

Start



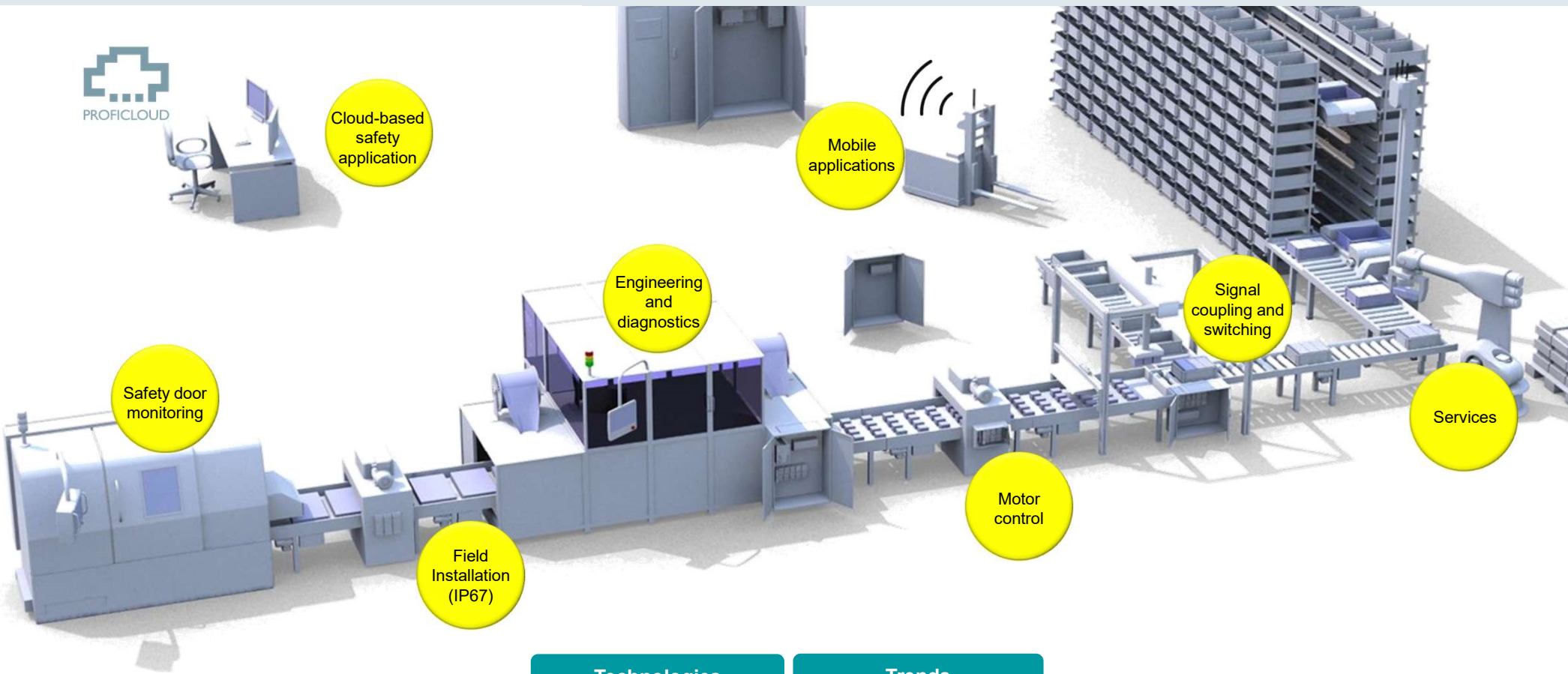
PL Functional Safety

EN ISO 12100

SIL PL e

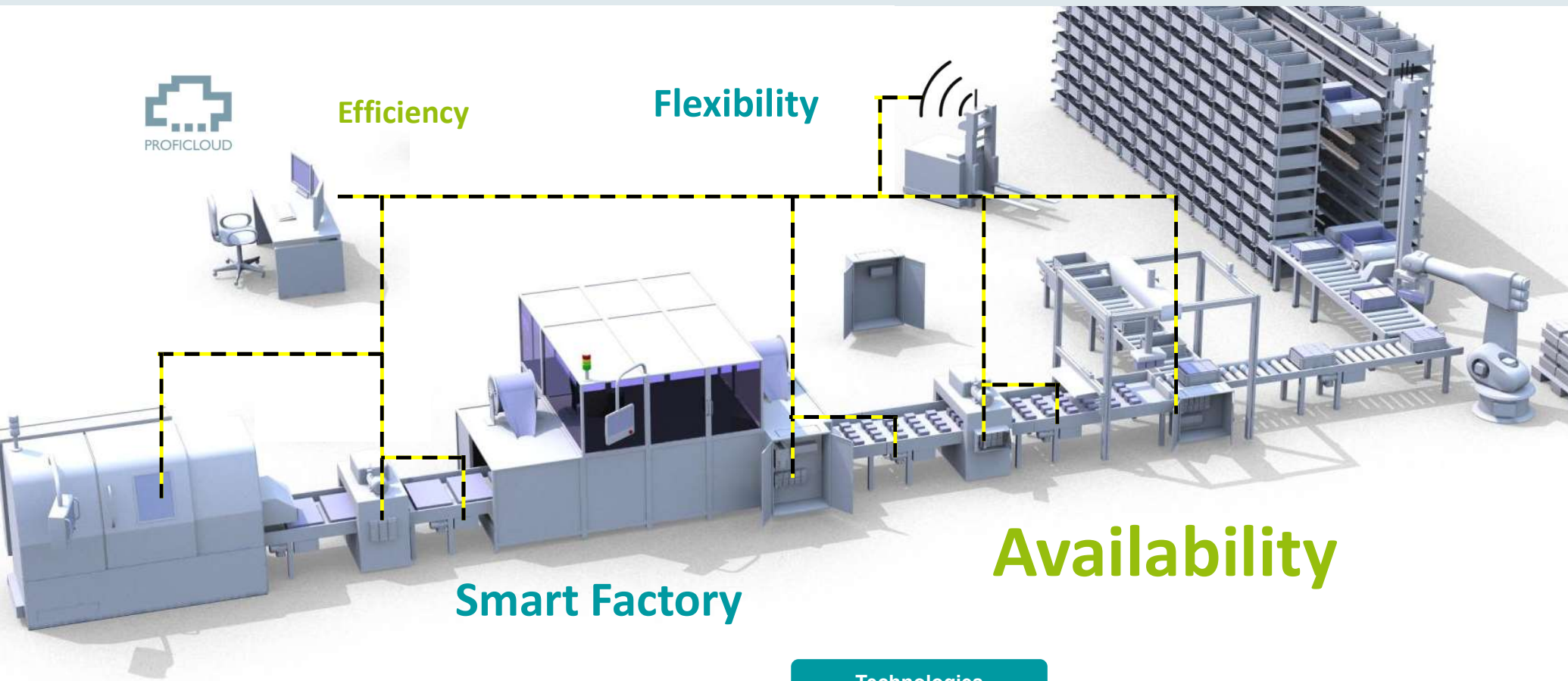
Smart safety solutions

Best fit for market needs



Technologies		Trends	
Products	Safety services	Industries	Quality assurance

Trends
Inspiring safety technologies



-  Products
-  Safety services
-  Industries
-  Quality assurance

Technologies



Safety product portfolio

From safety switches to safe controllers



Configuration software



Programming software



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

Signal conditioning

Actuators

Power

Safety switches
PSRswitch



Safe signal conditioners
MACX Safety



Safe motor starters
CONTACTRON



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.

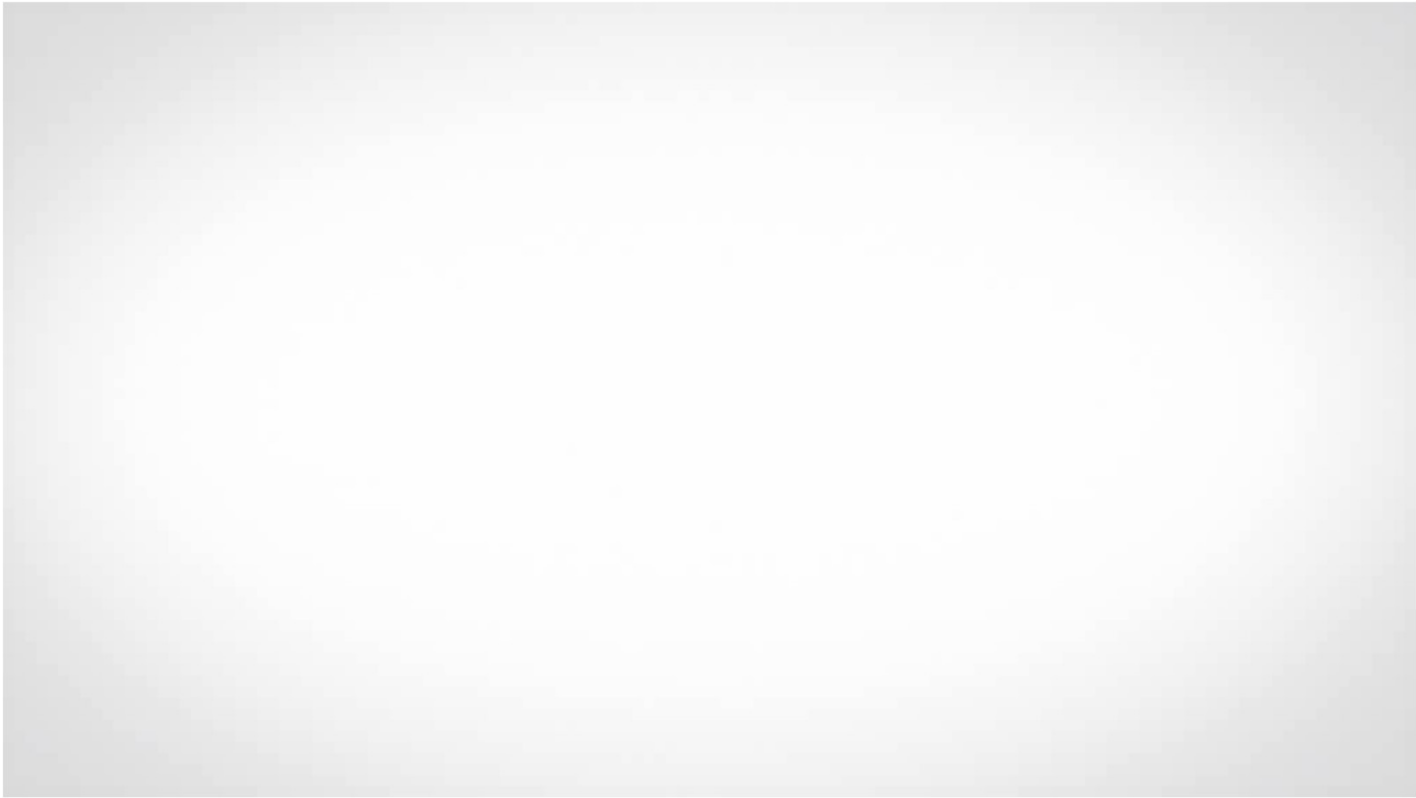
[Watch movie](#)

Relay Technology[®]
Designed by PHOENIX CONTACT



Progressive through innovative technologies

Relay Technology

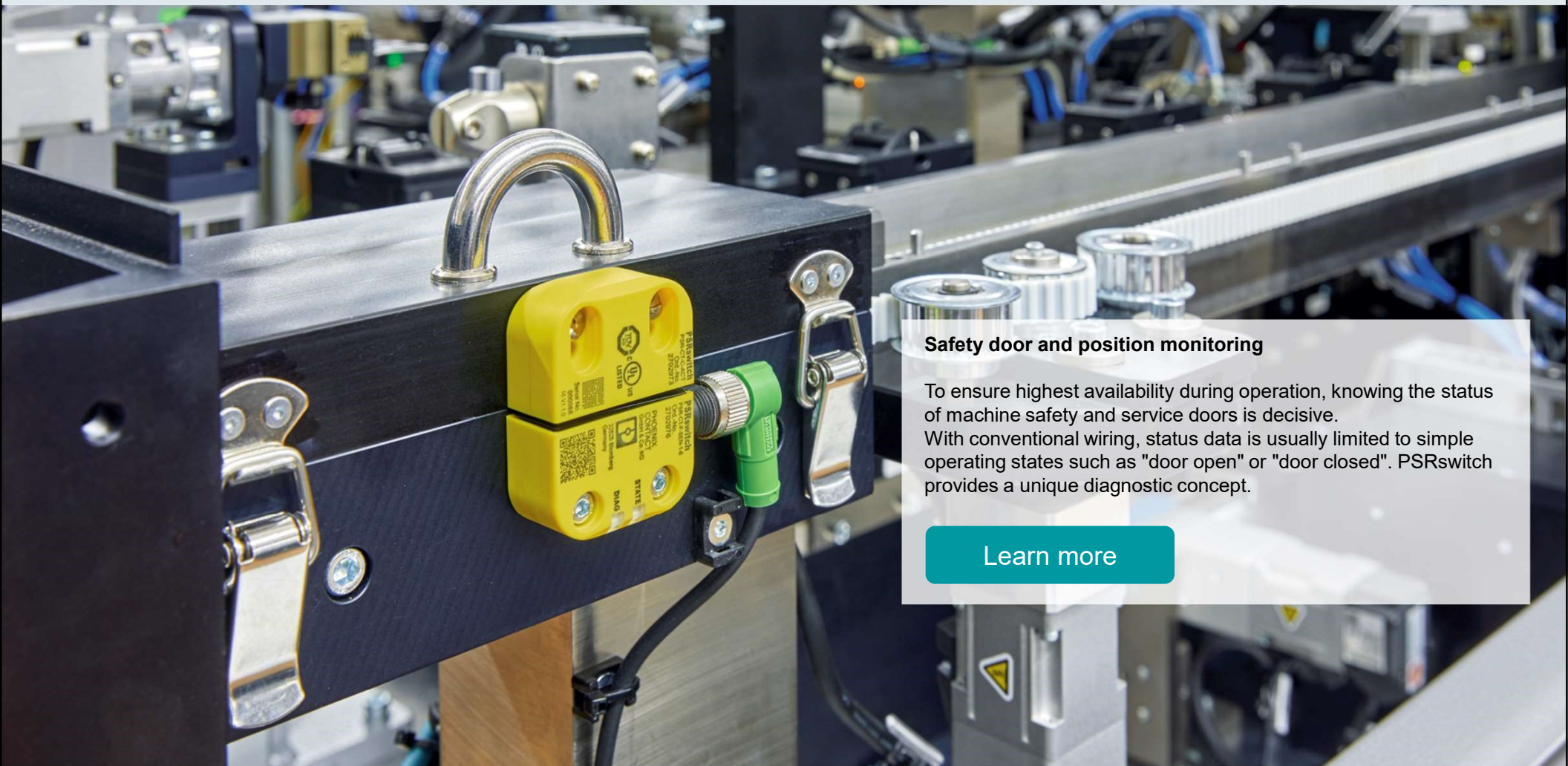


Relay Technology¹²
Designed by PHOENIX CONTACT



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.

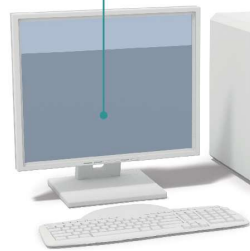
[Learn more](#)

Smart safety solutions

Safety door and position monitoring



„Door 2 open“



 **IO-Link**



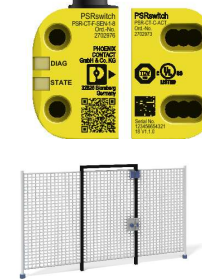
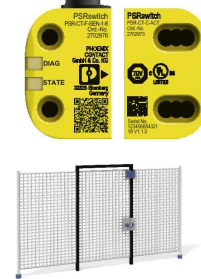
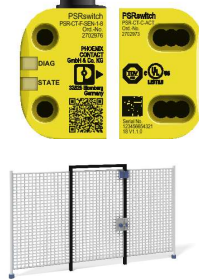
Safety relay
PSRmini

Smart Diagnostic Channel

PL e

Diagnostics by each switch

- Actuator detected
- Reset request
- External / internal failure
- Actuator is in warning zone



Safety switches
PSRswitch

Smart safety solutions

Safety door and position monitoring



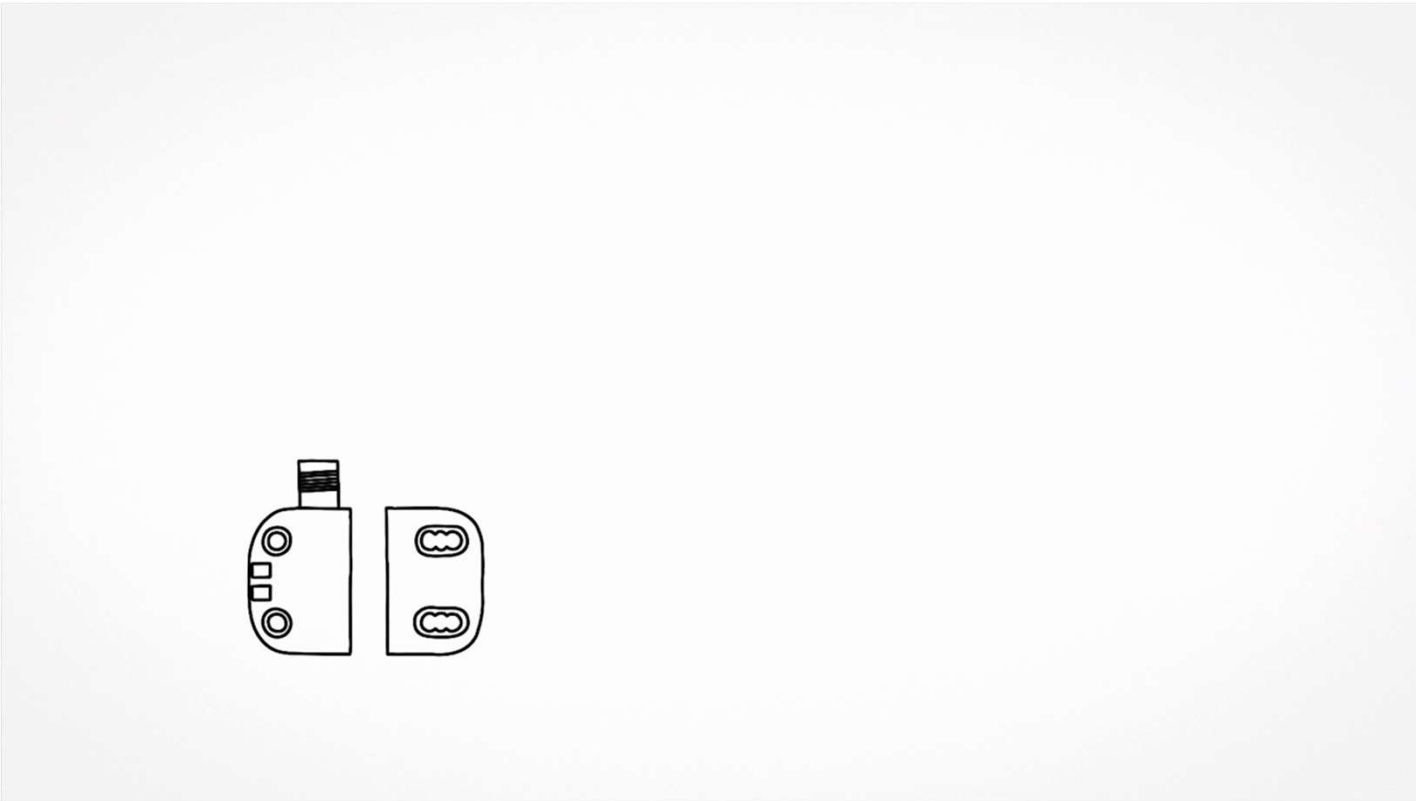
Intelligent safety switch system

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](#)

Smart safety solutions
Safety door and position monitoring





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





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

Non-contact safety switch



Products

Non-contact safety switch

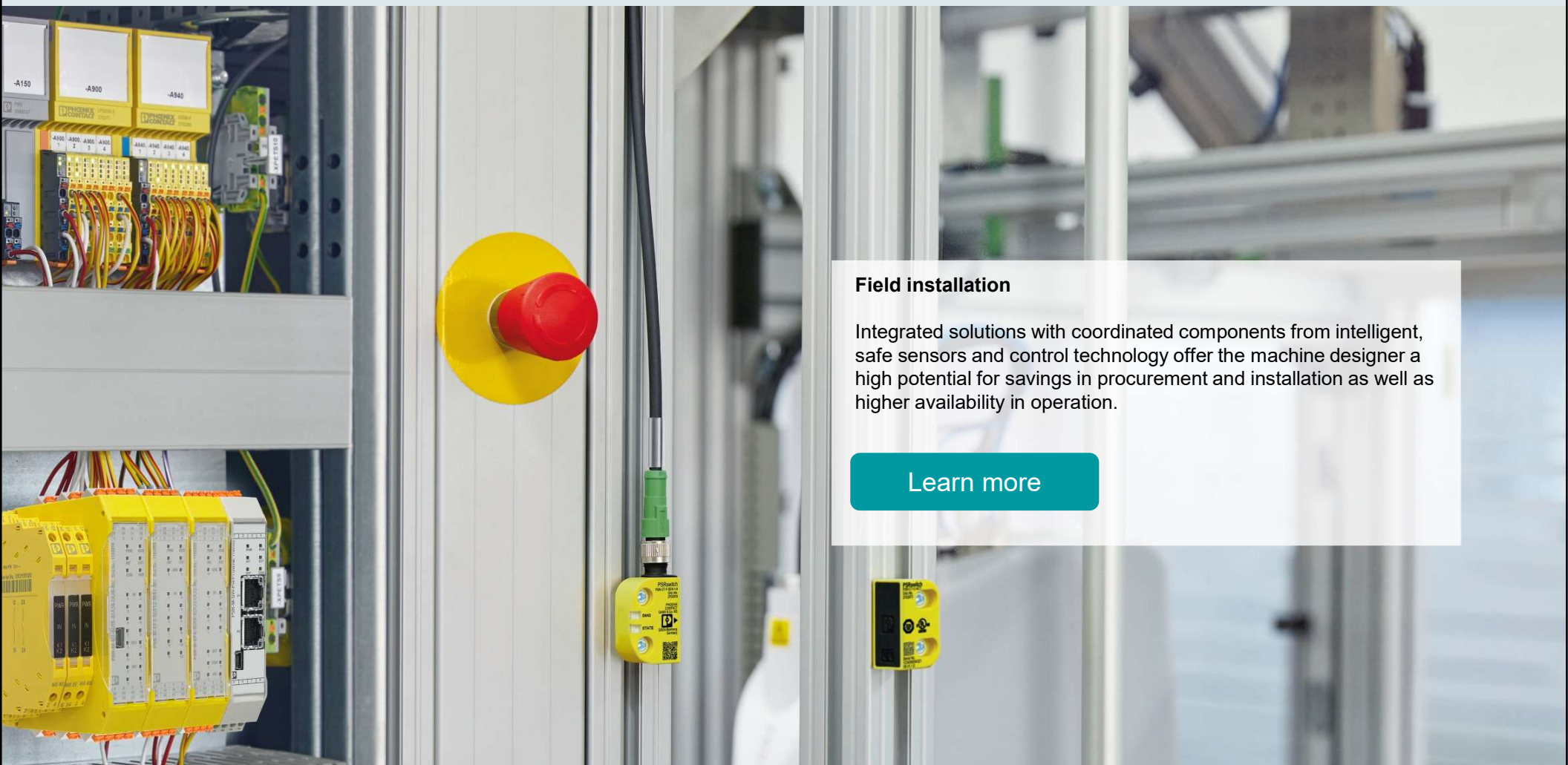


Selection guide for complete solution

	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

Smart safety solutions

Field installation (IP67)



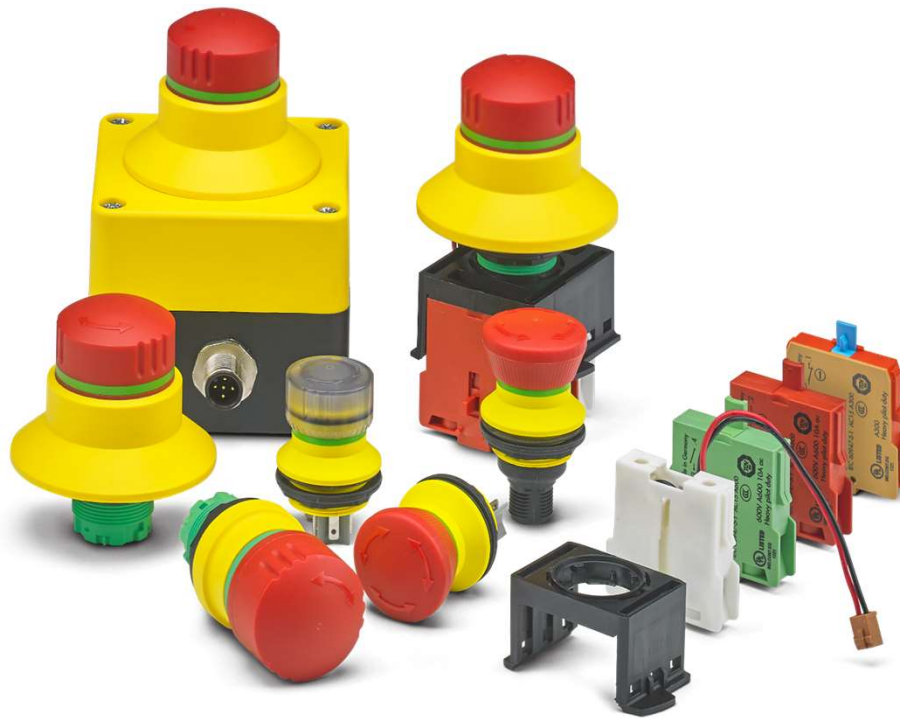
Field installation

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](#)

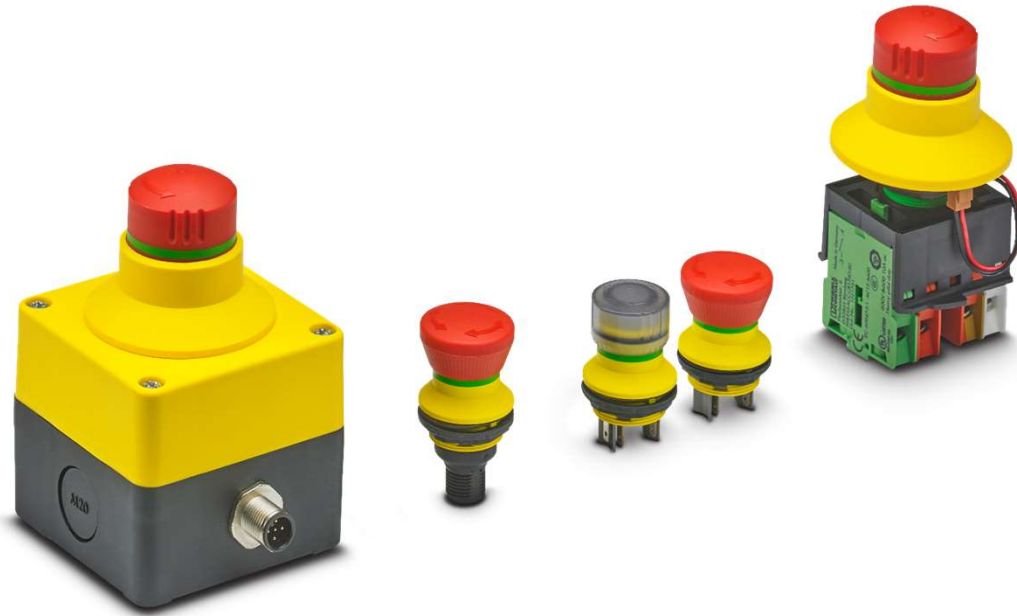
PSR-ESS Emergency Stop Switches

PSR-ESS Emergency Stop Switches



PSR-ESS Emergency Stop Switches

Why we need a E-Stop in our Portfolio?

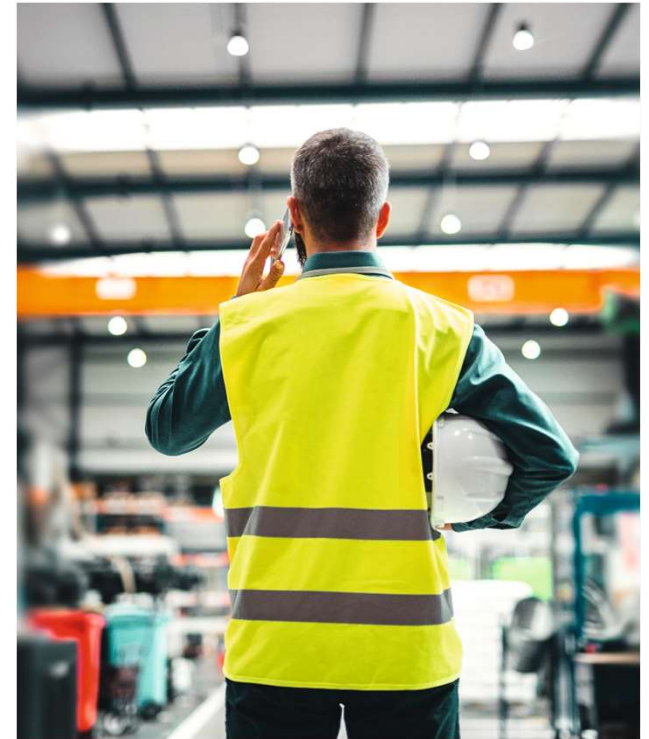


“An Emergency Stop in every machine”.

PSR-ESS Emergency Stop Switches

Agenda – PSR-ESS

- Product Overview
 - Modular System Hands on
 - Applications
-



PSR-ESS Emergency Stop Switches

Portfolio Overview

Modular
System



Surface
Installation



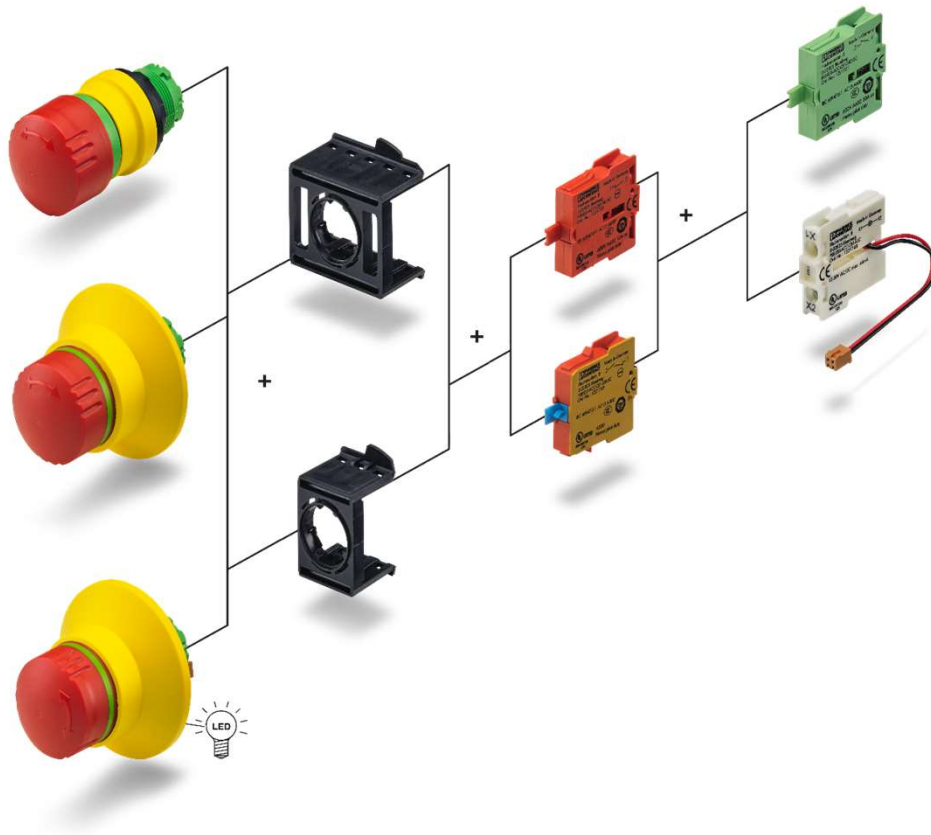
Spade
Connection



13 new articles

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

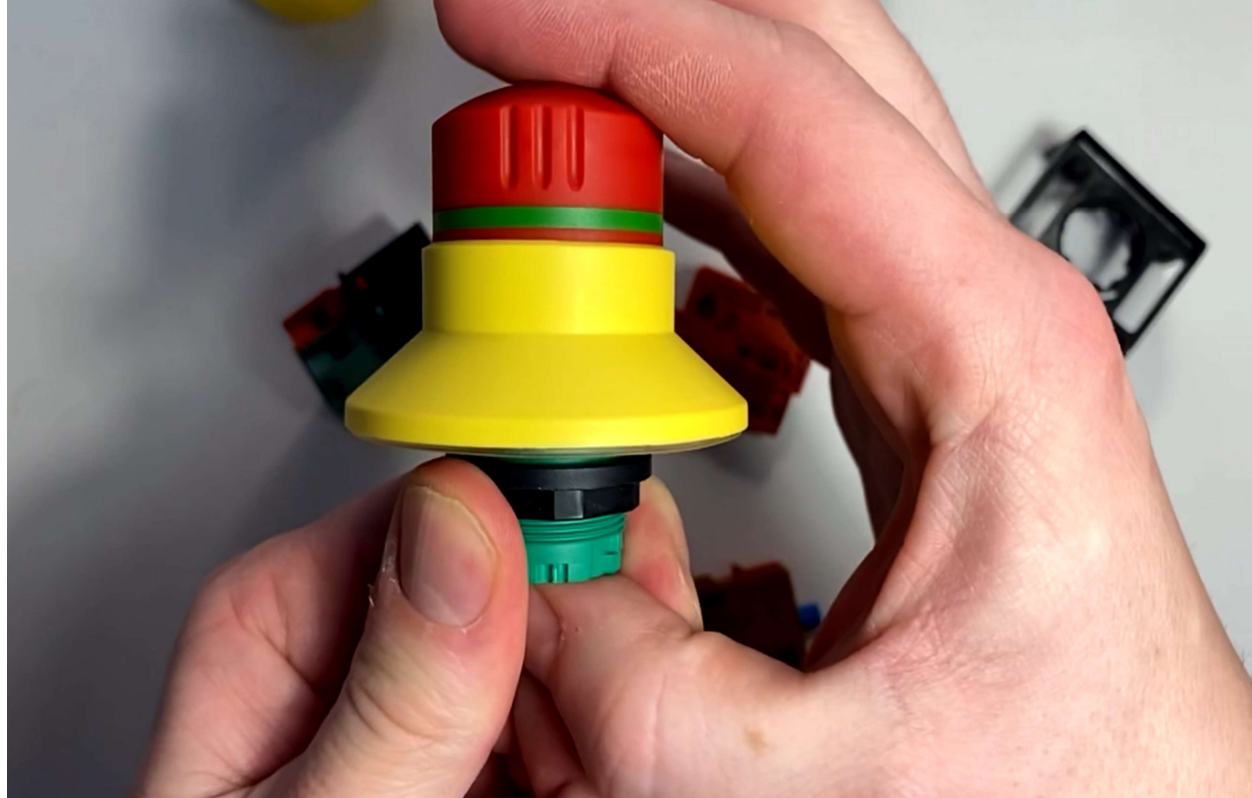
Supports 240V /3A

Approvals



PSR-ESS Emergency Stop Switches

Hands On



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

Applications

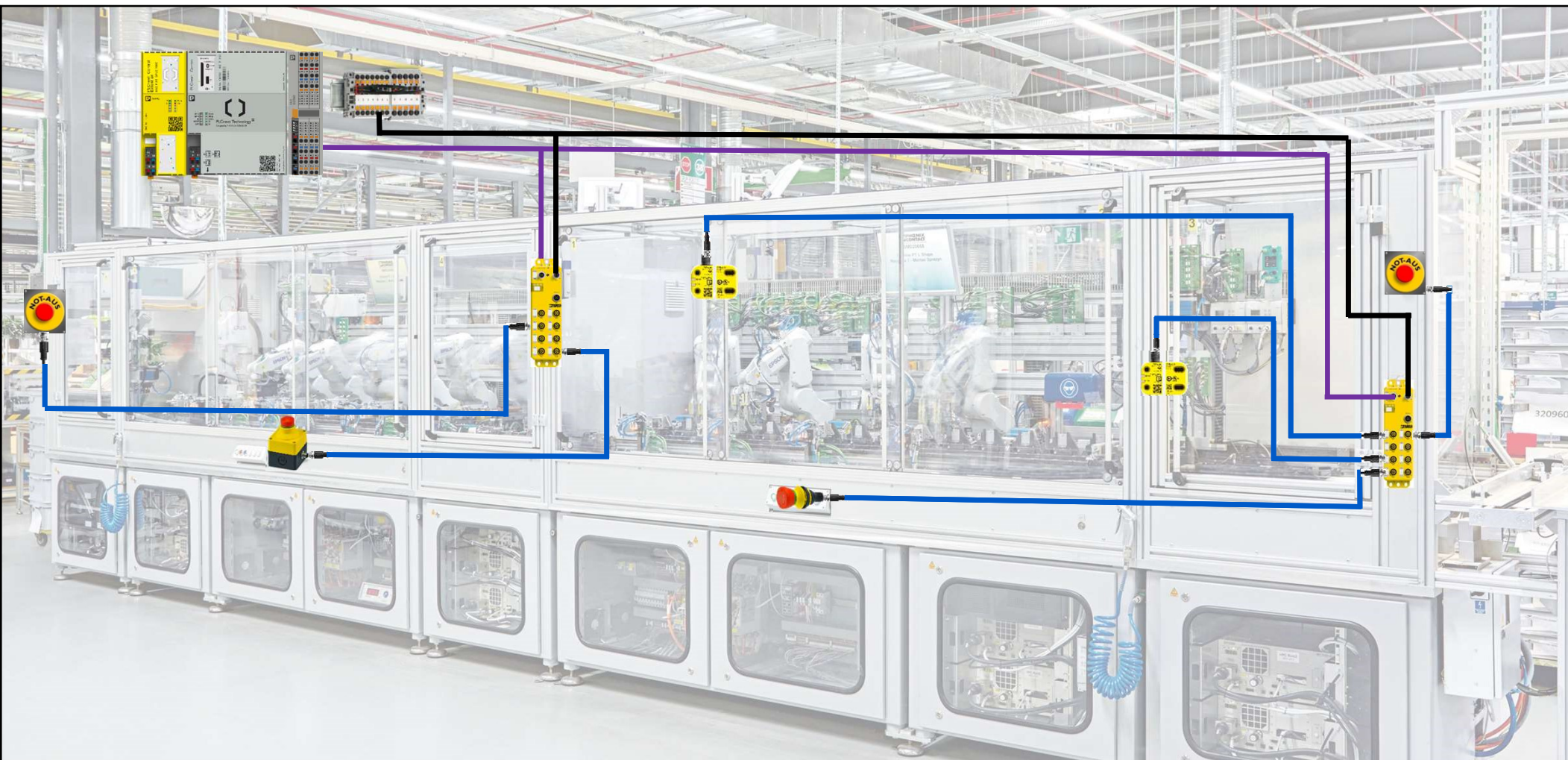
Applications for Safety Relays

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

PSRmini: Highly compact safety relays for machine

Type	Applications							circuit
								ILCL 3 in
PSR-MS20 ¹⁾ 24 V DC	•	•	—	•	—	—	—	
PSR-MS21 24 V DC	Coupling module for safe controllers							— 361)
PSR-MS25 ¹⁾ 24 V DC	•	•	—	•	—	—	—	
PSR-MS30 24 V DC	•	•	—	•	—	•	—	
PSR-MS35 24 V DC	•	•	—	•	—	•	—	
PSR-MS40 ¹⁾ 24 V DC	•	•	—	—	—	•	—	

PSR-ESAM4/2x1/1x2



M12 Connection

PROFINET

IO-Link

Supply voltage



PSR-ESS Emergency Stop Switches

Portfolio Overview

Modular
System



Surface
Installation



Spade
Connection



13 new articles

PSR-ESS Emergency Stop Switches

PSR-ESS Emergency Stop Switches

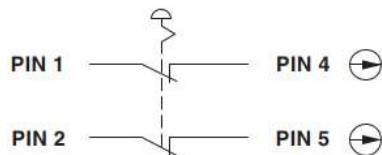
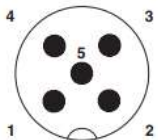


Confidential – For internal use only

Surface Installation

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

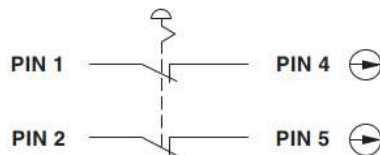
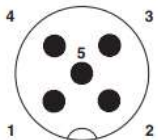
Approvals



Surface Installation

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



Surface Installation

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



Surface Installation

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



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	

Tecnología de seguridad SafetyBridge Technology SBT



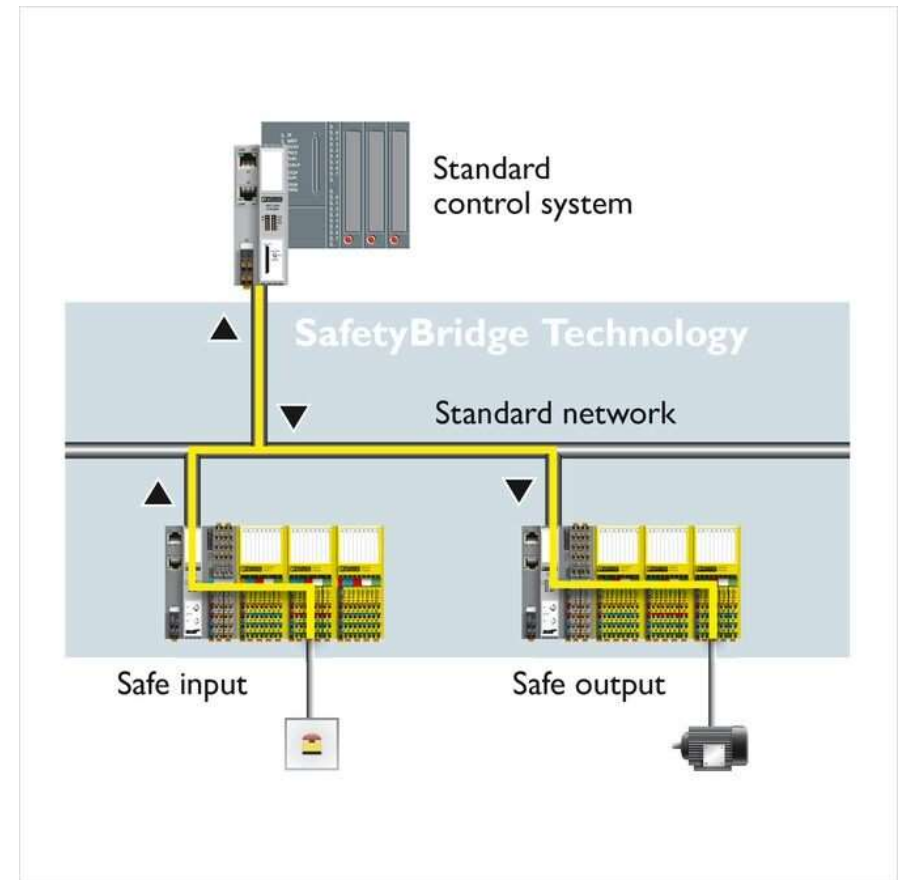
SafetyBridge Technology

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.



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



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.

ION06-13.000.EM10.2013_12_1_029

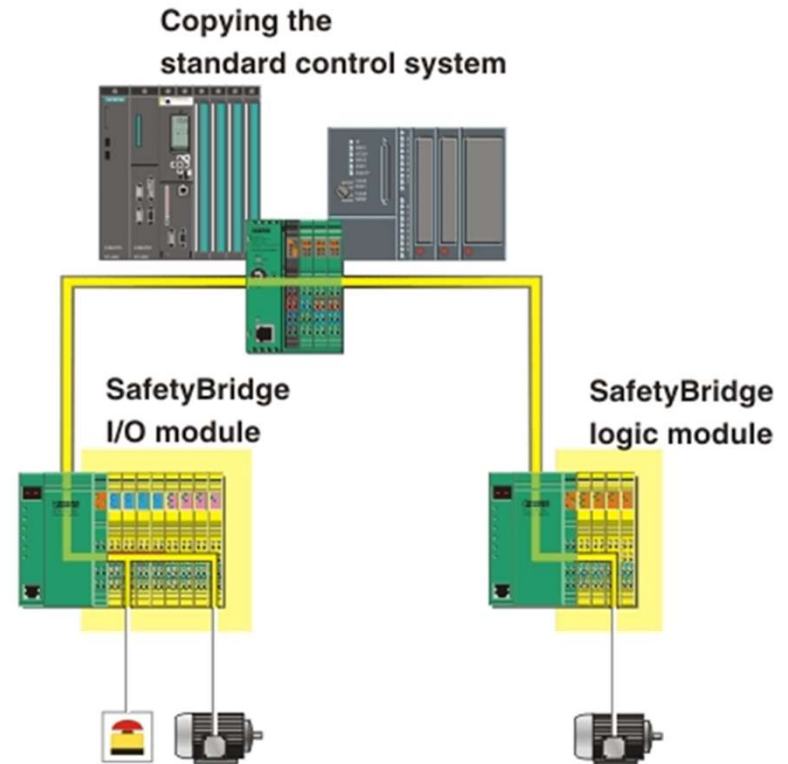
Safety without Safety Controller

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 processes the safety logic



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

SafetyBridge
Inline



IB IL 24 LPSDO 8 V3-PAC SL



IB IL 24 PSDI 16-PAC



IB IL 24 PSDI 8-PAC



IB IL 24 PSDOR 4-PAC



IB IL 24 PSDO 4/4-PAC



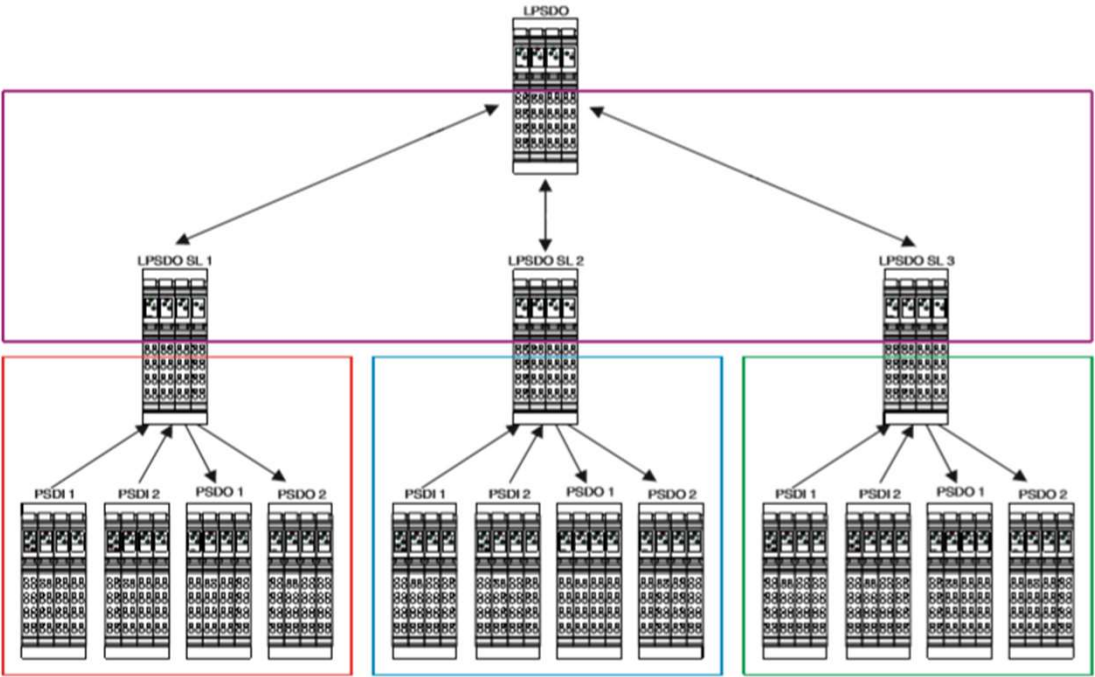
IB IL 24 PSDO 8-PAC

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

Hierarchical Topology

Tree structure

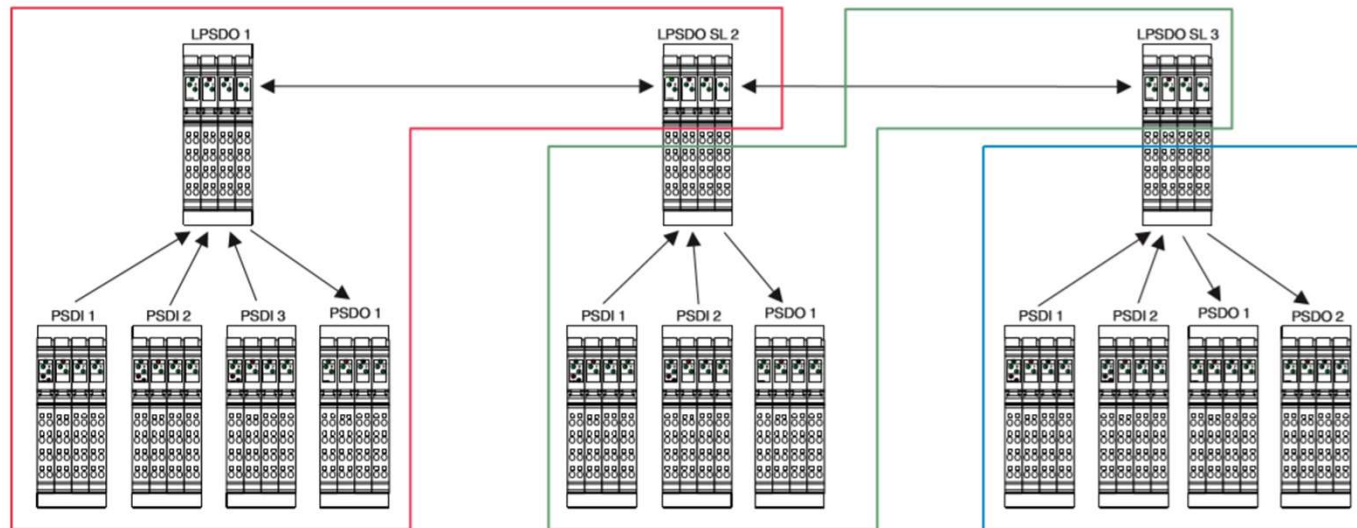
Island	Master	Slave			
Island 1	LPSDO	LPSDO SL 1	LPSDO SL 2	LPSDO SL 3	
Island 2	LPSDO SL 1	PSDI 1	PSDI 2	PSDO 1	PSDO 2
Island 3	LPSDO SL 2	PSDI 1	PSDI 2	PSDO 1	PSDO 2
Island 4	LPSDO SL 3	PSDI 1	PSDI 2	PSDO 1	PSDO 2



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	



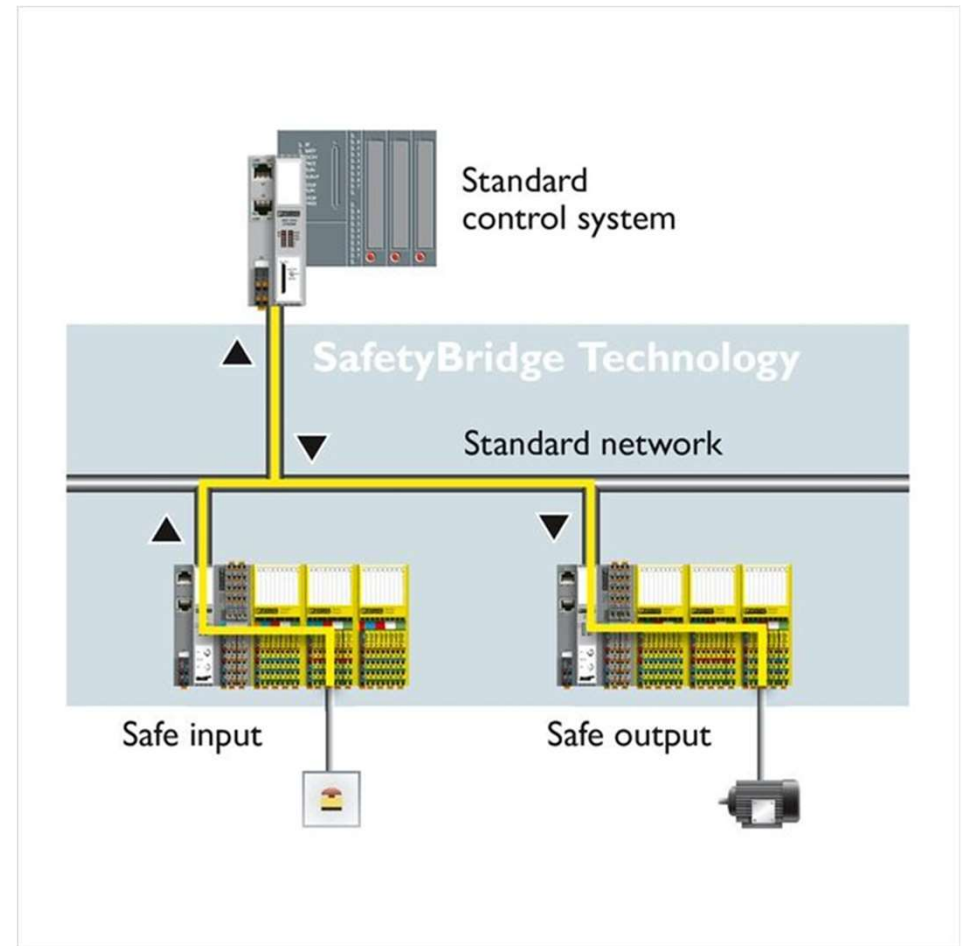
SafetyBridge Technology

Axioline F



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



Axioline F

Modules SafetyBridge Technology

AXL F LPSDO8/3 1F

AXL F SSDI8/4 1F

AXL F SSDO8/3 1F



Functionality of AXL LPSDO8/3 1F

The image shows a yellow Axoline PROFIsafe terminal block. It has a white label on top with a barcode and the text "Axoline PROFIsafe". The block has a black connector on the front and a black connector on the side. A black PROFIsafe connector is shown in the foreground, with a label that reads "PROFIsafe".

Axioline F

Independence of Network

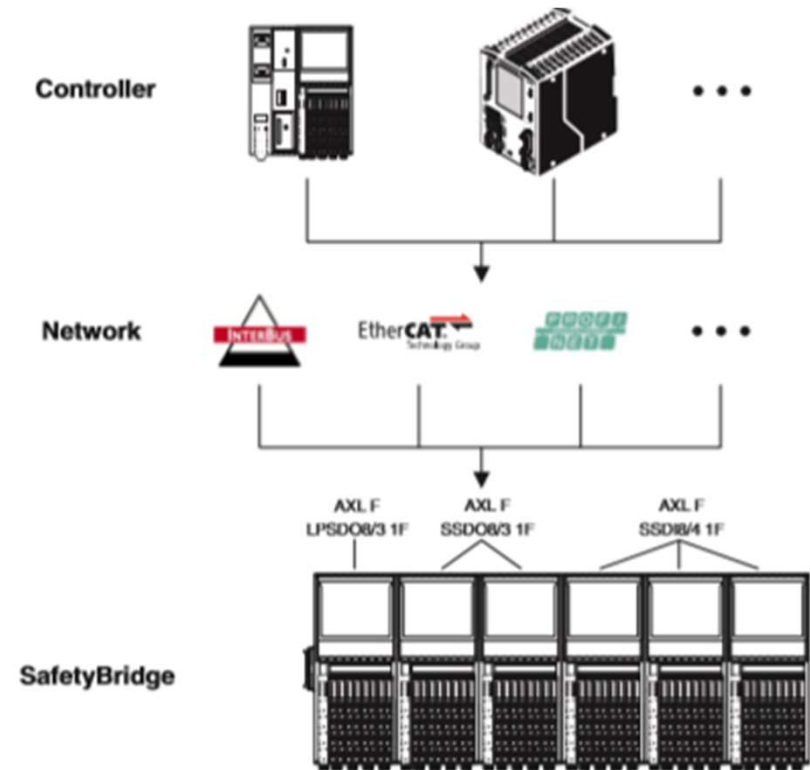
The SafetyBridge system does not place any special requirements on the standard controller. However, it must be able to perform the following tasks:

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

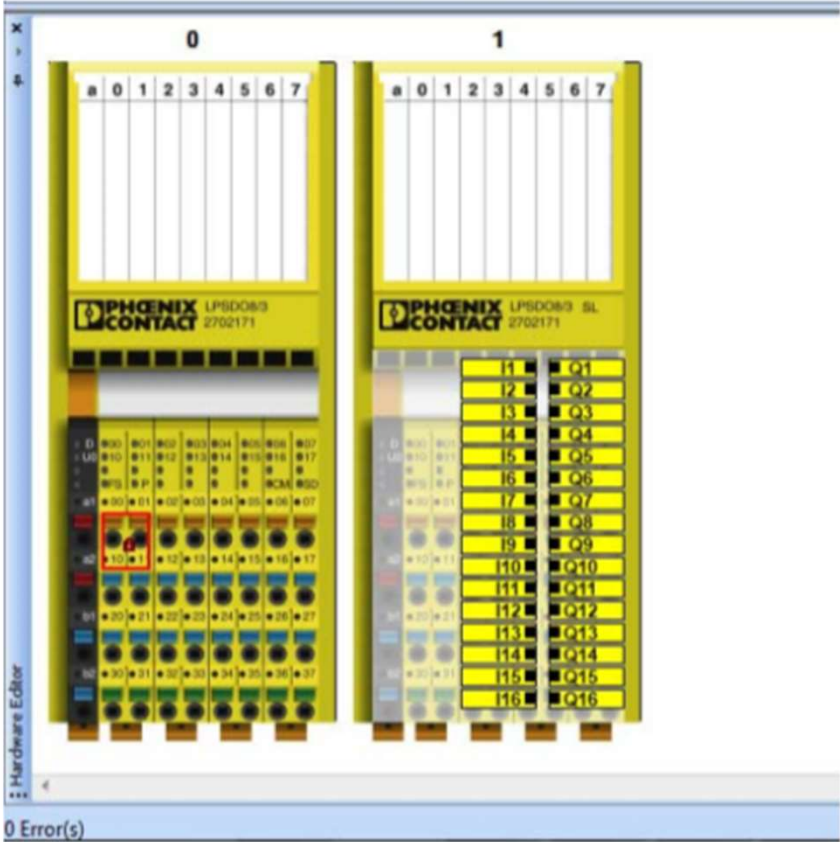


Axioline F

Cross communication



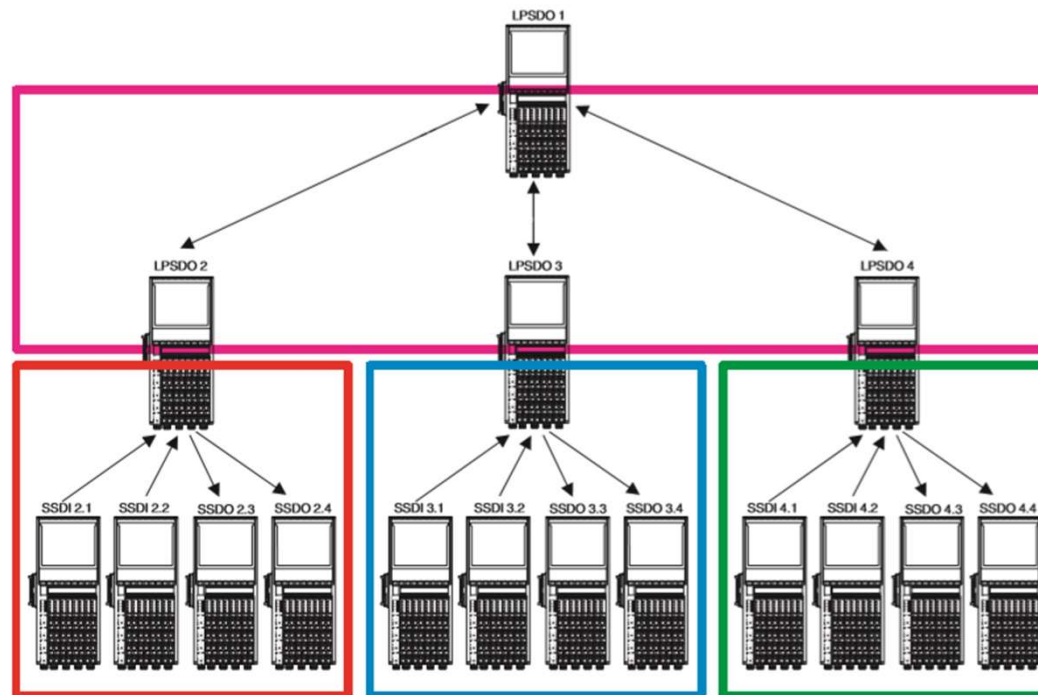
Figure A-2 SAFECONF hardware toolbox



Tree structure Axioline F SBT

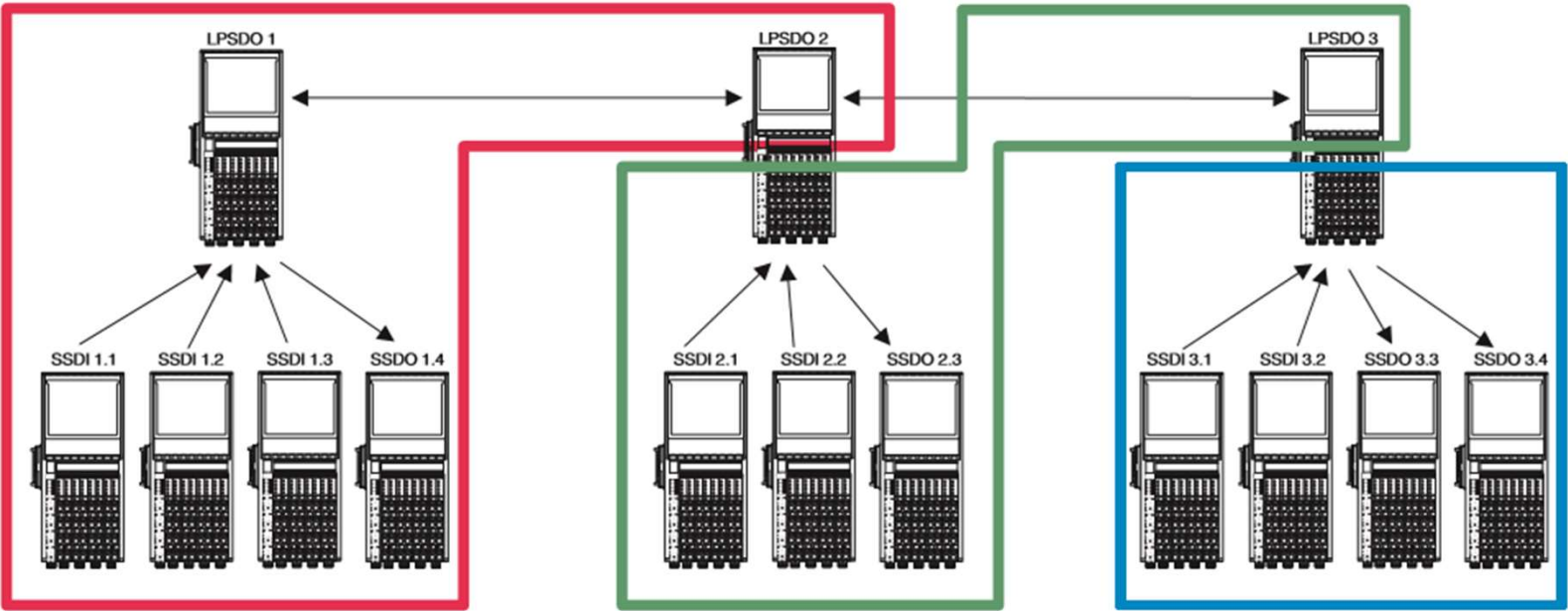
Hierarchical Topology

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



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	-



Software for SBT and other Safety products

SAFECON

Configuration software for SafetyBridge technology
and PSR-TRISAFE modules



E-Learning

SAFECONF

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.

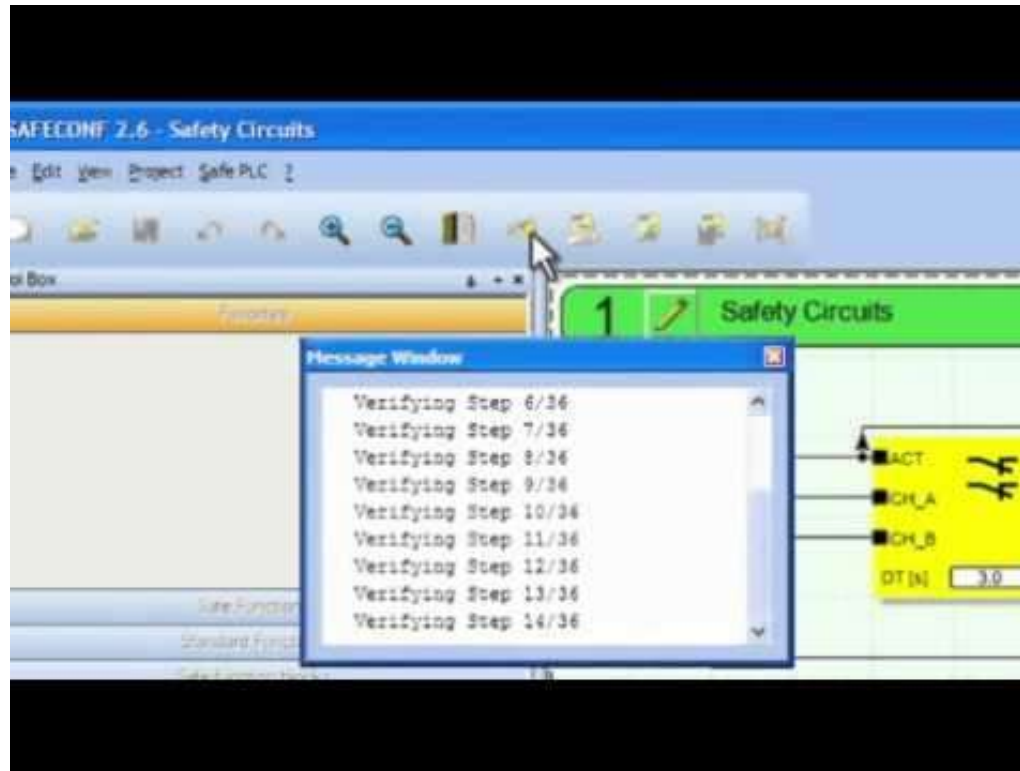
▶ [Start tutorial](#)



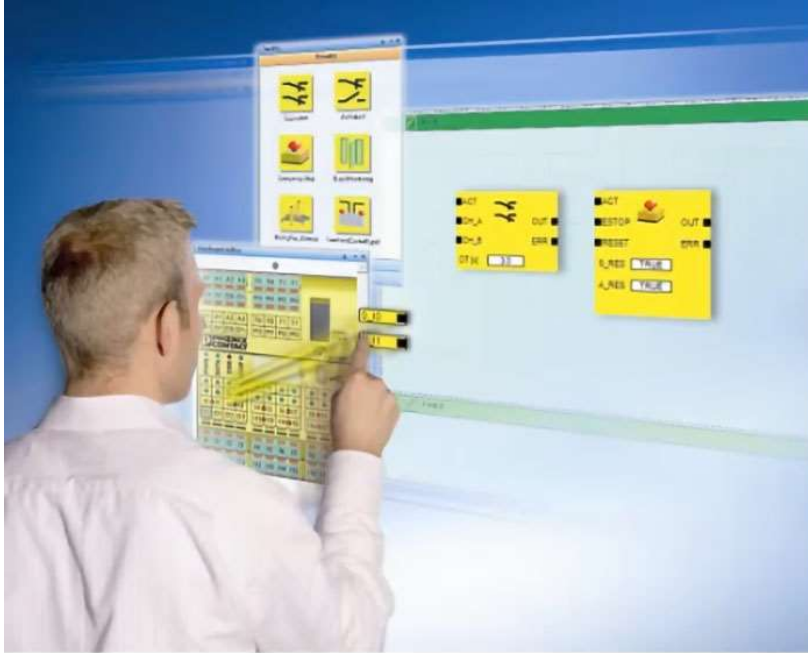
Easy configuration of safety logic with SAFECONF

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](#)



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



SAFECONF

Configuration Software

Basics
The most important
functions at a glance

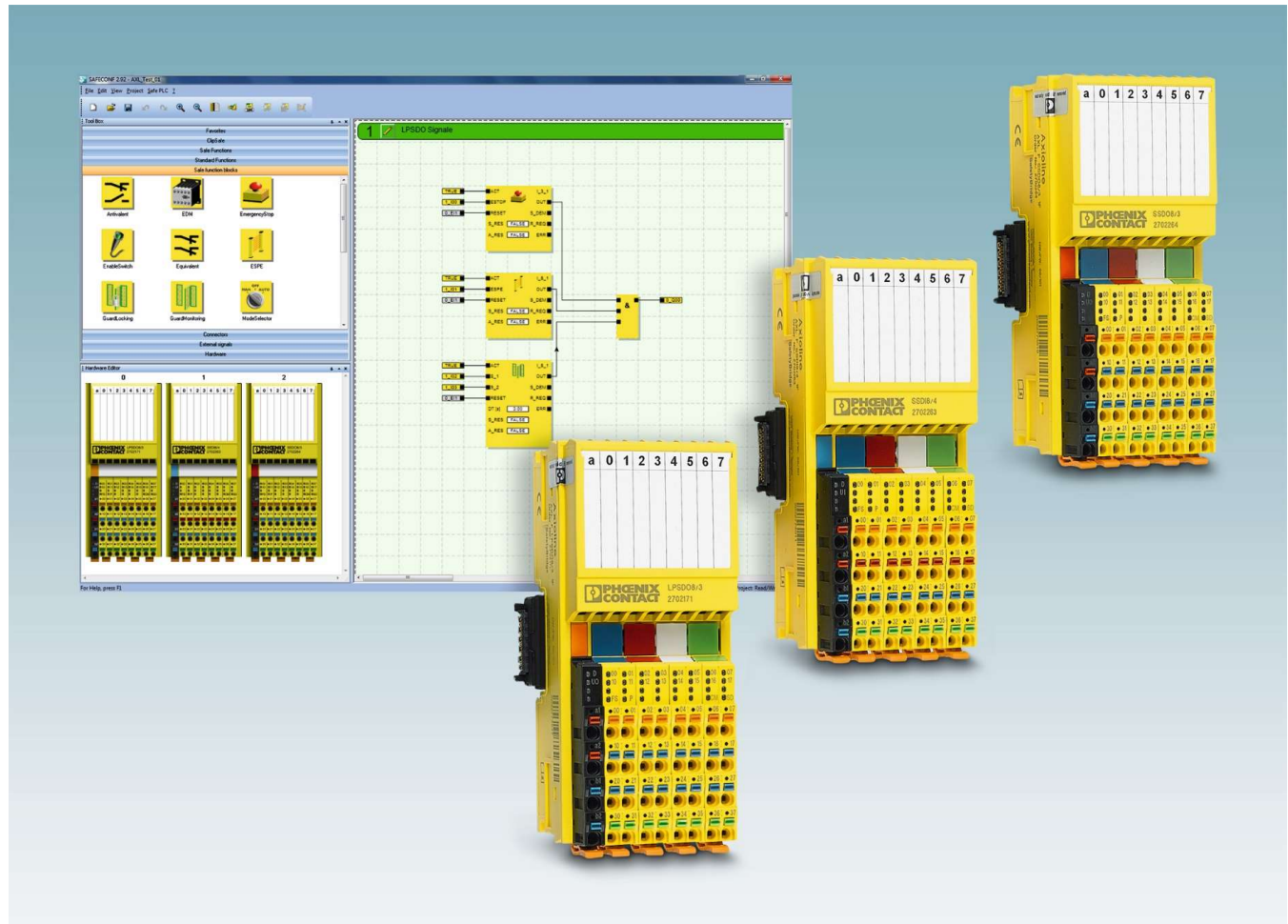


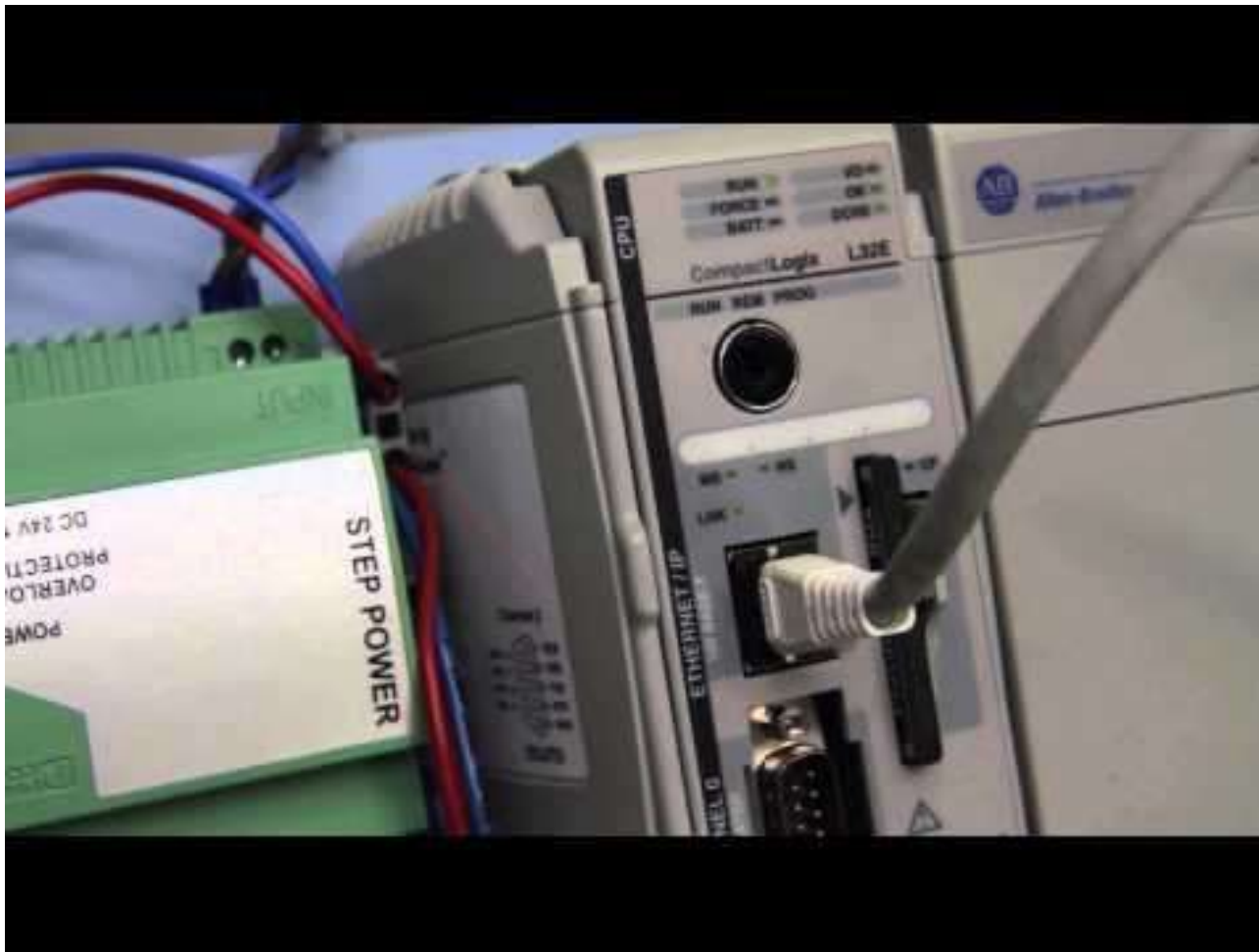
SAFECON



SafetyBridge Technologies

SAFECON





Aplicaciones SafetyBridge Technologies within EtherNet/IP

SafetyBridge Technologies

Aplicaciones

Safety without
a safety controller –
SafetyBridge technology

[Find out more](#)



SafetyBridge Technologies

Aplicaciones

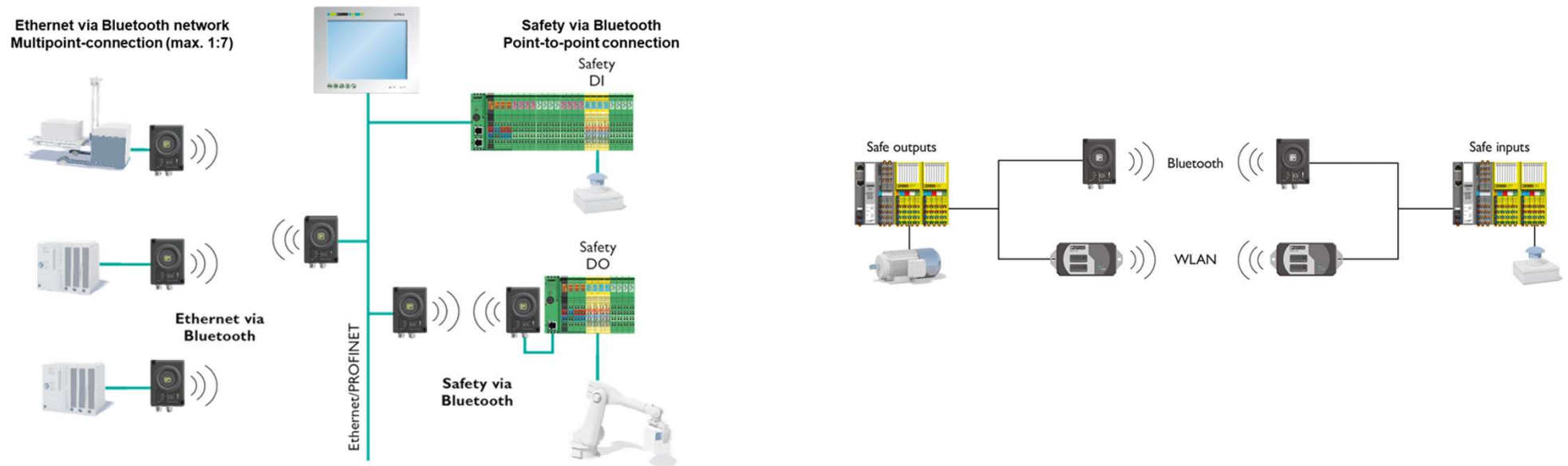
Bluetooth FL EPA 2
 FL EPA 2 RSMA

SBT IB IL 24 LPSDO 8 V3-PAC
 IB IL 24 PSDI 16-PAC



Aplicaciones Cableadas, Inalámbricas, Bluetooth, WLAN.

SafetyBridge Technology



SafetyBridge Technologies

Aplicaciones



SafetyBridge Technologies

Aplicaciones

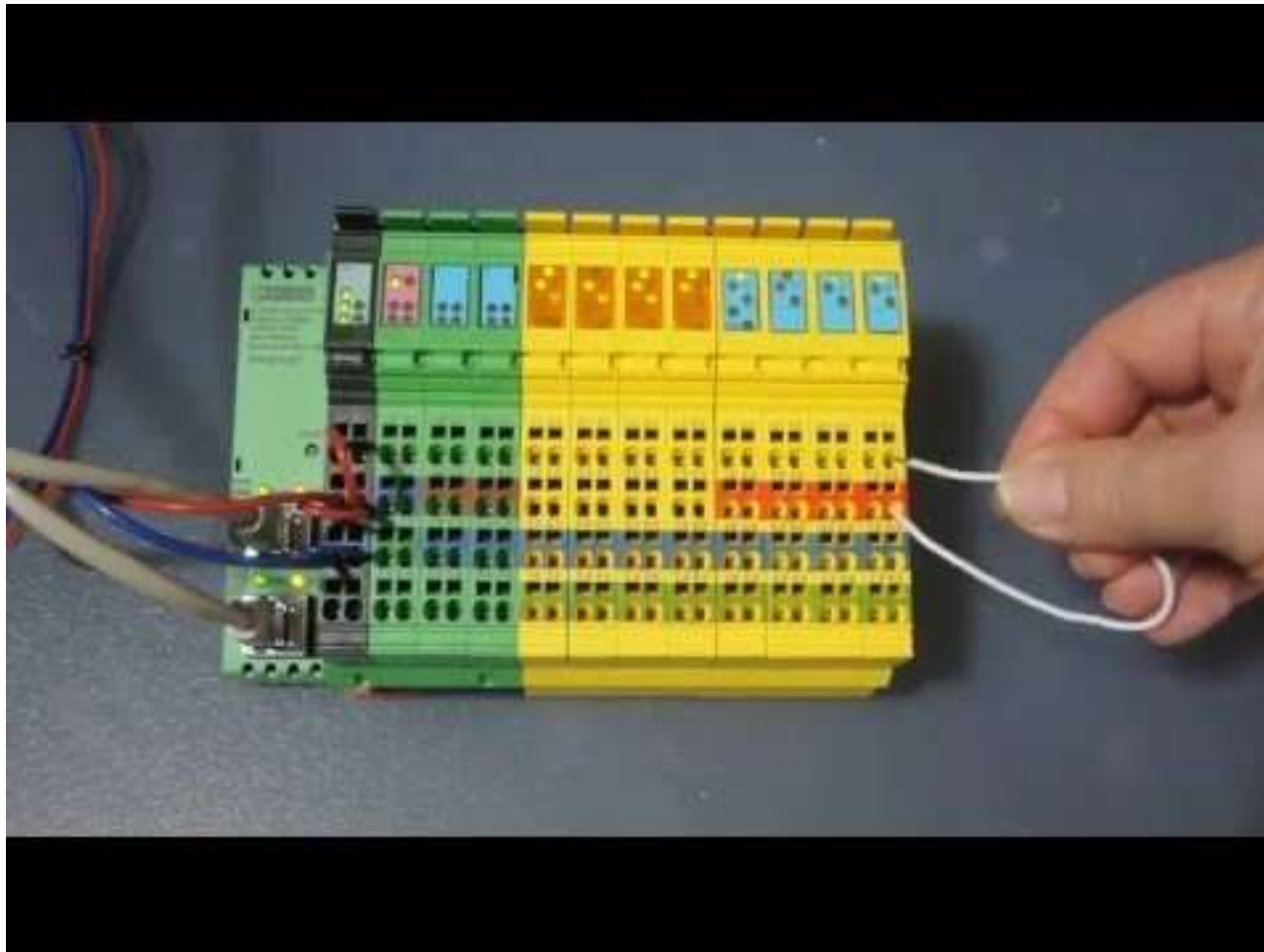


Few operators

Distributed Emergency Stops

Network Safety concept

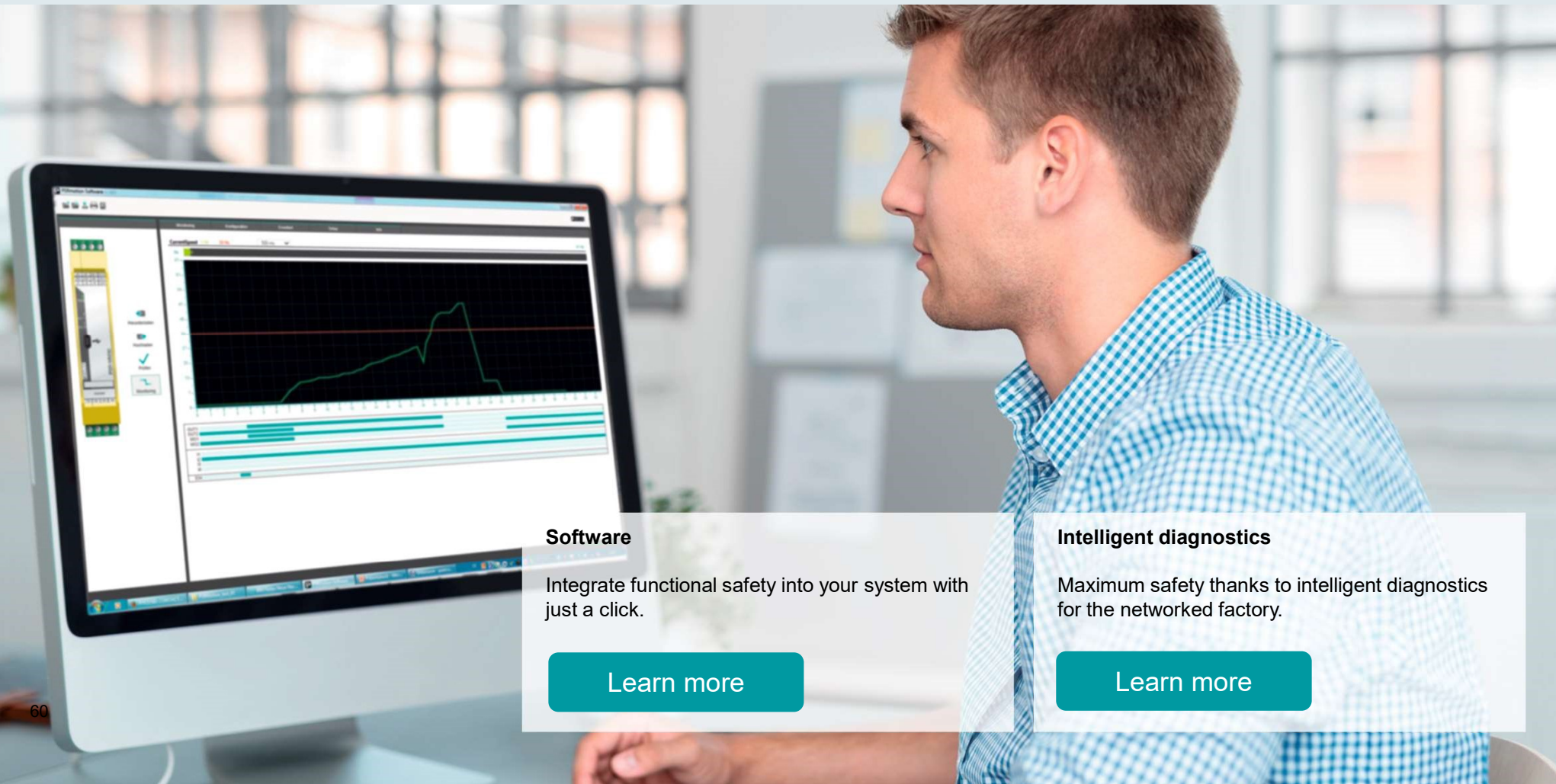




SafetyBridge Technology with Simatic S7-1200

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

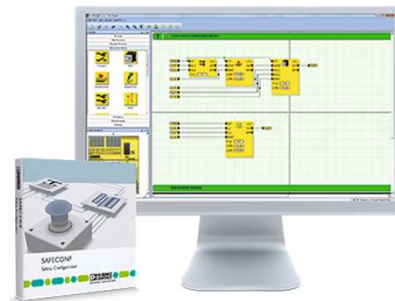
Safety software



Configuration software
PSRmotion



Configuration software
PSRmodular



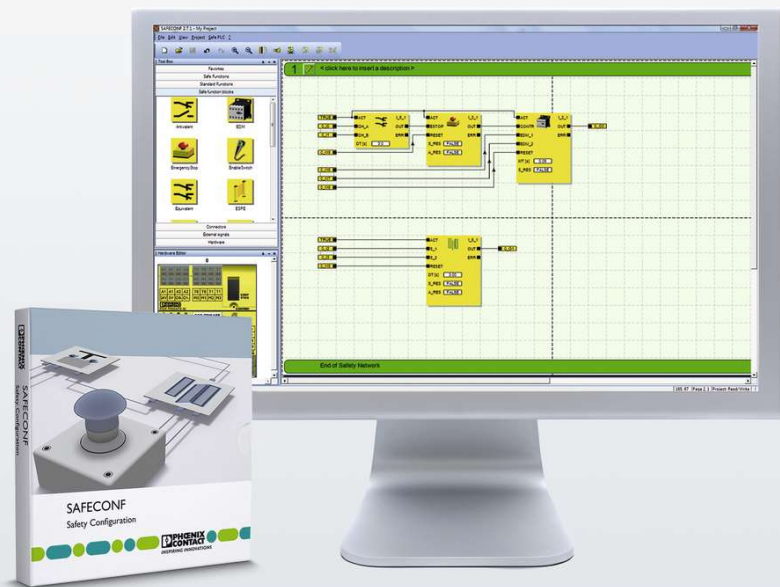
Configuration software
SAFECONF



Programming software
PLCnext Engineer

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-learning



Free download

Smart safety solutions

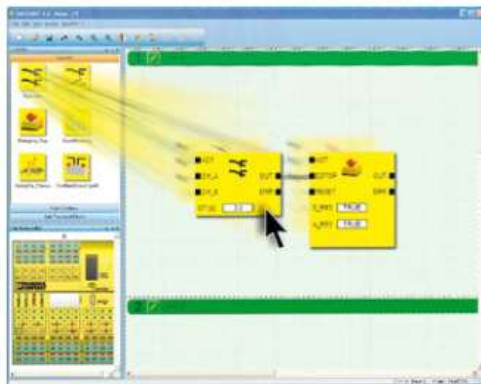
Easy configuration with software SAFECONF



Easy configuration in three steps and with TÜV certified functions blocks

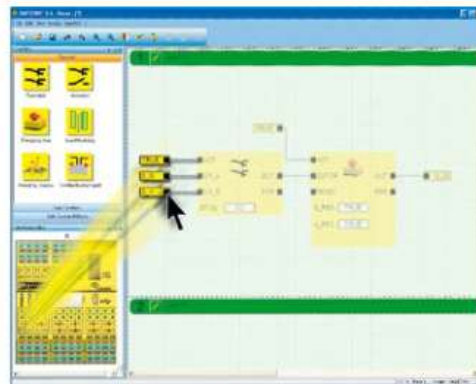
1

Select and drag and drop security features to configure.



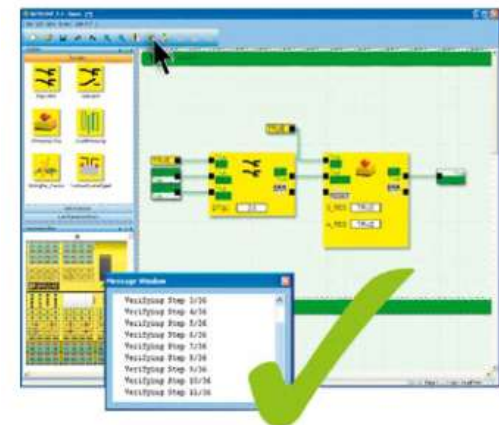
2

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



3

Check and save safety functions. Done!



Smart safety solutions

Mobile applications



Mobile applications

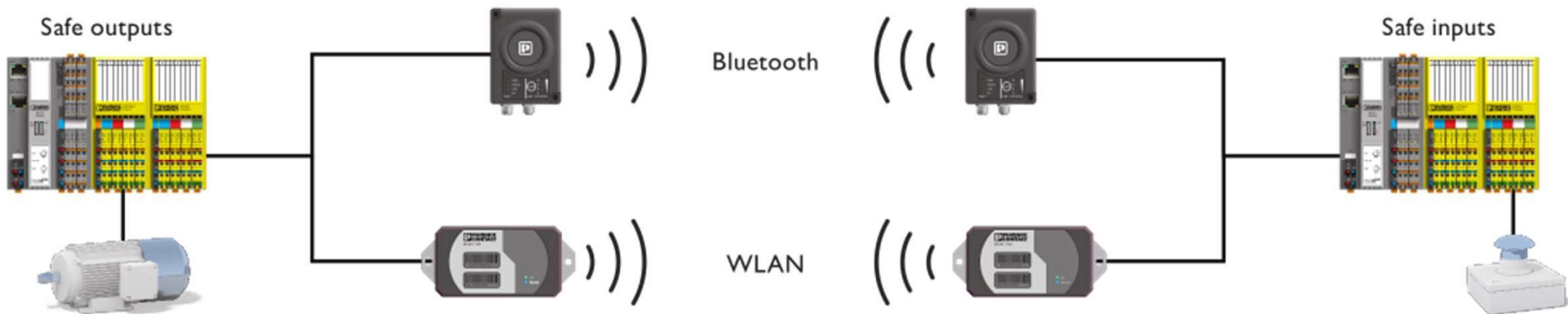
With regard to passengerless transport systems, airport bridges or the like, functional safety is also becoming increasingly important. In addition, the combination of safety and wireless has many advantages.

[Learn more](#)



Smart safety solutions

Transmitting safe data via wireless systems



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 combining 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

Quality assurance

Certified products and processes



Quality assurance over the product lifecycle

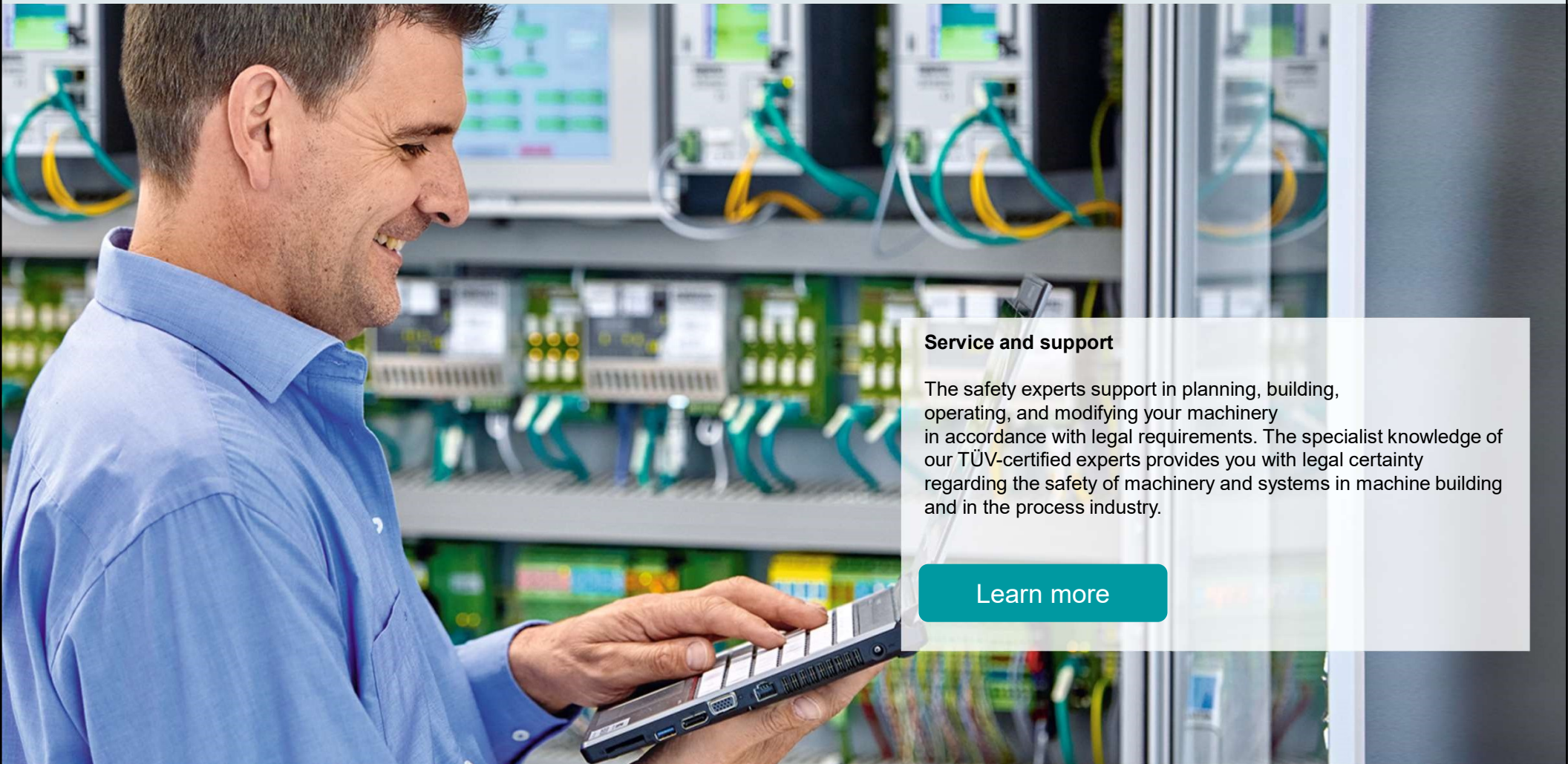
- Certified Functional Safety Management (FSM)
- Independent product certifications
- Qualified personnel (FS Engineers)
- Application oriented services and support
- Qualified training programs

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

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

Successful in use Industries



Machine building



Automotive



Process industry



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

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)

Industries

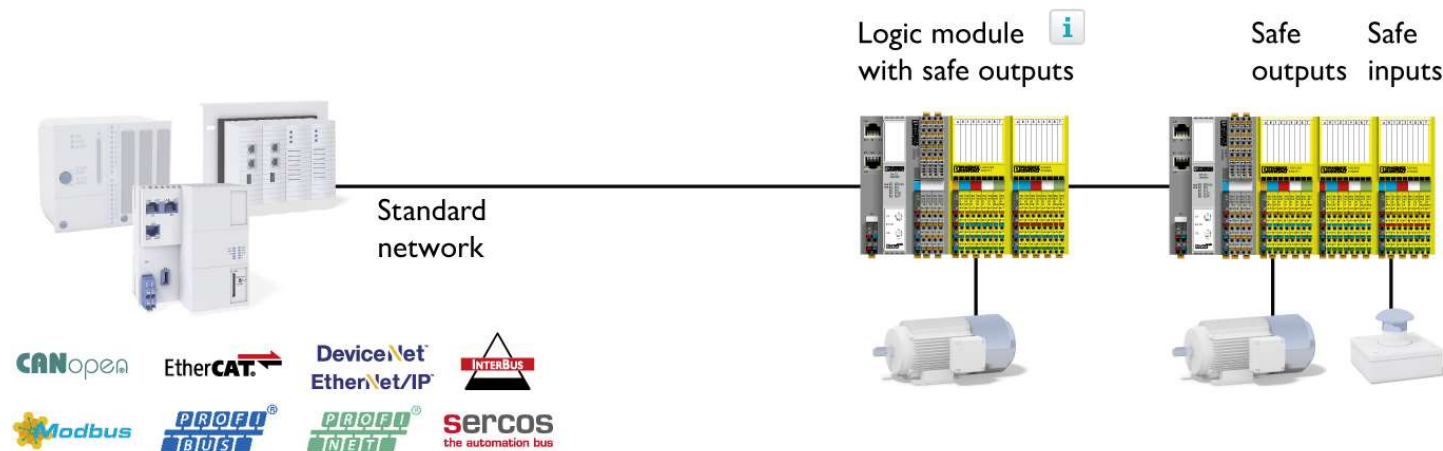
Process industry



- ✓ 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

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**.

Webinar IMA 2021

Mayor información



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