New in 2022/2023

PILZ
THE SPIRIT OF SAFETY

For your automation solutions




What's new in 2022/2023 for your automation solutions

Pilz provides automation solutions for plant and machinery: complete and simple. From sensor technology to control and drive technology – safety and automation included. Various software tools enable simple operation and make commissioning easier. Benefit from short downtimes and high plant availability due to extensive diagnostic options. Here we present our product innovations for 2022/2023 for your safe automation. Further information is available on our homepage at www.pilz.com. Simply enter the webcode listed on the following pages.

Contents

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www.pilz.com/youtube
www.pilz.com/linkedin
www.pilz.com/twitter

Safe rope pull switch PSENrope mini – greater safety on the production line

NEW

With the new safe rope pull switch PSENrope mini, you have a cost-efficient solution for the emergency stop function along conveyor belts. With its compact design, the safe rope pull switch PSENrope mini only requires little space in the application. The rope length of up to 30 metres makes safeguarding with only one switch feasible, depending on the length of the conveyor belt. The sturdy metal or plastic housing guarantees robustness. Thanks to versions with straight or angled head, PSENrope mini can be flexibly and easily mounted in a variety of installation situations. The combination of emergency stop and pull-to-release ensures not only optimised costs, but also easy and convenient operation.

In addition to the versions with emergency stop function, versions with integrated reset button are also now available. They are suitable for concealed installation in the application and thereby enable a uniform machine design.

Your benefits at a glance

- Economical solution for the emergency stop function along conveyor belts
- Compact design for low space requirement in the application
- Rope length of up to 30 metres: only one switch for the emergency stop function along the conveyor belt
- Highly robust thanks to the sturdy metal or plastic housing
- Versions with straight or angled head for flexible use
- Versions with integrated reset button for concealed installation
- Suitable for indoor and outdoor applications
- Easy installation and simple operation
- Cost-effective thanks to the combination of emergency stop and pull-to-release

Safe rope pull switch PSENrope mini

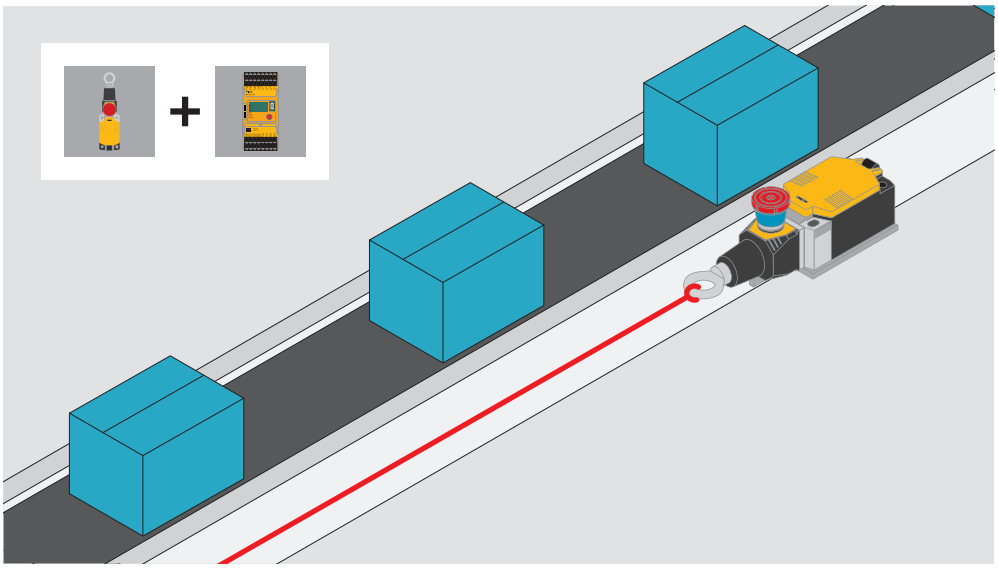
PSEN rsm
2.0-300-1-0-0

PSEN rsm
1.0-300-0-0-0

PSEN rsm
1.0-300-0-1-0

Technical features	▸ Versions with emergency stop or reset function ▸ Material: metal or plastic ▸ Versions with straight or angled head (right, left) ▸ Rope length: up to 30 m ▸ Protection type: IP67 ▸ Ambient temperatures: –30 °C to +75 °C ▸ Contacts: 2 N/C, 2 N/O ▸ Dimensions for straight head (H x W x D) in mm: 157.5 x 42.5 x 41 ▸ Dimensions for angled head (H x W x D) in mm: 110 x 114.5 x 42.5
Order number	**Version with reset function** ▸ PSEN rsm 2.0-300-1-0-0 570305 Plastic housing, straight head **Versions with emergency stop function** ▸ PSEN rsm 2.0-300-0-0-0 570306 Plastic housing, straight head ▸ PSEN rsm 1.0-300-0-0-0 570304 Metal housing, straight head ▸ PSEN rsm 1.0-300-0-2-0 570307 Metal housing, angled head, left ▸ PSEN rsm 1.0-300-0-1-0 570308 Metal housing, angled head, right **Accessories** [1] ▸ PSEN rsm turnbuckle 570316 Turnbuckle, M6x60, 1 piece ▸ PSEN rsm turnbuckle nut 570317 Turnbuckle nut, M6, 1 piece ▸ PSEN rsm rope thimble 570318 Rope thimble, D4, blue passivated strip steel, RoHs-compliant, 1 piece ▸ PSEN rsm rope clamp 570319 Rope clamp, nominal size 4, blue passivated strip steel, RoHs-compliant, 1 piece

[1] These additional accessories can be used with PSENrope.



The cost-efficient solution for the emergency stop function along conveyor belts:
safe rope pull switch PSENrope mini and configurable safe small controller PNOZmulti 2.

Webcode:
web150404

Online information
at www.pilz.com

Muting made easy – muting arms for safety light curtains PSENopt II

NEW

You want to avoid downtimes and ensure a fluid production process, even during material infeed and outfeed? Then the muting safety function is the right application for you. Thanks to the new muting arms, integration and implementation are even easier and more flexible. The muting arms are installed directly on the safety light curtains or the protective column. They don't require any additional construction or space on the machine. The sensors can be positioned individually along the muting arms, enabling implementation of the most varied protected fields. The stable design means that the muting arms are ideal for use in production environments in which vibrations, oscillations or collisions can occur, for example. A set is available in each case for L, T and X-muting which contains all accessories required for the respective application.

Your benefits at a glance

- Available for finger, hand and body protection, as Type 3 but also Type 4 safety light curtains
- Space-saving and simple installation: assembly takes place directly on the safety light curtain or the protective column
- Can be configured individually: the muting sensors can be positioned anywhere along the muting arms
- Designed to be robust: stable construction enables use even with vibrations or oscillations

Combine the safety light curtains PSENopt II and the muting arms with the safe small controller PNOZmulti 2. This allows your implementation of light curtain applications – such as monitoring conveyor belts and palletisers or controlling the discharge of packages – to be better tailored to the application and thus more productive.

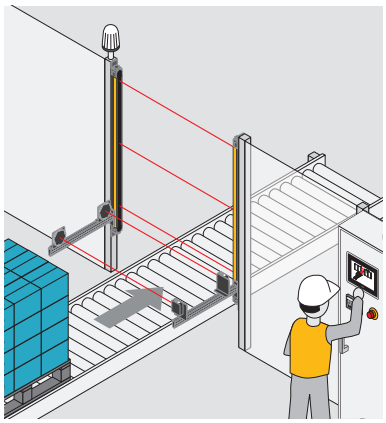
Easily implement muting with muting arms for safety light curtains PSENopt II

PSEN opII
L-Muting Set

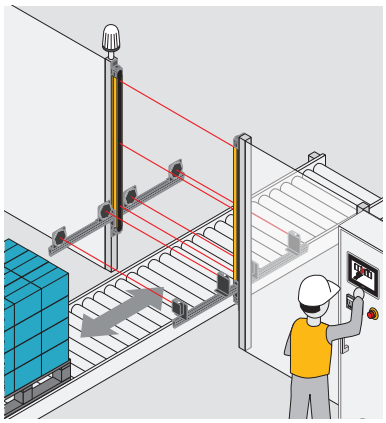
PSEN opII
T-Muting Set

PSEN opII
X-Muting Set

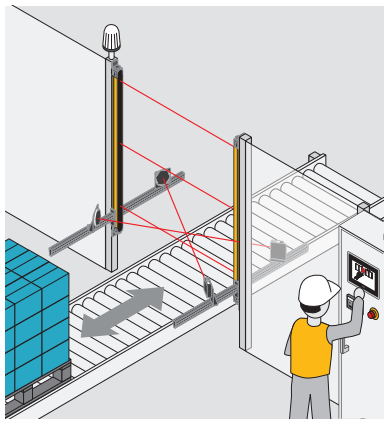
Type	Features of muting sets	Order number
PSEN opII L-Muting Set	L-muting set: ▸ 2 x muting sensors PSEN op3.3 ▸ 2 x PSEN op Reflector ▸ 2 x PDP67 cable M12-5sf M12-5sm, 1m ▸ 1 x PSEN opII muting box ▸ 1 x PIT si2.1 LED muting lamp ▸ 1 x PSEN opII muting arm ▸ 1 x PSEN opII muting arm bracket kit	6C000182
PSEN opII T-Muting Set	T-muting set: ▸ 4 x muting sensors PSEN op3.3 ▸ 4 x PSEN op Reflector ▸ 4 x PDP67 cable M12-5sf M12-5sm, 1m ▸ 1 x PSEN opII muting box ▸ 1 x PIT si2.1 LED muting lamp ▸ 2 x PSEN opII muting arm ▸ 2 x PSEN opII muting arm bracket kit	6C000183
PSEN opII X-Muting Set	X-muting set: ▸ 2 x muting sensors PSEN op3.3 ▸ 2 x PSEN op Reflector ▸ 2 x PDP67 cable M12-5sf M12-5sm, 1m ▸ 1 x PSEN opII muting box ▸ 1 x PIT si2.1 LED muting lamp ▸ 2 x PSEN opII muting arm ▸ 1 x PSEN opII muting arm bracket kit	6C000184



L-muting – with two muting arms and two muting sensors – is ideal for applications on which material is only transported in one direction.



T-muting uses four muting arms and four muting sensors to enable material transport in both directions.



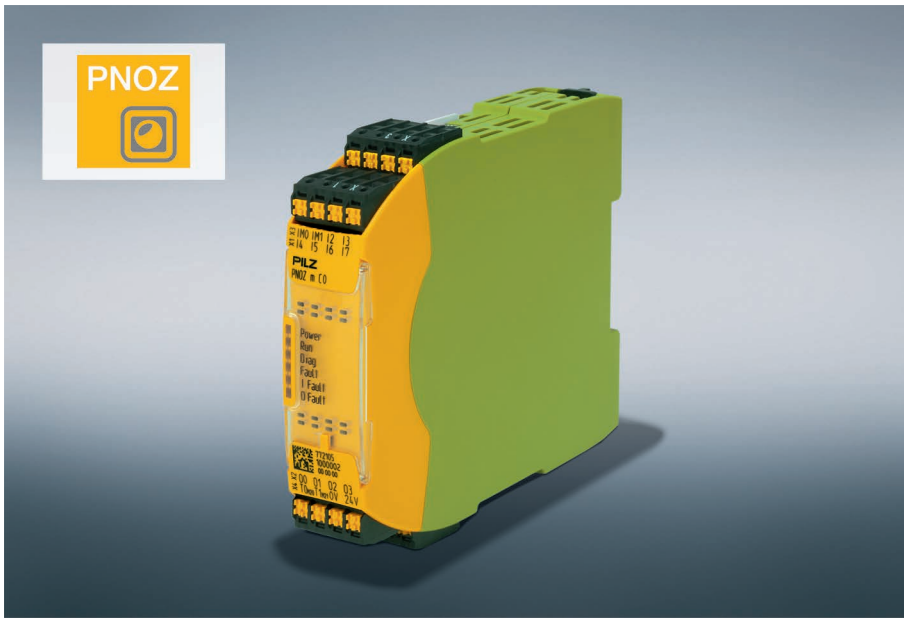
X-muting is also used for material transport in both directions. It uses four muting arms and two muting sensors.

Webcode:
web150418

Online information
at www.pilz.com

Safe small controllers PNOZmulti 2 – standalone base unit PNOZ m C0

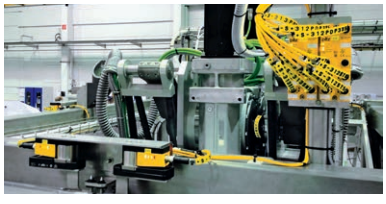
NEW



Small, but packs a punch! The new standalone base unit from the small controllers PNOZmulti 2 product range offers plenty of functions in a compact housing. 8 safe inputs and 4 safe semiconductor outputs over a width of 22.5 mm monitor safety functions on small machines. Depending on the application, you can reach PL e or SIL CL 3. Create your safety circuit using the software tool PNOZmulti Configurator. There are no licence costs to pay and it gives you access to a whole bundle of approved software blocks. Whether emergency stop, safety gate monitoring, light curtain or two-hand operation, see for yourself how the software tool PNOZmulti Configurator realises your safety requirements simply, flexibly and intuitively. The safety configuration only takes a few clicks. You can use PNOZmulti regardless of the machine type, plant type, country or industry sector. If the number of safety functions on your machine rises, you can migrate to the modular expandable base units: PNOZ m B0, PNOZ m B0.1 or PNOZ m B1. Even after 20 years on the market, you can still say “Many functions – One solution!”

Your benefits at a glance

- Maximum flexibility: inputs and outputs can be freely configured in the software tool PNOZmulti Configurator
- Large bundle of software blocks for monitoring safety functions up to PL e/SIL CL 3
- Customised costs: as narrow as a safety relay, as powerful as a programmable safety system
- Create safety architecture and use it independently of the controller
- Saves lots of space in the control cabinet due to the compact design



Configurable safe, small controllers PNOZmulti 2 – standalone base unit PNOZ m C0

PNOZ m C0

PNOZ m C0
Detail

PNOZ m C0
Cable

PNOZ

PNOZmulti
Configurator

Technical features	▸ Standalone base unit, not modular and expandable ▸ Can be configured in PNOZmulti Configurator from version 11.1 ▸ 8 safe inputs, up to 2 can be configured as auxiliary outputs ▸ For the connection of safe sensors PSEN, E-STOP pushbuttons, two-hand pushbuttons, safety gate limit switches, start buttons, light curtains, scanners, enabling switches, operating mode selector switches, and many more ▸ 4 safe semiconductor outputs, depending on the application up to PL e and SIL CL 3 ▸ 2 test pulse outputs, both of which can be configured as standard outputs ▸ LED display for: error messages, diagnostics, supply voltage, output circuits, input circuits ▸ Monitoring of shorts across contacts by means of test pulse outputs at the inputs ▸ Monitoring of shorts between the safety outputs ▸ Supply voltage: 24 VDC ▸ Safety circuit can be transferred directly to the unit via a USB cable and stored directly there, or alternatively on the chip card ▸ Safety-related characteristic data: depending on the application, up to PL e of EN ISO 13849-1 and up to SIL CL 3 of EN IEC 62061 ▸ Certifications: CE, TÜV, UKCA; others in progress (EAC (Eurasia), KOSHA, cULus listed) ▸ Dimensions (H x W x D) in mm: 101.4 x 22.5 x 120	
Order number	**PNOZ m C0**	772 105
	▸ Plug-in spring-loaded terminals	751 004
	▸ Plug-in screw terminals	750 004
	Optional accessories	
	▸ Cable/XX/USB-ASMX/MIN-BAMX/U/003/Q009/SH, Mini-USB cable, type Mini B, 3 m	772 300
	▸ Chip card (1x)	
	- 8 kByte	779 201
	- 32 kByte	779 211

Safe small controllers PNOZmulti 2 – overview of base units

PNOZ m C0 – the compact option
8 inputs, 4 semiconductor outputs, not modular and expandable

PNOZ m B0 – the universal option
20 inputs, 4 semiconductor outputs, can be expanded with max. 6 I/O modules

PNOZ m B0.1 – for small to medium-sized applications
As PNOZ m B0, can be expanded with max. 1 I/O module

PNOZ m B1 – for large projects
Can be expanded by max. 12 safe I/O modules and up to 6 standard output modules

PNOZ m B1 burner – for industrial burner management
As PNOZ m B1, additional special burner management function block

-	Can be expanded with safe link modules, communication and fieldbus modules. For further technical details please refer to the PNOZmulti technical catalogue.

PNOZmulti 2 base units:

Webcode: web225351

Online information at www.pilz.com

Safe small controllers PNOZmulti Configurator – new version 11.2

NEW

The software tool PNOZmulti Configurator is used to create PNOZmulti 2 projects or to edit existing projects. Version 11.2 offers new features for even more flexibility in the monitoring of your machinery.

Standalone base unit PNOZ m C0 with security key:
The planned new Machinery Regulation requires security mechanisms that prevent access to device data. This is already in place in the PNOZ m C0, making it well equipped for the future.

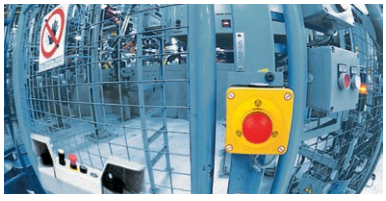
"Key-in-pocket" maintenance safeguarding system:
Together with PNOZmulti 2 and PITreader, new function elements in the software tool enable safe protection against unauthorised restarting of machinery. The key remains with the user and thus prevents manipulation while the blind spot element requires a check of areas with no visibility before restarting is possible. Logging in and out is possible at every gate, thereby saving time – particularly on large plants.

Your benefits at a glance

- Higher performance due to new software architecture, compatible with Windows 64-bit
- Software tool can be used free of licensing costs
- Equipped for safe automation of the future with the PNOZmulti 2 product range

Monitoring analogue values safely:
Two new function elements are available for the safe analogue input module PNOZ m EF 4AI. The differentiation element detects a change of the analogue value over a specific time. The "ramp" element is used if you wish to monitor whether a value moves within defined lower and upper limits. Your processes are safe when monitoring fill level, temperature, pressure, speed etc.

Up to 84 standard outputs on the base unit PNOZ m B1:
You can connect up to 6 output modules PNOZ m ES 14DO to the base unit PNOZ m B1. Doing so economically activates indicators, signal lamps, button illumination and much more.



Software tool PNOZmulti Configurator– version 11.2

PNOZ m C0

PNOZ m EF 4AI

PNOZ m ES 14DO

PNOZ m B1

Technical features	**Version 11.2.0** ▸ Create, open, edit PNOZmulti 2 projects ▸ Basic software is free of licensing costs ▸ Contains the entire PNOZmulti 2 hardware **New in version 11.2.0** ▸ 3 key-in-pocket function elements: safe access and restart management for plant and machinery. Several PITreaders with RFID technology can be combined with the small controller PNOZmulti 2. Logging in and out of up to 20 personalised keys is possible at every PITreader on the plant ▸ Standalone base unit PNOZ m C0 security-key: security mechanisms that prevent access to device data ▸ Differentiation and ramp: new elements for the module program of the safe analogue input module PNOZ m EF 4AI for safe processes ▸ Up to 6 output modules for standard applications PNOZ m ES 14DO can be connected to the base unit PNOZ m B1 **Version 10.14.XX "long-term-supported" version –** for configuration of the product ranges PNOZmulti Classic and PNOZmulti Mini ▸ This version can be used to migrate PNOZmulti Classic or Mini projects to PNOZmulti 2 ▸ Open, edit, create PNOZmulti Classic/Mini projects ▸ The new hardware PNOZmulti 2 is supported from version 11.0 and above	
Order number	**PNOZ m C0**	772 105
	▸ Plug-in spring-loaded terminals	751 004
	▸ Plug-in screw terminals	750 004
	PNOZ m EF 4AI	772 160
	▸ Plug-in spring-loaded terminals	751 004
	▸ Plug-in screw terminals	750 004
	PNOZ m ES 14DO	772 181
	▸ Plug-in spring-loaded terminals	751 004
	▸ Plug-in screw terminals	750 004
	PNOZ m B1	772 101
	▸ Plug-in spring-loaded terminals	751 016
	▸ Plug-in screw terminals	750 016

PNOZmulti Configurator

PNOZmulti Configurator:

Webcode: web225344

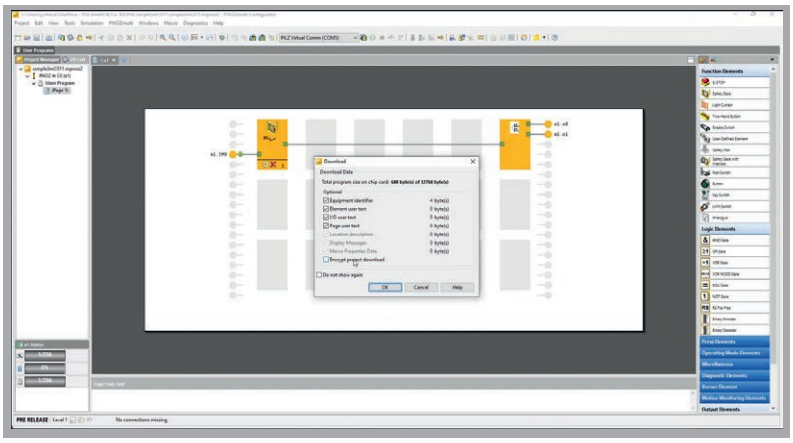
Key-in-pocket maintenance safeguarding system:

Webcode: web235182

PNOZmulti 2:

Webcode: web225263

Online information at www.pilz.com



Encryption of the data on the standalone base unit PNOZ m C0.

PITreader card unit – flexibility through transponder in card and sticker format

NEW

With the **access permission system PITreader card unit** you control the access permissions for your plant and machinery in the familiar PITreader manner. You additionally benefit from the integration of the OPC-UA standard in the “S” version.

New, however, are the available transponders. With **PITreader card** and **PITreader sticker**, **RFID transponders in card and sticker format** are used. For even more flexibility in the application, PITreader card unit can now also be used with RFID-capable cards already in use at the company. The familiar PITreader keys can also still be used for authentication. An exchange of the transponders is possible at any time, but is not absolutely necessary. A clever feature of the PITreader cards is the transparent window so that the LED status indicator on the PITreader remains visible when the card is held up to it. PITreader card unit can naturally also be used for access permission and safe operating mode selection in combination with PNOZmulti 2 or PSS 4000 as well as PITmode flex or PITmode flex visu.

Your benefits at a glance

- Control of entry and access permissions
- Implementation of the functionally safe operating mode selection
- PITreader card and PITreader sticker are available in freely writable or pre-configured versions
- PITreader key and/or existing RFID cards can be used
- Transparent window in PITreader card for LED status
- Suitable software tools for configuration and administration
- Integration of the OPC-UA standard (PITreader S unit) for optimum safety and connectivity

Access permission system PITreader card unit

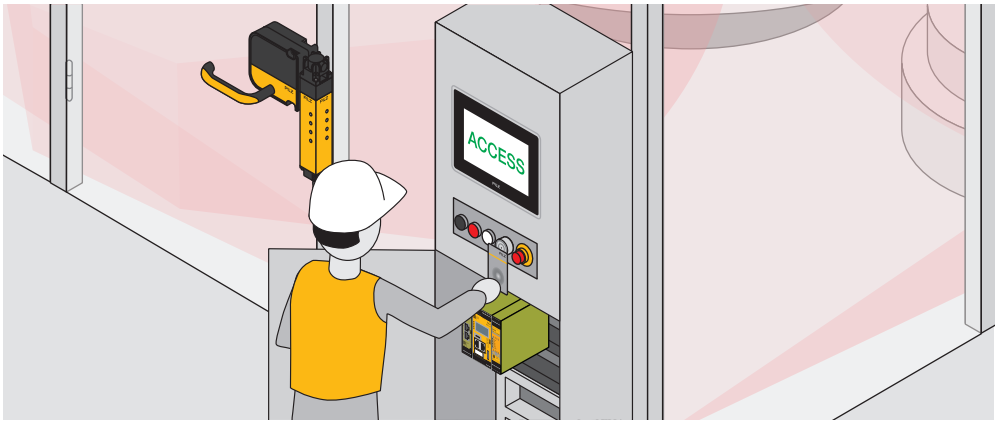
PITreader card unit

PITreader card ye g

PITreader sticker ye g

PITreader key ye g

Type	Technical features	Order number
PITreader card unit	▸ Authentication system via RFID reader for transponder cards, stickers & keys ▸ Contents: base unit, connector, PITreader card adapter	402 320
PITreader S card unit	▸ Authentication system via RFID reader with extended function range (OPC UA) for transponder cards, stickers & keys ▸ Contents: base unit, connector, PITreader card adapter	402 321
PITreader card cap	Silicone cap for PITreader (S) card as spare part	402 322
PITreader card ye g	GENERIC transponder card for PITreader card, freely configurable	402 330
PITreader card ye 1 … ye 5	Transponder card for PITreader card ▸ Permission 1 ▸ Permission 2 ▸ Permission 3 ▸ Permission 4 ▸ Permission 5	402 331 402 332 402 333 402 334 402 335
PITreader card ye 5 service	Transponder card for PITreader, authorisation 5 = service function	402 339
PITreader sticker ye g	GENERIC transponder sticker for PITreader card, freely configurable	402 340
PITreader sticker ye 1 … ye 5	Transponder sticker for PITreader card ▸ Permission 1 ▸ Permission 2 ▸ Permission 3 ▸ Permission 4 ▸ Permission 5	402 341 402 342 402 343 402 344 402 345
PITreader sticker ye 5 service	Transponder sticker for PITreader, authorisation 5 = service function	402 349
PITreader key ye g	GENERIC transponder key for PITreader card, freely configurable	402 260
PITreader key ye 1 … ye 5	Transponder key for PITreader card ▸ Permission 1 ▸ Permission 2 ▸ Permission 3 ▸ Permission 4 ▸ Permission 5	402 261 402 262 402 263 402 264 402 265
PITreader key ye 5 service	Transponder key for PITreader, authorisation 5 = service function	402 269



Authentication with PITreader card at a PMIvisu operator panel.

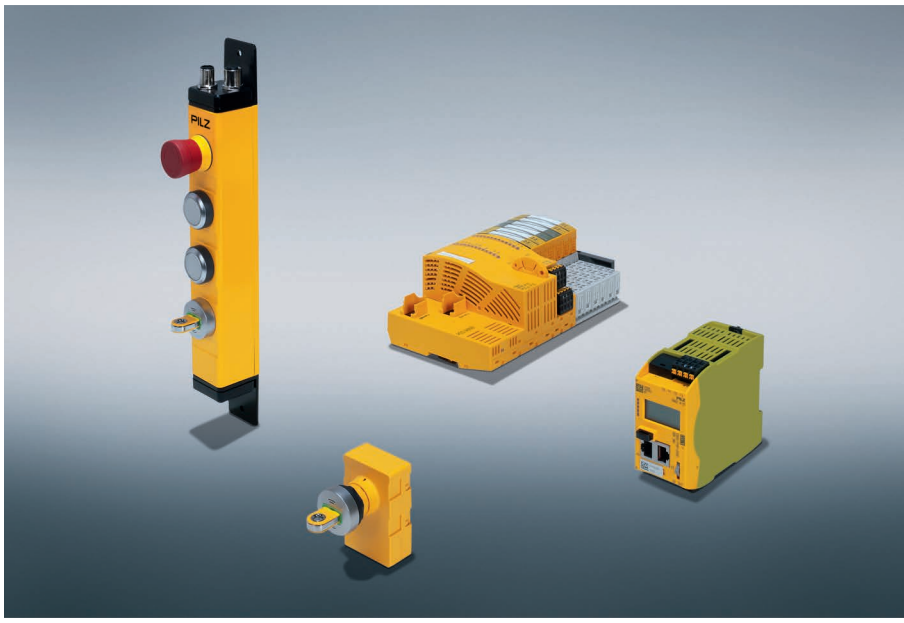
PITreader card unit:

Webcode: web150439

Online information at www.pilz.com

“Key-in-pocket” maintenance safeguarding system – prevention of unexpected start-up

NEW



Protect your personnel from hazards in maintenance situations! Use the “key-in-pocket” solution from Pilz to prevent the unexpected start-up of machinery as long as people remain in the danger zone.

To enter the plant, one or more operators authenticate themselves with their personal transponder key at the PITreader on the safety gate. The security IDs of the users are stored in a safe list in the Pilz controller (PNOZmulti 2 or PSS 4000). The machine can now be switched off and operated safely. The transponder remains with the employee (“key-in-pocket”). To put the plant back into operation, all people must log out with their personal transponder after leaving the plant. The safe list is then cleared and the machine is released again.

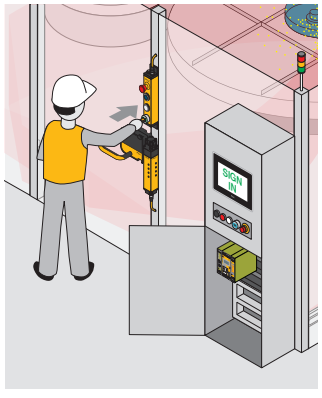
Your benefits at a glance

- Authentication of people and safe restart protection against unintentional (machine) start
- Certifications: PL d Cat. 3 of ISO 13849-1, SIL CL 2 of IEC 62061 and SIL 2 of IEC 61508
- Full control of which people have access to which machine at what time and who was in the plant at what time
- Simple blocking and fast reprogramming in the event that a transponder key is lost
- Considerably less expensive and more flexible than systems made of metal
- Up to 20 people who can enter a machine at the same time
- Manual reset function “blind spot check” in accordance with ISO 13849-1 5.2.2
- It is not necessary to exit the plant through the same gate through which it was entered

The “key-in-pocket” maintenance safeguarding system comprises the following components:

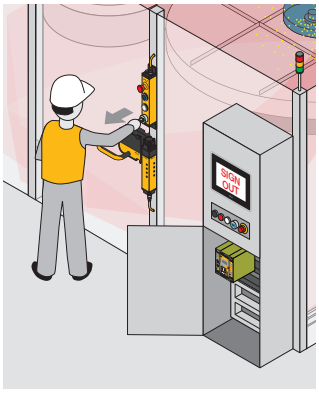
	Controller	Reading unit	Input unit
	▸ Manages the safe list of the logged in users ▸ Sets a safe signal for the restart of the machine ▸ Signals logged in users	▸ Reads user data and security ID from transponder keys	▸ Button for logging in and out ▸ Visual feedback: status logged in/logged out
Version 1	PNOZ m B1 or PSS 4000	PITreader	Illuminated pushbutton
			
Version 2	PNOZ m B1 or PSS 4000	PITreader in PITgatebox	Buttons in PITgatebox
			

Application example for “key-in-pocket” maintenance safeguarding system



Sign in – entry in safe list of the Pilz controller.

Work in the machine – user has the “key”.



Sign out – entry in safe list of the Pilz controller is removed.

Webcode: web235182

Online information at www.pilz.com

Identification and Access Management – I.A.M.

NEW

Identification and Access Management

“Identification and Access Management”, shortened to I.A.M., offers individual solutions with regard to safety and security tasks on your plant and machinery. The focus is on how you can find the best possible solutions concerning the topics of employee protection, liability protection, maximum productivity and the protection of your data.

Comprehensive protection of your employees and the best possible safeguarding of your machinery require a holistic safety concept that takes into account both safety and security aspects. With our “Identification and Access Management” portfolio, we offer you a comprehensive range of products, solutions and software for the implementation of these tasks.

This allows you to implement a number of tasks, from simple authentication to complex access permissions and entry management, up to safe operating mode selection, maintenance safeguarding and safeguarding of data and networks. Or, put another way: it gives you safety and security in one system.

Identification and Access Management

Liability protection

Employers and managers can be held responsible for their action or inaction as it relates to the safety of their employees! It is therefore essential that appropriate measures be taken and their effectiveness checked at regular intervals. For example, employees are to be selected, qualified and equipped with the necessary tools according to their tasks. In addition to organisational measures, technical solutions such as access management with PITreader are also used. With this, individual permissions for certain machines or processes can be issued in a permanently traceable manner.

Employee protection

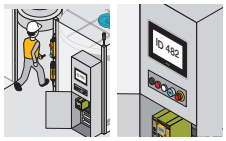
It is necessary to organise work so that hazards for physical and mental health are avoided. A hazard assessment is also necessary to check which hazard levels are present at which machines and how machinery (access) must be secured. In addition to corresponding access permissions at safety gates and the suitable qualification of the personnel, the use of operating modes is an adequate means. Operating mode selection can be safely regulated with PITmode products and technically ensures that each employee can only perform the work for which they are qualified.

Data protection

Data protection and network security are also increasingly becoming key topics. Safety without security is essentially impossible; they are inextricably linked. The Machinery Regulation, which will take effect in the EU in 2025, will cover this in future. It is already important to safeguard your data, know-how and operating processes against unauthorised parties. Clever products such as the industrial firewall SecurityBridge or the switchable USB interface PITtoe USB offer security against “outside” or even “inside” attacks.

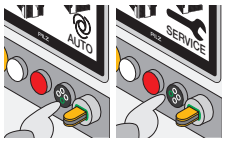
Productivity protection

All considerations regarding safety must not affect the productivity. Machine downtimes – in the worst case with injured persons or damage to the machine – frequently occur due to manipulation, incorrect operation or a lack of (access) controls. With clear responsibilities, corresponding permissions and logging of the work, you prevent errors and ensure transparency. PITreader with its functions for access management offers the ideal solution for safety, security and the safeguarding of the productivity of your plant.



“Key-in-pocket” maintenance safeguarding system

Access management



Safe operating mode selection

Data and network security

Application examples for Identification and Access Management with PITreader and PITmode.

Webcode: web235181

Online information at www.pilz.com

User Authentication Service (UAS) for the access permission system PITreader (S)

NEW

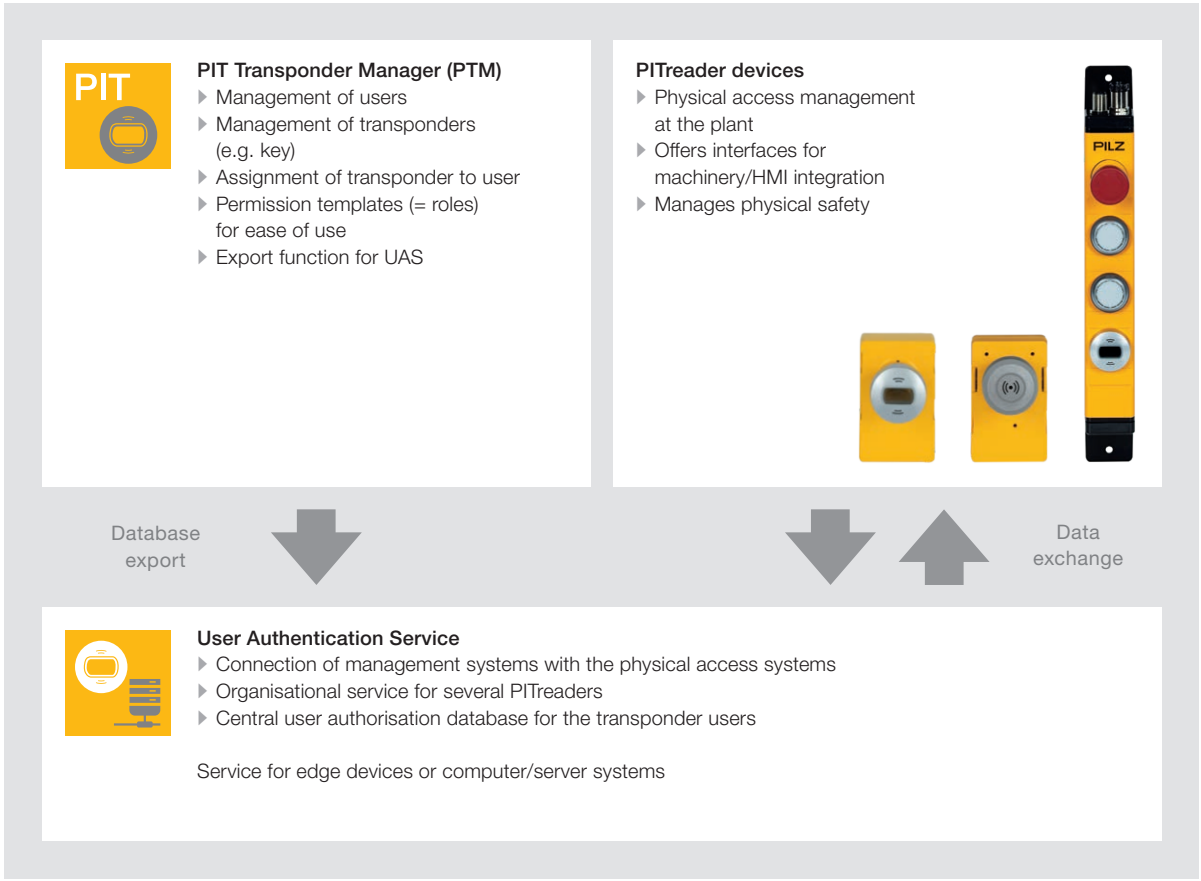
The User Authentication Service (UAS) is the software for connecting physical access systems (e.g. PITreader) with the management systems for access data and permissions (e.g. PIT Transponder Manager). The organisational service manages all permissions and evaluates them via a central authorisation database for all “transponder key users”. The database is supplied by means of import from the “PIT Transponder Manager”, meaning that it only requires minimum effort for the setup.

Global functions such as a block list are distributed by the UAS to all linked PITreaders. The current status and detailed diagnostic information are clearly provided to the UAS administrator. The permissions of the transponders are synchronised with the connected PITreaders, thereby guaranteeing the function (e.g. opening of a gate) even if a network failure should occur.

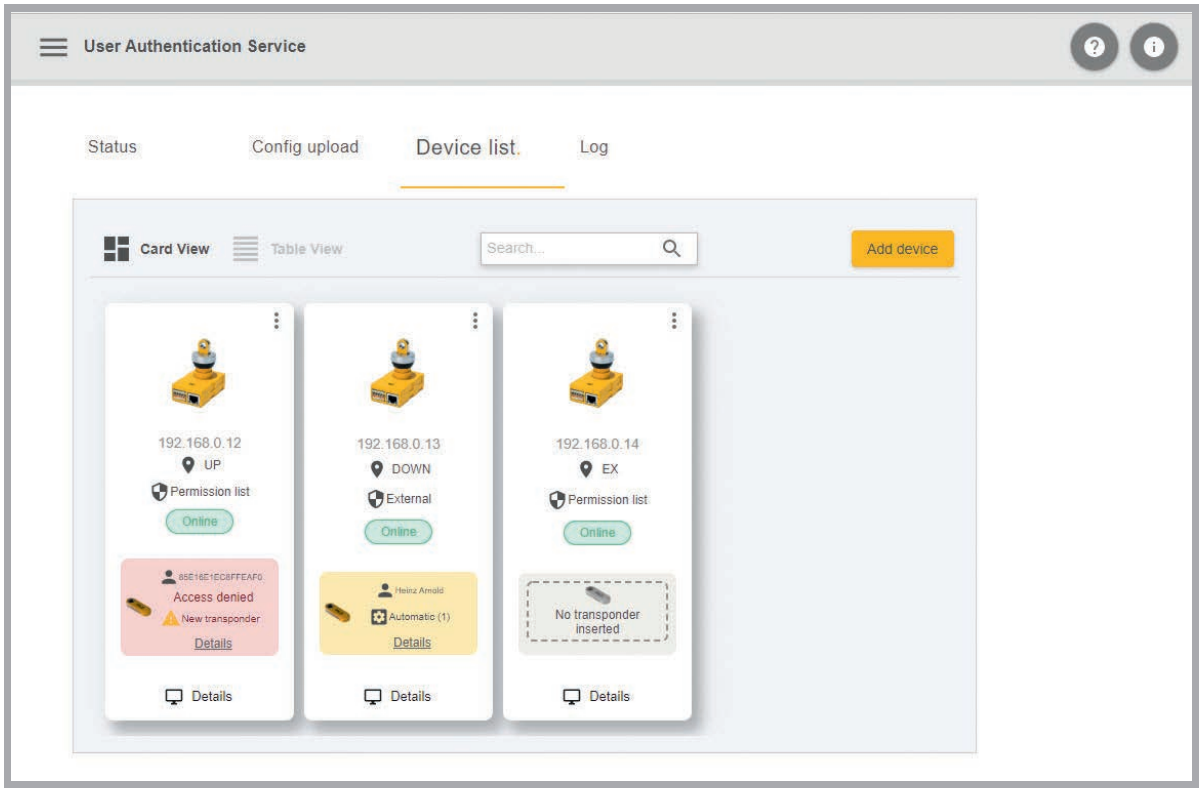
The PITreaders and UAS naturally communicate via HTTPS, providing optimum protection against tapping, identity theft or man-in-the-middle attacks.

Your benefits at a glance

- Enables the connection of management systems with the physical access systems
- Time savings thanks to central management of several PITreaders
- Central user authorisation database for the data and permissions of the transponder user
- Distribution of the block list to all PITreaders
- Status request and diagnostic list for PITreader
- Runs as a “service” in the background
- Can be operated on PC, Revolution PI, IoT Gateway or a virtual machine
- Is supported by Linux as well as Windows 10/11
- Function safety guaranteed even with network failure



Data exchange between PITreader and management software via the User Authentication Service.



Webcode: web150439

Online information at www.pilz.com

View of the “Device list” in the User Authentication Service.

I/O module with protection type IP67 and PROFINET/PROFIsafe

NEW

Flexible and modular automation solutions require I/O systems that enable personnel protection directly at the danger zone. The new PDP67 PN with PROFINET/PROFIsafe interface is the ideal solution for safety outside of the control cabinet. Due to its robust design with protection class IP67, it can be installed directly on the machine. This saves space in the control cabinet and enables modular plant designs. Thanks to universal connections that can be configured as both safe inputs and outputs, users only need to stock one unit type. This saves space in the warehouse! The PDP67 PN can be used in any PROFINET/PROFIsafe networks and thus also in the same network with the remote I/O system PSSuniversal 2 from Pilz.

The PDP67 PN is thus the cost-efficient, fast and flexible solution for decentralised monitoring of safety and non-safety-related sensor and actuator technology in environments with extreme temperatures.

Your benefits at a glance

- Compatible with various third-party devices through the PROFINET/PROFIsafe interface
- Supplements our remote I/O systems PSSuniversal 2 and PDP67 product ranges
- Flexible configuration of the connections as safe inputs or outputs
- Great potential savings with wiring, as connection of a sensor to the PDP67 module replaces the entire input wiring to the control cabinet
- Short commissioning times and minimum service costs thanks to M12 plug-in connections
- More space in the control cabinet, as the IP67 modules are positioned outside
- IP67 protection: robust from –30 °C to +70 °C thanks to die cast zinc housing
- Simple installation and flexible I/O configuration directly where safety is required on the machine
- AIDA pinning (Automation Initiative of German Domestic Automobile Manufacturers)

Decentralised field devices

PDP67 PN 6FDI 6FDIO 2FDOTP

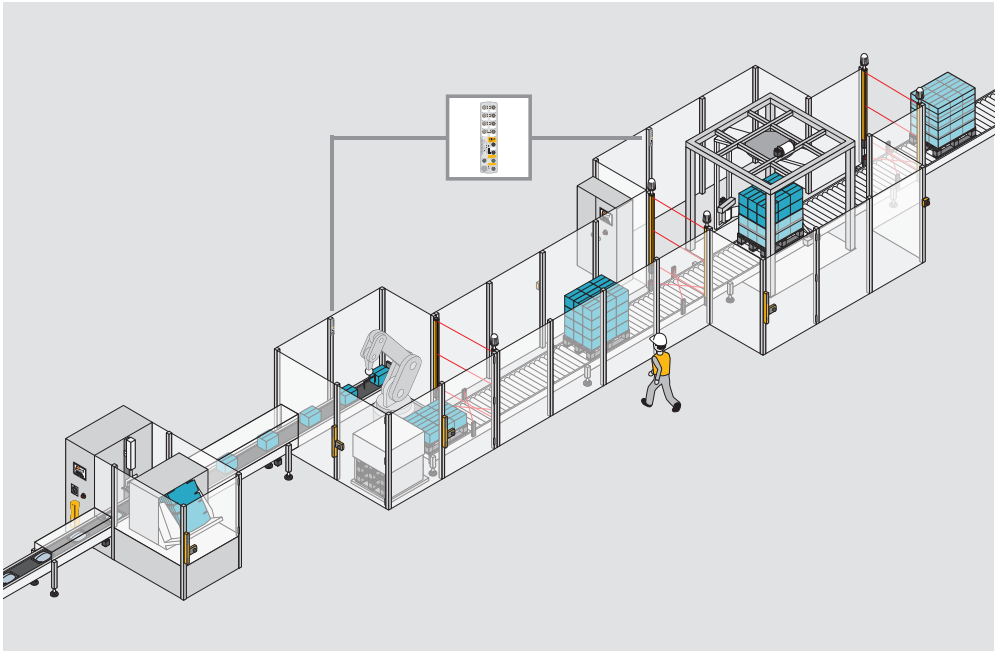
µSD memory card 512 MB M12A

IP67 labels

Caps for L-coded connections

Caps for IP67 modules

Technical features	▸ PROFINET/PROFIsafe device (slave) ▸ 6 safe digital inputs (2 inputs at one connection) ▸ 6 safe digital inputs and outputs (flexible configuration: 2 inputs or 2 outputs at one connection) ▸ 2 safe digital 2-pin outputs (1 output at one connection) ▸ Sensor and actuator connection: M12, 5-pin connections ▸ Protection class: IP67 ▸ Housing: die cast zinc ▸ Certifications: CE, TÜV, CCC (UL to follow) ▸ Ambient temperature: –30 °C to +70 °C ▸ Operating voltage: 24 VDC ▸ Functional safety: PL e, SIL CL 3	
Order number	**PDP67 PN 6FDI 6FDIO 2FDOTP**	4R000001
	Accessories	
	▸ µSD memory card 512 MB M12A	4R000002
	▸ IP67 labels	C1000033
	▸ Caps for L-coded connections	380328
	▸ Caps for IP67 modules	380324



Modular machines require safety directly at the danger zone.
The I/O module PDP67 PN for PROFINET/PROFIsafe makes this possible.

IP67 modules:

Webcode: web150450

Online information at www.pilz.com

Machinery safety evaluation

NEW

The machinery safety evaluation offers you a detailed overview of the safety and conformity state of the machinery tested as part of this evaluation. This includes not only the laws, standards and directives valid at the point of use or destination of the machinery. We also provide you with all the relevant information about the safety state of the machinery in the required technical depth. The result is a clear and comprehensive dashboard with all evaluations, as well as a list of safety measures with all of our recommended actions to optimise the safety and conformity. You save time and costs with our technical evaluation of your machinery.

Your benefits at a glance

- Cost optimisation: agreement of the level of detail for the assessment in advance for adaptation to individual requirements
- Certificate of compliance and liability protection: creation of a dashboard with a clear overview for each machine or plant
- Safety: the machinery safety evaluation has been specially developed for existing machinery. All checks and evaluations provide a direct overview of the safety state and the need for action relating to the tested machinery
- Efficiency: the result dashboard as well as the individual reports can used again individually. The documents are already pre-configured with many evaluation options
- Compliance with your company policies: individual testing standards can be added to the evaluations
- Can be used internationally: the same methodology can be used at all locations around the world. Results from one machine can be applied to a similar machine in a different country

Machinery safety evaluation

There are 2 options within this service and you can choose the one better suited to you.
This can include the following:

	Level 1	Level 2
Compliance with safety state Assessment of the compliance with the safety requirements with a list of all deviations. The requirement-based checklist contains both a description as well as an evaluation of every requirement with the associated conformity state. Both the compliance with the regulations and the evaluation are shown in a graphic format (dashboard)	◆	◆
Evaluation of the main risks Evaluation of the most important risks based on the selected method, including a reference to the requirement, a risk classification and a description		◆
Check of the documentation Creates an overview of the whether all documentation required for a machine is available and sufficient		◆
Law and conformity/company guidelines Provides an overview of the conformity state based on the company requirements and taking into consideration international or national requirements, e.g. the "Use of Work Equipment Directive 2009/104/EC"		◆
Evaluation of the most important safety functions Evaluation of the maximum achievable PL_r for every checked subfunction. Assesses the quality of the components, the architecture, the diagnostics and the error response		◆
Risk reduction/recommended actions List of all non-compliant points and the associated measures for risk reduction to ensure compliance of the machine with the relevant standards	◆	◆
Cost estimate for the upgrade Based on the set of measures, a cost estimate is created for the expenditure that is required to ensure compliance of the machine with the relevant standards		Optional

Webcode:
web234972

Online information
at www.pilz.com

CEFS – Certified Expert in Functional Safety

NEW

Expert

The CEFS – Certified Expert in Functional Safety course gives you expert knowledge of functional safety of machines that you can put to immediate use.

The course provides comprehensive information about the corresponding ISO 13849 and IEC 62061 standards and a practical approach to the creation of complex safety systems. CEFS is aimed at people who already have prior knowledge in the field of functional safety.

Upon successful qualification, you will be able to create and evaluate safety systems yourself – from design through verification to implementation and validation. CEFS includes a series of workshops in which you will learn how to apply particular topics in practice.

Your benefits at a glance

- The course provides comprehensive expert knowledge of functional safety in technical depth.
- You will learn how to successfully validate functional safety systems.
- We will show you how to select the most effective and cost-efficient control system that is ideally suited to your requirements.
- You will receive detailed information on how complex safety systems can be designed in conformity with ISO 13849 and IEC 62061.
- The compact design of the course and content built on prior knowledge enables certification within just two days.
- After passing the test, you are issued a certificate from TÜV NORD that verifies your qualification. The certificate is recognised worldwide and entitles you to use the designation “CEFS – Certified Expert in Functional Safety”.

CEFS – Certified Expert in Functional Safety

Contents

Functional safety: basic level
- Basics of safety control systems
- Application and implementation of Performance Levels (PL) and Safety Integrity Levels (SIL)
- Safety requirement specification
- Workshop 1 “Producing a safety requirement specification”

Designing a safety control system
- Safety circuit architectures
- Preventing and controlling systematic failures
- Workshop 2 “Division into subsystems”
- Workshop 3 “Determining the probability of a random hardware failure”
- Workshop 4 “Checking the systematic requirements, including safety-related software”

Validating a safety circuit
- Creating a validation plan and protocol
- Workshop 5 “Designing a validation protocol”
- Using software tools for validation
- Workshop 6 “Software-based review of the safety level”

Functional safety: expert level
- Special cases
- Solution-oriented exercise “Practical application of functional safety”
- Requirements and implementation of a corporate functional safety management system

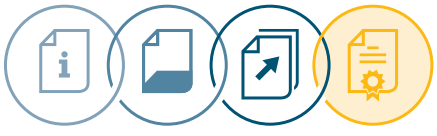
Target groups

CEFS is aimed in particular at machine manufacturers, design engineers and integrators with special responsibility with regard to safe control systems. Furthermore, CEFS is specially intended for people who are responsible for machinery safety of new and existing machines in day-to-day operations, such as:

- Design engineers
- Programmers of safe control systems
- Project engineers
- System integrators
- Test engineers who are responsible for the validation of machinery

Your best path to qualification

CEFS is at the highest level of our international qualification programme, the expert level. With the relevant professional experience or participation in training courses from the previous levels, you have a structure for building your expert knowledge. Depending on your professional experience and level of knowledge, we therefore recommend attending the training courses listed on the right in order. Just jump in at the appropriate level.



Introduction: Introduction to Machinery Safety

Fundamental: Fundamentals of Machinery Safety

Advanced: Design of Safety Control Systems according to ISO 13849 and IEC 62061

Expert: CEFS – Certified Expert in Functional Safety

Webcode: web202195

Online information at www.pilz.com

Support

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Pilz develops environmentally-friendly products using ecological materials and energy-saving technologies. Offices and production facilities are ecologically designed, environmentally-aware and energy-saving. So Pilz offers sustainability, plus the security of using energy-efficient products and environmentally-friendly solutions.

BLUEcoMPETENCE Alliance Member
Partner of the Engineering Industry Sustainability Initiative

German Standards
BRAND OF THE CENTURY 2022

Quality Management ISO 9001:2015 REG. NO. 2462
Environmental Management ISO 14001 REG. NO. 2462
Energy Management ISO 50001 REG. NO. 2462

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Printed on 100 % recycled paper for the good of the environment.

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THE SPIRIT OF SAFETY

7-8-en-3-022, 2022-10 Printed in Germany