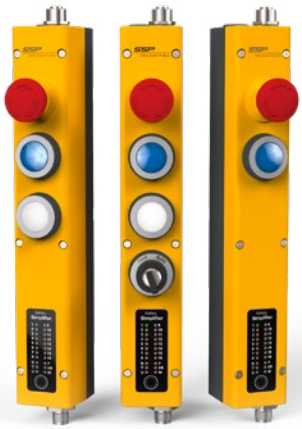
RFID

WIRELESS
Safety Communication
SIL 3, Ple, cat 4



PRODUCT LINE

Catalog No. 19

SSP
Safety System Products

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Safety solutions from a single source

Years of experience, innovative products, concentrated know-how in the area of machine safety

THOUGHT AHEAD | INNOVATION | OFF-THE-SHELF SOLUTIONS

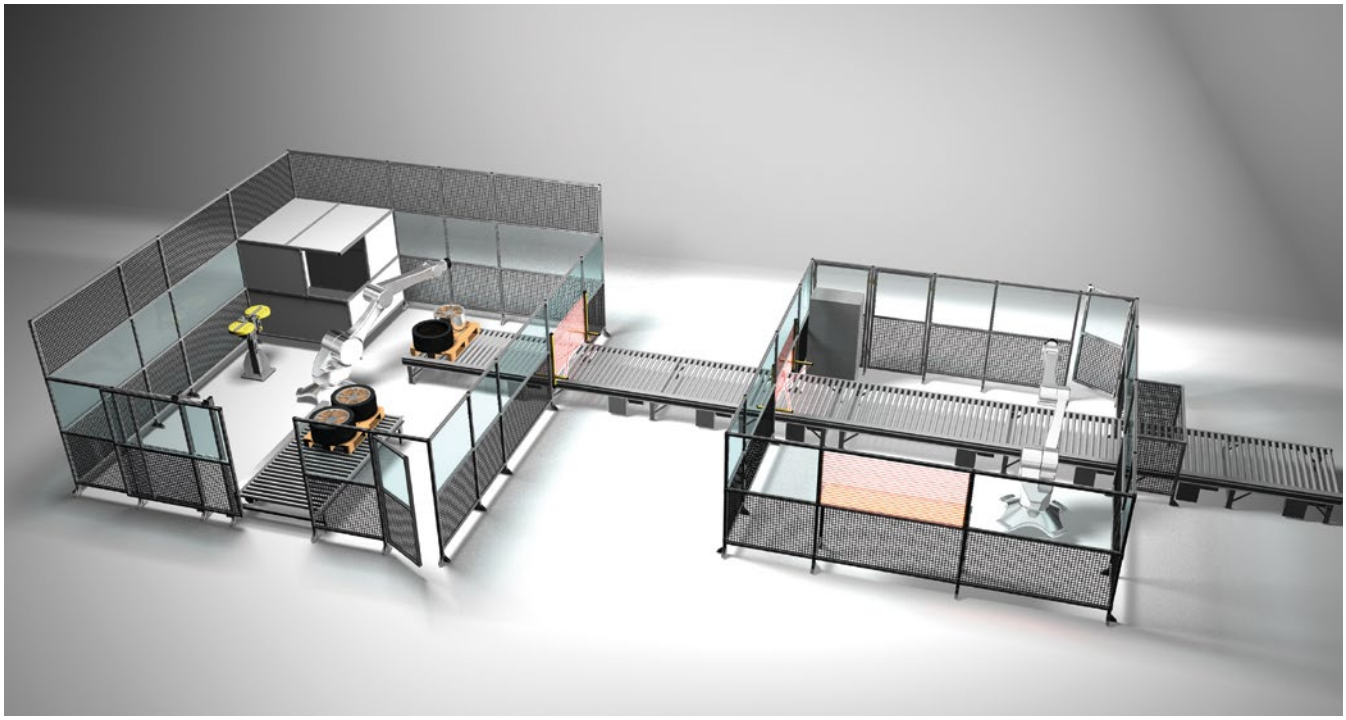
The technical and normative requirements for safety technology in robotics and automation are becoming increasingly complex. Consequently, implementation of safety solutions is often unnecessarily complicated. At SSP we think differently: We want to make the safety technology applications again as simple as possible and have committed ourselves to the 'We Simplify Safety' mission. However, with this commission just to modify or improve existing products is not enough: We wanted to reinvent the 'safety wheel', so to speak. In the form of a comprehensive, coordinated product range, which offers everything from a single source: from safety fences and sensors to control technology and safety services.

In order to achieve this aim, a dynamic team of engineers and technicians works daily on developing products and solutions. With our partners Fortress Interlocks and ReeR we complete our product range with two outstanding specialists from the respective disciplines. Competent service and distribution partners are available worldwide.

we simplify safety

Protective fencing

EN ISO 14120:2015



An off-the-shelf solution does not always fit; flexibility makes the difference!

For this reason, our company focused on a modular fence system made of aluminum. Thus, we are able to use standard modules that can be adjusted individually according to your requirements as a matter of importance. A large number of fillers are possible. We also offer a large variety of additional equipment. If the requirements change over time, with our system an easy retrofit during a reconstruction is not a problem.

- ✓ Complete flexibility in installation and construction
- ✓ Filler types can be freely combined
- ✓ Easy installation thanks to FAST CONNECT fittings technology
- ✓ The route of the fence is determined by the shape of the machine
- ✓ Wing doors, sliding doors, lifting and rolling gates
- ✓ No drill holes and threads are necessary in the entire fence
- ✓ The safety fence system meets all requirements of EN ISO 14120:2015

Protective enclosures

Openings can be created quickly and easily in any location. The layout of the fence is flexible.

The combination of floor attachment bracket and aluminum profile easily compensates for any unevenness.

The 'SSP grid fixation' ensures a solid connection between the profile and the filler. It increases the total stability of your safety enclosure.

CE-compliant lifting gates with various opening systems.

Fast removal sections reduce the maintenance time significantly.

The 'SSP-Fast-Connect-Technology' allows an easy and quick connection of the individual aluminum profiles. Thus, drilling and thread cutting is no longer necessary.

Filler types can be individually combined

Easy and individual assembly of the attachment components at any height or position thanks to the aluminum slot system.

Customized rolling and high-speed rolling gates that increase productivity, even in restricted space conditions.

Safety Simplifier - The safety controller

INDUSTRY 4.0

With the Safety Simplifier we provide safety exactly where it is needed and help you to create user-friendly safety systems, such as at the access doors. Just connect your sensors, guard locking devices and light curtains. Select the pushbuttons and/or the emergency stop buttons and you will receive a complete safety solution with evaluation and diagnosis. This data will be safely forwarded to your existing plant either directly or using another Safety Simplifier.

- ✓ modular design
- ✓ safe wireless or CAN network
- ✓ programmable safety PLC
- ✓ 14 safe I/O's + optional 2 safe relay outputs
- ✓ networking of up to 16 units
- ✓ two-way communication
- ✓ networking of up to 256 I/O's

WIRELESS

Safety CAN

IP 65

Wireless interface for safe communication, programming and diagnosis

40 mm construction width for installation on aluminum profiles

Spring terminals secure the connections also in case of strong vibrations

14 I/O's as safety inputs or redundant OSSD outputs

4 relays for 2 × double-safety outputs (optional)

LED diagnosis using the touch pad

Memory card with application software for easy exchange

Safe CAN and/or wireless communication

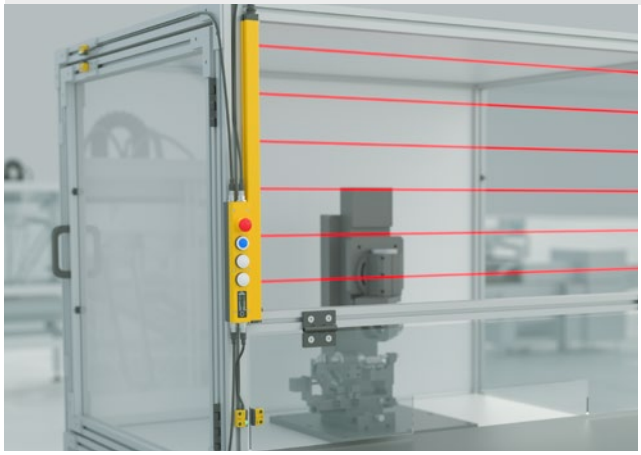
Configuration Tool

Configure your individual Safety Simplifier on our website!

www.safety-products.de/configurator

PLUG AND PLAY - Safety devices

Safe I/O's for connection of safety devices



Safety Simplifier at manual workstation

Safety Simplifier with operating elements directly connected to a highly coded safety guard locking

Wireless Safety

The flexible and safe solution for decentralized applications. As an alternative, it can also be coupled via safe CAN connection.

Safe communication

Flexible in application, thanks to high safety up to SIL3 - PLe - Category 4.

Decentralized safety control

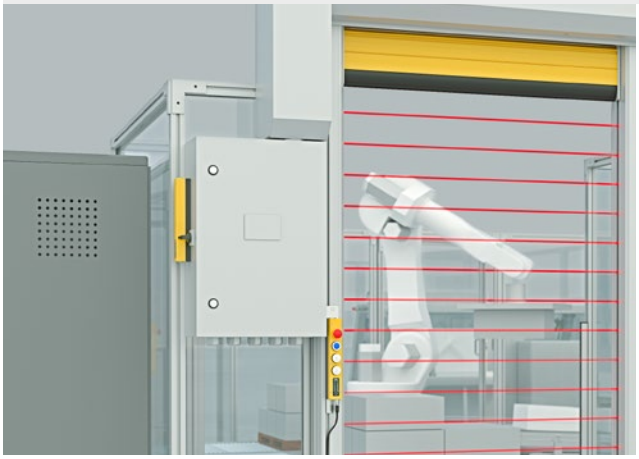
16 safe inputs and outputs can be configured flexibly and individually.

Configuration software Simplifier Manager

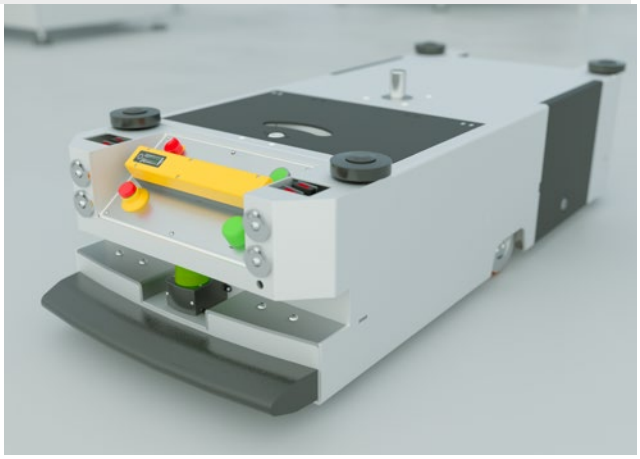
Predefined functional modules for easy and fast programming.

PLUG AND PLAY - Machines

Safe I/O's for the plant control



Safety Simplifier for safe control and monitoring of high speed gates



Safety Simplifier for safe control and monitoring on self-propelled floor conveyor vehicles.

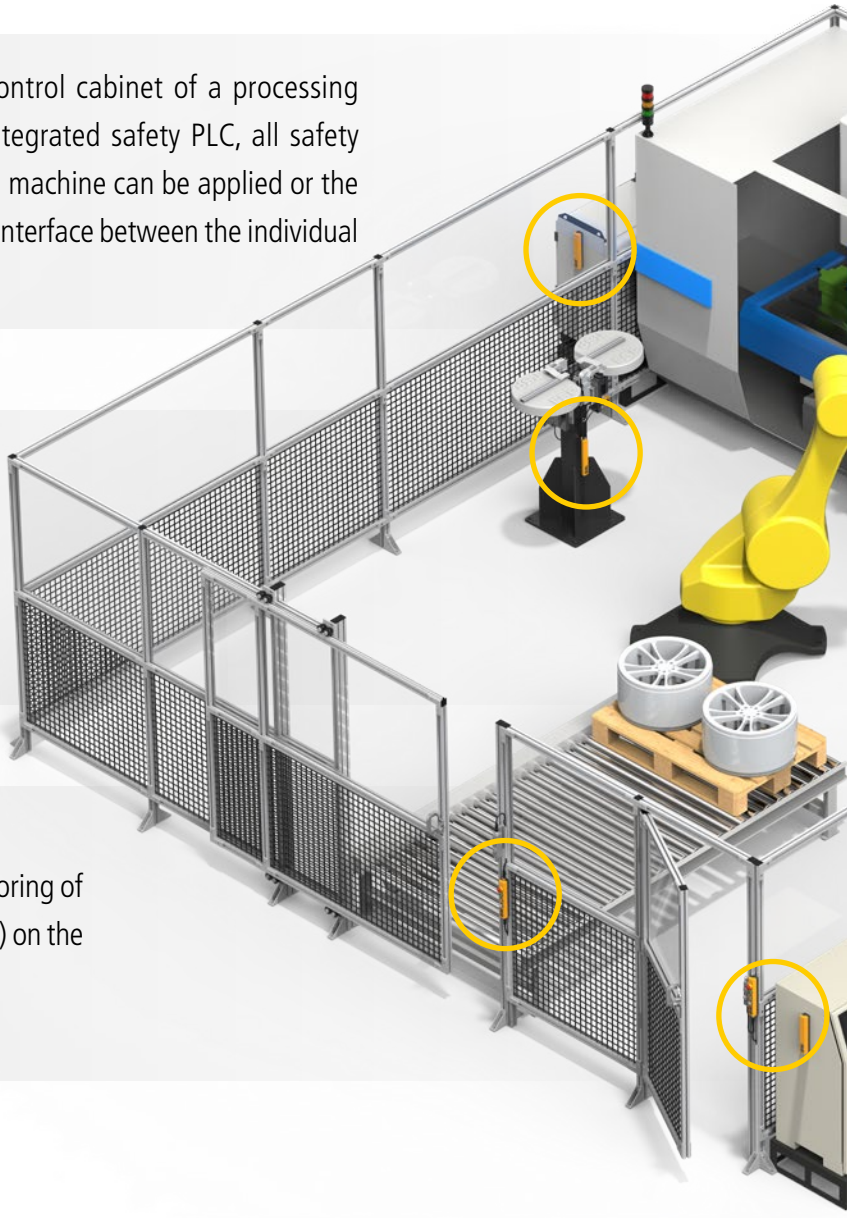
Robot cell implementation with Safety Simplifier

Various application areas of the Safety Simplifier

Safety Simplifier on the control cabinet of a processing machine: Thanks to the integrated safety PLC, all safety functions of the processing machine can be applied or the Safety Simplifier acts as an interface between the individual components.

The Safety Simplifier installed on the tool stand monitors the safe tool change of the robot.

Operational unit and monitoring of the safety switch (e.g. tGard) on the sliding door.



Easy planning

Thanks to the modular design, up to 16 Safety Simplifier can be decentrally distributed on your robot cell and perform all safe and unsafe control tasks, where necessary. If additional doors, robots or machines are subsequently integrated, they can be easily equipped with the Safety Simplifier and connected to the safety circuit.

Reduction of commissioning time

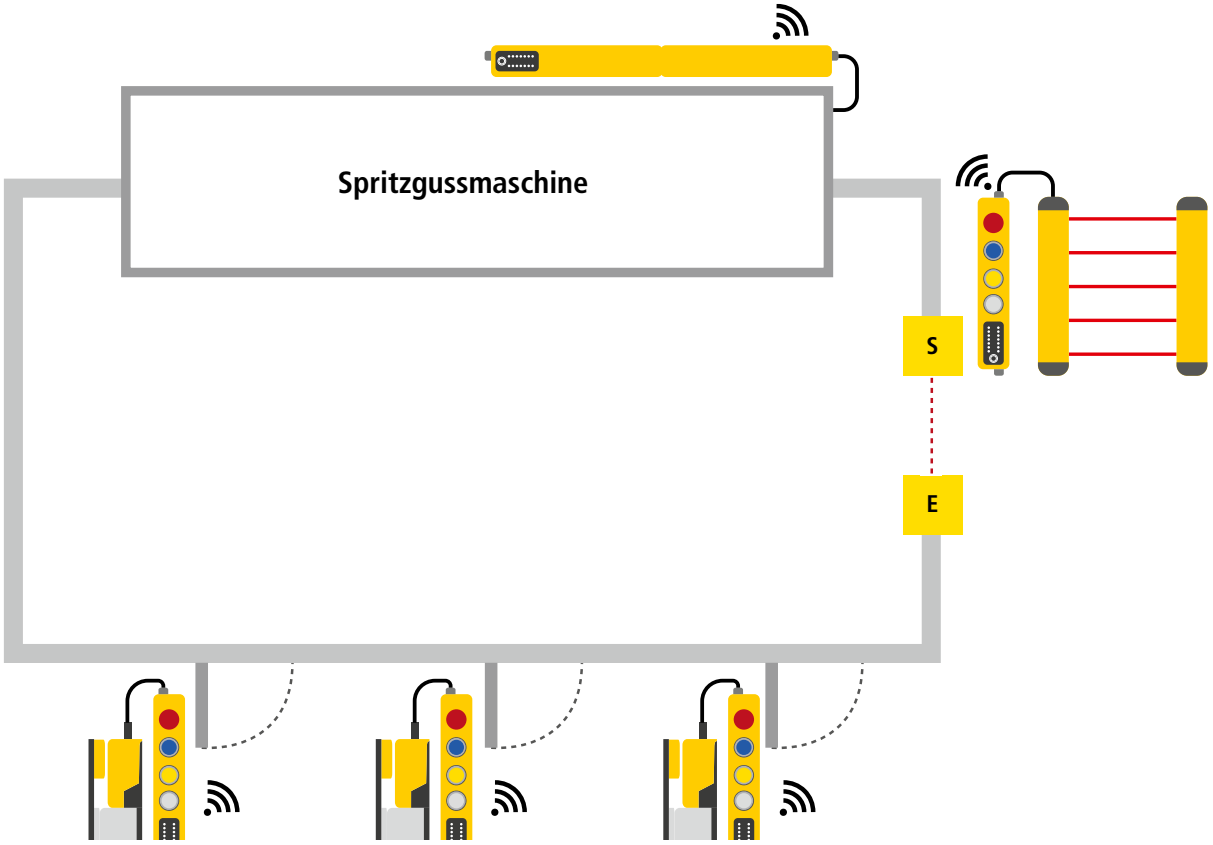
Thanks to the IP65 protection class of the Safety Simplifier, an external safety PLC or even a control cabinet for the safety technology are no longer necessary for your robot cell. The wiring effort of the safety components is reduced to a minimum using the safe wireless communication.

Safety Simplifier evaluates the OSSD signals of the muting light grid and provides the override function in case of faults.

The Safety Simplifier installed on the control cabinet of the robot for safe communication and shutdown of the robot.

Operational unit and monitoring of the safety switch on the wing door.

Safe wireless communication



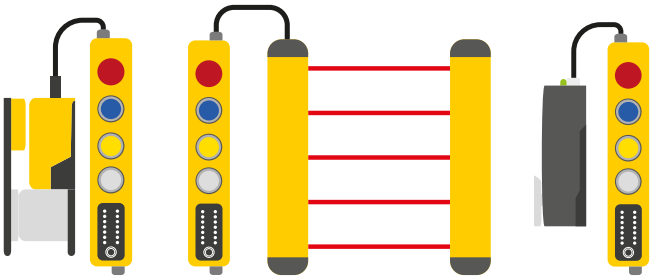
Example of an injection molding machine with Safety Simplifier EUROMAP 73/78 interface

Safety Simplifier EUROMAP 73/78 interface and safety controller

The Safety Simplifier with **EUROMAP 73** or **EUROMAP 78** connects all safety devices to the injection molding machine via an interface connector.

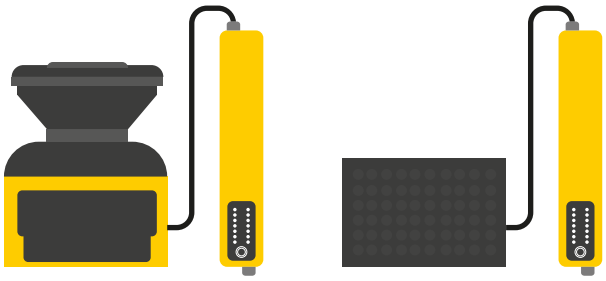
Safety devices can be freely combined

Regardless of whether a safety guard locking, a process guard locking or a safety light grid with muting is required for the safe automation of your injection molding machine. All units can be connected to the Safety Simplifier via M12 connector.



Safe rear step protection of plants

Safe contact mats or laser scanners can also be connected to the Safety Simplifier and evaluated. This is one of many possibilities to secure the rear area of an injection molding machine.



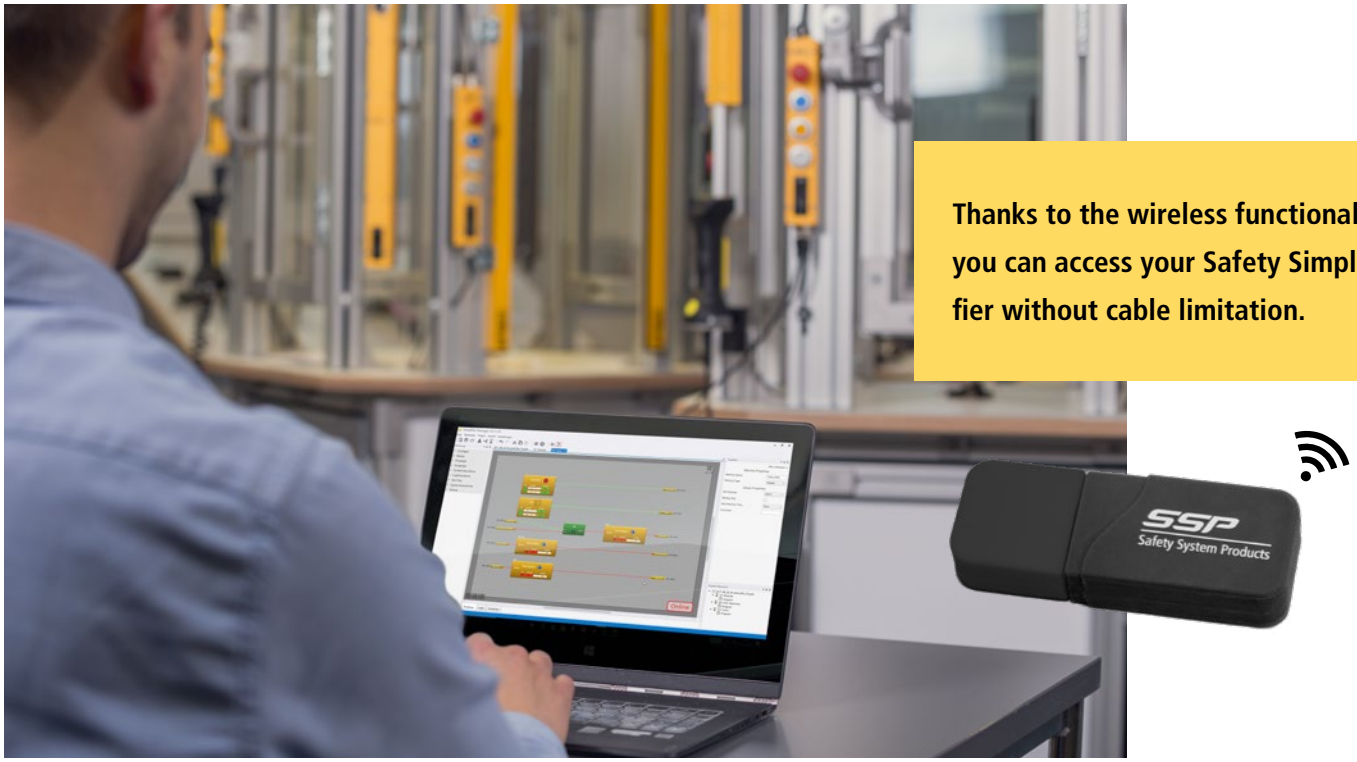
Simplifier Manager Configuration Software

Diagnosis and programming - easier than ever!

Simplifier Manager is the free software for the Safety Simplifier System

Program the safety functions in an easy and uncomplicated way using the Simplifier Manager configuration software. The functional modules for emergency stops, safety switches, light curtains, two-hand controls, mode selector switches and many others are available as standard.

- ✓ saves time and resources
- ✓ drag & drop function
- ✓ user-friendly, intuitive interface
- ✓ predefined functional modules for easy and fast programming
- ✓ wireless connection using the SRM stick or optionally via USB connection
- ✓ online mode for live diagnosis
- ✓ software gateways for Siemens/Beckhoff/Rockwell & B&R



Thanks to the wireless functionality, you can access your Safety Simplifier without cable limitation.

RFID safety sensor SAFIX 3

Connections

5 m cable / 10 m cable

or pigtail cable M12 8-pin

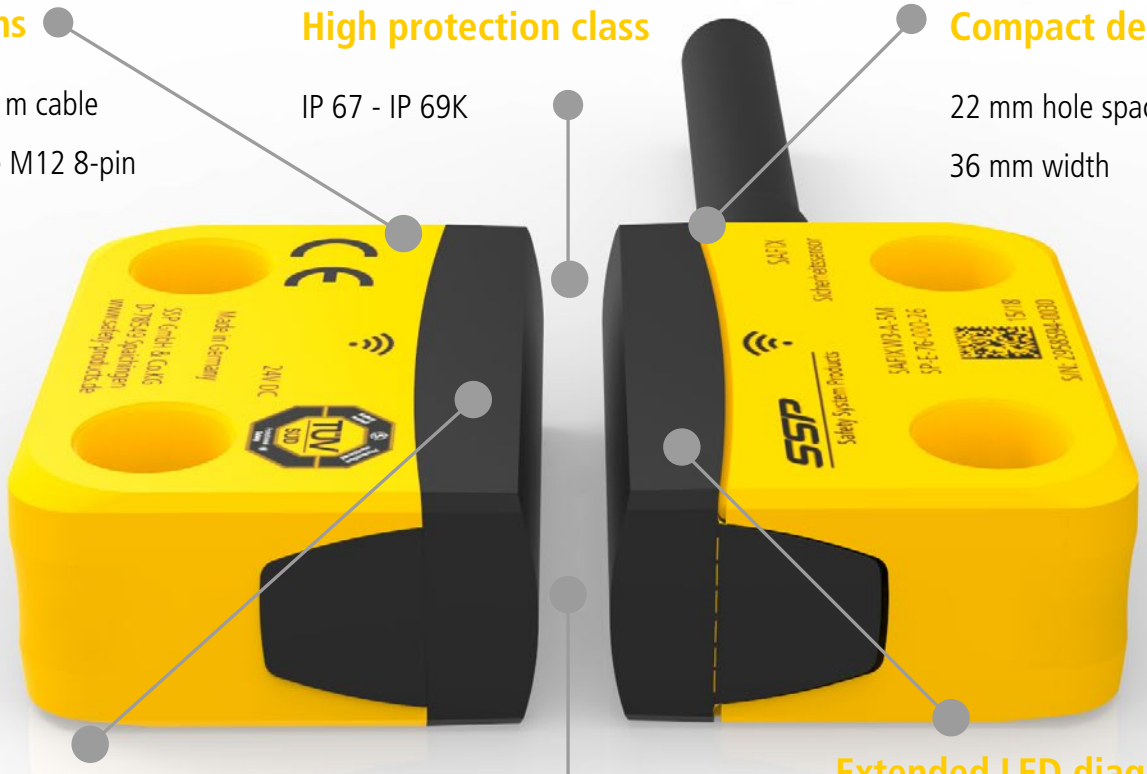
High protection class

IP 67 - IP 69K

Compact design

22 mm hole spacing

36 mm width



Technology

Most modern RFID sensors

Switching distance

12 mm, also sideways

Extended LED diagnosis

both sides

IP69K

Wide range of safety applications

- ✓ PLe acc. to EN ISO 13849-1
- ✓ High coded acc. to EN ISO 14119 (version SAFIX I and W)
- ✓ Series connection of up to 30 sensors without safety loss
- ✓ Reaction time of only 75 ms
- ✓ EDM input to monitor contactor and start buttons

Flexible in assembly and wiring

- ✓ High protection class IP67 and IP69K for use in rough environments, according to ECOLAB
- ✓ Flexible connection concept with passive junction box XCONN or wireless distributor Safety Simplifier
- ✓ Connections via 5 m and 10 m cable or M12 pigtail connection
- ✓ Extended LED diagnosis

If it is stated in the risk assessment that the safety switch must be prevented from loosening (EN ISO 14119), the screw covers supplied are a possibility to omit the safety screws. For subsequent opening of the screws, the cover must be opened with a special tool.

EXCERPT FROM EN ISO 14119

5.2 Arrangement and installation of position switches

Position switches must be arranged in such a way that they are adequately protected against any change in their position. To achieve this, the following requirements must be met:

a) the fastening elements of the position switches must be reliable and a tool must be required to loosen them.

Waterproof housing (IP67 and IP69K)

Protection against cleaning agents

Flat actuator SAFIX T6

Smart Process Guard Locking HOLDX R

INDUSTRY 4.0

The new generation of magnetic process locks! Innovative and intelligent, the HOLDX R combines a contactless RFID safety sensor with an intelligent electromagnet within one device. The combination of safe status monitoring and process guard locking makes HOLDX RS1 and HOLDX RL1 universally applicable, thus increasing quality and reducing down and set-up time.

innovative **intelligent** **safe**

Flexible
Movable anchor plate

Magnetic force
500 N locking force version S
1200 N locking force version L
50 N permanent magnet

MM MASCHINENMARKT AWARD ZUR automatica 2018

GIT SECURITY AWARD 2019 FINALIST

Compact design
mounting on aluminum profiles
40 mm width

Smart downtime monitoring
by magnetic flux measurement

Non-contact safety RFID switch
acc. to PLe EN ISO 13849-1

High coded
2 coding levels acc. to EN 14119
standard / individual coding

Connection
flexible pigtail cable M12 8-pin

LED diagnosis
extended status display

Smart process guard locking HOLDX R1

Protecting processes and humans

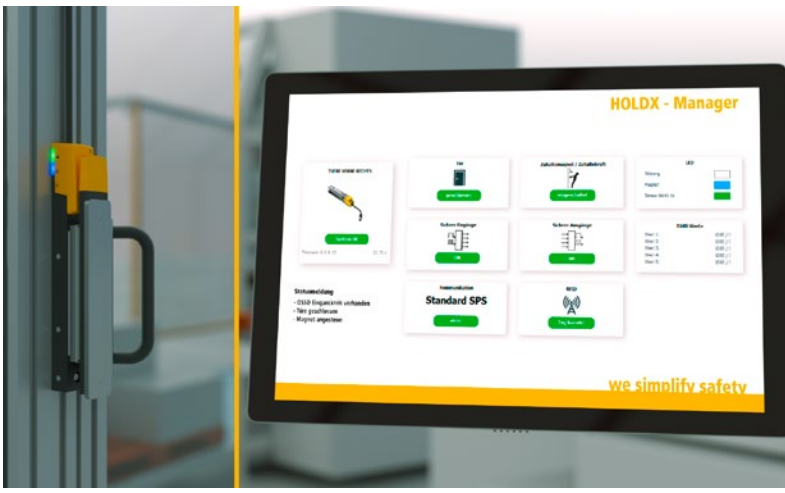
The smart HOLDX R process guard locking protects plants from unintentional opening. The integrated RFID safety sensor ensures the safety of the system, while the electromagnet keeps the door closed and thus protects automated processes. The integrated RFID safety sensor meets the highest performance level PLe according to EN ISO 13849-1:2016. An integrated Bluetooth interface and extended LED diagnosis enable smart operation and fast diagnosis. With the variants RS (small, 600 N locking force) and RL (large, 1200 N locking force), two variants are available for a wide range of applications.

Advantages in the application

- ✓ PLe acc. to EN ISO 13849-1:2016
- ✓ Series connection of up to 30 guard locking devices HOLDX R1 without loss of safety
- ✓ High coded acc. to EN ISO 14119:2013
- ✓ Wear-free process guard locking
- ✓ Response time only 75 ms
- ✓ Extended LED diagnosis
- ✓ Diagnostics via the integrated Bluetooth interface
- ✓ One diagnostic output provides up to 17 messages
- ✓ Functional modules for evaluation of the diagnosis are available for Siemens, Beckhoff and Rockwell

Advantages of Bluetooth diagnosis

- ✓ Has a guard locking been manipulated (wrong actuator)?
- ✓ How often a new actuator has been trained?
- ✓ How often was a door torn open even though it was locked?
- ✓ Storage of valuable information such as:
  - Short circuit
  - Loose contact in the cable
  - Wrong actuator
  - Voltage fluctuation
  - B_{10D}-value of downstream actuators



Intelligent combination of series connection and high diagnostics

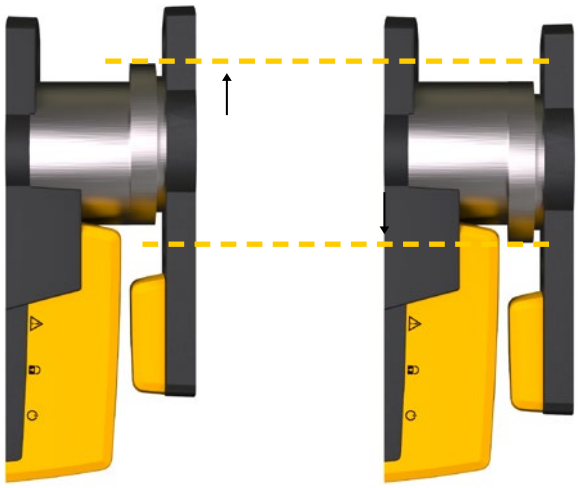
Reduction of commissioning time

Thanks to the two existing pigtail connections, Y-distributors and terminal boxes are no longer necessary. The HOLDX R cables are simply looped through from process guard locking to process guard locking. Thanks to an intelligent and simple wiring concept, up to 30 HOLDX R2 can be easily connected in series without giving up the diagnosis options. With the free software gateways from SSP, all participants can be individually evaluated and controlled.

Extensive diagnosis

- ✓ Door opened/closed
- ✓ Door locked
- ✓ Dirty or poorly adjusted
- ✓ Manipulation of RFID sensors has taken place (values are stored)
- ✓ Short-circuit in input or output circuit
- ✓ Free software gateways for evaluation of the diagnosis are available for Siemens, Beckhoff and Rockwell

Simple installation, reduced commissioning time



Flexible door offset

Through the combination of RFID technology and a modern electromagnet, HOLDX R allows a large tolerance in door offset and thus significantly increases machine availability even with inaccurate door guidance.

Simplified application

- ✓ Reduced commissioning time thanks to flexible assembly concept on aluminum systems
- ✓ Pigtail connection reduces cable diversity (straight and angled cables)
- ✓ Reduced machine downtime thanks to diagnostic function

Quick installation

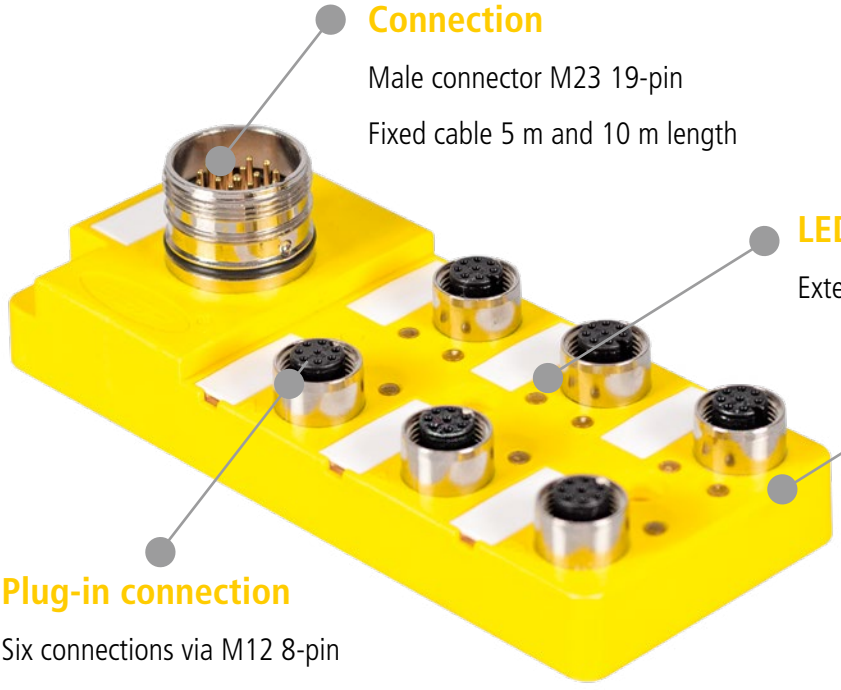
- ✓ 600 N locking force for small flaps
- ✓ 1200 N locking force for heavy doors
  50 N permanent latching force (optional)
- ✓ Flexible adjustment of latching force from 0-50 N via free mobile app or desktop software
- ✓ Integrated magnetic flux measurement for contamination diagnosis

Minimize your installation and wiring effort

Advantages of XCONN passive junction box

- ✓ Connection of up to six SAFIX safety sensor with RFID technology
- ✓ Connection of up to six HOLDX process guard locking devices
- ✓ Release of all process guard locking devices can be set individually
- ✓ Connection of up to six EDI emergency stop buttons

XCONN Y-M12 Y-distributor



Connection

Male connector M23 19-pin

Fixed cable 5 m and 10 m length

LED diagnosis

Extended status display

Design

Robust and compact

Plug-in connection

Six connections via M12 8-pin

female connector

Safe wireless distributors

Construction width

40 mm suitable for aluminum systems

Connections

Socket plug M12 8-pin

Protection class

IP65

4 shutdown circuits

Individually evaluable safety functions

Networkable

Safe LED wireless or CAN interface

Diagnosis

Extended LED diagnosis with touch panel

Voltage supply

Male connector M12 5-pin

WIRELESS

Safety Communication
SIL 3, Ple, cat 4

The safe wireless distributors from SSP enable networking and decentralized configuration of up to 16 units acc. to PLe. Each safe distributor contains 14 safe inputs/outputs, which can be flexibly configured.

Further information can be found in our Safety Simplifier catalog or at www.safety-products.de

SSP Safety relays

>10 MS RESPONSE TIME

As much as necessary - as little as possible!

TWO SAFETY FUNCTIONS

S2 Series **T2 Series** **X2 Series**

Pluggable connection technology with coding

Rotary switch for function setting

User-friendly

- ✓ Selectable up to 16 different applications
- ✓ Monitoring of all common safety sensors
- ✓ Achievable safety level up to PL e / SIL 3
- ✓ Simple adjustment with rotary switch
- ✓ Selected application can be secured with a seal
- ✓ Short response times (< 10 ms) on request
- ✓ High switching capacities and short cycle times
- ✓ Pluggable connection technology with coding
- ✓ Two safety functions in one safety relay (X2 Series)

Flexible in application

- ✓ One of the two-channel monitoring of sensors
- ✓ Manual or automatic reset
- ✓ Monitoring of potential-free signals
- ✓ Stop category 0 and 1
- ✓ Monitoring of OSSD signals
- ✓ Use as a contact extension or as a fully-fledged safety relay

Connection options

- ✓ Safety light curtains
- ✓ Safety guard locking
- ✓ Secure process guard locking
- ✓ Safe non-contact sensors
- ✓ Two-hand function (X2 Series)

ZEUS The customized enabling switch

Enabling – ergonomic and safe

If it is necessary to provide the operator a special operating mode for work such as commissioning, maintenance, repair or process set-up, important legal requirements must be observed.

The enabling mode has proven effective. In this operating mode, the machine operator has the option to bypass certain safety devices, like safety doors, by selecting the operating mode and actuating the enabling unit. The important point here is the 3-level function.

Only in the middle position, the 3-step enabling switch allows certain hazardous movements under additional precautions. If the operator releases the enabling switch or pushes it into the Level 3, the system switches off for safety.

The most important features at a glance

- ✓ Ergonomic design
- ✓ Robust housing in IP67
- ✓ Modular design
- ✓ Combination of enabling switch and operational unit
- ✓ Operation of up to 61 axes/functions
- ✓ Increased protection against manipulation thanks to SSP hand detection
- ✓ Universal connection via plug, cable or terminal

Configuration tool

Configure your individual ZEUS on our website!
www.safety-products.de/configurators

EDI Emergency stop button

with self-monitoring contact blocks

Self-monitoring contact blocks

In order to maintain safety, the switch elements of the emergency stop/emergency off buttons are equipped with a safety contact. The contact supervises continuously the correct connection between the emergency stop/ emergency off button and the contact element. Even redundant, safe emergency-off chains are ineffective unless the contact block is accurately connected with the emergency off button. If the emergency stop/emergency off button is disconnected from the contact element as a result of an imperfect assembly or mechanical damage,

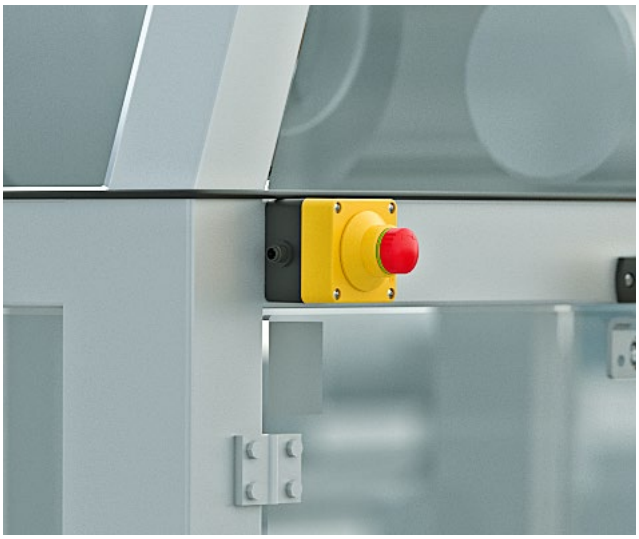
the safety contact disconnects immediately and the machine shuts down. The machine can be restarted only after successful trouble shooting.

EDI A3B illuminated emergency stop button

Self-monitoring contact transmitter EDI ZB2

IP69K for extreme operating conditions

Operating elements



Operating elements for all applications

The SSP control elements can be used in a wide range of applications, from the simplest to the most demanding environments requiring ECOLAB and IP69K certifications. With compact housing dimensions of less than 40 mm, the operating elements of the EDI series, such as the tGard series, can be easily mounted on standard aluminum profile systems. Numerous individual designs and button configurations can be realized with Fortress switches and thus adapt to different application conditions.

EDI series

EDI emergency stop button and operational units

Narrow housing shapes with holding brackets for quick assembly.

Safety System Products

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INTERNATIONAL PARTNERS

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www.safety-products.de

we simplify safety

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