

Automation Components – Systems – Services



the spirit of safety

#### **Total customer proximity**

Pilz has a tradition as a familyrun 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 26 subsidiaries and branch offices.

#### **Benefit-oriented innovations**

Our customer proximity is the basis for our innovative strength. We are always oriented towards current market requirements, which is why we can offer innovative automation solutions in every case. Customer proximity and innovation belong together and are mutually dependent.



#### **Overall solutions**

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

- Sensor technology
- Control technology
- Networks
- Drive technology
- Operator and
  - visualisation systems
- Software
- Automation system PSS 4000
- Consulting and engineering
- Training

#### the spirit of safety

With their knowledge, enthusiasm, creativity and courage to take the unconventional route, our staff have made us what we are today: one of the leading brands in automation technology.

More than 1,400 staff, each one of them an ambassador for safety, make sure that your company's most valuable asset – your staff – can work safely and free from injury.





Based in Corby, Northamptonshire since 1987, Pilz UK now has 30 employees, many of whom are considered to be UK experts in machine safety.

#### Leaders from the beginning

Since its formation, Pilz UK has been at the forefront of the UK machine safety market. The company recognised at an early stage customers needs for advice alongside products; the machine safety training programme has been successfully established for over 20 years and includes City & Guilds certified courses. In-house experts can also offer full independent safety consultancy services from plant assessment through to systems engineering.

#### Complete automation portfolio

In recent years, the UK branch has also successfully launched the full portfolio of Pilz products and can now offer and support both safety and standard control automation products for any size of machine or installation.

#### Industry expertise

Early UK business mainly centered around the Automotive industry, where the company is still strong today. Over the years however, expertise and a strong reputation has been built up in most prolific UK industries such as print and paper; packaging; food and beverage; leisure and more recently oil and gas. Projects can vary from single machines to complete plant overhauls; customers range from SME's to many high profile household names.

#### Easy to deal with

Pilz UK has a long established network of partners throughout the UK, however direct business is welcomed and can be fulfilled for any size of order. In 2010 the UK E-Shop was launched and the company can accept Credit Card orders for non-account holders.

Pilz UK looks forward to dealing with you!

Steve Farrow General Manager UK Subsidiary



Pilz UK employees receive regular training and support from Pilz HQ.



## Safe sensor technology

Pilz sensor technology offers a wide range of components which, in conjunction with Pilz control technology, form a tailored solution and a complete safe, approved system.

Units for safe position monitoring **Safety switches** 





PSENrope

#### Safe proximity switch **PSENini**

The safe proximity switch PSENini detects the approach of metallic objects without the use of contacts. It supplies the necessary safe signals via positions and end limits and guarantees a smooth production cycle. PSENini can also generate the pulse for counting tasks or for detecting rotational movements.

#### (h) Webcode

#### Safe rope pull switch **PSENrope**

The safe rope pull switch PSENrope is manually operated and is used to safely shut down functional processes that extend over a wide area, such as conveyors. It provides maximum safety, as the emergency stop function can be triggered at any point along the rope.



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#### Safety switches PSENmech, **PSENmag, PSENcode**

Hazardous machine movements must be stopped when a guard is opened. It must not be possible to either defeat or manipulate these guards. PSEN safety switches meet this requirement and are therefore suitable for monitoring safety gates as well as position monitoring. Thanks to a variety of designs and operating principles they are flexible to use individually or in series.



PSENbolt

#### Safety bolt PSENbolt

For safety gates that are difficult to adjust or in areas where safety gates are frequently opened and closed, protection must be provided against defeat and manipulation, but a long material service life must also be guaranteed. PSENbolt provides a complete solution, comprising safety switch, handle and bolt.





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#### Safety gate systems



PSENhinge

#### Safe hinge switch PSENhinge

The hinge switch PSENhinge is a safe, complete solution comprising safety switch and hinge, and is suitable for rotatable and hinged guards. Designed as one functional and installation unit, it offers a high level of flexibility in installation, connection and adjustment. It can be integrated directly into the safety gate, so that PSENhinge is particularly space-saving and secure from manipulation.



PSENslock

#### Safety gate system PSENslock

With its combination of safe position monitoring and process guard locking, the safety gate system PSENslock is designed for the highest category applications. The magnetic guard locking device on PSENslock is largely non-wearing, compared with mechanical technologies. PSENslock is also more tolerant to changing environmental conditions, guaranteeing long-term use.



PSENsgate

#### Safety gate system PSENsgate

PSENsgate combines safety gate monitoring, safe guard locking and control elements in just one system, guaranteeing the protection of personnel and plant. Additional functions such as emergency stop and escape release are included in the safety gate system PSENsgate. The system is ready to install and reduces the work involved in configuration and installation.





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### Optoelectronic protective devices





PSENopt

#### Safety light grid PSENopt

If the production process requires active intervention, there is a high potential risk. Safety light beam devices, light curtains and light grids PSENopt offer greater productivity, while safeguarding access to the work process. Muting, blanking and cascading open up a range of possibilities for optimum incorporation of PSENopt into your plant. For complex light grid applications, PSENopt SB with integrated SafetyBUS p interface is the right solution.



Safe camera systems

PSENvip

### Camera-based protection and measuring system PSENvip

The camera-based protection and measuring system PSENvip is a mobile protection device, which can be used to monitor press brakes safely. When installed on the upper die, the system detects even the smallest foreign body in the protected field between the transmitter and receiver. It is also available as a productive version, combined with the control system PSSuniversal PLC from the automation system PSS 4000.



PSEN se

#### Safe camera system SafetyEYE

SafetyEYE, the safety technology for 3D zone monitoring, enables barrier-free protection. It combines intelligent sensor technology with effective control. The SafetyEYE safe camera system detects and reports objects that encroach into warning and detection zones, which can be defined in advance. Its reaction is flexible, based on the requirement. A hazardous movement may be slowed down or brought to an emergency stop, for example.







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Components

## Control technology

**Relays for** 

PMDsigma

Electronic

monitoring relays PMD

For electrical safety such as

electronic monitoring relays

They reduce the number of

and machine and increase

the service life of plant and

production cycle.

**PMDsigma** 

machinery through an efficient

PMDsigma units monitor true

power or insulation resistance.

With an integrated display and

menu-based configuration via

rotary switches, PMDsigma

guarantees short set-up and

These units are 22.5 mm wide

and monitor functions such as current, voltage, temperature

commissioning times.

**PMDsrange** 

and many more.

hazardous situations for man

provide the optimum solution.

voltage or true power monitoring,

PMDsrange

electrical safety

Pilz control technology – for safety and standard! A solution for your automation function – economical, safe and from one source. With compatible components and systems.

### Line inspection devices



PLIDdys in conjunction with PNOZelog

### Safe line inspection device PLIDdys

The safe line inspection device PLIDdys provides safe power-up on two-wire connections, providing maximum safety on long cable routes. With PLIDdys, unintended power-up or plant start-up can be excluded in the event of an error. Plants can easily be retrofitted thanks to an extremely compact design and the ability to loop into the existing wiring.



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PNOZsigma

**Relays for** 

functional safety

#### Safety relays PNOZ

Stand-alone machines with up to three safety functions, such as E-STOPs, safety gates, light curtains/grids and many more are monitored using the safety relays PNOZ. Every day they are proven in millions of applications worldwide. Due to the different features, the safety relays are divided into the following product ranges.

#### **PNOZsigma**

With particularly narrow housing widths and multifunctionality compressed into each unit, PNOZsigma provides maximum functionality in minimum width. Selectable operating modes and times, plus scalability thanks to the modular structure, are further benefits.

The world's most widely used safety relays!

#### **Configurable control systems**



PNOZelog PNOZ X PNOZpower

#### **PNOZelog**

PNOZelog units can be linked via logic operations to form complete safety functions. Wear resistance and expanded diagnostics with power-up tests, self-checking and runtime tests guarantee maximum safety.

#### PNOZ X

With the widest range of products, PNOZ X provides tailor-made safety for any application. Based technically on voltage-free, electromechanical contacts, widths vary from 22.5 to 90 mm, while the number of contacts ranges from 2 to 8. Universal power supplies are an added convenience for your application.

#### **PNOZ**power

PNOZpower switches high loads of 8-16 A and is also suitable for switching motor loads directly.



PNOZmulti Mini

### Configurable safety relays PNOZmulti Mini

PNOZmulti Mini is a scalable product range, offering both stand-alone and system solutions. All functions are created on the PC using the ingeniously simple configuration software PNOZmulti Configurator. Inputs and outputs are freely configurable and can be linked using logic elements. With a 45 mm width and simple diagnostics via display, application of the PNOZmulti is costeffective from just three safety functions.

There are three base units: A compact, modular non-expandable, stand-alone unit with 20 safe inputs and 4 safe semiconductor outputs. Other base units can be expanded using communication modules and safe link modules, enabling interlinked and decentralised plants to be implemented.



PNOZmulti

#### Configurable control systems PNOZmulti

PNOZmulti bridges the gap between classic safety relays and programmable control systems. PNOZmulti can be used to monitor safety functions safely and to perform standard control functions economically. PNOZmulti is multifunctional and can be configured using the software tool PNOZmulti Configurator. It has a wide range of base units and expansion modules, which can be combined to meet individual requirements: there are special base units for press applications or burner management, as well as input, output, fieldbus and link modules, as well as speed and standstill monitors. Use of PNOZmulti is economical where four or more safety functions are to be monitored.

#### **Configuration software**



#### **PNOZmulti Configurator**

The safety circuit is created on the PC using configuration software that is simply ingenious, yet ingeniously simple. The graphics-based user interface conforms to the Windows® standard; all elements are available as icons or in selection menus. Online help with documentation is available during configuration. Once the configuration is complete, the configuration tool checks the circuit for any errors. The completed configuration can also be certified, thereby protecting it from unwanted modifications. If the configuration has not been certified, it can be edited, modified and extended at any time by calling it up in the Configurator. The configuration can be printed out and used as documentation.

#### Compact programmable control systems









**Control systems** 

**PSScompact** 

PSS 3047

#### Modular programmable control systems



PSS 3000

#### **Control systems PSSmodular**

The control systems PSScompact exercise complete safety-related control of a plant, machine or process. Safe and powerful. Six series open the way to numerous application options - from centralised control systems with 47 failsafe inputs and outputs through to decentralised control systems with up to 8,064 decentralised, failsafe inputs and outputs via SafetyBUS p. Decentralised input/output signals can be exchanged quickly, safely and without feedback between field level and the control systems via

Modular programmable control systems monitor safety-related functions and also perform standard control tasks. Thanks to the modular hardware structure, the necessary hardware components can simply be assembled to fit the individual project requirements. Available hardware components include module racks, CPU central processing units, digital and analogue input/output modules as well as communication modules for all common fieldbuses and Ethernet.

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SafetyBUS p interfaces.

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#### **Decentralised periphery**

#### System software



PSSuniversal

#### **Decentralised periphery**

The hardware and software for Pilz decentralised periphery offer the highest level of flexibility. Decentralised I/O systems and a wide range of I/O modules enable a variety of combinations, allowing the most diverse applications to be implemented.

#### Decentralised I/O system PSSuniversal

The decentralised I/O system PSSuniversal is available for a variety of applications. The open system includes head modules with interfaces to common fieldbus systems and a wide range of I/O modules. Safety-related and standard control functions are mixed physically but are logically separated from each other - thereby fulfilling the requirements for extremely short reaction times and absence of feedback. The system is designed completely in accordance with Cat. 4 of EN 954-1 and SIL CL 3 of IEC 61508.



SafetyBUS p<sup>\*</sup> SafetyNET p<sup>\*</sup> induraNET p

PDP67

#### Decentralised modules PDP67

These modules are resistant to dirt and water in accordance with IP67. They can be used decentrally in the field (outside the control cabinet). Decentralised input modules are available for SafetyBUS p and for connection to PNOZmulti/ PNOZmulti Mini, as well as passive junctions, enabling a high level of decentralisation.

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#### **Communication networks**

With various network components for safe fieldbus, Ethernet and wireless systems in combination with the I/O system PSSuniversal and control systems, networks can now be implemented with even greater clarity and higher performance.



#### System software PSS WIN-PRO

Practical software solutions are available when designing and programming PSS control systems – providing support from planning to diagnostics. Over 100 software function blocks make it easier to implement safety-related and/or standard control functions in the user software.

The decentralised I/O system PSSuniversal can be configured using the Startup Software and PSSuniversal Assistant. Save time by running an independent periphery test prior to commissioning, for example.

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Systems

### Automation system PSS 4000

Network components

Software

Software platform



PSSuniversal PLC

**Control systems** 

PSS 4000 -

Simplify your Automation™ The automation system PSS 4000 consists of various hardware and software components, plus the real-time Ethernet SafetyNET p and corresponding network components. They are

closely compatible, providing the

automation project.

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solution for your

#### Control systems PSSuniversal PLC

The control systems PSSuniversal PLC are the optimum solution for individual machines or complex, distributed plants – whether networked or stand-alone, for standard and safety applications. The systems can be programmed with PAS IL (Instruction List). A graphics Program Editor is also available for configuration.



PSSnet SHL

#### Network components PSSnet for SafetyNET p

PSSnet SLL

Ethernet infrastructure components PSSnet can be used to adapt the network topology flexibly to your plant layout. These components enable topologies such as star, tree and ring structure. Thanks to the use of various media such as fibre optics, network limits can now be expanded without problem.

#### Decentralised system

#### Decentralised system PSSuniversal I/O

The decentralised system PSSuniversal I/O is responsible for recording and forwarding I/O data. A large number of standard and failsafe I/O modules guarantees diversity of application and security of investment.

#### Electronic modules

#### I/O modules

I/O modules are available for functional safety and standard control functions. Up to 64 modules can be installed in any order.



#### Editors PAS IL and PASmulti

Programs can be created simply, quickly and intuitively using the graphics Program Editor PASmulti. Inputs and outputs can be freely configured and linked using logic elements. Simple structuring is also possible without difficulty. The Editor PAS IL (in accordance with EN/IEC 61131-3) can be used to create more complex programming for standard and safety. Both editors use the same software environment. A large library of software blocks is also available, aiding reusability and standardisation.

## Drive technology

**Motion control systems** 

Pilz drive technology provides overall solutions for automating your machine, from operation via the controller through to the movement of highly dynamic drives, including all safety aspects.



PMCprimo

#### **Control systems PMC**primo

PMCprimo 16+ and PMCprimo Drive are used for all types of motion and control tasks. They consist of PLC and motion technology. They perform the automation within a plant, including management of all the movements for a large number of physically separate servo axes.



**Servo amplifiers** 

PMCtendo DD PMCprotego D

#### Servo amplifiers PMCtendo DD and PMCprotego D

PMCtendo DD and PMCprotego D are suitable as drive controllers for the widest range of motor technologies: they can be used to operate all common types of motor, from servo motors to asynchronous and linear motors.

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Motors

PMCtendo

#### Servo motors PMCtendo AC

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The PMCtendo AC range of motors can provide the right motor to meet your requirements, whether the focus is on dimensions, dynamics, controllability, connection types or feedback systems.

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productivity.



#### PMCprotego DS

Safe motion – Drive integrated safety

2314

**PMCprotego DS** Safe torque off (STO) Safe speed range (SSR) The combination of the safety card PMCprotego S and the servo amplifier PMCprotego D Safe stop 1 (SS1) Safe direction (SDI) produces the safe drive solution safe motion. Safe functions help to reduce setup times and Safe stop 2 (SS2) Safe brake control (SBC) maintenance work and increase Safe operating stop (SOS) Safe brake test (SBT) (Im) Webcode 4549 Safely limited speed (SLS)

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## DİZ

## **Operator and visualisation systems**

#### **Control and signal devices**

#### **Operator terminals**





PITestop

PITsign

#### PIT control and signal devices

Selection of the correct control/ signal device is a key factor for the safety of man and machine. Rely on a safe solution with Pilz E-STOP pushbuttons, muting lamps and manually operated control devices.

#### **E-STOP** pushbutton PITestop

The E-STOP pushbuttons have a practical, industrial design and ensure safety for man and machine on emergency off/ emergency stop equipment.

#### **Muting lamps PITsign**

Muting lamps PITsign indicate that an electrosensitive protective device is suspended. They are suitable for all muting applications in accordance with IEC 61496-1.



PITjog PITenable







The manually operated control devices PITjog are used to protect personnel when the effect of safety equipment on machinery has to be partially or fully overridden.

#### **Enabling switch PITenable**

The three-stage enabling switches PITenable are used as manually operated control devices when working in a plant or machine's danger zone.

#### Operating mode selector switch PITmode

The operating mode selector switch PITmode provides two functions in one compact unit: selection of operating mode and authorisation control for machine access.



PMImicro diag

#### **Operator terminals PMI**

Pilz offers the most diverse range of systems to perform diagnostic and visualisation tasks. So it's easy to implement customised, complete solutions that meet your requirement.

#### **Diagnostic units PMImicro diag**

Compact diagnostic units PMImicro diag for the programmable control systems PSS, the safe bus system SafetyBUS p and the configurable control systems PNOZmulti.

#### **Operator terminals** PMIvisu/PMIopen

With the operator terminals PMIvisu/PMIopen you have modern touchscreen terminals in different sizes and with various feature options.

As a solution supplier Pilz offers products from the fields of sensor, control and drive technology. Why not add products from the field of operator and visualisation systems? That way you benefit from co-ordinated one-stop solutions.



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As a solution

supplier, Pilz can help you to apply optimum safety strategies worldwide. Services encompass the

whole machine

training package

lifecycle. Our

with practical, up-to-date

course content completes the

offering.

## Consulting and engineering

#### Your projects belong in safe hands



#### **Risk assessment**

We will work with you to undertake a technical inspection of your machines in accordance with the applicable national and/or international standards and directives. The aim of this risk assessment is to identify and assess existing hazards in the workplace and define risk reduction measures.



#### Safety concept

Based on the results of the risk assessment, Pilz presents detailed technical solutions which guarantee plant safety through state-of-the-art mechanical, electrical and organisational measures, in compliance with national and international standards.



#### Safety design

Whether you are constructing new machinery or retrofitting existing machines - it is better to integrate a safe design right at the start of the project. Only a safety design that addresses the hazards can be implemented with minimum impact on the machine's complexity, costs and productivity.



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#### International compliance services

Pilz will work with your engineers to carry out the required assessment procedures and develop the necessary strategies to enable compliance with the respective ISO, IEC and ANSI standards or any other standards. This includes interpretation of the requirements for CE certification.



#### Plant assessment

The plant assessment includes an on-site inspection followed by evaluation and presentation of the results. Pilz will work with you to analyse the machine's workflow. The documented results can be used for machine optimisation.

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Inspection of ESPE As a DAkkS accredited inspection body in accordance with DIN EN ISO 17020, with experience of the industry and technical competence, Pilz can guarantee objectivity, high availability for your machinery and the greatest possible safety for your staff.

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#### System implementation

Based on the results from the risk assessment and safety design, experienced Pilz engineers can quickly implement the selected safety measures. Installation is carried out in compliance with regulations and standards, at minimum cost and with minimum downtimes.



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Safety validation

The safety validation must

show that the solutions that

have been developed meet

the actual requirements. This

is done by mirroring the risk

assessment and safety concept.

Competent, specialist staff from

Pilz can guarantee an objective

and systematic procedure.

The PAScal calculation tool

helps you with verification.



3297

**CE** services

The CE mark indicates that

essential requirements of all

the marked machines meet the

the relevant EU directives. Pilz

carries out all the actions and

processes for CE certification

and produces the necessary

compliance strategies, safety

designs and documents.

a "passport" into the EU.

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That way your machine has



## Support

#### Technical help round the clock!

Technical support is available from Pilz round the clock. This service is provided free of charge beyond standard business hours.

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- +52 55 5572 1300 USA (toll-free)
  - +1 877-PILZUSA (745-9872)

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In many countries we are represented by sales partners.

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