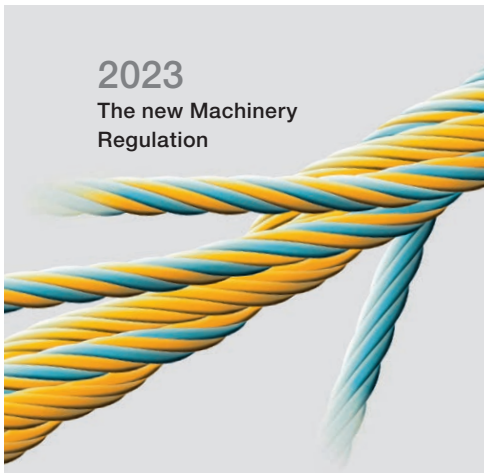
MENSCH UND AUTOMATION

PILZ
THE SPIRIT OF SAFETY

The magazine for customers of Pilz GmbH & Co. KG Issue 1/2023



Spotlight on Security!

Alongside machinery safety, the standards landscape is focusing increasingly on Industrial Security. Because with digitisation and networking the environment is currently undergoing change. We are highlighting what the most important changes to standards in 2023 mean for machine manufacturers and operators.

The plant has a CE marking. The safety components installed in it meet the requirements for the required Performance Level (PL_r) in accordance with EN ISO 13849-1 or the required Safety Integrity Level (SIL) in accordance with EN IEC 62061. The plant can be designed to be functionally safe. The good feeling associated with this begins to waver, however. Because machinery is being equipped with increasingly more digital elements that make new demands of Security: Could somebody from outside damage my software? Could somebody without authorisation gain access to the machine and make changes to the programming?

The standards organisations ISO and IEC have responded and are aiming to resolve these and similar concerns: they are upgrading and currently defining new requirements for products, plant and machinery with updated standards that are intended to shift the focus to Industrial Security. The new Machinery Regulation that will be replacing the Machinery Directive is also concerned with this. But that’s not all: with the first draft of the Cyber Resilience Act, an EU regulation is being prepared that lays down its own requirements for cybersecurity for all component and machine manufacturers and operators of plant and machinery. But one thing at a time …

EN IEC 62061 – Security as a safety issue

In addition to EN ISO 13849, EN IEC 62061 is the most important standard for functional safety. The standard defines the requirements and includes recommendations for the design, integration and validation of safety-related control systems (SCS) for machinery. Published in 2022 as an updated version, it also defines Security as a safety issue: the standard specifies that both “intentional attacks on the hardware, application programs and related software, as well as unintended events resulting from human error” are to be taken into account in the safety lifecycle and during the entire lifecycle of the plant and machinery. These must not adversely affect the integrity of the Safety.

Continued on page 2

Editorial

Dear Reader,

2023 will bring a number of new developments in the field of “safe machinery”. The publication of the first European Machinery Regulation as the successor to the EC Machinery Directive is highly anticipated. For design engineers and developers of machinery and its control systems, this leads to the following questions: How can the requirements from the new regulation be implemented? Are the previously applied harmonised European standards sufficient even though they were created before the Machinery Regulation?

For the “safe control systems” sector, after an extended editing time the revised ISO 13849-1 will be released. Despite some changes and supplements, the following still applies: The standard is not to be considered a strict blueprint that is to be followed to the letter or step by step. Instead, it is to be understood to be a guideline for the principles for the design of safety-related parts of control systems so that it can continue to be used to implement and assess solutions. The extent to which it suffices for also satisfying the requirements for control systems in line with the new Machinery Regulation requires an explicit check that is sure to be performed soon.

Best regards,

Dipl.-Ing Berthold Heinke,
Consultant in the field of safe controllers

Visit Pilz at the Hannover Messe and secure your copy of Berthold Heinke’s book on the implementation and application of EN ISO 13849.

360° Continued from page 1

ISO 13849-1 –
safety-related software

There is a final draft available of the revised version of ISO 13849-1. It is expected to be published in the first half of the year (for more details, see page 4). One important aspect relates to the requirements with regard to software and management of functional safety – such as how data within machinery software are protected. Various software types are covered, such as safety-related embedded software (SRESW), safety-related application software (SRASW) or software for parameter setting. The standard contains suggestions for improvement with regard to how these can be linked to the requirements for programming languages with limited (“limited variability language”, LVL) or unlimited language scope (“full variability language”, FVL). It is far from clear when it will be harmonised into the EU standard EN ISO 13849-1 or when to expect an answer to the question of whether there will be a transition period after publication of the standard in the Official Journal and, if so, how long this will be.

Standards specify: the focus is shifting to Security

The new Machinery Regulation –
final draft

The European Parliament and the Council of the European Union have agreed on a final version of the new Machinery Regulation. It will be published soon. Once the regulation is published, the standards committees have 42 months to adapt the applicable standards to the new specifications. Meaning also creating harmonised standards that make it easier for us to achieve compliance with the regulation. “This is a lot of work,” explains Klaus Dürr, Vice President Standards Group at Pilz. “This also includes the ‘Protection against corruption’ section in which the Machinery Regulation defines requirements for cybersecurity and sets specifications for the life phases of a machine. The safety functions must not be affected by this.” A sample extract from the draft: “The machinery […] shall be designed and constructed so that the connection to it of another device, via any feature of the connected device itself or via any remote device that communicates with the machinery […] does not lead to a hazardous situation.”

Cyber Resilience Act –
an independent EU regulation

The first draft of the Cyber Resilience Act is directed, among others, toward manufacturers of products and machinery with digital elements, be it software or hardware, as well as operators. In addition to comprehensive specifications on the topic of Industrial Security, the legal provision requires that product features as well as the plant or machinery have a suitable cybersecurity level which must be verified based on a risk assessment. The EU regulation is expected to be published in two to three years.

The main question: “How?”

The question of how all these upcoming normative requirements for Security can be implemented well and efficiently by international industry remains open. The challenges of taking the new requirements into consideration in existing and new development and manufacturing processes are understandably enormous. “We recommend early action,” states Arndt Christ, Vice President Customer Support International at Pilz. “We are staying on the ball around the world for our customers. My staff are answering questions around the clock – about our product portfolio but also general questions about how plant and machinery can be developed and operated securely. Or how Security requirements are even to be identified.” In response Pilz is currently also expanding its range of services (more information on page 4).

More about Industrial Security:
Webcode: web188332

More about the Machinery Regulation:
Webcode: web848151

More about the standards for functional safety:
Webcode: web160899

Online information at www.pilz.com

And what is NIS 2?

NIS 2 (network and information security) is a directive from the European Union to strengthen cybersecurity that came into force at the beginning of 2023 and should be adopted into national law by the EU member states by autumn 2024. According to this, cybersecurity incidents should be reported to the responsible authorities within 24 hours. The directive applies within the mechanical engineering and automotive sectors, among others, for companies with over 50 employees or an annual turnover of more than € 10 million. Across Europe, this affects around 9,000 companies (as at 2018). Companies that fail to take measures are threatened with severe penalties.

“Responsibilities are not yet clarified”

In all honesty, Security has already arrived on factory floors. But how well informed about Industrial Security are machine builders and users really? David Machanek, General Manager of Pilz Austria, had his team survey their customers on this. In this interview he reports on his findings.

Mr Machanek, what is the situation regarding the topic of Industrial Security in mechanical engineering and among the customers?

David Machanek: There is still a lot of uncertainty. At the same time, we are noting that our customers have a great hunger for knowledge because their fears of cyber attacks are growing – particularly in small and medium-sized companies. There are many companies in this area of conflict and the uncertainty is amplified by the pending legal and normative changes.

Where does this impression come from?

We asked around 150 manufacturers and operators what their level of knowledge is concerning Security. We wanted to know how well prepared the Austrian market is for this topic and who is responsible for this in the companies. An important finding is that many customers have not yet taken any steps on the subject of Industrial Security even though they are well aware of its relevance.

What conclusions can you draw from the findings?

The most important conclusion for me was that the responsibilities for Security on plant and machinery have still not been clarified at all in these companies. This has also not been clarified among the manufacturers. It is clear that IT performs IT security, but who is there for the security at the machine? The operators we asked tended to see this as maintenance’s responsibility. But companies are frequently unaware of the fact that Industrial Security requires specialist knowledge and that a lack of responsibilities and measures opens the door to attackers. This just makes it that much more important that we do the educational work – just the same as for machinery safety. After all Pilz is not just an ambassador for Safety, but also for Security. Safety for me also encompasses Security.

Which questions are currently worrying machine builders and operators?

The main focus here is on the question of what effects a cyber attack would have on the company. My tip: every company should brainstorm and run through how day-to-day work would be changed by this type of attack. From our own experience following the cyber attack on Pilz in 2019, I now advise making sure to keep a paper copy of the contact data of your most important contacts, for example. Many people are initially surprised by this. Beyond the threat situation, many machine builders and operators are also dealing with the new Machinery Regulation and NIS 2 is also of great significance (see box at bottom left).

Where do you see dangers?

In discussion I frequently hear that the company’s machines are not even attached to an ERP system or a cloud, so there is no need for any security measures. If I then ask if there is a USB port and whether this could be used by an operator to charge a mobile device, meaning that gateway would suddenly be opened, this immediately gets their attention. Our job is to ask questions and provide our customers with the best possible advice.

How complicated is it to design an existing plant to be safe and secure?

It doesn’t make a big difference whether a machine is new or old; security solutions can often be integrated through “plug and play”. Our access permission system PITreader is an example of this. Security retrofits are definitely an important topic! We support our customers with suitable services because operators often do not have the resources to safely and securely implement this type of machine conversions.

Customised validation

The safety status of machinery must be validated at regular intervals. On three different, comprehensive levels, it will soon be possible for machine manufacturers or operators to implement this type of validation even more efficiently.

International safety directives and standards such as ISO 13849, IEC 62061 and IEC 61508 stipulate the following: irrespective of how the function is structured, machine manufacturers or operators must confirm that the safety design is implemented correctly via validation. For example, the machine was moved. Is it still safe? Or the machine is newly purchased. Are all potential safety loopholes closed? Only a validation provides the certainty that the required risk reduction measures have been implemented correctly and are sufficient. It is thus vital before commissioning of the machine. The requirements for this can differ according to the specific application, however. Which level of validation is thus necessary and useful?

Pilz helps to answer this question and has adapted its range of services accordingly. “Until now we have offered validation as a full-service package,” says Jan Franck, Engineer at Pilz. “However, in certain cases – for example when buying machinery from manufacturers with whom you already have a good working relationship, when identical machines are already installed or when minor changes are made to existing machines – then a scaled-down check may be sufficient.”

Thanks to its three different levels, the new range of services allows for a tailor-made validation in terms of both the scope and depth of the work. A structured validation method and tried and tested test templates guarantee the highest safety.

Validation method	Level 1	Level 2	Level 3
Machinery safety	◆	◆◆	◆◆◆
Risk reduction		◆	◆◆◆
Functional safety	◆	◆◆	◆◆◆
Other legal regulations			◆

Depth of testing: ◆ Basic, ◆◆ Detailed, ◆◆◆ Comprehensive

The choice of the level is decided by:

- Legal requirements and applicable standards
- Customer requirements
- Budget
- Cost efficiency of the assessments to be performed

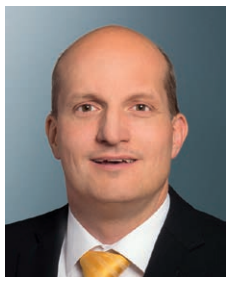
While Level 1 validation contains a basic check, which highlights the key non-conformances, Level 2 carries out a more thorough examination, particularly in the area of functional safety. This guarantees that the machine provides adequate safety measures. The Level 3 validation service is an intensive, detailed conformity check, as required for CE conformity. At all three levels, machine manufacturers and operators benefit from the specialist knowledge of Pilz experts.

Webcode: web226031

Online information at www.pilz.com

“More precise specifications help”

A revision of one of the most important standards on functional safety, ISO 13849-1, is now available in the final version. We asked what will change.



Mr Bukowski, what, to your mind, is the biggest change?

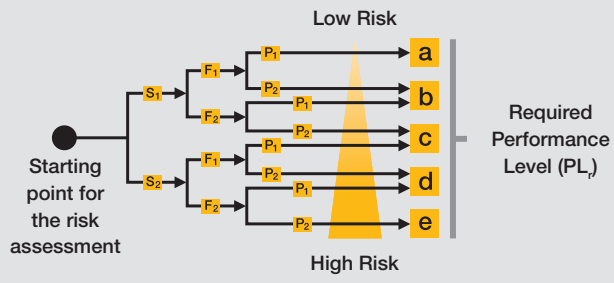
Jürgen Bukowski: It is not one big change, but rather the sum of all the changes. For example, design specifications were refined, requirements for application software and the management of functional safety were expanded and the validation specifications were adapted. For the determination of the required performance level (PL_r), there are now refined specifications for the risk parameters. In order to be able to prevent hazards and the probability of their occurrence, in future manufacturers and operators will have to define in more detail, among other things: At what speed does the hazard occur? Or: What options are there for avoiding the hazard? What practical experiences with Safety have already been had with regard to the process? Is the machine operated by trained and suitable operators? With or without supervision? Small but important details have been added here.

What does this mean for machine manufacturers and operators?

They are required to reassess safety functions. In addition, the final draft stipulates a safety requirements specification (SRS) for the clear description of safety functions – with documentation of all details that are required for safe and correct performance. The documentation can also help operators to achieve a clear understanding of all safety functions in their machine during regular inspections and checks.

Determination of the required performance level (PL_r)

- **S – Severity of injury**
  - S_1 = Slight (normally reversible) injury
  - S_2 = Serious (normally irreversible) injury including death
- **F – Frequency and/or exposure time to the hazard**
  - F_1 = Seldom to less often and/or exposure time is short
  - F_2 = Frequent to continuous and/or exposure time is long
- **P – Possibility of avoiding the hazard**
  - P_1 = Possible under specific conditions
  - P_2 = Scarcely possible
- **A low probability can reduce the PL_r by one level.**



No significant changes were made to the graph for determination of the PL_r of a safety function. The opportunity to prevent the hazard and the probability of its occurrence, however, are further specified through five factors.

That sounds like a lot of work ...

If you are doing it for the first time – yes. With a little support and practice, however, many specifications can be applied again. Machine manufacturers also have more flexibility. Every safety function can be implemented through the combination of several subsystems. These are either available as subsystems already validated by the manufacturer or are designed as new subsystems by the machine manufacturer or integrator.

When is it necessary to act?

It is far from clear whether there will be a transition period after publication of the standard in the EU Official Journal and if so, how long this might be. For this reason, design engineers and operators should swiftly address the planned changes. The earlier, the better.

Webcode: web160899

Online information at www.pilz.com

Inside New qualification as a “Certified Expert for Security in Automation”

State-of-the-art Security

Security has become an indispensable part of automation, but with new requirements and normative specifications, manufacturers, integrators and operators are faced with the question of how their staff can become qualified for the new challenges. In response, Pilz has expanded its range of training courses for the professional development of specialists to become Security experts.

How do I protect my machinery and implement Security in practice in accordance with the normative requirements? Knowledge of the standard IEC 62443 “Industrial communication networks – Network and system security” is currently the best guidance for plant operators and device manufacturers when answering this question and effectively implementing security measures. This standard is thus the focus of the professional course “CESA – Certified Expert for Security in Automation”, which has been certified by TÜV NORD – from risk analysis to safe operation of machinery.

Security from A to Z

The participants learn the specific Security requirements of operational technology (OT) and their differences from general information technology (IT). Another key area is the explanation of threat scenarios and potential defence strategies. The training participants acquire in-depth expertise on basic topics such as access control, increase of network security using technical means and organisational measures to avoid security risks.

The legal principles and normative requirements are also always in focus here. The experienced trainers impart the long-standing Safety and Security know-how from Pilz that is based on practical experience and participation in international standards committees. After two days of training, the participants have gained comprehensive knowledge that allows them to competently handle the topic of Security in industrial automation systems.

Developing specialists

Hartmut Paulus, Senior Manager in Customer Support International at Pilz, views qualification as an important step for the development of specialists: “Our new CESA qualification offers a detailed overview of the topic of Security in automation. The training is an important component in getting one’s own specialists ready for Security in automation – from normative requirements and the basics of risk assessment to the technical and organisational security measures in the industrial environment.”

Webcode: web229378

Online information at www.pilz.com

Tapping into retrofit knowledge!

It's on tap: In Wieselburg in Austria, for once this doesn't apply to the beer – but to the know-how that Pilz shared with Brau Union to enable the brewery to upgrade an existing barrel cleaning and filling plant to the state of the art.

More than one million hectolitres of beer depart from the brewery in Wieselburg every year. Within the Heineken Group, Wieselburg is the site of Brau Union Österreich at which the most beers with 0.0 percent alcohol are produced. In total, the brewery fills its products into 130 different types of packaging. For example, there is a separate filling plant for the so-called BLADE kegs for 8 litre counter-top dispensers (see photo).

Automatically clean

"Safety first" is one of the principles of the Wieselburg brewery. It is implemented in a wide variety of areas in practice – starting with the production facilities and ranging to ergonomics at the workstation. In order to live up to this key company objective, the brewery strives to maintain the state of the art, even if the Austrian industrial code or the Austrian Health and Safety at Work Act have not yet determined any need for conversion.

In this vein, the retrofit of the barrel cleaning and filling plant for BLADE kegs was "voluntary": The plant removes beer residues from up to 700 kegs per hour, cleans them with an acid, rinses them several times with water, sterilises them and refills them under CO_2 counterpressure. Using a conveyor system, the empty barrels are fed to a filler carousel, are automatically cleaned and are then transported out via a roller conveyor. The filling process is performed in the same manner. The carousel is also the core of the plant for this process.

Safety for Beer & Co.

The plant has been in operation since 1993. As part of the plant control system retrofit, intervention options on the machine were to be re-assessed and validated, among other things. "There are up to 20 kegs in circulation on the filler and even up to 24 kegs on the cleaner, which adds up to an impressive weight – especially with 50 litre kegs," explains Andreas Schmutz, Head of Plant Technology in the Wieselburg brewery. Because the company has already worked with Pilz on previous projects, the Austrian brewer once again put its trust in the expertise of the automation specialist for this project: From consultancy on the current standards that must be complied with, to a review of the existing safety equipment and E-STOP chain, Pilz also analysed all potential hazard sources. The recommendations included appropriate interlocking devices and a tailored safety concept for the plant.

Practicable too!

When it comes to safety aspects, the goal is often mastering the balancing act between a safe and a practicable solution. This was also the case here. "The safest option would naturally be to enclose everything and lock it up, but that just doesn't work in practice," states Andreas Schmutz, addressing the necessity of intervention options for maintenance and repair purposes. On the barrel cleaning and filling plant, for example, it is important that part of the protective wall can be removed without much effort so that once a year an employee can advance with a forklift to the fluid distributor in the centre for service operations.

In order to meet this requirement, the decision was made to use mobile railings. The solution also includes a new access management system. This makes sure that only the authorised operator actually has the opportunity to acknowledge a fault that has been rectified on the plant or to return the system to operation – manipulation or incorrect operation are hereby ruled out. Adding to this, the original light curtains were replaced by railings. The priority here was preferably using safety devices that were already in stock for other machines to avoid an unnecessarily complicated spare part management.

Trust unites

Pilz's consulting portfolio, from an analysis of potential hazard points, including defined countermeasures, through to implementation and safety-related validation in accordance with international safety directives and standards such as ISO 13849, IEC 62061 and IEC 61508, was practically fully utilised. Today, the plant meets all the current regulations with regard to Safety and thus ensures a "fluid" filling process.

As part of a controller retrofit, one of the tasks for safety experts was to re-assess and validate options for intervention on the machine.

Andreas Schmutz, Head of Plant Technology

"One always keeps learning, but if you don't work with the safety components that are available on the market on a day-to-day basis while also keeping an eye on the various developments and laws, it is hard to stay up to date. That's why we trust Pilz's know-how and experience in this respect. The experts have detailed knowledge and think on our behalf, just as we would expect from a reliable and trustworthy partner."

Webcode: web225934

Online information at www.pilz.com

Three minutes with …

… Arndt Christ

Vice President Customer Support International

Mr Christ, what topics are customers currently approaching Pilz with?

The topic of Industrial Security is currently on everyone's lips. Guaranteeing this is increasingly becoming a requirement of our customers, which means that we are receiving more questions about our products and what security measures we take. This can be, for example, an integrated multi-factor authentication or a new risk assessment of an application. In addition to this, we are also receiving ever more questions about what the new standards and laws mean in reality.

What answers can you give here?

As a component manufacturer, we answer our customers' questions about our products and inform them of weak points in so-called Security Advisories. We also advise machine manufacturers about how they can design their machine lifecycle to be free of security weaknesses. To prepare our customers for coming challenges, and make them Security experts, we are enhancing our range of services and training courses. One component is our new qualification as a "Certified Expert in Security for Automation" (see page 4).

How has Pilz prepared itself for the additional requirements?

We have established a team in Customer Support International that is solely focused on Industrial Security. An important component is the training and qualification of all our

employees because Security plays a role in all areas of Customer Support International. We are also examining our processes and adjusting them, for example by expanding Functional Safety Management to include Security aspects.

In brief …

EN IEC 61508 standard series is undergoing revision

The EN IEC 61508 standard series "Functional safety of electrical/electronic/programmable electronic safety-related systems" is a basic safety standard. This standard is used to define the requirements of safety systems in plant safety. The second edition from 2010 is currently being revised. There is currently a committee draft (CD) that was commented on by the national committees around the world. The discussions as part of the revision concern the question, for example, of how cybersecurity should be handled in future in the design of functionally safe systems. Or about how innovative technologies can be implemented to be functionally safe based on IEC 61508. Based on the number of comments received, a final publication is not expected before 2026 or even 2027.

If you have any questions please contact: support@pilz.com

A decade full of knowledge

With the establishment of the qualification as CMSE, Certified Machinery Safety Expert, Pilz broke new ground ten years ago in terms of communicating knowledge in the machinery safety sector. Today this type of internationally uniform and independently certified qualification is a success model.

For Pilz, the same principles apply around the world: the creation of safe working environments for everyone who uses and maintains machines. Legislation, standards and directives alone are not enough; engineers need the necessary competence and a deeper understanding in order to implement machinery safety in compliance with directives and standards. The communication of knowledge is essential here. For Pilz, Safety is more than just a product: For a long time now, the company has made its years of expertise available as a comprehensive range of training courses. Every year the Pilz Academy trains around 15,000 people in 50 countries with 120 trainers!

CMSE was the pioneer

Internationally uniform and independent qualifications for machinery safety have only existed for ten years. In 2013 Pilz introduced the CMSE or Certified Machinery Safety Expert qualification in four countries – the world's first certified international professional development for machinery safety. The four-day course gives in five modules an overall view of the subject of machinery safety and conveys comprehensive knowledge on and about the machine lifecycle. TÜV NORD was our partner from the very beginning: The final TÜV NORD certificate that is issued after passing the test is valid internationally as the CMSE modules are standardised worldwide and are of a uniform level.

CMSE is currently offered in over 30 countries in 15 languages. CMSE is not only used for personal qualification. Internationally operating companies also use the courses offered worldwide for the uniform professional development of their employees at various locations. In other words, the qualification sets the company standard for competence in regard to machinery safety.

Qualification at the expert level

CMSE has also set standards at Pilz. The company has established additional qualification courses at the expert level that are international and standardised. These include, for example, CECE – Certified Expert in CE Marking, during which participants gain in-depth knowledge on every individual step of the overall CE marking process for machines; CEFS – Certified Expert in Functional Safety for teaching how complex safety systems are designed in compliance with the relevant standards; or the brand new CESA – Certified Expert for Security in Automation, which tackles the topic of Security (see page 4).

The success story also continues with CMSE itself: In 2023, the tenth year, the 10,000th participant should successfully complete the qualification and in future be able to use the title CMSE.

More information is available at: www.cmse.com

With the qualification as CMSE (Certified Machinery Safety Expert), Pilz and TÜV NORD have set an international standard for qualifications in the field of machinery safety since 2013.

"Working with passion"

Since October, Manuela Bernasconi has been the Managing Director of Pilz Switzerland. In her statement she spoke about what makes Pilz Switzerland special and what is on the mind of her customers.

"We Swiss are determined and want to orient ourselves on the benchmark or, even better, want to set it ourselves. The main focus in our market is tool construction and special machine construction, as well as packaging and rail technology. Research is also a key area: we are active in the Paul Scherrer Institute, for example, a multidisciplinary research institute for natural and engineering sciences in Switzerland. There we work closely on safely designing the research and development of new lasers for medical technology with the use of our product solutions, all the way to CE marking. Our expertise is sought after. This becomes noticeable due to the increased interest in our services, which also includes our own training division's portfolio. Last year we successfully built up our Engineering department.

What continues to concern us most on the market is the supply situation. Customer contact is vital – from our administration all the way to me as Managing Director. For our long-term customers, we have come up with an emergency scenario in order to best provide for them. We also want to offer our smaller customers the best service, however. We are always open, honest and transparent. And the solid customer relationship that we have established is crucial. We are not a supplier, we are our customers' partner.

At the moment they are coming to us with a good number of questions about the upcoming Machinery Regulation: How is Security described in this? What requirements can the industry anticipate? What are the implications for people? And something else that will always concern the Swiss is the reliability of automation. Resources are more expensive in Switzerland, which means that productivity is even more important.

Our goal is to step up our support of our customers in the area of Identification and Access Management, which clearly regulates access and entry permissions on plant and machinery. In the area of Industrial Security, we also want to help our customers protect their plant and machinery from external attacks using our industrial firewall SecurityBridge, our services and our certified training courses.

Pilz Switzerland is successful because we are such an amazingly good team. We are the embodiment of Pilz's idea of family. That's what makes Pilz so special for me, this passion with which we work. That is why I have been at Pilz for over 15 years."

All fired up for Safety

Let's take a look at a cold rolling mill in which steel strip coils are processed. The production process includes five steps: pickling, cold rolling, annealing, tempering and then finishing. The challenge? The frequent shutting down of the start-up burners, which ignite the main burners.

The start-up burners were controlled by only one module, while flame monitoring occurred via UV cells at the ignition. As a result, troubleshooting became a puzzle: if a UV cell was defective the whole mill stopped. Restart dragged on because unburned gases containing nitrogen had to be expelled first. And the defective UV cell had to be replaced – although one never knew which UV lamp actually failed. As this little story demonstrates: time is an important factor in areas where fire and its associates define the production activities. Not only the smooth but above all the safe operation of this type of mill depends on the right timing.

Cool safety manager for hot work

This explains why the requirements for product and process safety and health and safety are so high. Anything else would risk a fire or explosion, irrespective of whether it involves burners with oil, gas, coal or other flammable substances, whether boilers or furnaces. Modern burner management systems for automated operation of a burner installation must therefore have a complex design and must meet a number of international standards. Pilz offers two failsafe system solutions with its small controllers PNOZmulti – with base unit PNOZ m B1 Burner – and automation system PSS 4000 – with the controller PSSuniversal PLC: From smaller machines – such as waffle baking ovens – to complex networked plants – such as for example in the metal, glass and ceramics industry where a dozen burners across extensive production areas with a large number of inputs and outputs are common – they always ensure that any fiery happenings are safe and under control. They reliably manage, for example, the monitoring of pressure, temperature and flames, safe run-through of the sequence for starting up and switching off the burner installation or even the safe monitoring of the fuel/air ratio. This increases productivity, not least through integrated, comprehensive diagnostics.

Which brings us back to our little story: After the automation system PSS 4000 took over burner management in the cold rolling mill, the technicians themselves have been reporting "peaceful nights" – late-night troubleshooting trying to find that one lamp is now a thing of the past!

With the base unit PNOZ m B1 Burner of the safe small controllers PNOZmulti 2 the entire furnace can be controlled and monitored safely, including the application-specific safety functions up to PL e/SIL 3.

Webcode: web234727

Online information at www.pilz.com

Apropos ...

With Mat P. on his automation tour

PILZ APPLICATIONS

Whether he's dealing with applications from the fields of metalworking, packaging or, in this case, intralogistics – as an expert, Mathias P. travels the world with automation solutions by and for Pilz. When he has the opportunity, he phones his wife in the evening.

Hello Mat! How are things in Canada? Are you back on the road for one of Pilz's exciting customers?

Yes! I am currently getting a behind-the-scenes look at one of the main manufacturers of AMRs, or Autonomous Mobile Robots. These freely navigating mobile platforms can drive around obstacles or people without stopping, they can essentially drive through logistics like taxis, transporting goods from A to B. It is really exciting.

I am glad that you get to be on-site again. Are you making good progress?

We certainly are! We're identifying all the relevant hazards that can be created by this type of mobile platforms, which is only possible with checks and tests here on site. For each hazard, the risk must be assessed and evaluated. The three weeks we planned for it are barely enough. It is critical that the AMRs then receive CE marking, their passport to Europe.

A passport to Europe? I thought every logistics centre is the same.

For safety components in particular, the CE mark is mandatory – for safe use while taking into account the "traffic rules" that apply for us here in Europe in accordance with ISO 3691-4. With our service, we guarantee that automated guided vehicles travel safely in their surroundings and that human and machine are protected.

IO-Link Safety is ready

IO-Link is the open market standard for sensor communication. It should soon be possible to also use the communication system for data exchange in functional safety.

IO-Link stands for powerful standardised (IEC 61131-9) connection technology in the field of point-to-point communication – independent of fieldbus and system. The advantages of IO-Link are simplifications during installation (e.g. through standardised cabling and the elimination of parallel wiring), automated and tool-supported parametrisation as well as extended diagnostic options.

At last year's SPS exhibition, the first multi-vendor live demonstration with IO-Link Safety was shown. Pilz and other manufacturers demonstrated the options and capacity of IO-Link Safety on site.

In order to also be able to use IO-Link for safety-related automation tasks, Pilz and the other partners in the IO-Link community have been working intensively on the corresponding extension over the last few years with the associated tests and certifications. At the SPS exhibition in Nuremberg at the end of last year, the first multi-vendor demonstration with IO-Link Safety was presented. Pilz and other manufacturers demonstrated the options and capacity of IO-Link Safety live on site.

Not just safe

The demonstration was particularly successful at showing the mixed communication mode in which safety-related as well as standard data are exchanged with the same IO-Link device simultaneously. This makes IO-Link Safety very powerful, which is why it is used for safe drives, gate locking and control and signal device boxes, among other things. The non-safety-related functions can be programmed as usual while only the safety functions have to be controlled and monitored by the failsafe program of the PLC.

"The resonance at the SPS exhibition was entirely positive," celebrates Dr Wolfgang Stripf, Overall Project Manager of IO-Link Safety in the IO-Link community. "With the demonstration we were able to answer questions regarding the independence of fieldbuses and the completeness of the system including test facilities," he adds.

At the Hannover Messe, the IO-Link Safety community will expand the demonstration plant from the SPS. In the meantime, the procedure for the necessary tests and the safety certification have been clarified with the responsible notified bodies. The requirements are thus satisfied, allowing Pilz to now also use IO-Link Safety products in practice. The first products are expected to come onto the market this year.

Industrial Transformation – Making the Difference

This is the lead theme for the **HANNOVER MESSE** from 17 to 21 April 2023, which will again focus on high-tech and innovative solutions for overcoming global industrial challenges.

This year Pilz will provide a varied programme related to Safety and Industrial Security, with an expert panel. What does the future hold for machinery safety? What changes are included in the revised ISO 13849-1? What are the implications of the new EU Machinery Regulation? We will be focusing on our comprehensive range of services covering the plant and machinery lifecycle.
Rounding off our presence in Hall 9, Stand D17 will be our Pilz control systems as the key to individually adaptable processes, our solutions for safe access management, and safe automation of automated guided vehicle systems.

Webcode: web180702

Online information at www.pilz.com

We make your AGVS safe!

At **LogiMAT**, the international trade fair for intralogistics and process management in Stuttgart from 25 – 27 April, Pilz will be presenting its complete solution for safe automation and operation of automated guided vehicle systems (AGVS). As well as the product solution comprising safety laser scanner and safe control technology, plus the industrial firewall, it also includes the services package, through to CE marking in accordance with ISO 3691-4. Another highlight in Stuttgart: visitors can find out how an Identification and Access Management system with clearly defined permissions contributes towards greater Security in intralogistics. Experience our AGVS model in action: Hall 6, Stand A21!

Webcode: web236021

Online information at www.pilz.com

Flexibly packaged

Under the motto “Flexible automation solutions for Safety and Security”, Pilz will be exhibiting from 4 to 10 May in Düsseldorf at **interpack 2023,** the leading trade show for the packaging industry. This will include components and systems for all areas, whether primary, secondary or end-of-line packaging. The Smart Factory makes Packaging 4.0 a hands-on experience: Products are personalised in batch size 1 at the stand.

From the sensor to the controller and all the way to the drive, all Pilz products are networked. We will also be introducing new solutions such as safe cardboard feed and safety gate protection as well as Identification and Access Management. Comprehensive service packages round out our portfolio. Let's wrap this up together. We look forward to your visit to Hall 18, Stand B02!

Webcode: web181190

Online information at www.pilz.com

Safety all inclusive!

At **THERMPROCESS,** the international trade fair and symposium for thermo process technology, we will be exhibiting our burner management systems and showing how burners can be controlled and monitored in compliance with the standards from 12 to 16 June in Düsseldorf. Either the configurable safe small controller PNOZmulti 2 or, on large projects, the automation system PSS 4000 from Pilz can be used as the burner control system for burner management applications. Pilz experts are happy to offer tailored consultations on concrete measures for safe control and monitoring of your individual burner application. Talk to us about your current challenges. We look forward to seeing you there in Hall 9, Stand B10!

Webcode: web236238

Online information at www.pilz.com

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THE SPIRIT OF SAFETY