
Transmitting safe data via wireless systems



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

SafetyBridge Technology
Designed by PHOENIX CONTACT

Advantages of combing safety and wireless:

- ✓ Easy integration in existing automation networks
- ✓ Transmission of safety signals over long distances
- ✓ Cost savings with a decentralised or mobile machine design

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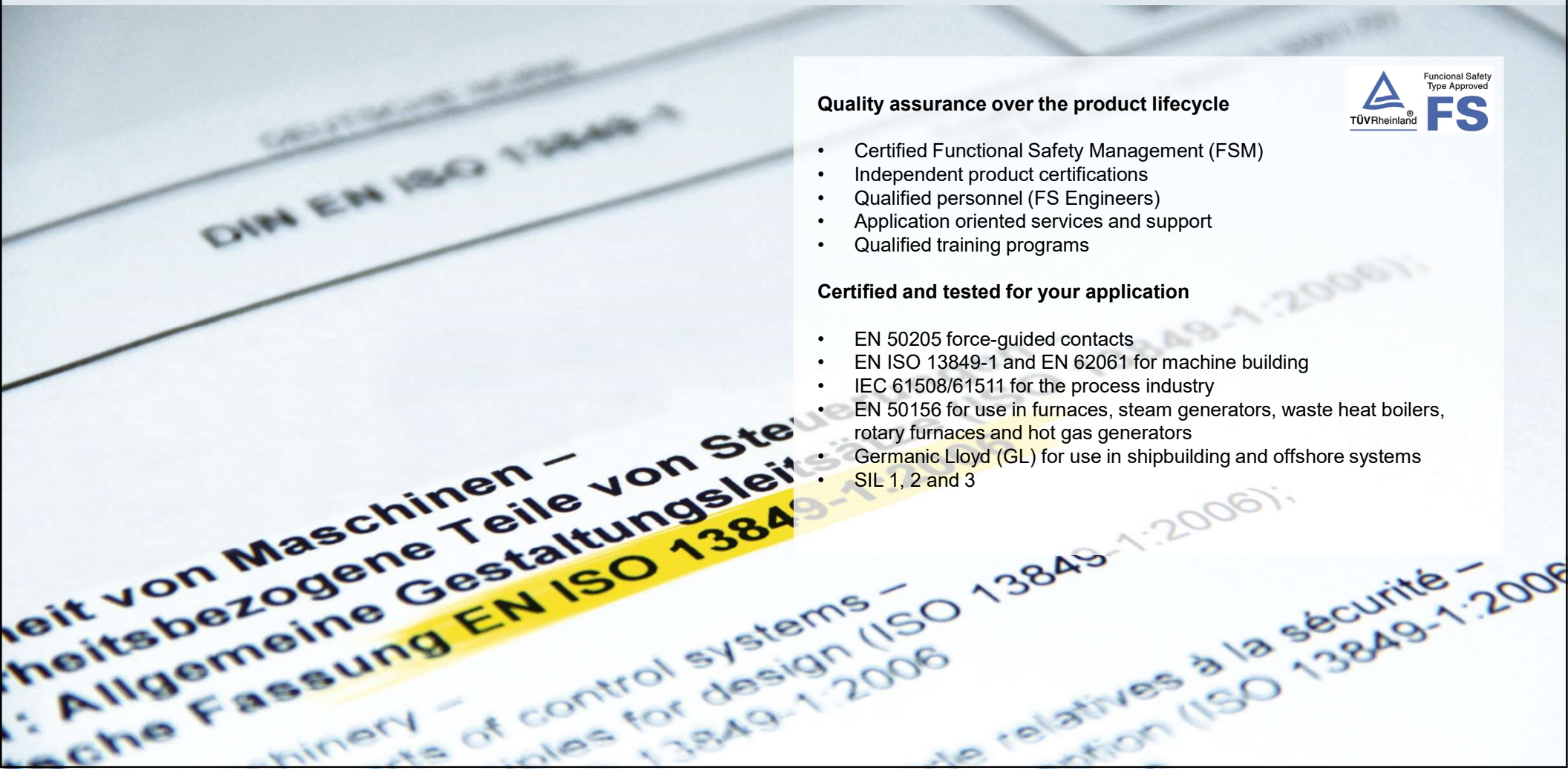
Quality assurance

Certified products and processes



Quality assurance over the product lifecycle

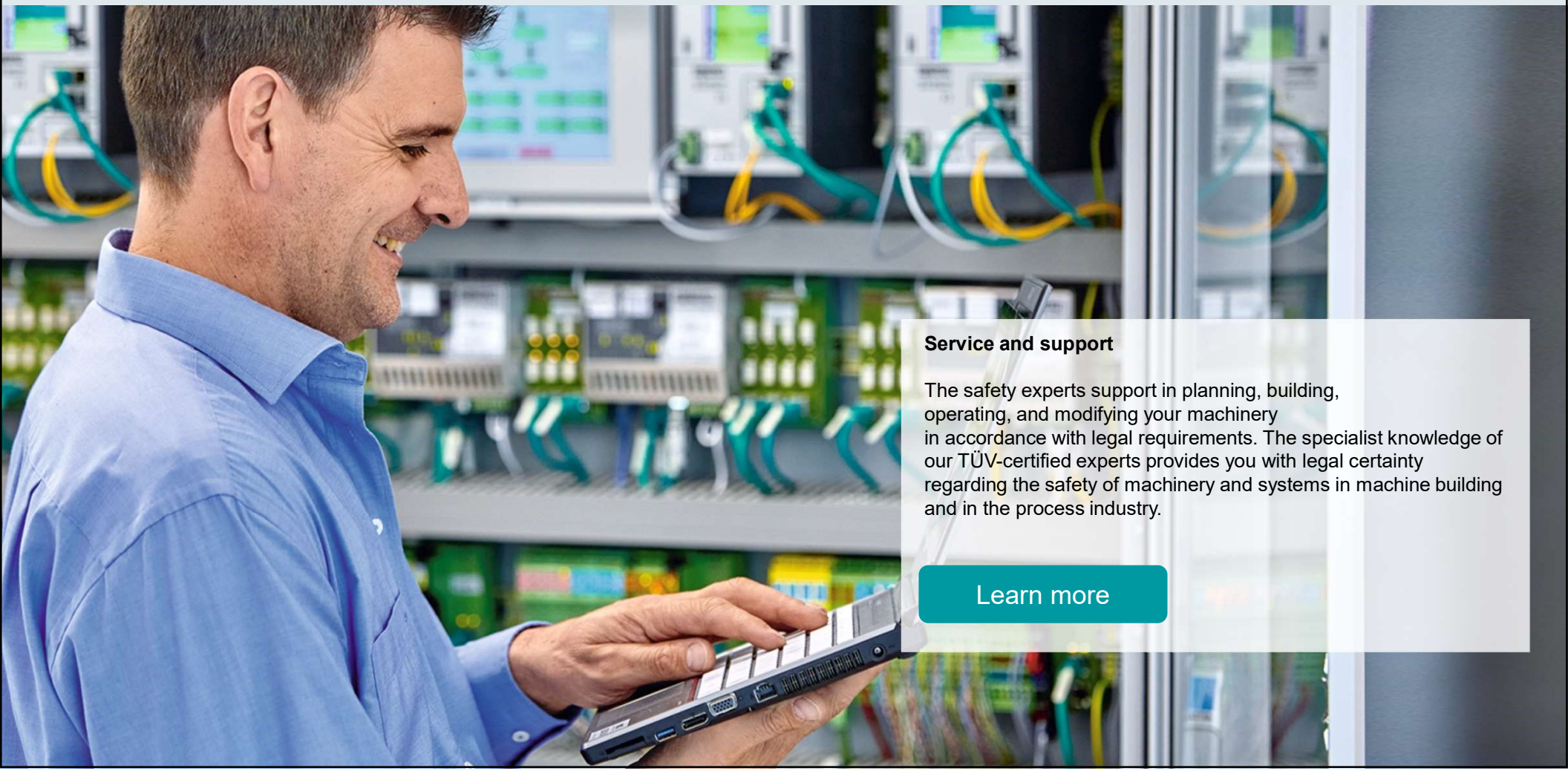
- Certified Functional Safety Management (FSM)
- Independent product certifications
- Qualified personnel (FS Engineers)
- Application oriented services and support
- Qualified training programs

Certified and tested for your application

- EN 50205 force-guided contacts
- EN ISO 13849-1 and EN 62061 for machine building
- IEC 61508/61511 for the process industry
- EN 50156 for use in furnaces, steam generators, waste heat boilers, rotary furnaces and hot gas generators
- Germanic Lloyd (GL) for use in shipbuilding and offshore systems
- SIL 1, 2 and 3

Safety service and support

Worldwide support from TÜV certified experts



Service and support

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

Learn more

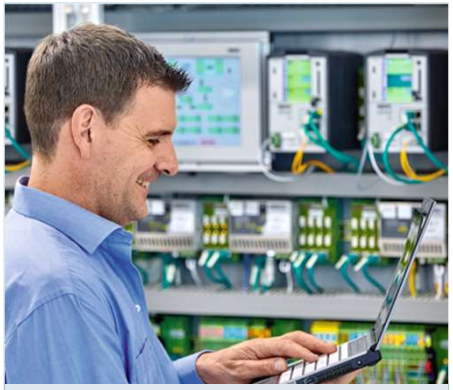
Safety service and support

Services for machine and system safety

Consulting

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

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



Engineering

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

Product support

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

Seminars and trainings

We offer instruction and practical training that is tailored to your individual requirements, e.g. safety application software:

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

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Safety service and support

Services for safety in the process industry

Demands on safety in the process industry

Design guidelines relating to functional safety are in place for the requirements on the safe operation of systems in the process industry. The internationally harmonized procedure is described in IEC 61511.
A significant component of this is the safety lifecycle in conjunction with functional safety management.

Seminars for functional safety in the process industry in accordance with EN 61511:

- Risk analysis
- Safety lifecycle
- Creation of process control technology

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Successful in use
Industries

Industries
Machine building

- ✓ Wide product portfolio with compatibility to a large number of sensors
- ✓ In-house mechanical engineering supports all business fields of Phoenix Contact as well as the developing and producing sites worldwide
- ✓ Approvals for markets around the world such as EN ISO 13849-1 and EN 62061

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Industries
Automotive

- ✓ Reliable automation developed specially for high-end applications with efficient PROFIsafe safety controllers
- ✓ EN ISO 13849-1 and EN 62061
- ✓ Labs-free components to prevent defects on the end product (substances which interfere the lacquering process)

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Industries
Process industry

- ✓ Extensive diagnostic features
- ✓ IEC 61508/61511 and EN 50156 for the use in furnaces, steam generators, waste heat boilers, rotary furnaces and hot gas generator
- ✓ Germanischer Lloyd (GL) for the use in shipbuilding and the offshore industry
- ✓ ATEX

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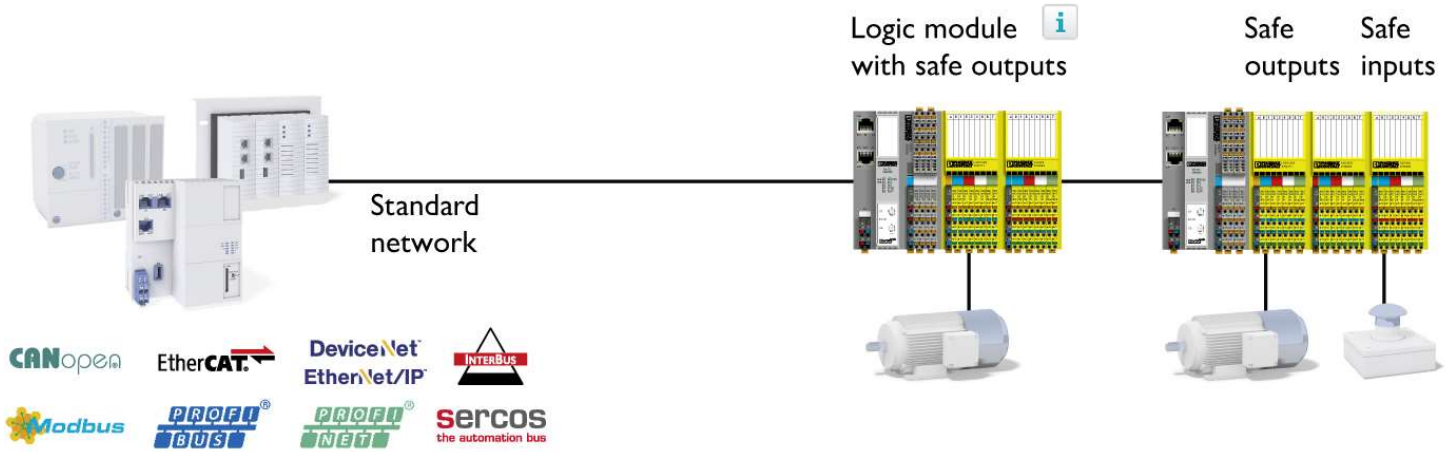
Progressive through innovative technologies
SafetyBridge Technology



What is SafetyBridge Technology (SBT)?

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

SafetyBridge Technology
Designed by PHOENIX CONTACT

How does it work?

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

Programming is implemented via **SAFECONF software**.

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Webinar IMA 2021

Mayor información

www.phoenixcontact.com.mx

ventas@phoenixcontact.com.mx

55 1101 1380

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