



► New in 2024

For your automation solutions

PILZ
THE SPIRIT OF SAFETY



► What's new in 2024 for your automation solutions

Pilz supplies 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 2024 for your safe automation.

Further information is available on our homepage at www.pilz.com. Simply enter the webcode listed on the following pages.

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► Safety locking device PSENmlock mini – small and strong

NEW

With its compact design of just 30 x 30 x 159 mm, you'll always find enough room for the safety switch PSENmlock mini, even in space-critical applications. It efficiently protects safeguards such as flaps and covers, for example. This small safety locking device has a holding force F_{ZH} of 1 950 N (F_{1max} : 3 900 N), providing safe guard locking for personnel protection applications up to PL d, Category 3 (EN ISO 13849-1).

The PSENmlock mini can be quickly and easily secured with just two screws. Installation can be performed inside or outside the safeguard. Also, the actuator offers a high level of flexibility, as it can be attached from the right, left and front. So swing gates and sliding gates can also be easily protected. The dual-channel operation of the solenoid and the bistable guard locking principle guarantee a high level of safety. In the event of a power failure, the last state is maintained and the gate is closed. The RFID safety switch offers a high level of manipulation protection with optimum economy. An auxiliary release is integrated on two sides.



Your benefits at a glance

- Significant space-saving: 60 % smaller than the PSENmlock
- Strong holding force F_{ZH} up to 1 950 N (F_{1max} : 3 900 N)
- Flexible actuator can be installed inside and outside the safeguard and can be attached from the right, left and front
- High level of safety due to dual-channel operation of the solenoid
- Bistable guard locking principle ensures safe operation even in the event of a power failure and reduces energy consumption
- High degree of manipulation protection in accordance with EN ISO 14119, coding freely selectable



Safety locking device PSENmlock mini



PSEN mlm 1 sa 1.1 switch

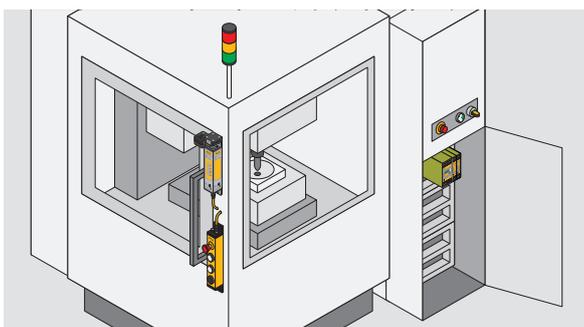


PSEN mlm actuator a



PSEN mlm 1 ba 1.1 unit b

Type	Technical features	Order number
► Safety switch		
PSEN mlm 1 ba 1.1 switch	Coded, M12 8-pin, single connection	6K000001
PSEN mlm 1 ba 2.1 switch	Fully coded, M12 8-pin, single connection	6K000002
PSEN mlm 1 ba 2.2 switch	Uniquely coded, M12 8-pin, single connection	6K000003
PSEN mlm 1 sa 1.1 switch	Coded, M12 12-pin, series connection	6K000004
PSEN mlm 1 sa 2.1 switch	Fully coded, M12 12-pin, series connection	6K000005
PSEN mlm 1 sa 2.2 switch	Uniquely coded, M12 12-pin, series connection	6K000006
► Actuator		
PSEN mlm actuator a	Actuator a for external installation	6K000007
PSEN mlm actuator b	Actuator b for internal installation	6K000008
► Units		
PSEN mlm 1 ba 1.1 unit a	Safety switch coded, single connection, actuator a	6K000009
PSEN mlm 1 ba 2.1 unit a	Safety switch fully coded, single connection, actuator a	6K000010
PSEN mlm 1 ba 2.2 unit a	Safety switch uniquely coded, single connection, actuator a	6K000011
PSEN mlm 1 sa 1.1 unit a	Safety switch coded, series connection, actuator a	6K000012
PSEN mlm 1 sa 2.1 unit a	Safety switch fully coded, series connection, actuator a	6K000013
PSEN mlm 1 sa 2.2 unit a	Safety switch uniquely coded, series connection, actuator a	6K000014
PSEN mlm 1 ba 1.1 unit b	Safety switch coded, single connection, actuator b	6K000015
PSEN mlm 1 ba 2.1 unit b	Safety switch fully coded, single connection, actuator b	6K000016
PSEN mlm 1 ba 2.2 unit b	Safety switch uniquely coded, single connection, actuator b	6K000017
PSEN mlm 1 sa 1.1 unit b	Safety switch coded, series connection, actuator b	6K000018
PSEN mlm 1 sa 2.1 unit b	Safety switch fully coded, series connection, actuator b	6K000019
PSEN mlm 1 sa 2.2 unit b	Safety switch uniquely coded, series connection, actuator b	6K000020



Safety locking devices PSENmlock mini:

Webcode: web239490

Online information at www.pilz.com

In combination with the control unit PITgatebox with integrated access system, the intelligent diagnostic system SDD and the safe small controller PNOZmulti 2, the result is a complete solution for safeguarding your safety gate.

► Safety locking device PSEnSlock 2 – more productivity through robust guard locking

NEW

The new generation of the safety locking device PSEnSlock 2 is suitable for universal use for safety gate monitoring in process protection up to PL e, Cat. 4 (EN ISO 13849). For applications that require safe guard locking for personnel protection, for the first time there is also a version available that offers this feature. In all versions, the RFID safety switches offer a high level of manipulation protection for maximum safety.

With the high holding force F_{1max} of optionally 1 000 or 2 000 N, the PSEnSlock 2 is suitable for both large gates and small flaps. Any tolerances that occur due to safety gate misalignment or vibration are reliably offset by PSEnSlock 2, thus guaranteeing high availability. With the available RFID tags, the latching force can be set quickly and simply in stages – to suit your plant and the size of the safety gate. Also suitable for use under rugged operating conditions, PSEnSlock 2 with protection type IP67/IP6K9K is insensitive to dust and water.

The design prevents dust and dirt deposits. For hygiene-critical applications, there are also versions with stainless steel components.



Your benefits at a glance

- Resistant even in tough ambient conditions
- Flexibly mounted actuator with large contact surfaces offsets tolerances even with safety gate misalignment
- High degree of manipulation protection prevents unwanted production interruptions, coding freely selectable
- Convenient diagnostics via 4 LEDs for simple status messages
- Can be adapted to individual requirements through adjustable latching force via RFID tag or SDD
- Intelligent diagnostics in series connection via SDD (Safety Device Diagnostics)
- Long service life through non-contact, magnetic guard locking device
- Safe series connection up to PL e can be implemented quickly and simply



Safety switch with magnetic guard locking device PSENSlock 2



PSEN si2-DM1-P switch



PSEN si2-DL3-P switch

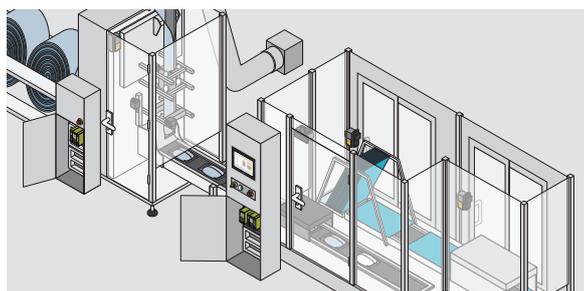


PSEN si2-M-AL actuator



PSEN si2-L-VA actuator

Type	Technical features	Order number
► Safety switch for process protection: Holding force: 1 000 N		
PSEN si2-DM1-P switch	M12 8-pin, coded, series connection	6N000001
PSEN si2-DM2-P switch	M12 8-pin, fully coded, series connection	6N000002
PSEN si2-DM3-P switch	M12 8-pin, uniquely coded, series connection	6N000003
PSEN si2-DM1-N switch	M12 5-pin, coded	6N000013
PSEN si2-DM2-N switch	M12 5-pin, fully coded	6N000014
PSEN si2-DM3-N switch	M12 5-pin, uniquely coded	6N000015
PSEN si2-IM1-P switch	M12 8-pin, coded, series connection, safety outputs independent of guard locking	6N000019
PSEN si2-IM2-P switch	M12 8-pin, fully coded, series connection, safety outputs independent of guard locking	6N000020
PSEN si2-IM3-P switch	M12 8-pin, uniquely coded, series connection, safety outputs independent of guard locking	6N000021
► Safety switch for process protection: Holding force: 2 000 N		
PSEN si2-DL1-P switch	M12 8-pin, coded, series connection	6N000004
PSEN si2-DL2-P switch	M12 8-pin, fully coded, series connection	6N000005
PSEN si2-DL3-P switch	M12 8-pin, uniquely coded, series connection	6N000006
PSEN si2-DL1-N switch	M12 5-pin, coded	6N000016
PSEN si2-DL2-N switch	M12 5-pin, fully coded	6N000017
PSEN si2-DL3-N switch	M12 5-pin, uniquely coded	6N000018
PSEN si2-IL1-P switch	M12 8-pin, coded, series connection, safety outputs independent of guard locking	6N000022
PSEN si2-IL2-P switch	M12 8-pin, fully coded, series connection, safety outputs independent of guard locking	6N000023
PSEN si2-IL3-P switch	M12 8-pin, uniquely coded, series connection, safety outputs independent of guard locking	6N000024
► Safety switch for personnel protection: Holding force: 2 000 N		
PSEN si2-GL1-S switch	M12 12-pin, coded, series connection	6N000007
PSEN si2-GL2-S switch	M12 12-pin, fully coded, series connection	6N000008
PSEN si2-GL3-S switch	M12 12-pin, uniquely coded, series connection	6N000009
PSEN si2-GL1-P switch	M12 8-pin, coded	6N000010
PSEN si2-GL2-P switch	M12 8-pin, fully coded	6N000011
PSEN si2-GL3-P switch	M12 8-pin, uniquely coded	6N000012
► Actuator		
PSEN si2-M-AL actuator	Holding force: 1 000 N, material: Al	6N000025
PSEN si2-L-AL actuator	Holding force: 2 000 N, material: Al	6N000026
PSEN si2-M-VA actuator	Holding force: 1 000 N, material: VA	6N000028
PSEN si2-L-VA actuator	Holding force: 2 000 N, material: VA	6N000027



The robust design enables safe process guarding even in hygiene-critical applications such as in the packaging industry.

Safety locking devices
PSENSlock 2:

Webcode:
web239487

Online information at www.pilz.com

► PSEnradar with expanded field of vision and secure data transfer via FSoE

NEW

More viewing angles for increased productivity

Two new radar sensors offer new possibilities in the field of safe protection zone monitoring: PSEN rd1.2 F-FOV sensor with a detection range of 0 to 5 metres and PSEN rd1.2 F-FOV LR sensor with a range of 0 to 9 metres. In addition to the symmetrical viewing angle, both sensors enable the configuration of asymmetrical as well as corridor-shaped viewing angles. You can now integrate the radar sensors even more flexibly into your production environment. With cramped conditions in particular, where machines are located within close proximity to one another or walkways run directly past machinery, you benefit from increased productivity.

Safe data transfer with FSoE

PSEnradar together with the configurable small controllers PNOZmulti 2 offers a safe complete solution for protection zone monitoring – even for safe data transfer with FSoE in the EtherCAT communication system. The newly available evaluation device PSEN rd1.x SD I/O FSoE analysing unit enables the FSoE functionality in accordance with



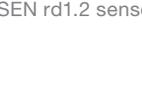
Your benefits at a glance

- More flexibility in production and optimum workplace design through asymmetrical and corridor-shaped fields of vision
- Range up to 9 metres creates more opportunities for efficient safeguarding, even of mobile applications
- Safe data transfer with FSoE in the EtherCAT communication system
- Complete solution with PNOZmulti 2 as FSoE-Master and PSEnradar with evaluation device PSEN rd1.x SD I/O FSoE analysing unit
- One-cable solution reduces the wiring effort and saves costs

IEC 61508 for safety applications up to SIL 3. Together with the safe small controller PNOZmulti 2 as FSoE-Master, you can easily implement safety-related networking with the safe radar system as a one-cable solution – with minimum wiring effort.

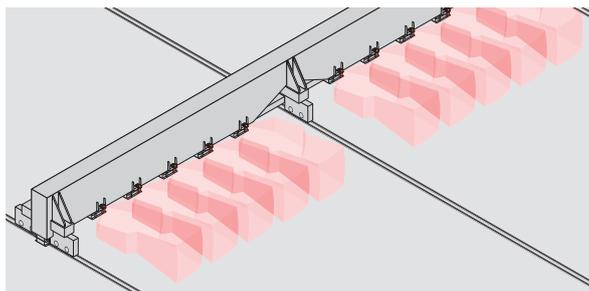


PSENradar – advanced options for the field of vision

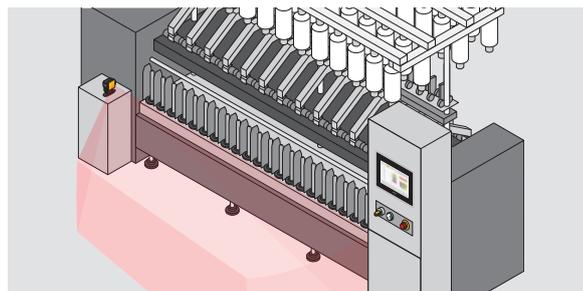
Type	Technical features	Order number
 PSEN rd1.1 sensor	<ul style="list-style-type: none"> ▶ Symmetrical field of vision ▶ Opening angle: 110° horizontal, 30° vertical (wide) or 50° horizontal, 15° vertical (narrow) ▶ Operating range: 4 m 	6B000002
 PSEN rd1.2 sensor	<ul style="list-style-type: none"> ▶ Symmetrical field of vision ▶ Opening angle: 10 – 100° horizontal, 20° vertical, configurable in 10° steps ▶ Operating range: 5 m 	6B000003
 PSEN rd1.2 F-FOV sensor	<ul style="list-style-type: none"> ▶ Symmetrical, asymmetrical and corridor-shaped field of vision ▶ Opening angle: 10 – 100° horizontal, 20° vertical, configurable in 10° steps ▶ Operating range: 5 m 	6B000009
 PSEN rd1.2 F-FOV LR sensor	<ul style="list-style-type: none"> ▶ Symmetrical, asymmetrical and corridor-shaped field of vision ▶ Opening angle: 10 – 100° horizontal (from 0 to 5 m)/ 10 – 40° (from 5 to 9 m), 20° vertical, configurable in 10° steps ▶ Operating range: 9 m 	6B000015

PSENradar – safe data transfer via FSoE

Type	Technical features	Order number
 PSEN rd1.x SD I/O FSoE analysing unit	<ul style="list-style-type: none"> ▶ Series connection: up to 6 sensors ▶ Zone sets: up to 32 ▶ 4 OSSD outputs & FSoE ▶ Reaction time: max. 100 ms ▶ Connection type: USB ▶ Integrated SD card as exchangeable storage medium ▶ Dimensions (H x W x D) in mm: 103 x 105 x 58 	6B000007
 PNOZ m EF EtherCAT FSoE	Safe communication module for connection to the communication system EtherCAT in combination with the safe protocol Safety-over-EtherCAT FSoE (= Fail-Safe over EtherCAT) together with the base unit PNOZ m B1	<ul style="list-style-type: none"> ▶ PNOZ m EF EtherCAT FSoE: 772123 ▶ PNOZ m B1: 772101



With the range of 9 m, mobile applications with large areas such as cranes, for example, can be productively safeguarded.



Applications that have open access points and are located directly at walkways can be efficiently safeguarded with the expanded field of vision.

Safe radar systems
PSENradar:

Webcode:
web199925

Online information
at www.pilz.com

► Safe small controllers PNOZmulti 2 – flexible architectures with EtherCAT FSoE

NEW



For efficient production, it should be possible to seamlessly integrate the safety concept into the machine concept. The open communication system EtherCAT in combination with the safe protocol Safety over EtherCAT FSoE (= FailSafe over EtherCAT) that is supported from software version 11.3 by the safe configurable small controller PNOZmulti 2 makes a major contribution to the transfer of control and safety-related information. A new safe fieldbus module is available that you can use in your plant and machinery both as the FSoE MainInstance as well as the FSoE Subordinate-Instance, but also as the EtherCAT SubordinateDevice ¹⁾ – depending on the requirement – in combination with the base unit PNOZ m B1. The configuration is performed in the software tool PNOZmulti Configurator. Up to 4 MainInstance-MainInstance and up to 60 MainInstance-SubordinateInstance connections ¹⁾ are available to you. With PNOZmulti 2 as FSoE MainInstance ¹⁾, it is easy to implement safety-related networking with the safe radar sensor PSENradar and safe drive technology PMC – both with FSoE functionality.



Your benefits at a glance

- Seamless integration of the safety concept into the machine concept
- Flexible expansion options of the safety-related plant structure
- Ready-made, certified safety solutions for a high level of safety
- Numerous diagnostic options
- “One-cable solution” with safe sensor and drive technology from Pilz

You can flexibly implement safe plant structures with a “one-cable solution” on the fieldbus level. This helps you to minimise your wiring effort and save costs. Comprehensive diagnostic options also ensure minimal downtimes.



Configurable safe small controllers PNOZmulti 2 – PNOZ m EF EtherCAT FSoE



Type	Technical features	Order number
PNOZ m EF EtherCAT FSoE	Safe communication module for connection to the communication system EtherCAT in combination with the safe protocol Safety over EtherCAT FSoE (= FailSafe over EtherCAT) together with the base unit PNOZ m B1 ▶ Use possible as EtherCAT FSoE MainInstance, as FSoE SubordinateInstance or as EtherCAT SubordinateDevice ¹⁾ ▶ Up to 4 MainInstance-MainInstance and up to 60 MainInstance-SubordinateInstance connections ¹⁾ ▶ In total max. 512 bit data exchange with subscriber (MainInstance or SubordinateInstance) ▶ Safety-related data: Depending on the application up to PL e/ SIL CL 3 ▶ Dimensions (H x W x D) in mm: 101.4 x 22.5 x 115 ▶ Certifications: CE, EAC (Eurasia), TÜV, UKCA	▶ PNOZ m EF EtherCAT FSoE: 772123 - Plug-in spring-loaded terminals: 783542 - Plug-in screw terminals: 793542 ▶ PNOZ m B1: 772101 - Plug-in spring-loaded terminals: 751016 - Plug-in screw terminals: 750016
Software tool PNOZmulti Configurator, from version 11.3	▶ Import of ESI files ▶ Fieldbus configuration via ESI files ▶ Definition of SubordinateInstances in one catalogue (list view)	Basic software is free of licensing costs, information at www.pilz.com/pnozmulti-tools
PSENradar	Evaluation unit PSEN rd1.x SD I/O FSoE analysing unit and 4 sensors to choose from; Additional information in the PSENradar flyer	▶ Evaluation unit: 6B000007 ▶ Sensors: 6B000002, 6B000003, 6B000015, 6B000009
PMC SC6/SI6	Single or double-axis controller for synchronous, servo and asynchronous motors ▶ Drive-integrated safety functions STO and SS1 via FSoE to PL e ▶ Integrated EtherCAT or PROFINET communication ▶ Integrated brake control ▶ Number of digital inputs: 8 ▶ Dimensions (H x W x D) in mm: From 45 x 343 x 265 ▶ Certifications: CE, UKCA, UL Listed	▶ PMC SC6A162R/EC 2x 10A: 8C000071 ▶ PMC SI6A261Z/EC 1x 22A: 8C000043 ▶ And more, see E-Shop

¹⁾Terminology changes in acc. with www.ethercat.org/en/faq.html#18642

Old term	New term	New – abbreviated
(EtherCAT) Master device	MainDevice	MDevice
(EtherCAT) Slave device	SubordinateDevice	SubDevice
FSoE-Master (instance)	FSoE MainInstance	FSoE MInstance
FSoE-Slave (instance)	FSoE SubordinateInstance	FSoE SInstance

PNOZmulti 2 communication modules:

Webcode: web225353

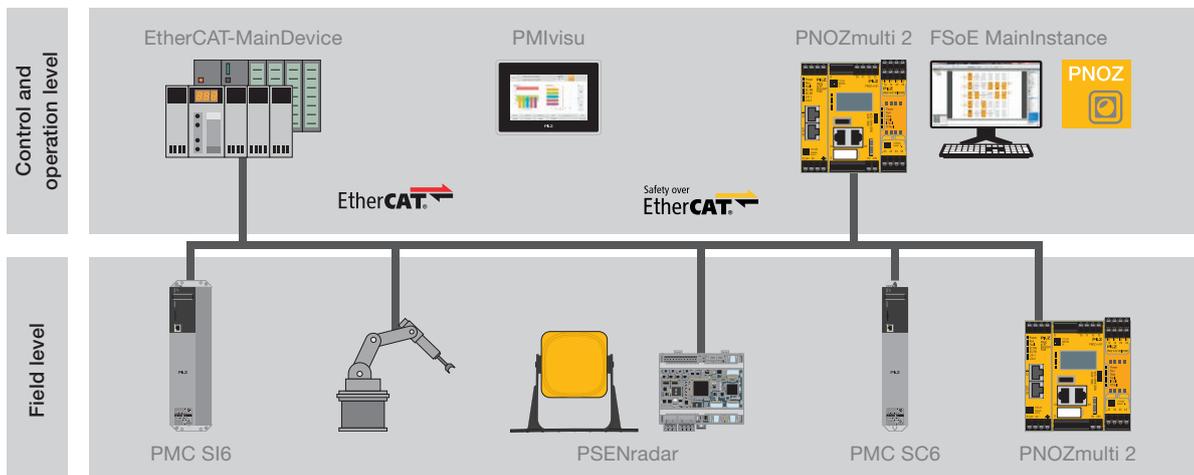
PSENradar:

Webcode: web19925

Drive technology PMC:

Webcode: web227756

Online information at www.pilz.com



► Safe small controllers PNOZmulti Configurator – What's new in version 11.3

NEW

The software tool PNOZmulti Configurator is used to create and edit projects with the configurable safe small controller PNOZmulti 2.



Laser scanners: The zone selection function block enables productive solutions for stationary and mobile danger zone safeguarding in conjunction with the safety laser scanner PSEnscan, used to monitor 2D zones. In this way, for example, it is possible to monitor open robot cells safely, or also guarantee efficient processes in a logistics or production environment.

Motion monitoring software blocks: New software blocks such as safe synchronisation monitoring plus three others for safe position monitoring (Safe Position Comparison, Safe Position Range and Safe Position Monitoring) are available for monitoring automated guided vehicle systems (AGVS). Safe detection of anomalies in the synchronisation of two axes protects human and machine.



Your benefits at a glance

- Safe solutions for stationary and mobile danger zone safeguarding with the laser scanner PSEnscan
- Parameters for motion monitoring safety functions are easily set via software, for the safe monitoring of automated guided vehicle systems (AGVS)
- Safe data transfer with Safety-over-EtherCAT
- Decentralised input and output modules PDP67 for easy connection of sensor technology
- Software tool can be used free of licensing costs

Hardware: Optimally tailored to the application: The communication module PNOZ m EF EtherCAT FSoE enables safe data transfer with Safety-over-EtherCAT in conjunction with the base unit PNOZ m B1.

An input module has 16 digital inputs and monitors standard applications. Decentralised input and output modules PDP67 forward signals from the connected sensors to the safe small controller PNOZmulti 2.



Software tool PNOZmulti Configurator – version 11.3



PNOZmulti Configurator



PNOZ m EF EtherCAT FSoE



PNOZ m ES 16DI



PDP67 F 10DI4DO 5/8 ION

Type	Features	Order number
Software tool PNOZmulti Configurator	<ul style="list-style-type: none"> ▶ Create, open, edit PNOZmulti 2 projects ▶ Contains all PNOZmulti 2 hardware <p>New in version 11.3</p> <ul style="list-style-type: none"> ▶ Laser scanner function blocks for zone selection on laser scanners: The zone parameter file of a laser scanner is read into PNOZmulti 2. The output to the laser scanner of zone specifications defined on the laser scanner is determined from the motion monitoring information or from the plant monitoring parameters. ▶ Motion monitoring blocks to monitor the following functions: <ul style="list-style-type: none"> - Safe synchronisation monitoring/safe speed comparison of two axes – comparison with regard to less than, greater than, equal to - Safe position comparison of two axes - Safe position monitoring of one axis - Safe position range monitoring of one axis 	Basic software is free of licensing costs Information at www.pilz.com/pnozmulti-tools
Version 10.14.XX “long-term-supported” version	<ul style="list-style-type: none"> ▶ For configuration of the product ranges PNOZmulti Classic and PNOZmulti Mini ▶ Version can be used to migrate PNOZmulti Classic or Mini projects to PNOZmulti 2 ▶ Create, open, edit PNOZmulti Classic/Mini projects ▶ New hardware PNOZmulti 2 is supported from version 11.0 and above 	Basic Licence: 773010B and more
PNOZ m EF EtherCAT FSoE	Safe communication module EtherCAT, Safety-over-EtherCAT FSoE in combination with base unit PNOZ m B1 Additional information in the flyer Small controllers PNOZmulti 2 – flexible architectures with FSoE	<ul style="list-style-type: none"> ▶ 772123 ▶ Plug-in spring-loaded terminals: 783542 ▶ Plug-in screw terminals: 793542
PNOZ m ES 16DI	Input module for standard applications <ul style="list-style-type: none"> ▶ 16 digital inputs For the connection of buttons and other digital sensors ▶ Dimensions (H x W x D) in mm: 101.4 x 22.5 x 120 ▶ Certifications: CE 	<ul style="list-style-type: none"> ▶ 772182 ▶ Plug-in spring-loaded terminals: 751004 ▶ Plug-in screw terminals: 750004
PDP67 F 10DI4DO 5/8 ION (VA)	Decentralised input and output modules for use with the small controllers PNOZmulti 2, connection via link module PNOZ m EF PDP-Link, protection type IP67 <ul style="list-style-type: none"> ▶ 10 safe digital inputs, 4 safe semiconductor outputs ▶ Connections 2 x M12 5-pin and 2 x M12 8-pin, e.g. for connection of the modular safety gate system PSEnmlock ▶ PDP67 F 10DI4DO 5/8 VA ION: Version with stainless steel screw connection, e.g. for use in the food industry ▶ Safety-related data: Up to PL e/SIL CL 3 ▶ Dimensions (H x W x D) in mm: 160 x 60 x 20 ▶ Certifications: CE, EAC (Eurasia), TÜV, UKCA 	<ul style="list-style-type: none"> ▶ PDP67 F 10DI4DO 5/8 ION: 772610 ▶ PDP67 F 10DI4DO 5/8 VA ION: 772611 ▶ PNOZ m EF PDP Link: 772121

PNOZmulti Configurator:

Webcode: web225344

PNOZmulti 2 communication modules:

Webcode: web225353

PNOZmulti 2 base units:

Webcode: web225351

PNOZmulti 2 expansion modules:

Webcode: web225352

PDP67:

Webcode: web150450

Online information at www.pilz.com

► PIT oe ETH supplements control console elements PIToe

NEW

The compact operation elements enable switching and displaying of digital inputs and outputs and switching of interfaces that are used industrially. They are versatile for the operation of your plants, absolutely suitable for industrial use and help in the application of Industrial Security. With the operation element PIT oe 4S, digital inputs and outputs can be switched and displayed, such as the operating mode. The pushbutton element has four compact LED buttons. The operation element PIT oe USB is impressive with its activatable USB port and enables the manipulation-proof import of programs, export of data and connection of a keyboard or mouse. When not in use, a cover protects the compact, robust operation element to IP65.

New to the portfolio is the operation element PIT oe ETH with activatable Ethernet port. As an industrial Ethernet interface, PIT oe ETH can be activated and deactivated completely electrically and works like an expanded Ethernet interface of an industrial PC. Authorised personnel can thus temporarily activate the interface to install new programs or configurations or to create backup copies.



Your benefits at a glance

- Compact operation elements to switch and display digital inputs and outputs
- Activatable interfaces for industrial applications
- Suitable for 22.5 mm mounting cutouts in accordance with EN 60947-5-1
- Illuminated display in LED technology
- Is seamlessly integrated into the design of your control consoles
- Ideal supplement to Pilz solutions for operating mode selection

The interface elements can be activated using any controller. In combination with the PITreader output, activation is only possible with corresponding permission. This ensures that only authorised personnel is allowed access.

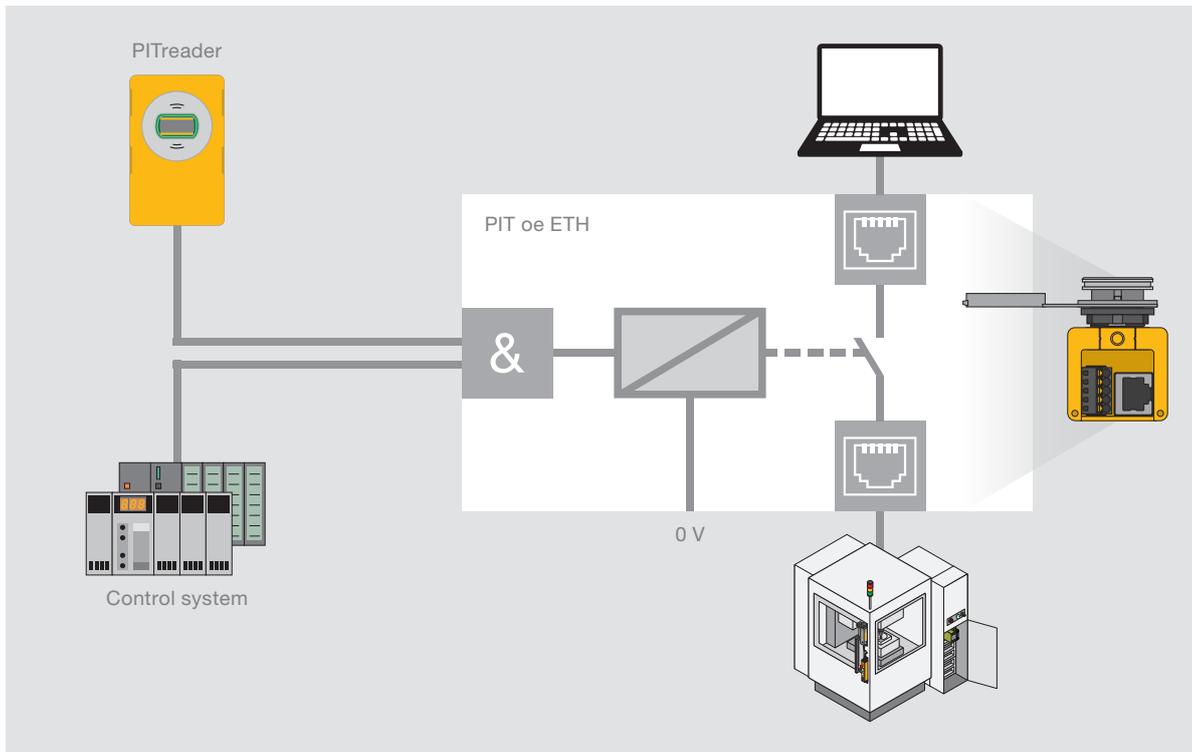


Control console elements PIToe



PIT oe ETH

Type	Technical features	Order number
PIT oe ETH/ PIT oe ETH 5V	<ul style="list-style-type: none"> ▶ Switchable (activatable) Ethernet interface with 100 Mbit, Cat 5e, galvanically isolated (= data lines) ▶ 2 versions: <ul style="list-style-type: none"> - Industrial version with 24-V supply and activation input with 24-V activation voltage or - IT version with 5-V supply and activation input with 5-V activation voltage ▶ Certifications: CE, UL, UKCA 	<ul style="list-style-type: none"> ▶ PIT oe ETH: 402314 ▶ PIT oe ETH 5V: 402315



PIT oe ETH wiring option plan

Control console elements PIToe:

 Webcode:
web225176
Online information at www.pilz.com

► ISCS – Industrial Security Consulting Service

NEW

Industrial Security on the machine – because Safety matters!

Machine manufacturers and operators can only achieve comprehensive machinery safety with Industrial Security measures. These protect your machinery against cyber attacks, misuse by operators or manipulation and are required by the Machinery Regulation for CE compliance. But which measures are meaningful to eliminate security vulnerabilities?

This is precisely where the Industrial Security Consulting Service (ISCS) from Pilz comes in: We analyse your risk with regard to security vulnerabilities on the machine, assess the individual hazard and likelihood of occurrence, put together appropriate solution steps and check the measures taken.

The ISCS helps to increase the cyber security and makes sure that you correctly implement normative and legal specifications and are able to mitigate and avoid Industrial Security incidents on the machine.

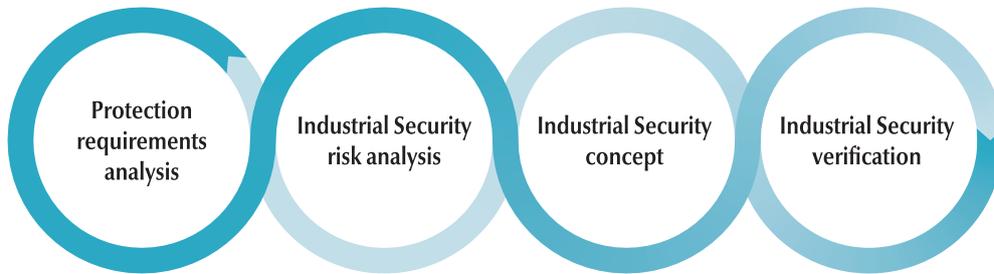


Your benefits at a glance

- Identify potential risks and vulnerabilities
- Protection and strengthening against cyber attacks or security incidents
- Increase of employee safety, cyber security and machine availability
- Check risk-reducing measures for correct implementation
- Verifiable protection of the machinery in accordance with Industrial Security requirements
- Important component of the CE Declaration of Conformity



The Industrial Security Consulting Service is made up of 4 modules that build on one another. After performing the individual steps, a regular re-evaluation of the Industrial Security status of the machinery is required in accordance with the moving target principle in order to continuously counteract the latest cyber attack methods or vulnerabilities:



Protection requirements analysis

- ▶ Identify the applicable standards and regulations
- ▶ Determining the limits of the system under consideration
- ▶ Identify the protection objectives for each of the system's assets, based on the expected level of damage if confidentiality, integrity or availability is lost

Advantage to you:
Identification of potential risks and vulnerabilities

Benefit to you:
Threat awareness is estimated

Industrial Security risk analysis

- ▶ Identify every risk for each asset within each life phase of the system, with regard to the considered protection goals
- ▶ Analysis of existing risk-reducing measures and their effect
- ▶ Recommend an approach for reducing risk
- ▶ Document the vulnerabilities and the relevant hazard

Advantage to you:
Assessment of the determined risk

Benefit to you:
Extent of the risk and need for action are estimated

Industrial Security concept

Establishing hazard mitigation strategies

- ▶ Determine the security level for each system section
- ▶ Define and specify potential countermeasures
- ▶ Consider availability and productivity
- ▶ Detailed assignment of safety measures to identified risks
- ▶ Create rules and guidelines for reducing the risk over the whole machine lifecycle
- ▶ Document the requirements and implementation recommendations

Advantage to you:
Productivity-optimised strategy for protection and strengthening against cyber attacks or misuse and manipulation

Benefit to you:
Ability to plan countermeasures

Industrial Security verification

- ▶ Checking the correct implementation of security measures
- ▶ Produce a test report with information about the results and possible non-compliances
- ▶ Review of the documentation of the organisational measures

Advantage to you:
Risk-reducing measures with correct implementation, increased cyber security

Benefit to you:

- ▶ Liability protection due to compliance with relevant security requirements
- ▶ Increased employee protection
- ▶ Increased plant availability
- ▶ Cost savings by defending against cyber attacks
- ▶ Image is protected thanks to effective preventative measures taken



Webcode:
web240564

Online information
at www.pilz.com

► Dynamic zone switching for your mobile application

NEW



For freely navigating mobile platforms (AMR), Pilz offers a **comprehensive safety solution in accordance with ISO 3691-4** that consists of the safe small controller PNOZmulti 2 with new functions for synchronisation monitoring and the safety laser scanners PSENscan for productive area monitoring. The firewall SecurityBridge and PITmode for operating mode selection, consisting of PITreader with software block in PNOZmulti for operating mode selection, also offer greater safety by preventing unauthorised access.

Dynamic zone switching for higher flexibility for your application

You can use the new PNOZmulti Configurator function block in the field of motion monitoring for synchronisation monitoring of the axes of your platform. This program function compares the encoder values of the two axes, enabling conclusions to be drawn about the mobile platform's direction of movement. With this information, the safe zone switching required in the standards can be implemented dynamically in the laser scanner PSENscan. This is made possible by the new PSENscan function block in the PNOZmulti



Your benefits at a glance

- Safe automation solutions and services in accordance with ISO 3691-4
- Dynamic zone switching for the use of mobile platforms
- Software functions with easy parameter setting for safe monitoring of automated guided vehicles and AGV systems
- Overall safety assessment of the mobile applications: From safety concepts in the design phase through to commissioning

Configurator: You can dynamically adapt up to 70 configurable zone sets using the zone selection function. The zone sets created with PSENscan Configurator can then be imported into the navigation computer of the automated guided vehicle system.

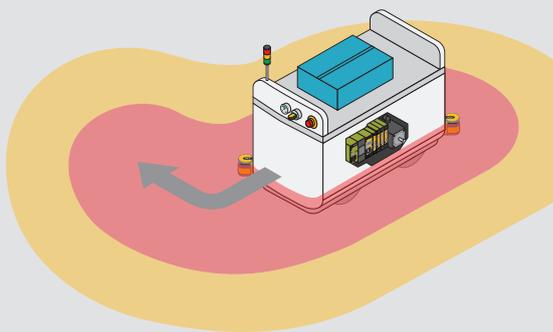
PSENscan provides the distance data for localisation and navigation of the

mobile application. Open interfaces for data transfer make it simple to create maps of the environment for navigation.



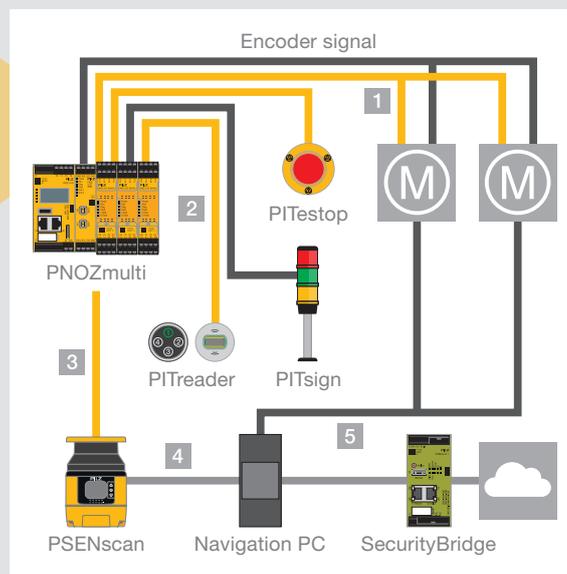
Safety solution for mobile applications

Type	Features	Order number
 PSEnscan	Safety laser scanner PSEn sc Master, 17-pin, 70 configurable zone sets, 5.5 m safety zone, reference marks, measurement data output (UDP), optionally up to 3 subscribers	▶ 6D000019 ▶ 6D000021
 PNOZmulti 2	Safe small controller PNOZmulti base unit with motion monitoring module and I/O modules PNOZmulti Configurator version 11.3 function block for safe zone selection Reading in the zone parameter file of a laser scanner into PNOZmulti 2, automatic selection of zones defined in laser scanner PSEnscan Motion monitoring block for safe synchronisation monitoring of the axes and for safe speed comparison	▶ 772101 ▶ 772171 ▶ 772142 x 3
 SecurityBridge	Firewall PCOM sec br1 SecurityBridge, VPN server for establishment of a VPN tunnel, supports X.509 certificates	311501
 PITreader	Access permission system PITreader RFID authentication system with PITreader keys or RFID-capable cards PITreader card/PITreader sticker	▶ 402255/402308 ▶ 402320/402321
 PITestop/PITsign	Control and signal devices Optional E-STOP pushbutton PITestop, IP65 Optional indicator light unit PITsign, IP65	▶ 400131 ▶ 581190



Example of a differential drive

- 1 STO (safe torque off)
- 2 Operating mode selection
- 3 Dynamic zone switching, based on encoder data
- 4 Provision of the navigation data via UDP (C++ library, ROS modules)
- 5 Drive commands to the wheels



Webcode:
web232104

Online information
at www.pilz.com

Safe dynamic zone switching of freely navigating mobile applications.

Support

Technical support is available from Pilz round the clock.

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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.



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