



Automation system PSS 4000 – Hardware, software, applications

PILZ
THE SPIRIT OF SAFETY

PSS 4000 – Simplify your automation™ with ...

- ▶ a multi-master communication concept
- ▶ scalable, decentralised hardware structures
- ▶ an easy-to-use configurator





Automation system PSS 4000 –
Simplify your automation™

► Automation system PSS 4000

Using the automation system PSS 4000 allows you to automate safely! Stand-alone applications through to networked plant and machinery can easily be implemented with PSS 4000. Coordinated hardware and software are available for this purpose, as well as the real-time Ethernet SafetyNET p and the web-based visualisation software PASvisu.

With the Industrie 4.0-compatible automation system PSS 4000 you can put your trust in a future-proof system!

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Pilz is your solution supplier for all automation tasks. Including standard control functions. Pilz developments protect man, machine and the environment.

Pilz has a tradition as a family-run company stretching back over 60 years. Real proximity to customers is visible in all areas, instilling confidence through individual consultation, total flexibility and reliable service. Worldwide, round the clock, in 42 subsidiaries and branches, as well as 27 sales partners on every continent.

More than 2 200 staff, each one of them an ambassador for safety, make sure that your staff – your company's most valuable asset – can work safely and free from injury.



Further information:
www.pilz.com +
 Webcode: web0837

SERVICES

Consulting, engineering
and training

Economical

PILZ
THE SPIRIT OF SAFETY



Automation
solutions from Pilz –
at home in every
industry.



Pilz automation solutions

Pilz offers everything that you need for the automation of your plant and machinery: Innovative components and systems in which safety and automation are merged within hardware and software.

From sensor and control technology to drive technology, the ease of commissioning, operation and diagnostics plays an important role for all components and systems from Pilz.

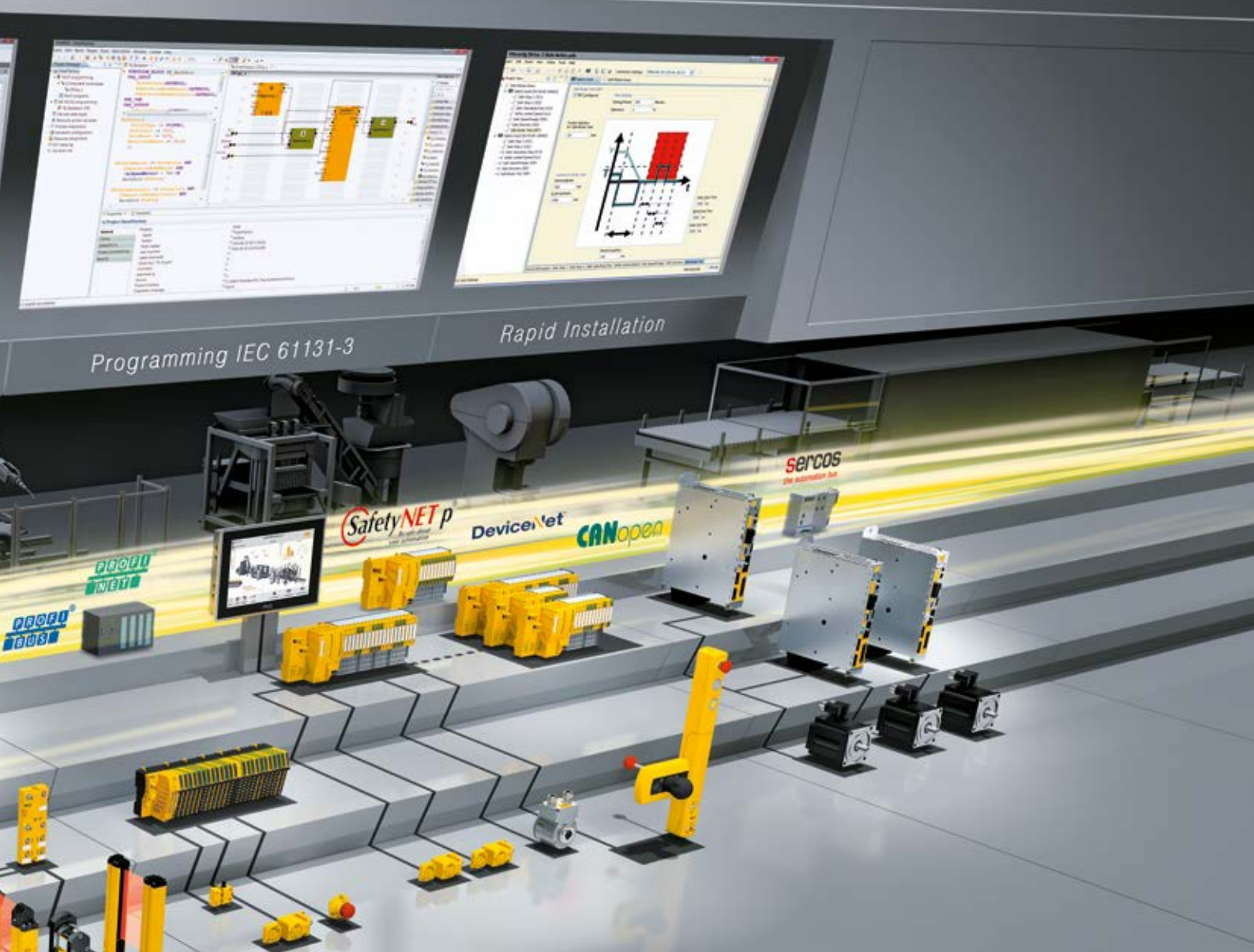
You benefit from flexible solutions for machines with an elementary function range through to large interlinked plants. With us you can standardise your safety, implement safety and automation in one periphery or find solutions for complete automation.

Pilz solutions are embedded into the relevant system environment – whether a new structure or a retrofit – and are open for a variety of interfaces and functionalities.

The perfect combination:

Control technology from Pilz offers numerous application options, including monitoring of electrical and functional safety, through to complete machine control.

Safe sensors and decentralised modules from Pilz guarantee the efficient, compliant use of plant and machinery in combination with various control systems.



Pilz automation solutions

- ▶ Simple configuration, programming and visualisation through innovative software solutions
- ▶ High flexibility due to individually expandable solutions
- ▶ Openness of communication
- ▶ High availability thanks to extensive diagnostic options
- ▶ One system for safety and automation

Our turnkey systems and universally compatible solutions offer a high savings potential.

Drive technology from Pilz is characterised by drive-integrated safety functions, safe logic functions and the connection of visualisation, sensor and actuator technology.

Operator and visualisation systems from Pilz complete your plant and machinery.

Automation software from Pilz allows you to quickly and easily implement your planning, programming, configuration, commissioning, diagnostics and visualisation.

Pilz offers you automation solutions for the safety of man, machine and the environment.

► The automation system PSS 4000...

Do you have a complex application with a number of requirements and do you want a simple solution for your automation? Welcome to the world of the automation system PSS 4000. Our core product combines safety and automation in one system. Due to its varied functions, it is ready for use with a wide range of applications. You will benefit from a scalable modular system whose components are perfectly coordinated with one another.

... Your solution for safe automation:



+ Controllers and I/O systems
Flexible use, modular structure and programmable in accordance with EN/IEC 61131-3, for example for safety and automation!
Page 12

+ Software platform PAS4000
Simple handling due to good structuring options and merging safety and automation on one interface.
Page 16

+ Functions that meet your requirements
Different functions support you in implementing different applications.
Page 22

+ Real-time Ethernet SafetyNET p
Safe communication across long distances for complete automation.
Page 14



Watch this film to see what makes the difference with the automation system PSS 4000.



Visualisation software PASvisu

The automation system PSS 4000 always in view: both locally and by remote access.

Page 21



Applications and approvals

PSS 4000 is your solution for numerous applications and different sectors of industry.

Page 24

Your benefits at a glance

- ▶ High level of flexibility thanks to modular system structure
- ▶ Safety and automation in one system
- ▶ The solution for Industrie 4.0
- ▶ Simple, standardised handling across the whole project
- ▶ Easy programming and configuration with the PAS4000 software
- ▶ Web-based visualisation with the PASvisu software
- ▶ Open system by connecting to different communication protocols
- ▶ Can be used in all sectors of industry

► This is how you benefit from the automation system

With the automation system PSS 4000 you have the optimum system for all phases of automation: engineering/configuration, commissioning and operation.



Safety and automation in one system

For simple communication exchange, use one environment for safety and automation, in which hardware and software are intelligently dovetailed. The system is physically mixed but logically separated, so it operates without feedback. The communication network's protocol

structure guarantees stable network transfer. Telegrams containing safety-related information, such as a person entering a plant's danger zone, arrive safely at the intended recipient.

PSS 4000: the Industrie 4.0-compatible automation system!

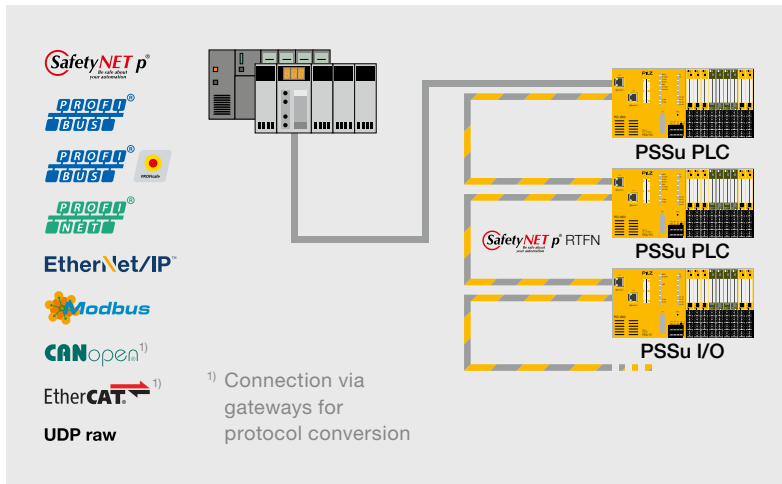


Supports modular plants

Whereas in classical automation, a standalone, centralised controller monitors the plant or machinery and processes all the signals, the PSS 4000 allows control functions to be distributed consistently. Process or control data, failsafe data and diagnostic information are exchanged and synchronised via Ethernet. This means that it makes no difference to the control function where the associated program section is processed. Instead of a centralised controller, a user program distributed in runtime is made available to the user within a centralised project. All network subscribers are configured, programmed and diagnosed via this centralised project. This enables simple, standardised handling across the whole project.

A large number of standardisation options make it possible to easily reuse machine elements and data.

PSS 4000



Integration into existing plants.

Open system for enhanced flexibility

The automation system PSS 4000 is an open system that can be integrated into existing automation architectures without difficulty and can therefore be integrated into various third-party controllers. The controllers PSSUniversal PLC and PSSUniversal multi can be docked into a primary third-party controller – and perform safety and automation functions.

Reduced engineering – shorter project runtimes

On many automation systems, the hardware must be selected for configuration/programming without exception. Subsequent modifications are very costly.

On PSS 4000 it's different: the hardware can be selected and the program divided on the hardware at a later point in the process because it is largely independent of the configuration stage.

- ▶ Shorter project runtimes because subtasks can run in parallel: Possibility to select the hardware and divide the program on the hardware at a very late point in the process
- ▶ Subsequent machine expansions: user program can be distributed to another controller without any great effort
- ▶ Partial commissioning and partial operation of individual machine parts



Up to 30 % less engineering thanks to hardware-independent project creation.

► Controllers and I/O systems



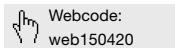
Controllers and I/O systems are available in the automation system PSS 4000 for both simple and demanding applications. This means that we can offer you a suitable solution for every automation task:



PSSuniversal multi – perfect for small plants

The controllers PSSuniversal multi can be used as small controllers in a system network – with PSSuniversal PLC and PSS 4000 I/O class I/O systems – or on a standalone basis. They are suitable for standalone machines or small interlinked plants. They are configured and programmed using the graphics program editor PASmulti.

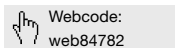
Keep up-to-date
on controllers
PSSuniversal:



PSSuniversal PLC – the all-rounders

Controllers PSSuniversal PLC are the all-rounders in the automation system PSS 4000. You can use them as a “classical” central PLC for safety and automation or as a distributed system. You can configure and program them in the main EN/IEC 61131-3 languages.

Keep up-to-date
on PSSuniversal –
PSS 4000
communication
modules:

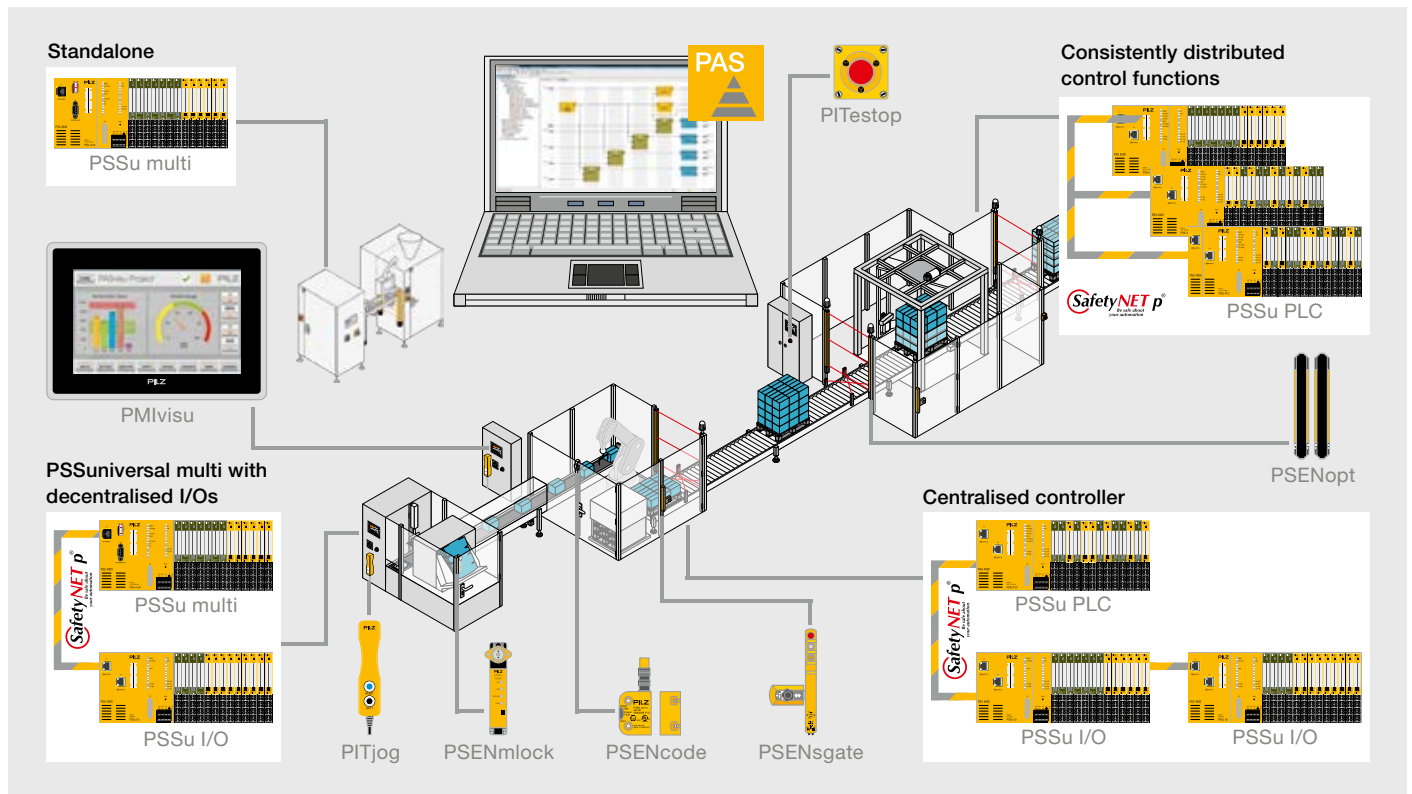


Online information
at www.pilz.com



PSS 4000 I/O – decentralised networking

The PSSuniversal I/O and PSS67 I/O modules are used for decentralised networking and for transferring safety-related and non-safety-related signals at field level. Using PSSuniversal I/O, it is possible to implement a wide range of applications by connecting up to 64 I/O modules. Due to the IP67 protection class of I/O block PSS67, it is perfect for installation without a control cabinet!



The automation system is suitable for a wide variety of automation tasks.

Modular system structure

Assemble the input and output modules on your controllers and I/O systems individually to suit your requirements. This way you can tailor the system structure to your precise needs. If subsequent adaptations are required, modules can simply be expanded or exchanged.

1 Head modules

Various head modules are available in the performance classes PLC, multi and I/O.

2 Input/output modules

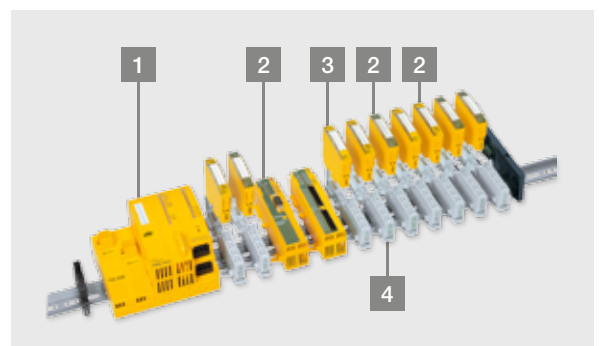
For safety-related or non-safety-related digital or analogue signal processing. Up to 64 input/output modules can be installed in any order. Compact modules with high packing density are also available.

3 Supply voltage modules

These modules can be used as "refresh modules".

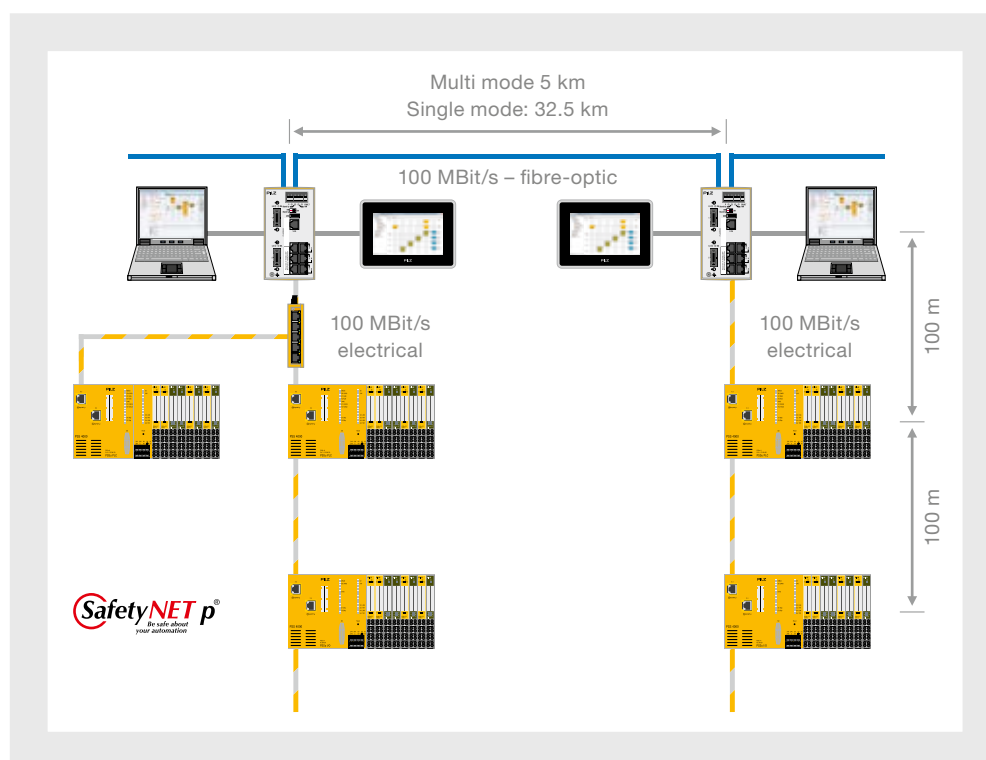
4 Base modules

Carrier units for the input and output modules and for the supply voltage modules. These are simply plugged onto the base modules and are easy to change when adjustments are made to the system.



► Real-time Ethernet SafetyNET p

The real-time Ethernet SafetyNET p is designed for complete automation. The open system allows time-critical control data to be transmitted – for automation and for safety-related applications (within the scope of the Machinery Directive). The safety mechanisms in SafetyNET p are designed in such a way that faults do not necessarily have to lead to the application stopping. This ensures high availability of the plant/machinery. SafetyNET p is the backbone of the automation system PSS 4000.



SafetyNET p in use with a variety of network components.

One system for the entire automation technology

SafetyNET p allows safety-related data to be transmitted over the same cable on which non-safety-related data is also being transmitted. The whole network is universally based on standard Ethernet in accordance with IEEE 802.3.

This safe communication was developed in accordance with relevant standards such as EN/IEC 61508 and is suitable for safety-related applications PL e of EN ISO 13849 and SIL 3 of EN/IEC 62061. All safety mechanisms are encapsulated in the protocol itself and are hidden for the user. SafetyNET p functions according to the black channel principle. This means that, apart from the safe bus subscribers, all the other network components are not considered to be safety-related.



Wide-ranging application options

The real-time Ethernet SafetyNET p can be flexibly employed with a variety of network components. This enables a classic (electric) twisted pair cabling, allowing a distance of up to 100 metres to be bridged between subscribers. Fibre-optic communication can be used to bridge greater distances. Cable lengths of five kilometres in multi mode technology and 32.5 kilometres in single mode technology can be implemented – delivering immunity to interference, particularly in the case of applications where enhanced resistance to electromagnetic disturbances is required.

Another alternative that is available is DSL technology, which permits distances of up to ten kilometres. In applications in which cables would interfere or cannot be used, wireless communication can be used. To transmit SafetyNET p wirelessly, WLAN from the range compliant with IEEE-802.11 can be employed.

Coexistence capability and routing

SafetyNET p is 100 % Ethernet, which allows different Ethernet protocols to be run on the same network at the same time. This means that both the usual IT protocols and other automation protocols can be run in parallel.

The real-time Ethernet is also routing capable. What this means is that larger groupings of machines and machine components can be networked in defined segments with the customary IT methods. This can be done using standard commercial infrastructure components. As a result, SafetyNET p supports full flexibility when designing your applications and network topologies.

Infrastructure components for powerful communication networks

Modern automation solutions place extreme demands on the communication network. The use of suitable Ethernet infrastructure allows the network to be adapted to the plant structure.

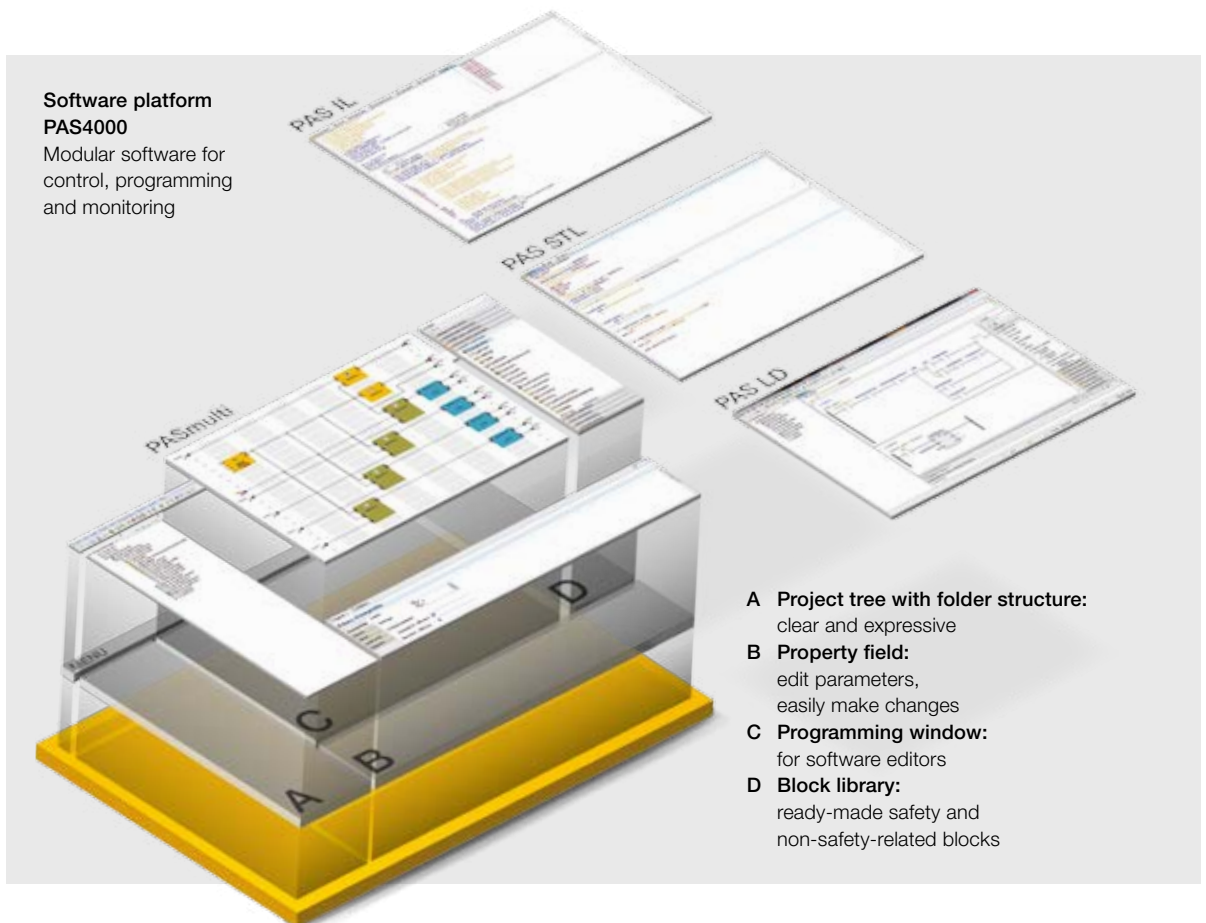
Network availability can be enhanced by implementing a variety of network components. Industrial cabling solutions assist rapid, error-free installation. Available infrastructure components include switches (with and without management functions), cables, connectors and gateways for connection to third-party networks.



► Software platform PAS4000



The software platform PAS4000 makes configuration and programming of the automation system PSS 4000 simple. The PAS4000 comprises several editors for PLC programming and configuration as well as software blocks. In PAS4000, the tools for configuration, programming, commissioning and operation are closely matched to each other. The data interfaces are standardised, making information easier to exchange in all phases of automation. The control systems PSSuniversal PLC can be programmed in PAS IL (Instruction List), PAS STL (Structured Text) and PAS LD (Ladder Diagram) in accordance with EN/IEC 61131-3. The graphics program editor PASMULTI is also available for simple configuration and programming of PSSuniversal PLC and PSSuniversal multi. PAS4000 contains a comprehensive language package. All tool texts and tutorials are available in various languages.



Program editor PASMULTI – For simple configuration and structuring

It's easier than it's ever been to create programs quickly and intuitively using the program editor PASMULTI of the automation system PSS 4000. A comprehensive library of automation and failsafe blocks enables a high level of reusability.



Program Editor PASMULTI

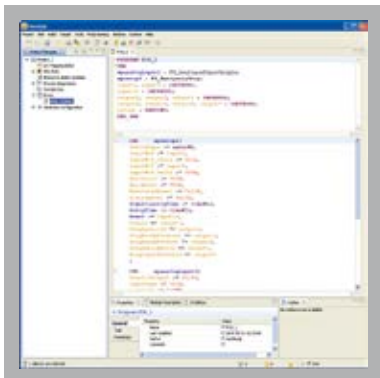
- Use the mouse for wiring: You can drag and drop inputs and outputs to freely configure and logically link them.
- Two worlds, standardised handling: Whether you are programming in the IEC world or configuring with PASMULTI, the programming environment is the same, which makes handling extremely easy.
- For automation and safety tasks.

Editors for PLC programming for safety and automation

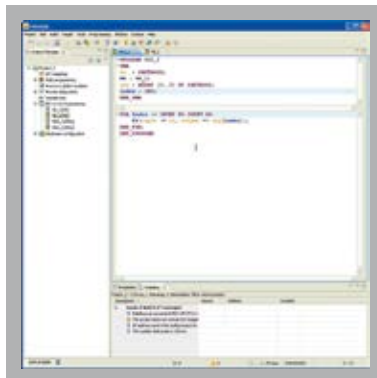
The controllers PSSuniversal PLC can be programmed as programmable logic controllers for automation and safety tasks in accordance with EN/IEC 61131-3. The editors PAS IL (Instruction List), PAS STL (Structured Text) and PAS LD (Ladder Diagram) are classified by TÜV Süd as LVL (Limited Variability Languages). This means that the editors for PLC programming meet the requirements for creating safety-related user software.

The PLC programming languages can also be combined quite simply with the program editor PASMULTI.

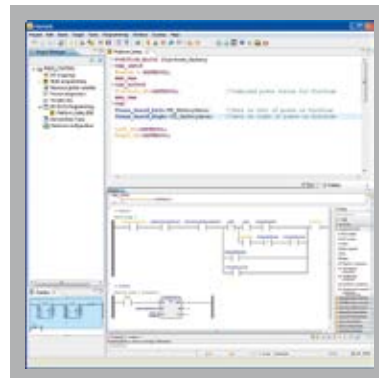
- **Safety** and **automation** in one system
- Simple handling for complex tasks
- Simple combination of PAS IL, PAS STL, PAS LD and PASMULTI enables structured working and clear programs
- Comprehensive library for automation and safety blocks



Editor PAS IL (Instruction List)



PAS STL (Structured Text)



PAS LD (Ladder Diagram)

Keep up-to-date
on the software
platform PAS4000:

Webcode:
web 150424

Online information
at www.pilz.com

► Software platform PAS4000

Blocks – Reusability and standardisation

On the software platform PAS4000, you have available an extensive library of ready-made safety- and non-safety-related blocks that you can easily reuse in your projects. Blocks you create yourself, e.g. in PAS STL (Structured Text), can be used with PASMULTI – in the same way as ready-made blocks. Blocks can be combined, enabling you to define more complex functions.

- Projects are organised and structured by function.
- Blocks can be reused as often as you like.
- Changes in the block are documented and managed centrally.

Keep up-to-date
on the software
platform PAS4000:

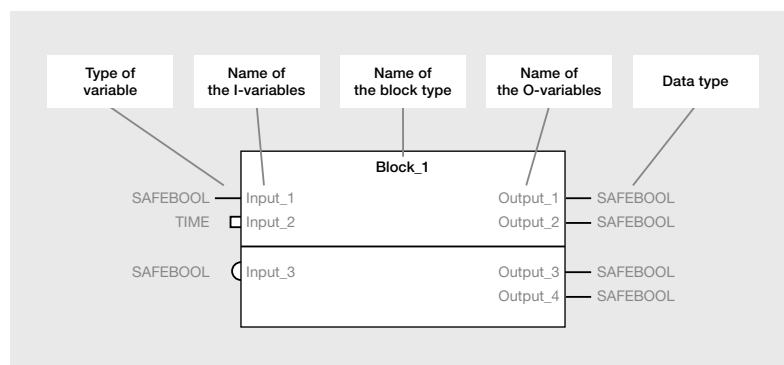
Webcode:
web150424

Online information
at www.pilz.com

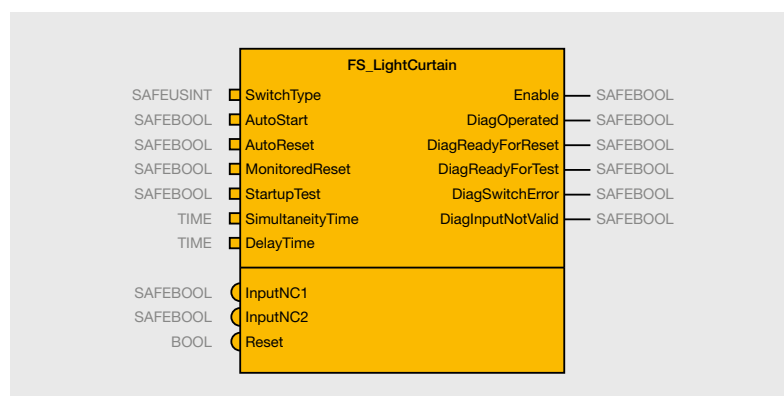
Diverse and wide-ranging: Software blocks

- In addition to general control blocks such as PID (function of a PID controller) and scaling (scaling input values), safety-related, TÜV certified blocks are also available to monitor functions such as emergency stop pushbuttons, light grids, safety gate switches, etc.
- Hardware-related blocks (e.g. FS_AbsoluteEncoder) provide driver blocks for specific hardware modules.
- Application-related blocks (e.g. FS_CamController) are used to create your press applications or in burner management.

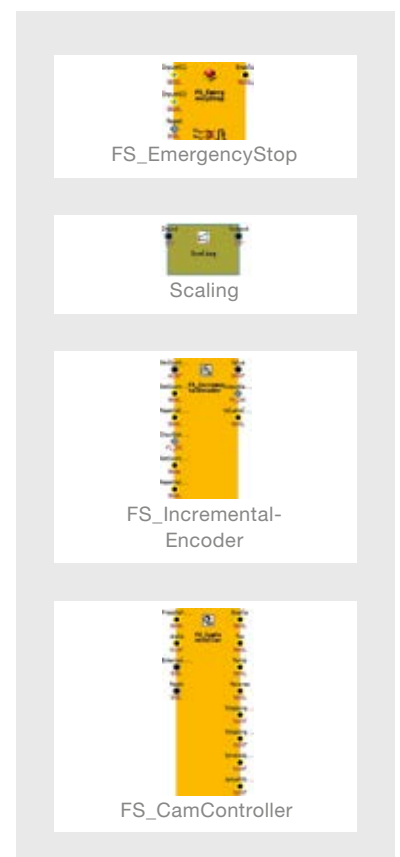
The PAS4000 software blocks can be found directly within the tool in the software library.

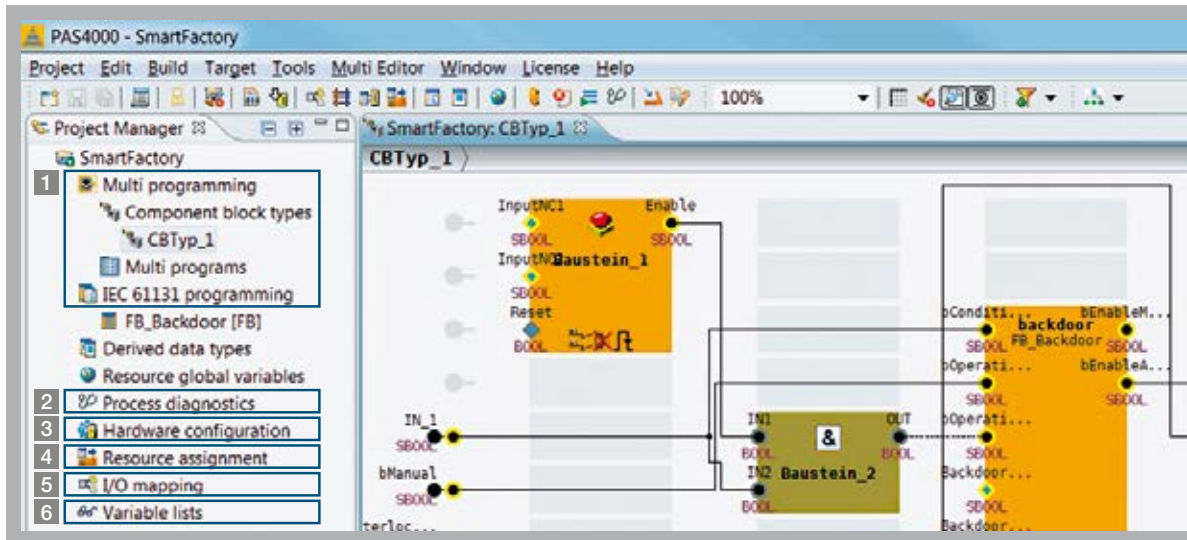


Design of a software block.



Example of a failsafe block.





Project Manager – Simple and clearly arranged

With PAS4000, projects can be managed simply and clearly.

The project tree in the tool helps with orientation:

1 Programming

The program can be created independently of the hardware, various editors are available for programming in accordance with EN/IEC 61131-3 and for configuration (Multi programming).

2 Process diagnostics

Using the diagnostic editor, a diagnosis message can be assigned quickly and simply to each variable in the user program. As a result, you have system and user diagnostics available in one system.

3 Hardware configuration

The configuration of the PSSuniversal systems, consisting of head module and I/O modules, is defined in the hardware configurator.

4 Resource assignment

This is where you define which section of the user program is to be executed on which resource (controller) in the safety or automation section.

5 I/O mapping

The variables from the process image are linked to the actual hardware signals. The program is built and is downloaded to the controller(s).

6 Commissioning

The dynamic program display and variable list help you to commission your machine quickly.

PAS4000 Online Help – fast and comprehensive

The online help can be called up directly within the tool and offers a diverse range of support. In addition to a getting started section and information on general software handling, you can also find information about subjects such as hardware configuration, diagnostics within the tool and the PAS4000 licensing model. Tips and tricks, which are adapted with each new software version, complete the online help.



► Automation system always in view

Using the web-based visualisation software PASvisu allows you to keep an eye on the automation system PSS 4000 at all times; both locally and by remote access. You can link the web-based visualisation software PASvisu directly to the control project from the software PAS4000. That automatically gives you full access to all process variables created in the project as well as to the entire namespace of the automation system. This means that it is also possible to call information like the project's checksum or the firmware version of the PSSuniversal PLC, for example. As a result, you benefit from shorter project runtimes, faster engineering and reduced potential for errors.

Keep up-to-date
on visualisation
software
PASvisu:

Webcode:
web150430

Online information
at www.pilz.com



Optimum link: Control project and visualisation

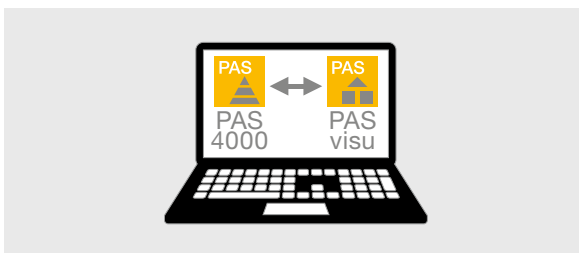
Control diagnostics

The (safety) blocks configured in the controller are shown grouped as predefined tiles in the visualisation. In this case the selection is made via the instance name rather than the individual variables.

All the safety blocks used in the control project (from the software PAS4000) are automatically available in the PASvisu Builder and can be used directly for graphical block diagnostics. All relevant variables are already linked to these Pilz hardware tiles. The diagnostic list (alarms and remedial measures) and the history can also be shown. In addition, a tile is available with the LED status of the PSS 4000 hardware.

Your benefits at a glance

- Fast, safe automation
- Future-proof and platform-independent
- Accelerated projects: from engineering and runtime to maintenance
- Link between PAS4000 and PASvisu projects enables shorter project times
- Faster engineering, as variables do not need to be entered and assigned manually
- Flexible application on a wide range of end devices due to the system's platform independence
- Language switching: create, export and import languages



Linking control projects and visualization



PASvisu Builder

► PMlvisu – The visualisation terminal for PASvisu

Pilz's PMlvisu offers a pre-installed and licensed solution package that consists of the operator terminals PMI with the web-based visualisation software PASvisu. This allows you to carry out professional visualisation of plant and machinery at a glance.

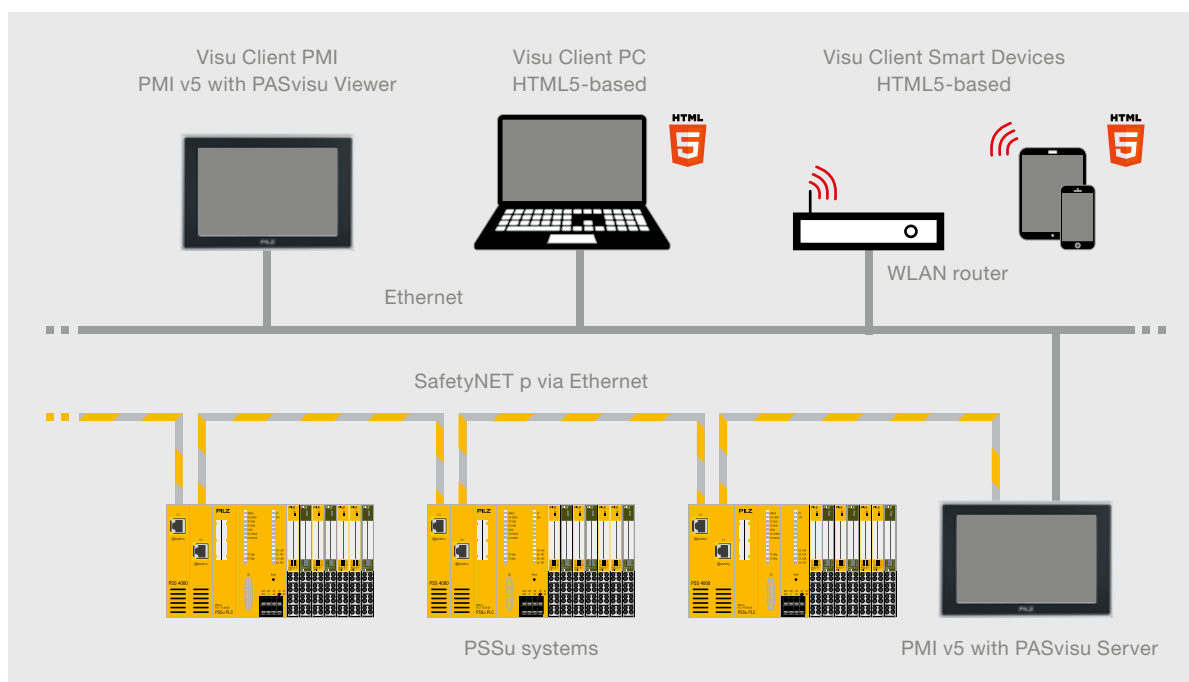


PMI v512

The capacitive displays are available in two sizes: Choose between 7" and 12" and benefit from superior functionality. The PMI Assistant is available for simple panel commissioning and management.

Your benefits at a glance

- Professional visualisation of plant and machinery
- Visualisation software PASvisu is pre-installed and licensed
- Up to 500 variables are included for data exchange with the controller
- Coordinated, preconfigured HMI functions allow efficient project planning
- Unicode-enabled language management
- Access rights are assigned through the integrated user manager
- External 4 GB SD memory card with PMI v5 Assistant for simple panel commissioning and management



Networking of PMlvisu with automation system PSS 4000.

Keep up-to-date on PMlvisu visualisation panels:

Webcode:
web160789

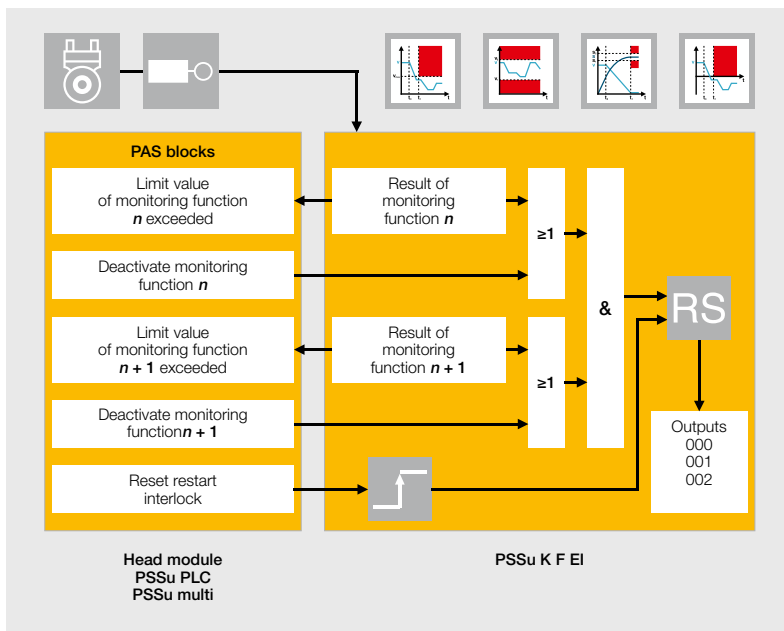
Online information at www.pilz.com

► Diverse functions to meet your requirements

The automation system PSS 4000 is characterised by the perfect interaction between individual components and software elements. Various functions, such as safe motion monitoring for example, help you to implement your applications.

Safe motion monitoring within the automation system PSS 4000

On the automation system PSS 4000, the safe monitoring function is completely integrated within the user software. Two different measuring principles, and therefore different functions, can be implemented.



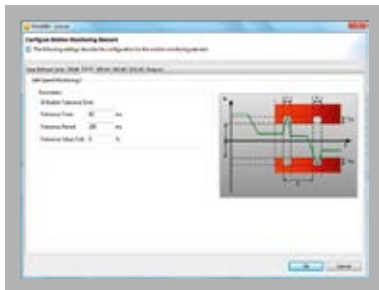
Safe motion monitoring – with one encoder.

Safe motion monitoring with one encoder

A compact I/O module (which can be combined with the controllers PSSuniversal PLC or PSSuniversal multi) is available for safe monitoring of up to eight axes per controller up to PL d, with only one encoder. You benefit from reduced reaction times and increased productivity due to a local fast shutdown – irrespective of the PLC cycle time.

Benefits of the solution:

- Reduced reaction times, higher productivity
- Errors are minimised and projects can be implemented quickly due to the simple setting of speed functions in the software
- Fast commissioning, maintenance and service due to simple diagnostics of the set limit values and parameters via the tool
- Use of existing encoders
- Implementation of safety functions in accordance with EN 61800-5-2:
 - up to PL d with only one Sin/Cos encoder
 - up to PL e with a safety-related encoder
 - up to PL e with combination of encoder and proximity switch, with additional gear monitoring



Simple setting of safe speed functions.



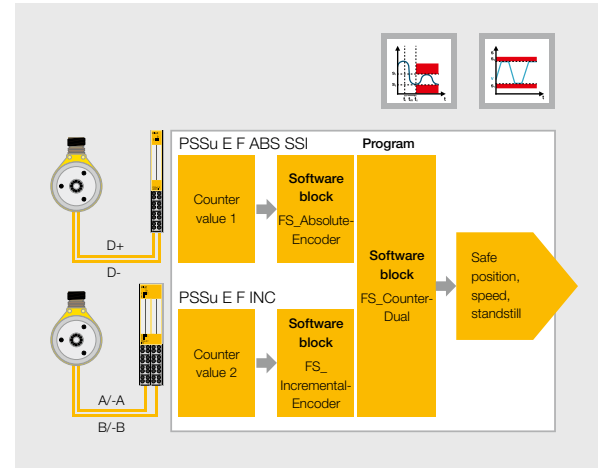
Assistant for unit calculation.

Safe position monitoring with two encoders

In the automation system PSS 4000, "safe speed" and "safe position" are possible due to the combination of counter modules, special function blocks in the user program and two non-safety-related encoders.

Benefits of the solution:

- Safe evaluation of speed, position and standstill using non-safety-related encoders
- The safe monitoring function is transferred to the user software
- Greater flexibility when monitoring limit values due to dynamic limit value monitoring in the user program



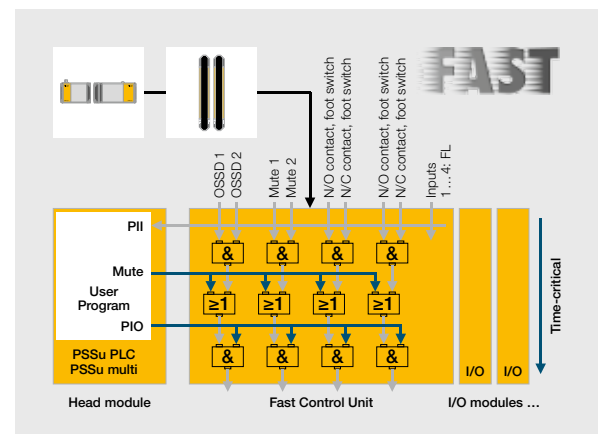
Safe speed, safe position – with two encoders.

Fast Control Unit for fast switching operations

The Fast Control Unit is the first compact I/O module to contain a high-performance, safe logic function. Local safe inputs can be switched to the outputs with minimum time loss (400 µs). Particularly short and time-critical signals (650 µs pulse duration) can also be read in.

Benefits of the solution:

- Flexibility and highest switching speed
- Flexible and freely programmable due to full access to the I/O signals in the control program
- As fast as the fixed wired option due to the local logic function
- Optimised shutdown process on inductive loads due to reverse voltage



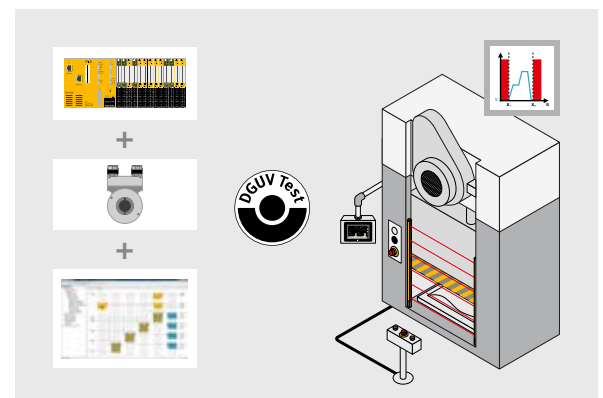
Signals are forwarded directly and rapidly. The user program has read and write access.

Safe electronic rotary cam arrangement

The optimum solution for a universal controller for mechanical presses: the safe electronic rotary cam arrangement PSS 4000. The solution consists of the controller PSSuniversal PLC, press blocks (CamController) and the rotary encoder PSEnenco. This solution replaces conventional mechanical rotary cam arrangements.

Benefits of the solution:

- Safe cams for run-up and overrun with dynamisation for a safe stop at TDC with a variable number of strokes
- Continuous overrun measurement to minimise down times
- Support for adjustment of the stroke length through adoption of the electrical angle
- Excellent manipulation protection



Safe electronic rotary cam arrangement – approved safety solution compliant with EN 692.

► Tried and tested in numerous sectors of industry

Our extensive expertise in a wide range of applications has been brought to bear in the automation system PSS 4000. It has already been tried and tested in a large number of sectors of industry. Here are just a few examples!



Automotive industry

The automation system is used in body making and final assembly. It has been implemented, for example, at Yanfeng Plastic Omnium on a paint line for bumpers. The big advantage of the PSS 4000 here is not just that it supports the numerous safety functions in a large plant; rather, if the customer so desires, it guarantees extension of the system with more I/O modules.



Rail technology

The automation system PSS 4000 has already been tried and tested in rail technology. At Bombardier Transportation GmbH, the PSS 4000 monitors specified travel speeds and initiates emergency braking in the case of uncontrolled acceleration. At the intersection point of three underground routes in the centre of Antwerp, the SIL 4-capable industry-proven automation system PSS 4000 replaces obsolete control boards.

Specific approvals – more than the industry requires

The automation system PSS 4000 has specific approvals and complies with standards that enable it to be used in other industries (in addition to classical mechanical engineering).

... in the railway sector:

- Relevant railway standards: EN 50121-3, EN 50121-3-2, EN 50121-4, EN 50155, EN 50126, EN 50128, EN 50129, for safety functions in accordance with SIL 2, SIL 3, SIL 4

... in the lifts/escalators sector:

- EN 81-1/2: European lift standard, describes the construction of lifts
- EN 115-1: European standard, describes the safety of escalators and moving walks

... in the fire protection sector:

- NFPA 85/86: US standard, describes the application area of furnaces



Packaging technology

At a well-known Swiss manufacturer of potato crisps, the automation system PSS 4000 monitors the safety-related functions of the packaging line and replaces the configurable control system PNOZmulti that was used previously. It increases productivity without having a negative effect on logistic processes or accessibility.



Presses

The PSS 4000 has also proved itself in the case of press applications. Pilz was brought on board to retrofit an eccentric press, for example. The mechanical rotary cam arrangement was replaced by the complete solution consisting of the controller PSSuniversal PLC from the automation system PSS 4000, the special software blocks and the rotary encoder PSENenco. As a result the eccentric press complies with the latest standards after retrofitting.



Transport and logistics

In the area of logistics, Pilz used the PSS 4000 to implement a fully automatic uprighting system at Sietatec, which positions the lifting frames for fork-lift trucks. The automation system PSS 4000 focuses on transporting the lifting frames in the plant as well as on cross traffic of the automatic guided vehicle systems – without any collisions occurring.

Apart from this, the automation system PSS 4000 is used in many other areas:

- ▶ Bridge protection: monitoring and control of the safety-related functions of a vertical-lift bridge
- ▶ Cable cars: the realisation of cable car applications, e.g. fibre-optic cable applications for long distances
- ▶ Amusement parks: controlling of motors and recording positions and speed
- ▶ Stage technology: monitoring of stage hoists, speed and rotational direction
- ▶ Automatic guided vehicle systems: monitoring of the speed and travel direction of individual transport units
- ▶ Fire protection systems: safe monitoring and control of fire protection systems
- ▶ Escalators: safety solutions and concepts for all types of escalators
- ▶ Wind energy: safe motion monitoring of wind turbines

► Technical details of controllers and I/O systems



Common features

- PSSuniversal module bus for connection of up to 64 I/O modules for automation and safety functions
- Integral power supply
- Integrated switch function for SafetyNET p linear topology
- SD card to store the device project and configuration data
- International safety standards:
 - EN/IEC 61508 up to SIL CL 3
 - EN ISO 13849 up to PL e

Controllers PSSuniversal PLC



PSSuniversal PLC

| Type | Order number |
|-------------------------|--------------|
| PSSu H PLC1 FS SN SD | 312070 |
| PSSu H PLC1 FS SN SD-T | 314070 |
| PSSu H PLC1 FS DP SN SD | 312071 |

Two versions of the controllers are available:

- PSSuniversal PLC with two SafetyNET p interfaces
- PSSuniversal PLC with SafetyNET p and PROFIBUS-DP interface (Slave)

Controllers PSSuniversal multi



PSSuniversal multi

| Type | Order number |
|-------------------------|--------------|
| PSSu H m F DP SN SD | 312065 |
| PSSu H m F DP ETH SD | 312060 |
| PSSu H m F DPsafe SN SD | 312066 |

Three versions of the controllers are available:

- PSSuniversal multi with SafetyNET p and PROFIBUS-DP interface (Slave)
- PSSuniversal multi with Ethernet and PROFIBUS-DP interface (Slave)
- PSSuniversal multi with SafetyNET p and PROFIBUS/PROFIsafe interface (Slave)

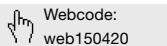
Decentralised system PSS 4000 I/O



PSSuniversal I/O

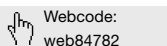
| Type | Order number |
|-------------------|--------------|
| PSSu H FS SN SD | 312085 |
| PSSu H FS SN SD-T | 314085 |
| PSS67 IO1 16FDI | 316010 |

Keep up-to-date on the controllers in the automation system PSS 4000



Online information at www.pilz.com

and communication modules:



Online information at www.pilz.com

| Approvals | Technical features |
|--|---|
| BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed | <ul style="list-style-type: none"> ▶ Safety and automation functions ▶ Can be configured with the graphics program editor PASmulti ▶ Programming in PAS IL (Instruction List) and PAS STL (Structured Text) and PAS LD (Ladder Diagram) in accordance with EN/IEC 61131-3 ▶ Programming via Ethernet TCP/IP ▶ Max. number of failsafe tasks: 9 ▶ Max. number of standard tasks: 9 |
| BG, CE, EAC (Eurasian), TÜV, cULus Listed | |
| BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed | |



Pilz's next step will be to offer the first safe IP-protected compact controller for cabinet-free automation.

| Approvals | Technical features |
|--|---|
| BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed | <ul style="list-style-type: none"> ▶ Local safety functions ▶ Programming via graphics program editor ▶ Max. number of failsafe tasks: 1 ▶ Devices with SafetyNET p interface: Max. number of SafetyNET p connections: 5 ▶ Devices with PROFIBUS-DP interface: Non-safety-related functions, PROFIBUS-DP 12 MBit/s |
| BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed | |
| BG, CE, EAC (Eurasian), TÜV, cULus Listed | |

| Approvals | Technical features |
|--|--|
| BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed | <ul style="list-style-type: none"> ▶ Communication with other SafetyNET p devices (RTFN) ▶ Module bus for non-safety-related I/O modules |
| BG, CE, EAC (Eurasian), TÜV, cULus Listed | |
| In preparation | <ul style="list-style-type: none"> ▶ IP67 protection for cabinet-free installation |

► Technical details PSSuniversal I/O modules

Supply voltage modules

| Type | Order number |  |  | Automation functions | Failsafe functions |
|---------------|--------------|---|---|----------------------|--------------------|
| PSSu E F PS-P | 312 185 | 314 185 | - | | ◆ |
| PSSu E F PS | 312 190 | 314 190 | - | | ◆ |
| PSSu E F PS1 | 312 191 | 314 191 | - | | ◆ |
| PSSu E F PS2 | 312 192 | 314 192 | - | | ◆ |

Digital I/O modules

| | | | | | |
|----------------------|---------|---------|---------|---|---|
| PSSu E S 4DI | 312 400 | 314 400 | 312 401 | ◆ | |
| PSSu E S 4DO 0.5 | 312 405 | 314 405 | 312 406 | ◆ | |
| PSSu E S 4DO 0.5-TD | - | 314 406 | - | ◆ | |
| PSSu E S 2DO 2 | 312 410 | 314 410 | 312 411 | ◆ | |
| PSSu E S 2DO 2-TD | - | 314 411 | - | ◆ | |
| PSSu E S 2DOR 2 | 312 511 | 314 511 | - | ◆ | |
| PSSu E S 2DOR 10 | 312 510 | 314 510 | - | ◆ | |
| PSSu E F 4DI | 312 200 | 314 200 | - | | ◆ |
| PSSu E F 4DO 0.5 | 312 210 | 314 210 | - | | ◆ |
| PSSu E F 2DO 2 | 312 215 | 314 215 | - | | ◆ |
| PSSu E F 2DOR 8 | 312 225 | 314 225 | - | | ◆ |
| PSSu E F DI OZ 2 | 312 220 | 314 220 | - | | ◆ |
| PSSu K S 16DI | 312 430 | - | - | ◆ | |
| PSSu K S 8DI 8DO 0.5 | 312 431 | - | - | ◆ | |
| PSSu K S 16DO 0.5 | 312 432 | - | - | ◆ | |

Analogue I/O modules

| | | | | | |
|-------------------|---------|---------|---|---|---|
| PSSu E S 2AI U | 312 440 | 314 440 | - | ◆ | |
| PSSu E S 4AI U | 312 445 | 314 445 | - | ◆ | |
| PSSu E S 2AI I se | 312 450 | 314 450 | - | ◆ | |
| PSSu E S 2AO U | 312 460 | 314 460 | - | ◆ | |
| PSSu E S 4AO U | 312 465 | 314 465 | - | ◆ | |
| PSSu E S 2AO I | 312 470 | 314 470 | - | ◆ | |
| PSSu E S 2AI RTD | 312 490 | 314 490 | - | ◆ | |
| PSSu E S 2AI TC | 312 500 | 314 500 | - | ◆ | |
| PSSu E F AI I | 312 260 | 314 260 | - | | ◆ |
| PSSu E F AI U | 312 265 | 314 265 | - | | ◆ |
| PSSu E AI SHT1 | 312 261 | 314 261 | - | ◆ | |
| PSSu E AI SHT2 | 312 262 | - | - | ◆ | |



Extended temperature range

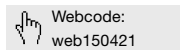


Expanded diagnostic functions in the automation sector

| Technical features | Approvals |
|--|--|
| Periphery power supply, passive (24 V periphery) | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| Power supply, passive (24 V periphery and 5 V system) | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| Power supply, buffered (24 V periphery and 5 V system) | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| Power supply, buffered (24 V periphery and 5 V system) | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |

| | |
|---|--|
| 4 inputs | BG, CE, TÜV, cULus Listed |
| 4 outputs (0.5 A) | BG, CE, TÜV, cULus Listed |
| 4 digital outputs (0.5 A) | CE, cULus Listed |
| 2 digital outputs (2A) | BG, CE, TÜV, cULus Listed |
| 2 digital outputs (2A) | CE, cULus Listed |
| 2 relay outputs, volt-free, 2 A | CE, cULus Listed |
| 3 relay outputs, volt-free, 10 A | BG, CE, TÜV, cULus Listed |
| 4 inputs | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| 4 outputs, single-pole, 0.5 A | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| 2 outputs, single-pole, 2 A | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| 2 relay outputs, volt-free, 8 A | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| 1 input, 1 output, dual-pole 2 A | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| 16 digital inputs | BG, CE, TÜV, cULus Listed |
| 8 digital inputs, 8 digital outputs (0.5 A) | BG, CE, TÜV, cULus Listed |
| 16 digital outputs (0.5 A) | BG, CE, TÜV, cULus Listed |

Keep up-to-date
on PSSuniversal
I/O modules:





Online information
at www.pilz.com

| | |
|---|---------------------------------------|
| 2 inputs (0 ... 10 V se; 0 ... 10 V dif; -10 ... 10 V dif) | CE, TÜV, cULus Listed |
| 4 inputs (0...10 V se) | CE, cULus Listed |
| 2 inputs (0 ... 20 mA; 4 ... 20 mA) | CE, TÜV, cULus Listed |
| 2 outputs (0 ... 10 V; -10 ... 10 V) | CE, TÜV, cULus Listed |
| 4 outputs (0 ... 10 V) | CE, cULus Listed |
| 2 outputs (0 ... 20 mA; 4 ... 20 mA) | CE, cULus Listed |
| 2 analogue inputs, resistance thermometer | CE, TÜV, cULus Listed |
| 3 analogue inputs, thermocouples | CE, TÜV, cULus Listed |
| 1 input (0 ... 25 mA), passive | CE |
| 1 input (-10 ... +10 mA), passive | CE |
| 1 analogue input, 2 digital outputs (0 ... 0.6 A; 0 .. 20 mA) | CE, EAC (Eurasian), TÜV, cULus Listed |
| 1 analogue input, 2 digital outputs (0 ... 0.2 A; 0 .. 20 mA) | CE, cULus Listed |

► Technical details PSSuniversal I/O modules

Modules with special functions

| Type | Order number |  |  | Automation functions | Failsafe functions |
|----------------|--------------|---|---|----------------------|--------------------|
| PSSu K F FCU | 312 435 | - | - | | ◆ |
| PSSu K F FAU B | 312 420 | - | - | | ◆ |
| PSSu K F FAU P | 312 421 | - | - | | ◆ |

Encoder modules

| | | | | | |
|--------------------------------|---------|---------|---|---|---|
| PSSu E S ABS SSI | 312 480 | 314 480 | - | ◆ | |
| PSSu E S INC | 312 485 | 314 485 | - | ◆ | |
| PSSu E S INC 24V se | 312 486 | 314 486 | - | ◆ | |
| PSSu E F ABS SSI ¹⁾ | 312 275 | 314 275 | - | | ◆ |
| PSSu E F INC ¹⁾ | 312 280 | 314 280 | - | | ◆ |
| PSSu K F EI | 312 433 | - | - | | ◆ |
| PSSu K F EI CV | 312 434 | 314 434 | - | | ◆ |
| PSSu K F INC | 312 437 | - | - | | ◆ |

Distribution modules

| | | | | | |
|--------------------|---------|---------|---------|---|--|
| PSSu E PD | 312 195 | 314 195 | 312 197 | ◆ | |
| PSSu E PD1 | 312 196 | 314 196 | - | ◆ | |
| PSSu E PS-P 5V | 312 590 | - | - | ◆ | |
| PSSu E PS-P +/-10V | 312 591 | - | - | ◆ | |
| PSSu E PS-P +/-15V | 312 592 | - | - | ◆ | |

Communication modules

| | | | | | |
|----------------|---------|---------|---|---|--|
| PSSu E S RS232 | 312 515 | 314 515 | - | ◆ | |
| PSSu E S RS485 | 312 516 | 314 516 | - | ◆ | |
| PSSu K S RS232 | 312 438 | - | - | ◆ | |

Link modules

| | | | | | |
|-------------|---|---------|---|---|---|
| PSSu XB F-T | - | 314 092 | - | ◆ | ◆ |
| PSSu XR F-T | - | 314 093 | - | ◆ | ◆ |

¹⁾ These electronic modules cannot be combined with PSSu H FS SN SD or PSSu H FS SN SD-T.



Extended temperature range



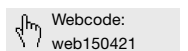
Expanded diagnostic functions in the automation sector

| Technical features | Approvals |
|--|--|
| Fast Control Unit, 12 digital inputs, 2 digital outputs (single-pole, 2 A), 2 digital outputs (dual-pole, 2 A) | CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| Fast Control Unit, evaluation device for PSEnvip 2, basic version; 4 digital inputs, 2 digital outputs (single-pole, 2 A), 2 digital outputs (dual-pole, 2 A) | CE, EAC (Eurasian), TÜV, cULus Listed |
| Fast Control Unit, evaluation device for PSEnvip 2, productive version; 4 digital inputs, 2 digital outputs (single-pole, 2 A), 2 digital outputs (dual-pole, 2 A) | CE, EAC (Eurasian), TÜV, cULus Listed |

Further information on the camera-based protection system PSEnvip: Webcode: web150415

| | |
|---|--|
| 1 absolute encoder SSI | CE, cULus Listed |
| 1 incremental encoder | CE, cULus Listed |
| 1 incremental encoder 24 V | CE, TÜV, cULus Listed |
| 1 absolute encoder SSI | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| 1 incremental encoder | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| Encoder interface, for connection and evaluation of encoders (Sin/Cos, TTL, HTL, proximity switches 24 V) | CE, TÜV, cULus Listed |
| Encoder interface, for connection and evaluation of encoders (Sin/Cos, TTL, HTL, proximity switches 24 V) | CE, TÜV, cULus Listed |
| 1 incremental encoder, including socket for easy rotary encoder connection | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |

Keep up-to-date
on PSSuniversal
I/O modules:



Online information
at www.pilz.com

| | |
|--|---------------------------|
| Voltage distribution, passive (24 V) | CE, cULus Listed |
| Voltage distribution, passive (4 potentials) | CE, cULus Listed |
| Periphery power supply, 5 V | BG, CE, TÜV, cULus Listed |
| Periphery power supply +/-10 V | BG, CE, TÜV, cULus Listed |
| Periphery power supply +/-15 V | BG, CE, TÜV, cULus Listed |

| | |
|---|------------------|
| Serial interface RS232 | CE, cULus Listed |
| Serial interface RS485 | CE, cULus Listed |
| Serial interface RS232, including socket for connecting serial connectors, with driver for Modbus ASCII | CE, cULus Listed |

| | |
|---|--|
| Base station expansion module for ST/FS signals | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |
| Remote station expansion module for ST/FS signals | BG, CE, EAC (Eurasian), KOSHA, TÜV, cULus Listed |

► Selection guide for infrastructure components

Unmanaged switches PSSnet SLL

| Type | Order number | Technical features | Approvals |
|----------------------|--------------|--|------------------|
| PSSnet SLL 5T | 380600 | 5 electrical ports | CE, cULus Listed |
| PSSnet SLL 4T 1FMMSC | 380604 | 4 electric ports, 1 fibre-optic port, multimode port | CE, cULus Listed |

Common features

- Plug and play (no configuration necessary)
- Diagnostic LEDs
- Can be used for industrial Ethernet systems such as SafetyNET p, PROFINET RT, EtherNET™, Modbus TCP

Managed switches PSSnet SHL

| | | | |
|--------------------------|--------|---|------------------|
| PSSnet SHL 8T MRP | 380601 | 8 electrical ports | CE, cULus Listed |
| PSSnet SHL 6T 2FMMSC MRP | 380602 | 6 electric ports, 2 fibre-optic ports, multi mode port | CE, cULus Listed |
| PSSnet SHL 6T 2FSMSC MRP | 380650 | 6 electric ports, 2 fibre-optic ports, single-mode port | CE, cULus Listed |

Common features

- Extensive management functions for configuration and diagnostics
- Web-based management for access via web browser
- Ring redundancy MRP
- Redundant voltage supply
- Can be used for industrial Ethernet systems such as SafetyNET p, PROFINET RT, EtherNET™, Modbus TCP

SafetyNET p connector, cable, stripping tool

| | | | |
|-----------------------------|--------|--|------|
| SafetyNET p Connector RJ45s | 380400 | Standard connector for IP20 installation, quick connection, RJ45 mating face, housing form compatible with PSSuniversal stabilising collar, ambient temperature: -40 °C ... +70 °C | None |
| SafetyNET p Cable | 380000 | Cable (by the metre), cable cross-section AWG 22, CAT 5e, four-core | None |
| SN CAB RJ45s RJ45s, 0.5m | 380001 | 0.5 m cable with 2 x RJ45 connector | None |
| SN CAB RJ45s RJ45s, 1m | 380003 | 1 m cable with 2 x RJ45 connector | None |
| SN CAB RJ45s RJ45s, 2m | 380005 | 2 m cable with 2 x RJ45 connector | None |
| SN CAB RJ45s RJ45s, 5m | 380007 | 5 m cable with 2 x RJ45 connector | None |
| SN CAB RJ45s RJ45s, 10m | 380009 | 10 m cable with 2 x RJ45 connector | None |
| Stripping Tool | 380070 | Installation tool for SafetyNET p Cable and Connector | None |

Gateways

| | | | |
|-------------------------|--------|--|------------------|
| PSSnet GW1 MOD-CAN | 311602 | Protocol converter from Modbus/TCP Slave to CANopen Slave | CE, cULus Listed |
| PSSnet GW1 MOD-EtherCAT | 311601 | Protocol converter from Modbus/TCP Slave to EtherCat Slave | CE, cULus Listed |

► Selection guide for PMI and software


Operator terminals PMI




PMI v507

| Type | Order number | Diagonal display measurement | Resolution in pixels | Power consumption | Operation | Interfaces | Approvals |
|-----------------|--------------|------------------------------|----------------------|-------------------|------------------------------|--|--------------------|
| PMI v507 | 265 507 | 7" (18 cm) | 800 x 480 pixels | 6.5 W (24 V DC) | Capacitive glass touchscreen | 1 x RS232; 1 x RJ45 ETH; 1 x SD Card; 2 x USB 2.0 | CE, EAC (Eurasian) |
| PMI v512 | 265 512 | 12" (31 cm) | 1280 x 800 pixels | 8.9 W (24 V DC) | Capacitive glass touchscreen | 1 x RS232; 1 x RJ45 ETH; 1 x SD Card; 2 x USB 2.0 | CE, EAC (Eurasian) |

Visualisation software PASvisu

| Type | Features | Order number |
|---|--|--|
| PASvisu Web-based visualisation software  | <ul style="list-style-type: none"> ► Consisting of the configuration tool PASvisu Builder and PASvisu Runtime ► A wide range of predefined GUI elements (tiles) ► Sophisticated visualisation thanks to the most diverse style sheets ► Optimum link between control project (PAS4000) and visualisation (PASvisu) ► A convenient overview both on a local basis and by remote access | Download software on the Internet by visiting www.pilz.com/pasvisu |

Software in the automation system PSS 4000

| Type | Features | Order number |
|--|---|---|
| PAS4000 Software platform in the automation system PSS 4000  | <ul style="list-style-type: none"> ► Editors PAS STL (Structured Text), PAS IL (Instruction List), PAS LD (Ladder Diagram) in accordance with EN/IEC 61131-3 ► Graphics program editor PASmulti ► Online help ► Special licence model | <p>Download software on the Internet by visiting www.pilz.com/pas4000</p> <p>PASunits: Once enabled for production operation, the project is licensed in PAS4000, PASunits are calculated for the functions used and credited to the project from the software's points account</p> <ul style="list-style-type: none"> ► PASunits 500 317 910 ► PASunits 1000 317 920 ► PASunits 5000 317 930 ► PASunits 10000 317 940 ► PASkey: USB crypto memory for secure storage and transfer of PASunits 317 999 |

► Selection guide for software blocks

General failsafe control blocks

| Type | Function |
|--|---|
| FS_EmergencyStop | Configures and monitors the function of E-STOP pushbuttons with one or two N/C contacts. |
| FS_LightCurtain | Monitors the function of light grids with two N/C contacts. |
| FS_SafetyGate | Monitors the function of safety gate switches with up to three contacts. |
| FS_Operating ModeSelectorSwitch | Monitors up to eight positions on an operating mode selector switch. Unneeded inputs may remain unassigned. Once the switchover time has elapsed, only one contact at a time may be closed. |
| FS_SafetyValve | Monitors the operation of safety valves of the single, double and directional type. |
| FS_TwoHandControl | Monitors whether the two pushbuttons on the two-hand control are operated simultaneously (within 0.5 s). In accordance with EN 574, two-hand pushbuttons of type IIIA (two N/O contacts) or type IIIC (combination of two N/O and two N/C contacts) can be used. |
| FS_Muting | Used to temporarily suspend safety functions (ESPE/AOPD) without interrupting the process (muting), in accordance with EN 61496-1. |
| FS_SafeEthernetConnection | Used for safe communication based on Industrial Ethernet. The underlying protocol is Modbus/TCP. A point-to-point connection (1:1 communication relationship) can be implemented as a result. The following are used as communication partners: PSSuniversal PLC with PNOZmulti (base units PNOZ mxp ETH). |

Hardware-related blocks

| | |
|------------------------------|--|
| FS_CounterDual | Used in conjunction with the blocks FS_AbsoluteEncoder and/or FS_IncrementalEncoder to calculate the following safe values: Position, speed and standstill. |
| FS_AbsoluteEncoder | Calculates a counter status (in increments) from the measured value from the absolute encoder and monitors the module status. |
| FS_IncrementalEncoder | Initialises the counter, calculates the current counter status (in increments) and transmits status information. |
| FS_AnalogueInput Dual | Monitors redundant analogue input values for upward violation of a value range, downward violation of a value range and upward violation of a difference between the analogue input value 0 and analogue input value 1 over a defined period of time (plausibility check). |
| FS_Scaling | Scales an analogue input value and sends it to an O-variable. |

Application-related blocks

| | |
|----------------------------------|---|
| FS_PressOperatingModes | Controls and monitors the setup, single stroke and automatic operating modes of a mechanical press. |
| FS_CamEvaluation | Monitors the mechanical rotary cam arrangement of a press for plausibility of the signals from the overrun cam and run-up cam, failure of the dynamic cam and overrun cam, upward violation of the overrun at top dead centre. |
| FS_CycleModeLightCurtain | Enables the cycle mode (control) for triggering the press stroke when using a light curtain in the standard and Sweden operating modes. |
| FS_CamController | Provides the position signals for a press control. It uses the angle values, from the block FS_PositionToAngle for example, to identify the signal for achieving top dead centre and so enables the shutdown of the press. It is used in the safe, electronic rotary cam arrangement. |
| FS_BurnerManagementSystem | Fully controls the burner cycle, including pre-purge, tightness control, ignition, afterburn, post-purge, etc.; depending on the setting, function monitoring based on the relevant step, continuous monitoring of the safety chains. |

Standard-based control blocks

| | |
|-----------------|--|
| AND | AND is a basic logic operation that functions according to the principle below: If two conditions apply, the result is true. |
| OR | OR is a basic logic operation that functions according to the principle below: If one or other of the conditions applies, the result is true. |
| FlipFlop | Saves the state of the input signal until it is reset. |
| Timer | Generates an output signal for a set time after the start. |

The PAS4000 software blocks can be found directly within the tool in the software library.
Tool download: www.pilz.com/pas4000

► Consulting, engineering and training

As a solution supplier, Pilz can help you to apply optimum safety strategies worldwide. Services encompass the whole machine lifecycle. Our training package with practical, up-to-date course content completes the offering.



We are your reliable service provider for plant and machinery safety

Your projects belong in our safe hands!



Risk assessment

We inspect your machinery in accordance with the applicable national and/or international standards and directives and assess the existing hazards.



Safety concept

We develop detailed technical solutions for the safety of your plant and machinery through mechanical, electronic and organisational measures.



Safety design

The aim of the safety design is to reduce or eliminate danger points through detailed planning of the necessary safeguards.



System implementation

The results of the risk analysis and safety design are implemented to suit the particular requirements through selected safety measures.



tuev-sued.de/ps-zert

Our management system
was certified in the field of system integration
to EN/IEC 61508.



Safety validation

In the safety validation, the risk assessment and safety concept are mirrored and inspected by competent, specialist staff.



CE marking

We control all activities and processes for the necessary conformity assessment procedure, including the technical documentation that is required.



International compliance services

We conduct the evaluation process and develop the necessary strategies in order to enable compliance with the relevant ISO, IEC, ANSI, EN or other national or international standards.



Plant assessment

We will prepare an overview of your entire plant in the shortest possible time. With an on-site inspection we will expose risks and calculate the cost of optimising your safeguards.



Inspection of safeguards

With our independent, ISO/IEC 17020-compliant inspection body, which is accredited by the German Accreditation Body (DAkkS), we can guarantee objectivity and high availability of your machines.



Pilz GmbH & Co. KG, Ostfildern, operates an independent inspection body in accordance with DIN EN ISO/IEC 17020:2012 for the plant and machinery sector, accredited by the German Accreditation Body (DAkkS).



LOTO System

Our customised Lockout Tagout (LOTO) measures guarantee that staff can safely control potentially hazardous energies during maintenance and repair.




Training

Pilz offers two types of course: Product-neutral seminars on machinery safety and product-specific courses



And to progress to the expert level in machinery safety we offer the qualification of CMSE® – Certified Machinery Safety Expert.

Services related to machinery safety:

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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.

*Energy
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