Operating mode selection system switch and access permission

PITmode fusion

PITmode fusion is the modular version of the operating mode selection system and is the solution when a third-party safety controller is used. The system comprises the reader unit PITreader and the evaluation unit (Safe Evaluation Unit – SEU), which evaluates the selected operating mode and provides functionally safe switching. The selection can be made using existing buttons or via the operation element PIT oe 4s. The full scope of the PITreader's functions with regard to access permissions can also be used.

PITmode flex

PITmode flex is the solution for all users of small controller PNOZmulti 2 or automation system PSS 4000. Here too, PITreader is used as the reader unit. Safe evaluation of the operating mode is performed via a software block already integrated into PNOZmulti 2 and PSS 4000. A separate evaluation unit is therefore not necessary. The operating mode can be selected via the operation element PIT oe 4S or any buttons.

PITmode flex visu

PITmode flex visu essentially offers the same function range as PITmode flex, however it differs with regard to the way in which the operating mode is selected. Instead of using buttons, this is performed via touch operation on a PMIvisu panel with PASvisu.

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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We are represented internationally. Please refer to our homepage www.pilz.com for further details or contact our headquarters.

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Identification and Access Management – I.A.M.

PILZ
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From access management, through safe operating mode selection, up to maintenance safeguarding and protection of data and networks. Discover safety and security in one system!




Identification and Access Management – I.A.M.

More information on Identification and Access Management

Comprehensive protection of your employees and the best possible safeguarding of your machinery require a holistic safety concept that takes into account **safety and security** aspects. Because now more than ever: safety cannot be guaranteed without also taking security into account.

The "Identification and Access Management" portfolio offers you products and individual solutions for a number of tasks relating to the challenges with regard to **employee protection, liability protection,** maximum **productivity** and the **protection of your data.**

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. That way it is always possible to assign traceable, individual permissions for specific machines or processes.

Employee protection

Work must be organised in such a way that hazards to 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 appropriate access permissions on safety gates and suitably qualified personnel, the use of operating modes is an adequate measure. Operating mode selection can be safely implemented with PITmode products ensuring that each employee can only perform the work for which they are qualified.

Maintaining productivity

All considerations regarding safety must not however compromise 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 recording of actions, you prevent errors and ensure traceability. PITreader with its functions for access management offers the ideal solution for the safeguarding of the productivity of your plant.

Data protection

Data protection and network security are also increasingly becoming key topics. Safety without security is no longer possible; they are inextricably linked. In future, the Machinery Regulation, which comes into force in the EU in 2025, will take this into account. However, your data, know-how and operating processes need protecting from unauthorised persons today. Clever products such as the industrial firewall SecurityBridge or the switchable USB interface PIT oe USB offer security against "external" or even "inside" attacks.

Identification and Access Management

Overview of PITmode and PITreader products and solutions

More information on PITreader and PITmode

Overview of operating mode selection and access permission system PITmode

	PITmode 3.xx	PITmode fusion	PITmode flex	PITmode flex visu	PITreader stand alone	Key-in-pocket
Components that make up the solution						
Application	▸ Access permission system ▸ Functionally safe operating mode selection up to PL d	▸ Access permission system ▸ Functionally safe operating mode selection up to PL d	▸ Access permission system ▸ Functionally safe operating mode selection up to PL d	▸ Access permission system ▸ Functionally safe operating mode selection up to PL d	▸ Access permission system	▸ Access permission system ▸ Maintenance safeguarding system "key in pocket"
Type	Compact	Modular with buttons	Integrated & flexible with buttons	Integrated & flexible with visualisation	Compact	Compact
Main function	Operating mode selection with: ▸ 5 operating modes ▸ 1 workspace	Operating mode selection with: ▸ 5 operating modes ▸ 1 workspace	Operating mode selection with: ▸ 8 operating modes ▸ 10 workspaces	Operating mode selection with: ▸ 8 operating modes ▸ 10 workspaces	Security for access permission for HMI, process and door safeguards	Maintenance safeguarding with protection against unauthorised restart
Usage	Operation with Pilz or 3rd party FS controller for operating mode selection and access permission	Operation with Pilz or 3rd party FS controller for operating mode selection and access permission	Operation with Pilz FS controller for access permission and operating mode selection	Operation with Pilz FS controller for access permission and operating mode selection	Connection to PLC and HMI systems	Operation with Pilz FS controller for maintenance safeguarding
Safe evaluation unit	Integrated	As independent "SEU" component	Software block integrated in Pilz FS controller (PNOZ m B1 & PSSu PLC)	Software block integrated in Pilz FS controller (PNOZ m B1 & PSSu PLC)	-	-
Input via	2 or 4 integrated buttons	▸ PIT oe 4S ▸ 3rd party pushbutton	▸ PIT oe 4S ▸ 3rd party pushbutton	Touch-operated input tile in PASvisu	-	Buttons

Software for PITreader

PITreader web server

The integrated web server enables simple programming of the PITreader key transponder key with user data and permissions as well as all additional important PITreader settings directly at the device. Commissioning of the PITreader, configuration of interfaces and, where applicable, connection with the OPC UA server are thus completed quickly.

PIT Transponder Manager (PTM)

Easily manage PITreader keys with user settings, block lists and your user data via the graphical interface in the PIT Transponder Manager. In just a few steps, you can assign individual user permissions using pre-configured templates. You can select whether to create users individually or using the import function. Benefit from the ability to read information directly into the integrated database.

User Authentication Service (UAS)

The User Authentication Service (UAS) safely connects the access permission system PITreader with the management system for access data and permissions, PIT Transponder Manager (PTM), via HTTPS. The organisational service manages all permissions and evaluates them via a central authorisation database for all transponder key users. The database is supplied by importing from the PTM. The UAS distributes functions such as a block list to all networked PITreaders. Diagnostic information is also made available centrally.

PITreader and PITmode product overview

More information on PITreader and PITmode

With the “Identification and Access Management” portfolio, we offer you a comprehensive range of products, solutions and software for the implementation of safety and security tasks from one source.

Entry and access permission

PITreader and PITreader S

With the **access permission system PITreader** you can implement various tasks regarding access permissions for plant and machinery. These range from a simple enable through to authentication and up to a complex permission matrix and company-specific coding. The RFID transponder keys are available in a freely writable version or with predefined permissions. The appropriate software tools are naturally also available for uncomplicated programming of the PITreader and the transponder keys. **PITreader S** also offers the integration of the OPC UA standard. On the one hand, this increases the security of communication between server and client. On the other hand, PITreader S expands the connection options to systems from other manufacturers that also use OPC UA.

PITreader (S) card

The **access permission system PITreader (S) card** offers the same functions as the versions described above. With PITreader card and PITreader sticker, however, transponders in card or sticker format are used. The PITreader cards have a transparent window so that the LED status indicator on the PITreader remains visible when the card is held up to it. If you already use RFID-capable cards at your company, these can also be used for authentication. The use of familiar PITreader keys is also possible.

Pushbutton unit PITgatebox with PITreader

For optimum safety gate guarding with authentication, PITreader S is also available in the pushbutton unit PITgatebox. The operating unit with access permission system ensures that only authorised staff have access to the plant and can implement commands such as activate, stop or reset the machine.

Application examples for Identification and Access Management

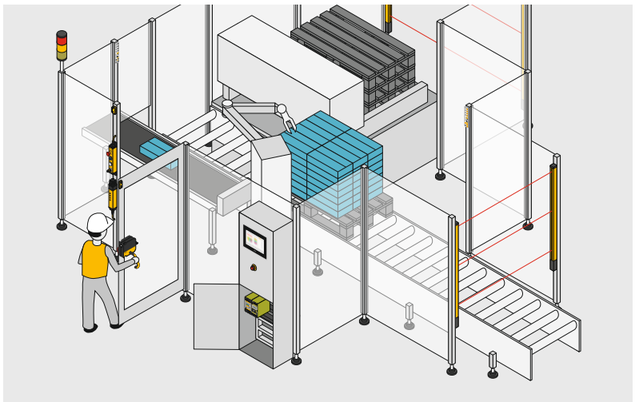
Find out more about practical application examples and how to implement safety and security with one system. The options range from simple authentication to complex access permissions and access management through to safe operating mode selection, maintenance safeguarding and protection of data and networks.

More information on application examples

Access permissions and access management

Selective access to hazardous machines, with user authentication, protects your staff from injury and your machines from improper use and damage. A number of tasks relating to access permissions can be performed with the access permission system PITreader. The options range from a simple enable to replace a password, to authentication for specific machine subfunctions, all the way to a complex hierarchical permission matrix and company-specific coding for additional protection against manipulation.

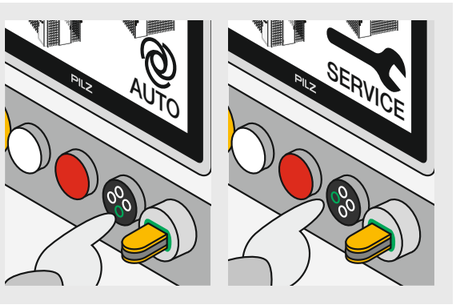
The access permission system PITreader offers an additional safety feature for safety gate guarding. It is possible to release a guard locking device only after authentication. The same applies to control units such as the pushbutton unit PITgatebox. With integrated PITreader this is the ideal solution for authentication and operation in one device and ensures that only authorised staff are allowed to carry out certain commands on the plant.



Safety gate guarding with authentication via PITreader on hazardous plants.

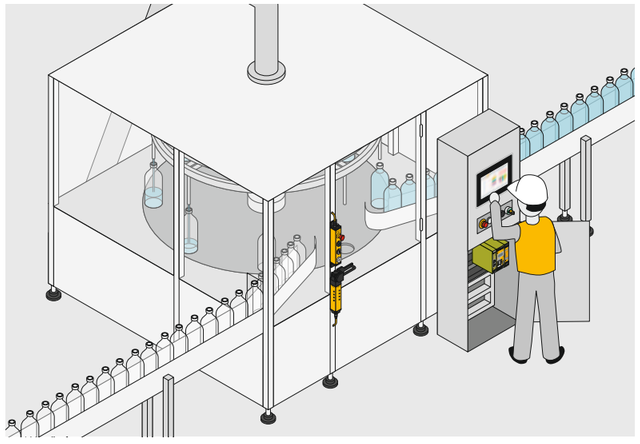
Application examples for Identification and Access Management

More information on application examples



Functionally safe operating mode selection
Operating mode selection is part of the functional safety if switching over between different safety levels and safety functions is required. This is frequently the case if a tool change is pending or a machine is to be reconfigured. One or more safety devices, such as safety gates or enabling switches for example, can be switched on or off, depending on the selected operating mode. The associated increased risk of damage to the plant and risk of injury to personnel must be minimised. In order to exclude the possibility of misuse and manipulation to the greatest possible extent, access to operating mode selection must be restricted to appropriately qualified staff and must be designed to be as simple and convenient for the user as possible.

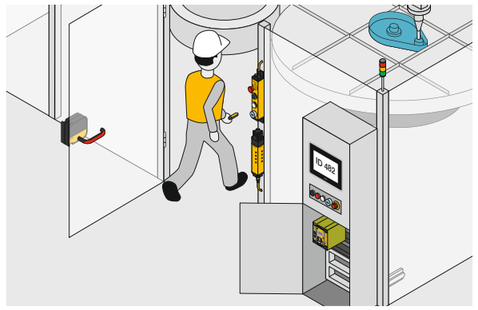
The operating mode selection and access permission system PITmode offers not only functionally safe switching of operating mode through self-monitoring up to PL d Cat. 3 of EN ISO 13849-1 or SIL CL 2 of EN 62061, but also controls access rights. As such it is the ideal solution for your machinery. With its electronic keys, it provides significantly more security than classic keys. That's because, all too often, they are inserted in the machine and thus offer just as little security as password protection, as the password is often commonly known.

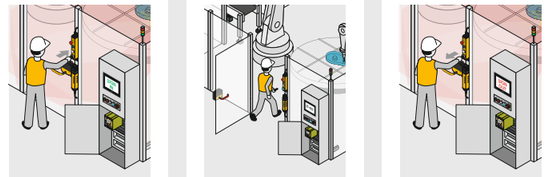


Functionally safe switching of the operating mode via touch input with PITmode flex visu.

Maintenance safeguarding system “key in pocket”
Protect your personnel from hazards in maintenance situations! Use the “key-in-pocket” solution from Pilz to prevent the unplanned restart of machinery as long as people remain in the danger zone. In comparison with conventional lockout/tagout (LOTO) systems, maintenance safeguarding is implemented purely electronically via RFID keys with corresponding permissions. Mechanical interlocking devices and warning tags are thus not required.

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 entered safely. The operator retains the transponder key during this period. To put the plant back into operation, all people must log out with their personal transponder key after leaving the plant. The safe list is then cleared and the machine is released again. Where plants have no overall view, an additional “blind spot check” in accordance with EN ISO 13849-1 5.2.2 is performed. This requires a visual inspection of the plant in areas that are difficult to see.





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

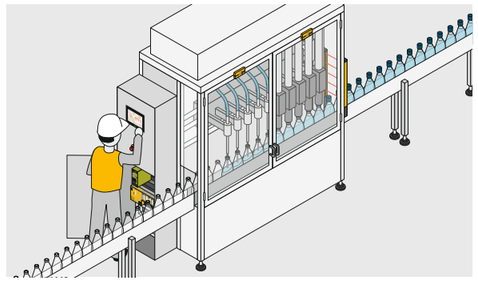
Work in the machine – users have the “key” with them.

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

Process steps for “key-in-pocket” maintenance safeguarding.

Data protection and network security
Data protection and network security are becoming ever more relevant around industrial installations. The best safety gate guarding is worthless if your data, know-how and operations are not sufficiently secured against unauthorised access and manipulation and an external attacker is able to penetrate your control system.

The industrial firewall SecurityBridge monitors data traffic between PC and controller and protects against “external” threats such as hacker attacks and manipulation. The activatable USB interface PIT oe USB protects against hazards from “within”, whether due to carelessness or intent. In combination with PITreader, the USB port is only activated for authorised persons and is only enabled for such persons to use USB devices.



Enable of the USB interface PIT oe USB with authentication via PITreader.