MENSCH UND AUTOMATION

PILZ
THE SPIRIT OF SAFETY

The magazine for customers of Pilz GmbH & Co. KG Issue 3/2022

Security affects us all

Industrial Security not only includes the protection of data, but at the same time also guarantees the integrity of safety functions and measures. If a production worker starts up a plant, for example, even though they are not authorised to do so, this is already considered a security incident. This manipulation, even if unintentional, endangers the safety of other employees. This makes it even more important to consider safety holistically – because it also plays a key role in questions of liability.

Compared with the more tangible topic of machinery safety, industrial security still appears to be more of an abstract concept. Many people primarily associate it with external cyber attacks, but security is relevant down to the smallest machine in a production facility. Security encompasses safety, ensuring its integrity and thus the protection of human and machinery. With the new European Machinery Regulation, security measures will become obligatory from 2025. But even today companies are already working to ensure the safety of personnel, machinery and data.

Assuming responsibility

If management fails to implement general organisational measures and instructions when structuring work, it can be held liable for this. Problems such as near-accidents or the occurrence of new risks at the workplace must result in suitable measures. Regular checks identify any need for action in good time. An example to illustrate this: An employee opens a safety gate and thus brings the machine to a stop. The manufacturing process is interrupted, resulting in economic losses. The employee didn't actually have authorisation to open the safety gate, but due to a lack of work instructions they were unaware of this, and access to the plant was not clearly regulated. In this case, the task was delegated to an unqualified person and there were no work instructions or they were incomplete. The company management is thus liable for the consequences.

Continued on page 2

Editorial

Dear Reader,

How do things stand with OT security or industrial security in medium-sized companies?

My answer: “Better than five years ago!” Many companies are coming to understand that security in automation industry products is not a necessary evil, but rather the fundamental requirement for successful digitisation and, at the same time, a success factor for Industrie 4.0.

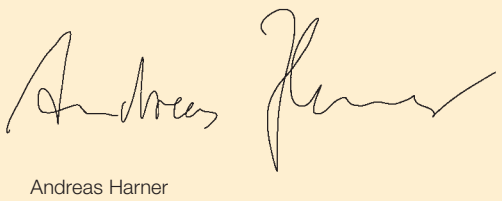
Every day, automation systems control and monitor physical processes in industry and critical infrastructures. Around the world, OT is thus becoming increasingly attractive to attackers in order to achieve political goals, to secure economic advantages, to weaken the competition or to outright destroy it.

For all participants in the supply chains, whether manufacturers, integrators or operators, securing OT systems against these type of dangers means facing major challenges as OT systems are optimised for maximum availability, real-time capabilities, operation in closed networks and decades-long use. Safety updates and patches and other cyber security measures, on the other hand, have not previously played a very big role.

Manufacturers must now integrate more cyber security into their products in future development as well as monitor installed components. The same is true of the suppliers: It is only possible to achieve a significantly higher level of cyber security if all participants in the supply chain do their part.

For supply chain security as well as road traffic, the rule is: You are responsible not only for your own safety, but also for the safety of anyone else involved!

Best regards,



Andreas Harner
Department Head at CERT@VDE & DKE Cybersecurity

360° Continued from page 1

An all-round safe workplace

Employee protection goes hand in hand with liability protection: The operator of the plant or machinery is responsible for the protection of its employees and must take appropriate measures. If a machine is protected by a safety gate, for example, but access is not regulated, a cleaner or similar could enter the machine’s danger zone and be injured. In this example, the safety device is not sufficient. In the course of a hazard assessment, potential hazard sources would have been identified early on: Is access to the machine sufficiently protected? What qualification must the employees have on the machine and for which work steps are they then authorised?

Prevent manipulation

A third area that is becoming increasingly relevant is data protection. Security is often associated with this as stated previously and there is great concern that an attacker could manage to access a company’s OT network. This can happen, for example, if a USB stick with malware has been intentionally or unintentionally used on a machine. If there is no segmentation within production, hackers can thus not only cripple this one machine, but manufacturing as a whole. This is the “worst case”, and this situation is also sensitive with a view to data protection. Data and expertise must be protected against external attacks as well as from danger originating within the company.

All three scenarios described are not only relevant for reasons relating to liability, they also have a major influence on a company’s productivity. So what can companies do to play it safe? Safety precautions must be regularly scrutinised and adapted to the current conditions. A holistic risk analysis indicates possible weaknesses and includes both safety and industrial security. Based on this analysis, appropriate measures can be taken and the machinery retrofitted, if necessary.

Clearly regulate access

For the examples mentioned, comprehensive identity and access management, meaning the regulation of accesses and entrances, could be an adequate solution. If an access permission system PITreader is used, only authorised people are issued an RFID key with their individual permissions for plant and machinery on which they carry out work. They only achieve the desired access after they authorise themselves on the machine by inserting their key into the PITreader. Authorisations can be issued and managed centrally. If there is however a safety incident or manipulation, the system can be used to track who last worked on the machine.

Lock out attackers

If machines are to be protected against unauthorised access and manipulation, an industrial firewall such as SecurityBridge from Pilz also offers protection. It monitors the data communication within an industrial automation network. To protect the data flow of a production facility, switchable and activatable products can also be an appropriate measure. The activatable USB-2.0 host interface of the operation element PIT oe USB controls the manipulation-proof import of programs, export of data and connection of a keyboard or mouse. If the operation element is combined with the access permission system PITreader, the activation is only performed with the corresponding authorisation.

These measures can be easily integrated or retrofitted into an industrial application. Industrial Access Management thus contributes to greater industrial security and ensures the integrity of the machinery safety. At the same time, the company management can rely on this holistic safety concept and thus assumes responsibility for the company and for its employees.

Webcode: web201928

Online information at www.pilz.com

“There is much uncertainty”

Increasing digitisation in the smart factory is accompanied by new challenges when dealing with safety. Thomas Pilz, Managing Partner at Pilz, is interviewed about current developments and the changing understanding of safety and industrial security.

Mr Pilz, is industrial security now equally as important as safety?

Thomas Pilz: Without industrial security, safety would no longer be possible. In the past the two fields were considered separate entities, but now industrial security encompasses safety and ensures its integrity. This rethinking can be clearly seen in the ongoing revision of the Machinery Directive, as in the new version security is understood to be part of the safety chain. And I wholeheartedly agree with this.

But there is still a fundamental difference in the understanding of the two terms, safety and security, right?

Exactly. When it comes to safety, one assumes that a person is injured due to a mechanical movement, but there is no malicious intent behind their actions and they are at worst grossly negligent. With security this is totally different, as malicious intent is assumed: A criminal wants to damage the machine.

What are the implications for risk assessment?

First we must assume that the risk to security is always present and that we must always be on guard. Safety is positioned opposite to this, where possible risks can be detected and rectified through regular checks. This naturally also affects the risk assessment. We at Pilz are convinced that a holistic approach is necessary, as the terms safety and security – as previously stated – are interwoven. Our experts have been trained on this and point out possible risks and vulnerabilities as well as appropriate measures in discussions with customers.

You already mentioned that the standards are changing with regard to security. What do you think is the situation when it comes to awareness: Do you find that operators are doing enough to protect their plants?

Awareness is changing, particularly with the increase in hacker attacks since 2017. After all, every profitable company can become the target of this type of attack. With the implementation of Industrie 4.0 and the Internet of Things with permanently networked machines, the threat level is critical if no measures have been taken. But we have noticed that there is much uncertainty when it comes to dealing with security. That is why our holistic approach to safety and security is so important to us and we would like to improve our customers’ and partners’ awareness of this topic. Taking action early on means being protected against manipulation or attacks, thereby ensuring not only the safety of humans and machinery but also the productivity.

What challenges come along with security? Is it enough to always supply machines with the latest updates?

That is an interesting question because it seems obvious that part of cyber security would be keeping software up to date. In reality, however, this is not always necessary, or can even lead to a limitation of productivity. Before an operator performs updates on their older machine – and thus brings manufacturing to a standstill – it is worthwhile to ask whether the machine should be networked with other machines or whether it can work as a “stand-alone”. If the latter is the case, the latest software state is not absolutely necessary. If networking is required, regular updates increase the safety and security. Highly granular segmentation of the OT network and the use of firewalls such as our SecurityBridge also offer additional protection. This application firewall protects industrial automation networks against manipulation and enables protected connections, e.g. in a cloud.

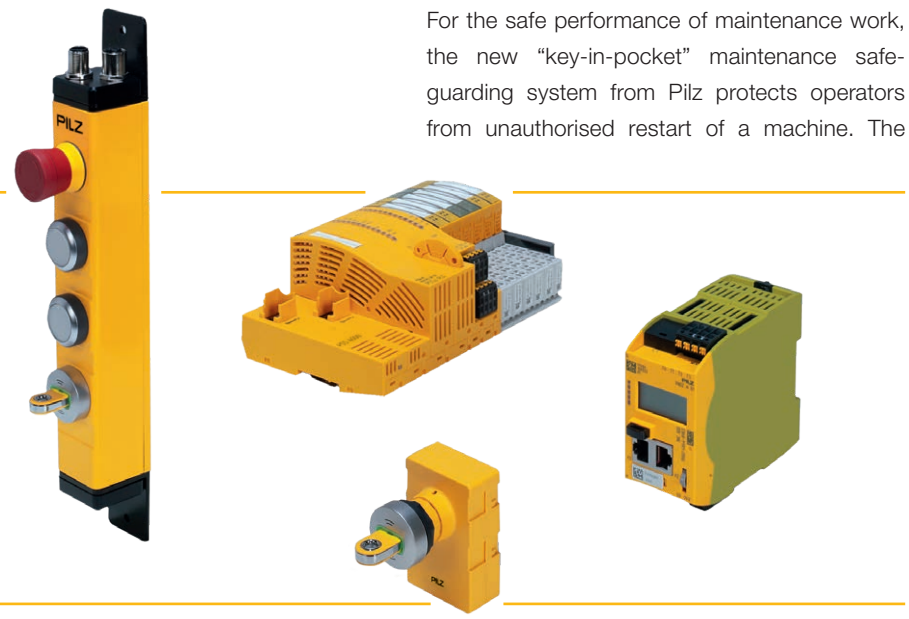
How can older machines be made safe and secure?

Retrofitting is generally relatively simple: SecurityBridge, for example, can be quickly set up by an electrician or qualified IT personnel thanks to the auto-configuration. Another important topic is the control of access permissions so that only authorised persons have access to a process. With the devices from the PITmode range, safe operating modes and access permissions can be implemented with high flexibility and in accordance with our customers’ respective specifications. Meaning safety and security in one system.

Inside Safeguarding maintenance work with “key-in-pocket”

Maintenance without restart

When a machine is being maintained, it is important that the personnel can perform the work conscientiously and that the plant and machinery never starts up during this work. Digital maintenance safeguarding therefore ensures that only authorised persons gain access.



The “key-in-pocket” maintenance safeguarding consists of the access permission system PITreader (bottom), pushbutton unit PITgatebox (left) and a Pilz controller such as the configurable small controller PNOZmulti 2 (right) or automation system PSS 4000 (rear).

For the safe performance of maintenance work, the new “key-in-pocket” maintenance safeguarding system from Pilz protects operators from unauthorised restart of a machine. The digital maintenance safeguarding system is based on the access permission system PITreader and is implemented with the Pilz controllers PNOZmulti 2 or PSS 4000. It guarantees safety and industrial security, as only authorised persons can access the plant or machinery during the maintenance process. This prevents manipulation and incorrect operation.

The personal ID is the key

Users receive an RFID key with their individual permissions that are read out with PITreader at the safety gate. One or more users authorised for maintenance work can use these to authenticate themselves on the plant. In the controller, a personalised security ID is stored in a safe list. The machine can now be switched off, the safety gate opened and the machine entered. “Key-in-pocket” makes sure that the machine does not restart in this time and that no unauthorised persons gain access. After the maintenance work, all persons log out, the security IDs are removed and the machine can be restarted.

The solution thus offers safety from a dangerous restart as well as industrial security, as manipulation of the maintenance work is not possible. The digital maintenance safeguarding system is specially designed for machinery with dangerous areas that are secured with safety fences and thus offers a flexible, economical alternative to mechanical lockout tagout maintenance safeguarding systems.

Webcode: web235182

Online information at www.pilz.com

In brief …

Rudolf Diesel Medal honours Renate Pilz

Renate Pilz received this year's Rudolf Diesel Medal. The former Managing Partner of Pilz received the award in the category of "Most successful innovation achievement". The Rudolf Diesel Medal has been awarded since 1953 by the German Institute for Invention (Deutsche Institut für Erfindungswesen e. V.) to business personalities and companies who have demonstrated both their inventiveness and their ability to successfully put their ideas into practice within a company setting. It is one of the few commercially independent awards. The medal was presented by the Rudolf Diesel Board of Trustees in Augsburg. Renate Pilz was delighted with the award: "In the name of my husband Peter Pilz and our wonderful staff, I have great pleasure in accepting this award and am eternally grateful for what has been achieved".

A manager for intralogistics

In cooperation with the start-up NAiSE GmbH, Pilz offers the world's first traffic and order manager for all participants in intralogistics – for people as well as transport systems. With this, Pilz is expanding its offer for safe applications of automated guided vehicle (AGV) systems.

Operation in intralogistics often resembles that in road traffic: pedestrians cross streets, a loaded vehicle driven by a person stops, but more and more autonomous vehicles are also crossing paths. In all this hustle and bustle, the safety of all road users must be guaranteed equally.

Real-time localisation in production halls

Using a sensor infrastructure and intelligent and integrated communication, the traffic and order manager NAiSE Traffic analyses the flow of traffic and goods in real time in intralogistics applications. No matter which AGV system manufacturer is used in the production halls, the software solution offers centralised fleet management. It coordinates and controls the movement of all participants – of people and of industrial trucks such as AGV systems or forklifts. Traffic jams, bottlenecks and accidents are thus a thing of the past, while safety and traffic management are increased and optimised – for greater transparency, efficiency and productivity. "It is a great honour to cooperate with Pilz in the intralogistics sector and to work together on the development and implementation of common goals. Due to the enormous increase in material flow, efficiency and safety are becoming increasingly important: This major challenge has been mastered with complementary solutions from Pilz and NAiSE," says Kai Przybysz-Herz, Managing Director and co-founder of NAiSE.

Bernd Müller, Head of Market Development at Pilz, adds: "With NAiSE, we are pleased to have a partner by our side who supplements our package of services for safe operation as well as our complete product solution for safe automation of AGV systems to include hardware and software for safe area guarding in areas where AGV systems and humans work together. This allows us to offer our customers a comprehensive, carefree solution package comprising safe area monitoring for collision protection, manipulation protection and traffic and order management."

Pilz on the Managing Board of ARENA2036

As a spin-off company from University of Stuttgart, NAiSE is located at the Research Campus ARENA2036 housed there. As a partner of the Campus, Pilz also takes part at the flexible factory in research into the automobile of the future. Susanne Kunschert, Managing Partner of Pilz, was elected to the Managing Board of ARENA2036 e. V. this year. She will work together with the full Managing Board and the ARENA2036 administrative office to help shape the future of the Research Campus.

Going with the flow

Automated guided vehicle (AGV) systems coast through the warehouse, independently pick up goods at point A and unload them again at point B. To ensure everything flows smoothly, safe scanners, safe analysis units and an industrial firewall are also on board.

The production halls are bustling: components must arrive at the production line just in time, packaging materials at the packaging machine, pallets in the warehouse. Rail-bound systems such as classic AGV systems are similar to trains or trams and follow predefined routes. Freely navigating vehicles, so-called autonomous mobile robots (AMR), have flexible route determination. Together with the people, other AGV systems and machines in their dynamically changing environment, both types of AGV systems must be one thing above all: safe. But how does one best bring together productivity and safety in mobile robotics?

Following markings – but safely

"The complexity of the AGV systems increases with their abilities," states Manuel Schön, Robotics Product Manager at Pilz. "Modular safety solutions enhance productivity individually for each application." Rail-bound AGV systems must maintain defined warning and safety zones according to their speed, which can lead to a stop in the event of an obstacle, for example. The safety laser scanner PSENscan from Pilz performs this type of safeguarding and, at the same time, the productive area monitoring for collision protection. If additional safety functions such as the emergency stop are to be covered, there is a flexible solution package comprising PSENscan and the modular safety relay myPNOZ.

More safety zones

"Freely navigating mobile platforms can drive around obstacles or people without stopping. As a result, the required safety functions are more complex," explains Schön. Safe laser scanners thus constantly register their surroundings. The data can be directly read out via the ROS (Robot Operating System) packages from PSENscan. Users can use these for their own SLAM algorithm (Simultaneous Localisation and Mapping), thereby creating maps of the environment for the navigation.

"PSENscan has up to 70 protected fields, which allows dynamic protected field adjustment: These safety zones are larger at high speeds to detect obstacles in good time. And shorter at slow speeds to avoid standstills whenever possible," states Schön. "This allows the AGV system to move efficiently." The configurable small controller PNOZmulti with motion monitoring module (expansion module for drive monitoring) reliably performs the selection of the corresponding safety zone.

No free ride for manipulation

"AGV systems communicate wirelessly with their master controller in production halls," says Schön. "This makes them susceptible to external attacks or manipulation. Map data can be queried, and in the worst case AGV systems and thus ongoing production can even be stopped." Industrial security from Pilz is on board. The industrial firewall SecurityBridge reliably ensures that no unauthorised parties can access the internal IT network of the mobile platform during operation. Making modular safety – and security – work, even when mobile!

Webcode: web232104

Online information at www.pilz.com

The complete solution includes the safety laser scanner PSENscan (collision protection for human and AGV system, left), the modular safety relay myPNOZ (as one of two possible analysis units, right) as well as the industrial firewall SecurityBridge (protection against manipulation, rear).

In step: Retrofit on the points

What can you do if the rail infrastructure for regional and local transport is ageing, hampering the implementation of attractive clock-face schedules? When modernising outdated points controllers in Kraków and four other Polish cities, the company ZUE put its trust in the automation system PSS 4000. This now reliably and safely controls these points.

In many places, the railway infrastructure dates back to the previous century. Because of this, modernisation is increasingly performed in tandem with automation and digitisation. One main focus is thus on retrofitting points controllers, including in a number of Polish light and regional railway networks. ZUE S.A., based in Kraków, is part of the ZUE Group and is developing concepts and solutions for the tram and rail industry in Poland. Together with Pilz, ZUE S.A. has successfully implemented 13 modernisation projects in Szczecin, Kraków, Wrocław, Toruń and Gorzów Wielkopolski in recent years. At the core was always the demand for greater safety and reliability. The heart of the solution is the automation system PSS 4000 from Pilz: "The automation system meets all the customer requirements," emphasises Tomasz Szczypek, Head of Innovation and Engineering at ZUE S.A. "It stands for streamlined, transparent programming, simple maintenance and clear fault diagnostics. Our customers receive a solution for their points controller that can be fully integrated and is modular, expandable and simple to operate."

Robust system solution for railways

Under the prevailing conditions, points could often only be passed at 10 km/h. The outdated control systems also proved to be more susceptible to temperature fluctuations. Thanks to its temperature-resistant modules and electromagnetic compatibility (EMC), the automation system PSS 4000 can withstand not only mechanical stress – such as shocks – but also condensation or increased vibration and oscillation. This guarantees that points are controlled safely. Malfunctions or even disasters due to incorrectly set points are thus a thing of the past. The system's PSSuniversal control and I/O modules that are used work reliably in a temperature range of –40 °C to +70 °C and can forgo any heating of the control cabinets.

PSS 4000 has proven itself

The automation system has a modular design and is already taking on the control and monitoring functions in various railway applications. For this, PSS 4000 has railway-specific safety approvals. Tomasz Szczypek is satisfied with the flexible and modular control and monitoring system from Pilz: "The product quality and reliability of the automation system PSS 4000 are excellent. What's more, Pilz stands for fast delivery, first-class support and competent advice!"

Clear diagnostics included

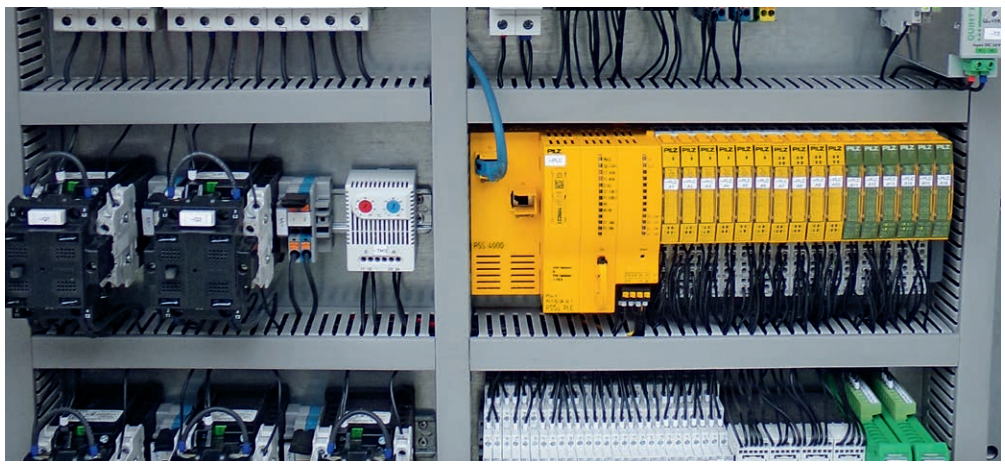
In the railway environment, the safe modules of the automation system PSS 4000 control and monitor points of almost every type. Decentralised, expandable I/O modules offer network operators maximum flexibility. The automation system is designed in accordance with the multi-master principle: The real-time Ethernet protocol SafetyNET p allows several programmable logic controllers PSSuniversal PLC-R to be safely connected with equal rights across long distances. This saves a good deal of material and time in the cabling. At the same time, this logical and clear layout of the automation system speeds up railway projects that often have to be handled in parallel with normal operation – from engineering through to runtime and maintenance. The web-based visualisation software PASvisu developed by Pilz offers the operator the best possible overview of all system components and thus comprehensive opportunities for remote maintenance, diagnostics and visualisation. Faults or errors can thus be clearly and quickly detected and localised.

Points in the networks of Polish railway operators that were equipped with the automation system PSS 4000 currently meet the safety integrity level SIL 3. The points can now be passed at up to 20 km/h. Passengers also benefit from the modernisation measures: travel times could be reduced by 50 percent on the affected routes, allowing the schedule to be optimised.

Webcode: web8485

Online information at www.pilz.com

Together with Pilz, ZUE S.A. has successfully implemented 13 modernisation projects in five Polish cities in recent years.



The PSSuniversal control and I/O modules that are used work reliably in a temperature range of –40 °C to +70 °C and can forgo any heating of the control cabinets.

Three minutes with …

… Nils Bücker

Senior Product Manager Software and Technologies

Mr Bücker, you are responsible for the area of industrial security at Pilz. What is your main focus here?

Security should be considered across the entire product lifecycle, which is why at Pilz we already start thinking about security during product development. Our development processes are certified in accordance with the international security standard IEC 62443-4-1 from TÜV Süd, meaning they are verifiably secure. We determine the protection needs of individual product functions, implement the functions securely and continuously monitor potential vulnerabilities across the entire lifecycle of our products.

This means that our customers can count on the security of Pilz products?

We have a team just for this at Pilz, and I am a member. Here we analyse, evaluate and process potential vulnerabilities in our products. If the vulnerability could negatively affect the security of our products, we use a Security Advisory to report on these gaps. We also use this to highlight updated firmware and to recommend alternative countermeasures before damage can occur.

What tips can you give to customers about industrial security?

We recommend that our customers also engage in a holistic approach – starting with the risk analysis: What security risks are present on my machine? Will they affect the functional safety? How can I guarantee the best possible protection? These considerations are necessary in order to implement the right technical and organisational measures to protect the machine.

In brief …

Intelligent sensor technology

Sensors are a critical part of all safety technology. They pick up signals, evaluate them and trigger the necessary reactions in combination with safe control technology from Pilz – to protect people and to protect the machine. Sensors are highly versatile – from safeguarding of danger zones, to electrosensitive protective equipment, to position detection. The high variability of sensors is apparent in the most varied technologies: mechanical, magnetic, RFID or even optical.

Safe sensors comply with international standards and are tested by certification bodies. In combination with the various Pilz control systems, the systems guarantee the efficient and safe use of plant and machinery. The current Pilz product catalogue offers an overview of all available products in the sensor technology field.

Interested?
Request your free Pilz sensor technology product catalogue here:
www.pilz.com/brochure-sensor-technology

20 years of "wiring by mouse"

"Wiring by mouse" – what is a global standard today first came into the world of automation in 2002 at the SPS exhibition in Nuremberg: 20 years ago, Pilz first introduced a configurable safe small controller to a wide audience at the exhibition. At that time it was a global innovation: the opportunity to create a safety circuit using an easy-to-operate, graphics-based configuration tool – without knowledge of a "higher" programming language.

All PNOZmulti 2 devices are state-of-the-art and certified according to the the latest standards, such as ISO 62061 or ISO 13849-1.

The goal was to bridge the gaps between hard-wired safety relays and freely programmable safety systems. A global standard for safety was born – PNOZmulti! The product – innovative at the time – took its place in the Pilz portfolio between the safety relays PNOZ and the safety systems PSS. 20 years after its market launch, hundreds of thousands of PNOZmulti devices are being used around the world, in all industries – as the market leader in the configurable safety system sector. The software tool PNOZmulti Configurator has played a significant role in this success. Configuration is extremely easy: All safety functions can easily be "wired by mouse" using drag-and-drop. The base version 11 is currently available, free of licensing costs and with a number of certified software blocks for safety and security applications for safe interaction between human and machine.

Future-oriented technology, inspiring from the start

The first generation was followed by the second, "leaner" generation of PNOZmulti in 2009: the "classic" PNOZmulti base unit with 135 millimetres was condensed to a narrow 45 millimetre width – with full function range and a display. The diagnostics for short machine downtimes was and still remains one of the most important elements for users, as is the case for the connection to various automation environments and communication systems. The fact that you only needed to use one system from planning to maintenance also helped to spur on the success of PNOZmulti. The newest standalone base unit PNOZ m C0 is now only 22.5 millimetres wide – ideal for small machinery because it still has eight safe inputs and four safe semiconductor outputs with which up to four safety functions can be monitored up to the highest level – a truly safe little package of power. This generation can do even more, however – it can grow along with the safety requirements. This is possible through a migration to the modular expandable base units.

Absolutely secure!

As the successor to the Machinery Directive, the planned Machinery Regulation also makes demands for the security of devices. This is not a challenge, however: PNOZmulti 2 is already secure. The data on the PNOZ m C0, for example, are protected against unwanted access by means of a so-called security key. The PNOZmulti 2 is also secure when acting as the "door guard" for access management: in combination with the reading units PITreader with RFID technology.

The success story continues.

Webcode: web225256

Online information at www.pilz.com

Added value through automation

Designing entire production environments to be safe for people, machines and the environment: Pilz Czech Republic and Pilz Slovakia are experts at this. With their expertise on holistic safety concepts, they support their customers in overcoming the challenges resulting from increasing automation.

The automotive industry is primarily active on the Czech and Slovakian automation market. Both automotive suppliers and manufacturers are among the most important customers for safe automation. The woodworking and food industries also depend on system solutions from Pilz, however. What is this market focused on? The most important factor to ensure long-term survival as a company is a high degree of automation in production – which is a challenge for manufacturers in Eastern Europe. The higher the degree of automation, the more significant the protection of humans and machinery becomes.

Integrated thinking

With experience and knowledge from robotics – the main focus of the market – as well as machine monitoring and construction, the experts from Pilz offer holistic safety concepts that help their customers to meet these challenges. What's special: the concepts are created for entire production plants – from engineering to system integration, including the check of all machinery and the certification of robot cells. The Czech and Slovakian workers have also recognised the importance of a safe workplace: safety and ergonomics are becoming an increasingly important decision-making basis for them.

Machinery safety in "team play"

Since Pilz Czech Republic was founded almost ten years ago, Pilz's customers have become increasingly aware of the topic of safety. The subsidiary considers the further support of these customers in this to be their main task. For this reason, Pilz is active in the Czech Institute of Informatics, Robotics and Cybernetics (CIIRC) in order to be able to inform primarily medium-sized enterprises about machinery safety and how to manage it.

The employees of Pilz Czech Republic and Pilz Slovakia are proud to be respected partners for safety and security, which is also their main motivation for future collaboration with their customers. The young, close-knit team, which combines the strengths of a number of different characters with different interests, will also work together for machinery safety in the future – machinery safety in "team play".

Fast, faster, Safety Check!

A simple and quick overview of the safety and conformity status of your own machines is often worth its weight in gold. Do I still have full liability protection? Are upgrades necessary? This is precisely where the new service Machinery Safety Evaluation – or MSE for short – from Pilz comes in.

The machinery has been in use for a while and its safety and conformity hasn't been checked for some time? The machinery has recently been supplemented to include purchased plant and machines that were already in use, but the state of their safety is still unclear? Or it is not clear yet which machines are potentially suitable for a retrofit? To quickly answer these or any similar questions, Pilz offers the new service "Machinery Safety Evaluation" (MSE), which can be adapted to the individual requirements of customers with regard to its level of detail.

Machinery safety via dashboard

Experts from Pilz assess the machines of a production plant on site at the customer's premises with regard to the applicable safety and conformity requirements. They take into account here not only the valid standards and directives at the point of use or destination of the machinery, but also, if requested, the customer's individual, internal specifications. The result: a clear and comprehensive software-supported dashboard with all evaluations at a glance. A list of measures with the corresponding recommended actions – sorted according to priority – highlights the further path to safe machinery. Upon request, Pilz supports the implementation of these measures. The result dashboard is also available 'to go'. The same methodology can thus also easily be applied to similar machines at other locations.

On two levels

Depending on the requirement, the scope of the service is divided into two levels of varying breadth which are agreed with the customer in advance:

Level 1

- Compliance with safety status
- List of the recommended actions for risk reduction by priority

Level 2

Services from level 1 +

- Evaluation of the main risks
- Check of the documentation
- Compliance according to specific company guidelines
- Evaluation of the maximum achievable PL_r for every checked subfunction
- Cost estimate for the upgrade (optional)

Webcode: web234972

Online information at www.pilz.com

Apropos ...

With Mat P. on his automation tour

Whether he's dealing with applications from the fields of packaging, intralogistics, automotive or metal processing – as an expert, Mathias P. travels the world with automation solutions by and for Pilz. He often talks to his wife about his experiences – for example when they're doing the shopping together.

PILZ APPLICATIONS

▸ Mathias, let's try this instant coffee. For the days when you have to go in a hurry.

Yes, that's a good idea. I like how it's packaged in the glass with a simple paper label. Hey, do you know how these labels are safely applied to the glass?

▸ They have labelling lasers for that – I think.

Exactly. I recently visited our customer Haco in Switzerland. Initially the food manufacturer just wanted to integrate a new labelling laser into an existing bottling line, quickly and without an extended downtime. But the installed safety relay could not be expanded any further. The large number of gates, covers and drives requires a high degree of safety.

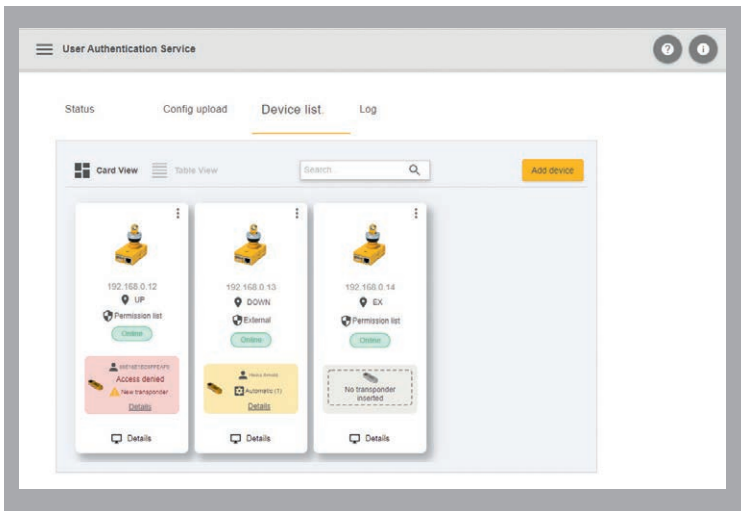
▸ And so how did you solve this problem?

Our modular safety relay myPNOZ had just launched on the market. It establishes logic connections to all necessary safety functions. You don't need any software knowledge – a quick, made-to-order safety solution, tailored to the individual requirement, practically ready for use from the start! The laser station could be quickly and easily integrated into the existing plant – without downtimes. That's how myPNOZ ensures safe and simple laser labelling of my coffee.

Managing access

A modular system offering that prevents unauthorised access and can be adapted to the respective application is important because of how individual access to plant and machinery is. The most effort is in the maintenance of permissions and this can be supported by the appropriate software tools.

The reading unit PITreader from Pilz is just this type of flexible system with which access to plant and machinery can be clearly controlled. The machine operators carry their individual permission on a key in this case and use this to authorise themselves at the reading unit PITreader. The fact that this is based on a complex permission matrix or specifications regulated across the company is not apparent when you look at the small key.



Webcode: web150439

Online information at www.pilz.com

So how do the data get onto the key? The user uses the integrated PITreader web server to easily program the associated PITreader key transponder key and stores the user data and permissions on it. All important settings are made directly at the PITreader, which speeds up commissioning, including the configuration of interfaces.

After setting up the keys, management now plays the important role of maintaining the permissions and keeping them updated. The PIT Transponder Manager (PTM) is available to help with this task: On the graphical interface, the administrator manages their PITreader key user settings, block lists and user data. With pre-configured templates, individual user permissions are written to the PITreader key in just a few steps. The import function allows information to be quickly read directly into the integrated database.

If several reading units PITreader are in use at a company, these devices are organised using the User Authentication Service (UAS). It enables the connection of management systems such as the PTM or a different user management software in the company with PITreader. UAS has a central authorisation database for users, thereby enabling the import and assignment of data from the PTM or even the distribution of block lists to all PITreaders. Administrators can view the current status of all PITreaders and display a diagnostic list. In this way, a quick overview is also possible with the use of several PITreaders.

Whether individual machines or a machine park used worldwide: with these digital tools, an efficient access and permission system based on PITreader can be easily implemented and managed.

Authentication in the appropriate format

New formats for the implementation of an efficient access permission system are offered by the RFID-capable cards PITreader card and stickers PITreader sticker, which are used together with or in place of PITreader key transponder keys. Machine operators thus have their individual permissions in a practical card or sticker format, which they can use to flexibly authenticate themselves at the reading unit PITreader in order to gain access to the plant or machinery. A transparent window in the PITreader card offers the user a clear view of the LED status indicator on the PITreader when the card is held in front of it. PITreader card and PITreader sticker are available in freely writable or pre-configured versions. If RFID-capable cards are already used at a company, these can also be used in combination with PITreader, meaning that the user only requires one card for several functions. PITreader card and PITreader sticker are managed and configured using the software tools PIT Transponder Manager and User Authentication Service.

Webcode: web150439

Online information at www.pilz.com

Muting made more flexible

Pilz now offers individually adjustable muting arms for the safety light curtains PSENopt II: The sensors of the muting arms can be positioned with total freedom, and thus individually, using a finely granulated grid setting. Users can thus configure the most varied protected fields – whether L, T or X-muting – and implement “their” requirements at any time. Thanks to their extremely stable design, the muting arms are also ideal for use in rugged production environments with vibrations and collisions. The direct assembly of the muting arms at the safety light curtains also avoids additional structures, which saves space. The safety light curtains PSENopt II thus enable material transport into and out of danger zones while production is running, thereby guaranteeing a fluid production process without unnecessary downtimes. In combination with the safe small controller PNOZmulti 2, muting is the preferred safety function for applications such as monitoring conveyor belts or controlling the discharge of packages.

Webcode: web150418

Online information at www.pilz.com

Security now on board

The software tool PNOZmulti Configurator is used to create new projects with the configurable safe small controller PNOZmulti 2 and to edit existing projects. Version 11.2 now offers a number of additional features: including maintenance safeguarding and protection against unauthorised restart. Three new software blocks are available for this. It is thus possible to flexibly safeguard service calls on plant and machinery. Two new function elements are also available for the safe analogue input module PNOZ m EF 4AI when configuring the module program: “Differentiation” and “ramp” for the monitoring of fill level, temperature, pressure and speed, among other things – for safe processes. And finally, a security key manager on the new standalone base unit PNOZ m C0 enables encryption of the device data as well as the configuration so that access is not possible without the required password. Industrial security has now joined safety “on board”!

Webcode: web225344

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