MENSCH UND AUTOMATION

The magazine for customers of Pilz GmbH & Co. KG Issue 2/2015

PILZ

THE SPIRIT OF SAFETY

Eliminate the blackout

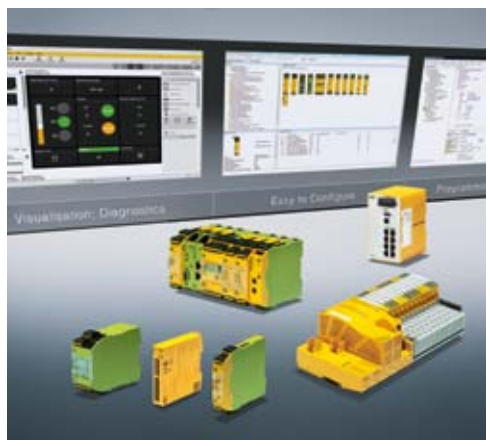
The automation system PSS 4000 from Pilz safeguards the switchover between power supply systems in a hospital in Melbourne. **Page 5**

1000th expert for machinery safety

Pilz set up the international qualification CMSE® – Certified Machinery Safety Expert in 2013. In Australia, the 1000th participant has just acquired the qualification. **Page 6**

Motion monitoring for all instances

Whether drive-integrated or as stand-alone solution – Pilz supplies safe motion monitoring for every task. **Page 7**



One-stop automation

The modular structure of machines in the sense of the smart factory is also changing the automation landscape. Instead of the focus on individual devices, the orientation is now towards complete functions in which safety and automation must be considered holistically.

Even today, the safety concept for many plants and machines is designed statically: When a protected zone is accessed, the power is removed from all drives or from the entire plant. The resulting downtimes and restart times are becoming less and less acceptable. Safety has become a key component in the productivity and overall cost analysis of a plant or machine.

This changes the view of safety itself. It is regarded less as a product and more as a cross-device dynamic function. “Safety is less than ever a subject to be considered on its own and relates only in rare cases to individual areas of a plant or machine,” declared Armin Glaser, Head of Product Management at Pilz.

The merging of automation and safety in hardware and software is the central idea of the automation system PSS 4000. Process or control data, safety data and diagnostic information are exchanged and synchronised using the Ethernet-based communication system SafetyNET p. Hybrid designs are catching on, especially in modular machines and distributed plants, in order to minimise cabling complexity and interface problems, for example. Further synergies occur in visualisation and diagnosis, from service and maintenance work to an intermeshed engineering process.

When looking at the challenges of flexible and efficient manufacturing, a consistent interdisciplinary “thinking in modules” will lead to future success in automation. Control systems which support this approach will play a central role here. The model of the classical automation pyramid that relies on a central control of plant and machinery and rigid hierarchies between the individual levels, has reached its limits. The fact that PSS 4000 allows consistent distribution of control functions, completely in the sense of modular, distributed plants, a network of intelligent machine modules emerges – including safety and automation.

Continued on page 2

Editorial

Dear Readers,

In the Industrie 4.0 management circle at ZVEI, we are working together with companies such as Pilz to cooperate in the development of, and promote the standards needed, for Industrie 4.0 applications from the point of view of the electrical industry. We develop solution approaches and techniques with which companies can tackle Industrie 4.0.
The automation specialists in ZVEI have the necessary domain knowledge for that from their customer industries. In that way, they can accompany the digitalisation of production in the factories.
The first representation of a reference architecture for Industrie 4.0 (RAMI 4.0) and the Industrie 4.0 component, which describes an Industrie 4.0-capable production object in concrete terms has enabled us to lay the foundations for this. Reference architecture model and Industrie 4.0 component can be used by the company as a basis for the development of future products and business models.
How can this function? RAMI 4.0 collects for the first time the essential elements of Industrie 4.0 in a three-dimensional layer model.
With this framework, Industrie 4.0 technology can be systematically classified and developed further. Complex relationships can therefore be divided up into smaller, manageable packages.
RAMI 4.0 is therefore a kind of 3D map for Industrie 4.0 solutions. The model provides orientation, as the demands placed on it by the user industries and the corresponding standards become apparent. Overlaps and gaps are revealed; Industrie 4.0 applications are developed further.
The smart factory therefore becomes reality, step-by-step.

Best regards,

Gunther Koschnik

Control solutions from Pilz

With the configurable control systems PNOZmulti, safety solutions can be created that can be inserted into existing automation structures – independent of the higher-ranking plant control system. The safety architecture is created just once and can then be transferred to other projects. That is standardisation! If structures are sought which allow the merging of automation and safety in one peripheral device, then the control systems PSSuniversal multi are employed. They are practically two devices in one: a configurable safety system and a standard I/O system. Users benefit from the easy handling and commissioning – with only one tool for safety and automation. With the control systems PSSuniversal PLC in the PSS 4000 automation system, Pilz provides the complete solution and therefore covers the requirement from "both worlds": safety and automation. PSS 4000 can also be used as a distributed control system – thanks to the multi-master concept. As a result, modular machines can be divided into smaller units, which are monitored and controlled by decentralised control systems. There is no need for a centralised control instance – a distributed user program within a central project planning point of view assumes this role.

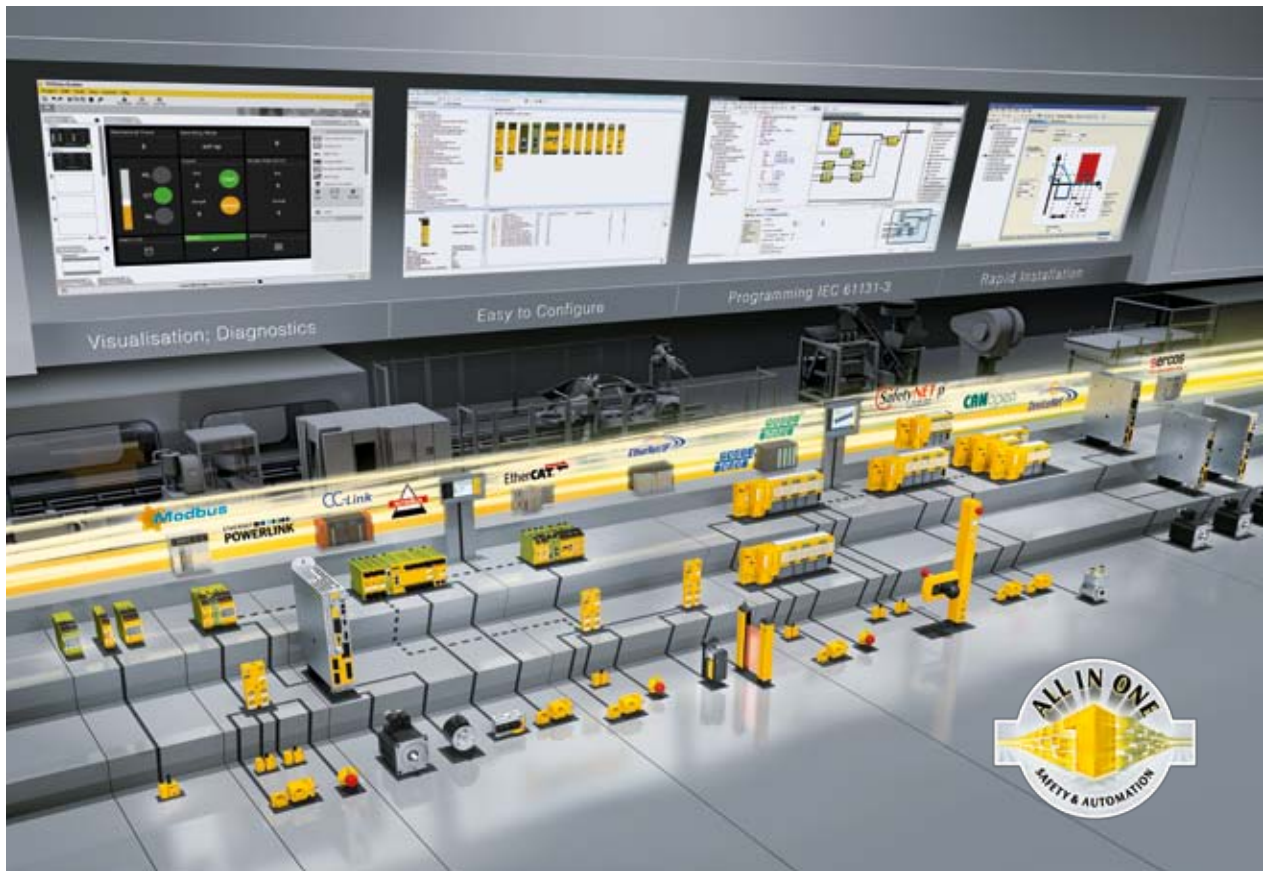
360° Continued from page 1

Reducing complexity

When the demands on plant and machinery continue to grow, there is an increasing need for techniques which allow user-friendly applications to be well structured and therefore manageable. "Experience shows that the user makes mistakes when something is too complicated. And these mistakes are made at the cost of safety," is well-known to Arndt Christ, Head of Customer Support at Pilz. The increasing demand here for minimum effort and associated cost reductions is increasingly the focal point.
A common operating philosophy with which the hardware can be quickly, uniformly and completely operated – from the simple safety relay to the networked control system – is therefore sought after. "Pilz had already created an efficient approach with its PNOZmulti Configurator more than ten years ago. This software tool for the configurable control system PNOZmulti enables safety functions to be generated simply on a PC," said Glaser. Instead of combining the individual safety functions via the device circuits in a classical wiring logic, the user generates his safety functions quickly and simply with the PNOZmulti Configurator and the mouse. A welcome side effect when using the building blocks is the comprehensive and detailed diagnostic information made available that can be displayed on a higher level viewing or control system via the fieldbus or Ethernet interfaces.
It is even easier when the familiar programming languages for PLC control systems can be used for the programming of the safety functions. Automation system PSS 4000 meets these challenges with the help of the tool platform PAS4000. In addition to the building block orientated Program Editor PASmulti, there are also editors available to the user thanks to the classification as LVL (Limited Variability Language) as well as the specifications of the IEC 61131-3 for the functional area and meeting all normative requirements for the generation of safety-related user software (cf. EN ISO 13849, EN 62061).

Common database

A common view of safety and automation also means however that ultimately all instances of a control system and of several control systems in a network must be able to access the same data without the user being required to organise this himself via special interfaces. The system must perform this task itself in the background and at the same time continuously monitor the special requirements of the safety engineering and guide the user, in order to advise him about possible restrictions. In future, even the tools must have the same look and feel, plus standardised user handling. "Whether it's motion, control or visualisation: Handling of the various functions and tasks must be seamless," was made clear by Christ. This is also the philosophy Pilz has applied with its new web-based visualisation software PASvisu. The engineering process of programming as well as project planning procedures of visualisation make use of common process and diagnostic data so that the configuration effort can be reduced to a managed selection procedure. Users of Pilz control solutions can use PASvisu to fully operate, diagnose and observe their automation.
Even when such systems provide the user with a common view of automation and safety functions, the absence of feedback is always ensured. "This is the difference between Pilz handling solutions and other approaches where safety functions are supplemented subsequently. That is a quite different quality," is Glaser's conviction.
Practice shows that the common consideration of the safety functions with automation technology can create a distinctly better initial situation. Safety and productivity are not necessarily a contradiction – if they are looked at together.



As a complete safe automation supplier, Pilz provides support for the economical, reliable and safe implementation of automation tasks. Innovative products and systems are available in which safety and automation are merged within hardware and software.

Webcode: web5213

Online information at www.pilz.com

New logo highlights “All in One” in automation

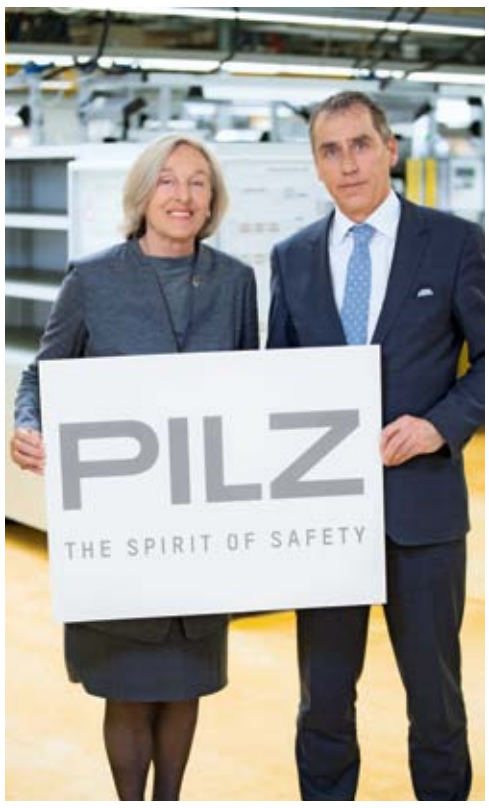
Pilz has revamped its brand presentation. The new logo was presented for the first time at the 2015 Hannover Messe. The intention of Pilz is to underline visually its positioning as a supplier of complete solutions for safety and automation.

“Pilz is a strong industry brand. It stands for innovation, customer orientation and complete automation solutions. We are successful as ambassadors for safety – but Pilz’s roots actually lie in the field of automation technology! The new logo is intended to visualise: We offer complete automation solutions with the core competence of safety,” says Renate Pilz, Chair of the Board.

Pioneers of control technology

The new logo is replacing the previous signet after 26 years. It takes over some traditional design elements from the 60s and 70s, such as the capital letters. That was the time when Pilz in Germany launched the first freely programmable control system, the PC4K. This was followed at the end of the 70s by the PITRONIK P8, one of Germany’s first ever programmable logic controllers (PLC). Then in 1987 Pilz ushered in the era of safe automation technology with the safety relays PNOZ (German acronym for Pilz E-STOP, positive-guided).

Today, safety and automation functions at Pilz are merging into one solution: “All in One”. An example of this is the automation system PSS 4000. A decentralised control system with centralised visualisation fulfils the requirements of Industrie 4.0.



Automation as a focal point: Renate Pilz and Horst-Dieter Kraus (Vice President Marketing and Communications) presenting the new logo.

The fourfold safety of automation

The Pilz brand presence symbolises the fourfold safety in automation that Pilz offers its customers: technical, personal, environmental and economic.

Technical safety because the safety of machinery and systems is always included in Pilz products and solutions. Personal safety because customers can rely on a professional consultation and individual processing. The environmental dimension stands for energy-efficient products and environmentally friendly applications because the implementation of environmentally sound applications always has top priority. And finally, the economic dimension incorporates efficient production cycles and the investment security of Pilz system solutions.

The company is hereby expanding the term safety beyond the purely technical.

In brief ...

Award for Pilz subsidiary in the Netherlands

Pilz Netherlands has received the National Business Success Award as “most innovative and most successful company in the Netherlands in the field of control technology and automation”.

The jury examined products, process quality and innovative ability of the participating company as basis for judging the award. In the final interview, the Pilz Netherlands management was able to convince the committee and win through against eight competitors.

The initiators of the award are the television channel RTL 7, the radio channel BNR and the business newspaper Het Financieele Dagblad.

Nursery of safe control technology

Safety and Automation – that the two worlds can be united in a PLC was something that was simply not possible until 20 years ago. But Pilz brought the PSS 3000, the first freely programmable safety control system worldwide onto the market in 1995. Ground-breaking for Pilz and for the entire automation.

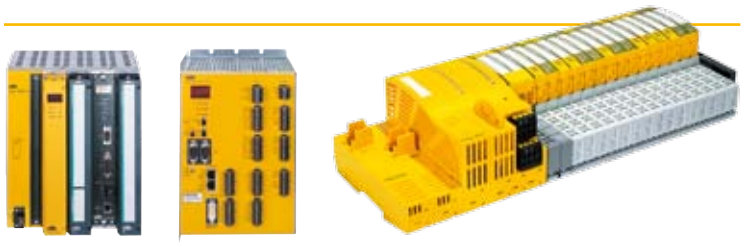
Its approval was anything but a simple matter of course as the European laws and standards that had existed up to that time even prohibited the use of a purely electronic control system in safety technology. Many tough negotiations took place between the German Federal Ministries for Economic Affairs and of Labour and Social Affairs on the one side and the competent European committees in Brussels on the other side. In the final analysis Pilz effected, with the help of the trade association for iron, metal III and lifting II (now wood and metal), the change in these legislative regulations.

Revolutionary safe

Up to 1995 when Pilz changed the automation world with its idea of freely programmable safety, the use of PLCs only came into question for non-safety-related control functions for machinery. These were not approved for safety-relevant control tasks or all were completely prohibited.

The approval of the programmable safety control system PSS 3000 came as a small revolution: With the approval of PSS 3000 as the first freely programmable safety control system, Pilz cleared a path for the use of electronic control systems in safety applications. PSS 3000 therefore represents the conversion from electromechanical to the electronic solution of safety-related applications – in the entire automation world.

The technology behind PSS 3000 also paved the way for further innovations from Pilz: for example the first safety bus system SafetyBUS p or the configurable safety system, PNOZmulti. With the development of the SafetyBUS p, Pilz offered from 1997 onwards what the user in the non-safety-related control technology had been using for a long time – a decentralisation of safe control technology and the transfer of safety-related data over a fieldbus.



From PSS 3000 to PSS 4000

Even in 1995 the product spectrum of freely programmable safety control systems was not just restricted to safe hardware but also, included more than 50 certified fail-safe software building blocks for a very wide variety of safety-related control tasks, which largely shaped the success of the PSS 3000 system. With this system concept, PSS 3000 marked the way for the automation system PSS 4000 and ultimately enabled safety and automation in the automation system PSS 4000 to merge within a single system.

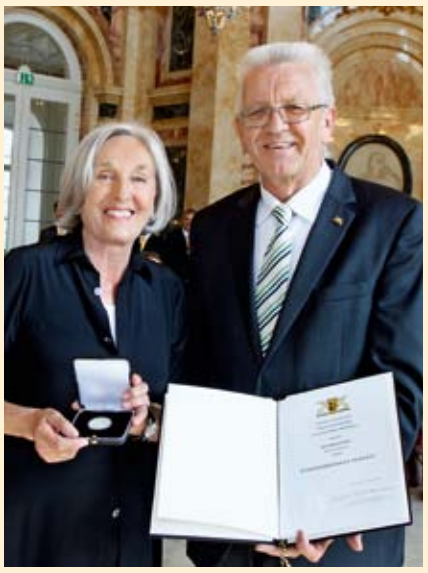
Webcode: web5778

Online information at www.pilz.com

In brief ...

Staufer Gold Medal for Renate Pilz

Renate Pilz is awarded the Staufer Medal in Gold. With it, the Baden-Württemberg Minister-President, Winfried Kretschmann, honoured the services of the Pilz chairwoman to Baden-Württemberg and its people.



“No law in the world can enact the business culture shaped by Renate Pilz – where economic success and human cooperation go hand in hand. Such a culture needs role models: people who live it, people who radiate it and so impress others. Role models like Renate Pilz,” said Minister-President Winfried Kretschmann when awarding Renate Pilz with this special, personal honour in Stuttgart.
“Renate Pilz is characterised by courage and an entrepreneurial spirit, diligence and a sense of duty, enthusiasm for technology and innovation, along with strong family values, social responsibility and firm roots in the Catholic faith,” emphasised Minister-President Kretschmann.

Golden AMPER 2015 for Pilz

At the AMPER fair in Brno, Czech Republic, the safe camera system SafetyEYE for 3D zone monitoring was awarded the “Golden AMPER 2015” prize.

SafetyEYE was a part of the human-robot collaboration exhibit on the Pilz stand at the fair. The “Golden AMPER” is awarded for products and solutions that contribute a particular benefit.

Inside New manufacturing facilities at Jintan start production

Worldwide standard for the production

In a festive ceremony this spring, the Pilz family celebrated the opening of the first Pilz production facility outside Europe: The Company produces PNOZ safety relays in Jintan, China for the market there.

“The new factory sets a clear signal that the Chinese market has special importance for us and the entire automation industry,” said Thomas Pilz, Managing Partner of Pilz GmbH & Co. KG when underlining the commitment. The production landscape in China is in a state of flux. As a result of the twelfth 5-year plan of the People’s Republic, the trend in the manufacturing industry and in mechanical engineering up to automation and safety is to increase quality and efficiency. “We want to contribute to China achieving these objectives,” said Thomas Pilz.

“Local for Local”

The factory in Jintan is not a joint venture with a Chinese company but a hundred per cent Pilz subsidiary. Pilz will not only be able to supply the growing Chinese market more quickly in the future and consolidate its position there but also help foreign companies to fulfil the “local content” stipulations.

Pilz celebrates the opening of its first production facility in Asia at Jintan, China.

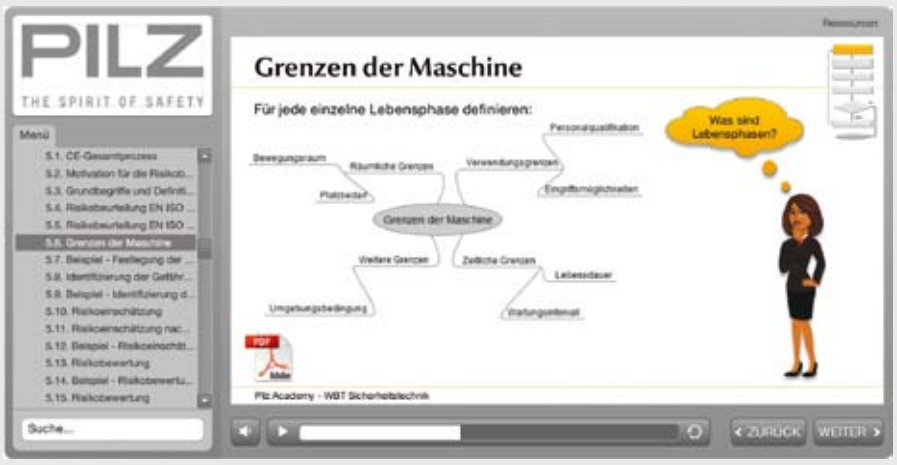
The new production facility blends seamlessly into the existing production network with the factories at Betschdorf in France and Ostfildern in Germany. At the moment, a new production and logistics centre is being set up at the Ostfildern headquarters. Pilz is well-equipped for planned further growth with these two new buildings.
PNOZ safety relays will be produced in Jintan for the Chinese market with the same quality standards, processes and procedures and with the same plants and machinery as those at the European production locations. This ensures that each PNOZ, regardless of where it is produced, guarantees the safety of persons, machinery and the environment.

Inside The future of learning is eLearning

Pilz provides web-based training for career beginners

With web-based training (WBT), Pilz provides an electronically supported, interactive education and training programme that is specially tailored to meet the needs of career beginners.

Learning where and when you want: The WBT combines various medial forms for conveying knowledge and relies on electronically supported learning. People in particular who learn regardless of time and place or prefer to use the PC and Internet, can absorb information to be learned or develop and supplement known content interactively better by means of eLearning.
Pilz has developed a WBT programme on the topic of safety technology that is specially tailored to the needs of trainees, vocational school students and prospective technicians. It is in German and English and therefore internationally available at a uniform standard. The trainees can therefore learn the theory individually as e.g. their curriculum or timetable allows. Everyone can then take part in the common classroom training with the same level of knowledge. There the focus is on practical exercises and the exchange of information with other students and trainers/teachers.
The internet-based learning programme consists of three different theme modules with theory and practice parts as well as exercises as a check on learning progress.



Webcode: web83105

Online information at www.pilz.com

Eliminate the blackout

Hospitals want to be able to rely one hundred per cent on a stable and failsafe power supply. The integration partner White Technics in Melbourne, Australia therefore decided on the automation system PSS 4000 from Pilz.

Whether in operating theatres or patient care on the intensive care wards: a reliable power supply is vital in modern hospital operation. To leave nothing to chance, power supply systems in hospitals have emergency power generators and battery buffers, double and even triple safeguarded. It can occur – deliberately or otherwise – that switching backwards and forwards between the available power supply facilities is necessary.

Switchover must be fast and secure

A few years ago White Technics Pty Ltd, with wide experience in the planning and implementation of complex power supply and energy related plants, received a challenging contract from a hospital operator in Melbourne. The task was to develop a solution to bring alternative power supplies onto the mains quickly and securely when a switchover is necessary.

The Melbourne hospital has two transformer stations, independent of each other, or alternatively a diesel generator, for supplying power. If the power supply is to be switched off, e.g. for planned maintenance by the hospital (so-called brownout), the necessary precautions for the switchover must be met without being under pressure of time. In the case of a unpredictable power loss in the supply network on the other hand (so-called blackout), the second transformer station or the generator must be brought on-line immediately and seamlessly.

Secure switchover procedures using PSS 4000

A reliable instance must interrogate the state of the installed contactors and shunt releases in the shortest possible time so that a redundant power supply system can be brought securely on-line. Once the cause of the shutdown has been found and rectified (brownout or blackout), the same applies in the reverse direction.

"As Pilz with its competence in integrated solutions for control and safety tasks was already well-known, we turned to Pilz in Australia," said Frank White, managing director of White Technics Pty Ltd. On the basis of the automation system PSS 4000, the two companies developed an efficient safety concept. The system should communicate from a central control room with the relevant transformer station and with the generator. As part of the automation system PSS 4000, the control system PSSuniversal PLC monitors the status inputs of each shunt release and contactor of the transformer stations in the individual power networks. In this, the safety relays PNOZsigma from Pilz control the power switches via contactors. The automation system PSS 4000 sends the information for diagnostic purposes to the technical office.

Transfer per fibre optic cable via SafetyNET p from Pilz

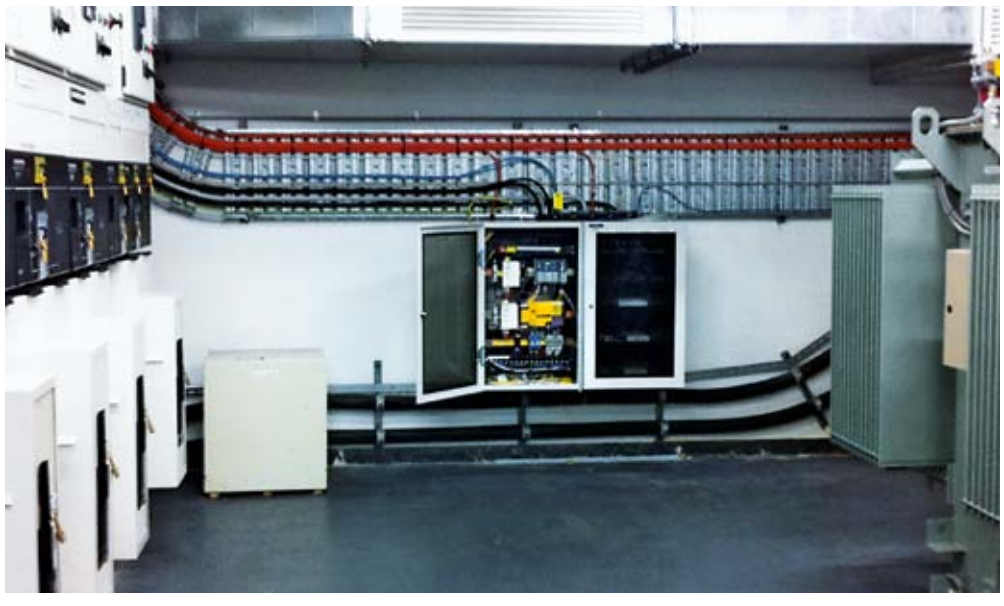
The transformer stations and the control room communicate via SafetyNET p real-time Ethernet from Pilz. It transfers data for safety-related and non-safe control tasks in a system. With the software platform PAS4000, the corresponding Program Editor PASmulti and EN/IEC 61131-3 Editors, the automation system is easy and flexible to manage. The maintenance team of the hospital receives a detailed diagnosis in the control room. In this way, technical problems can be quickly and safely rectified.

The performance of the automation system PSS 4000 has convinced the hospital – since its installation four years ago. That is why White Technics has been currently commissioned to install the automation system also for the safe control system of the so-called low-voltage circuit breakers. "Extensions using PSS 4000 are so easy to implement, that the installation of further extension levels is planned," concluded Frank White, and added that it concerns a very successful project and represents a win-win situation for all parties involved.

From classical automation engineering to building automation

For four years now, the system has proved its reliability by performing without a single incident. The Industrie 4.0-capable automation system PSS 4000 that is established in the industry has now arrived in building electrical engineering and building automation. Here, it also provides protection for the operating personnel and protects expensive equipment against damage.

The automation system PSS 4000 also ensures that the power supply in hospitals is always secure and controlled, as here in Melbourne.



As part of the automation system PSS 4000, the control system PSSuniversal PLC monitors the status inputs of each shunt release and contactor of the transformer stations of the individual power networks.

3 minutes with ...

... Jaime Alonso

Technical Director Pilz International Services Group

Mr Alonso, why is training an important element in the international service provisions from Pilz?

We work together closely with customers every day and know their needs – technical as well as functional. So we are in a position to develop practice-oriented training programmes.

At the moment, for example, we are preparing an international workshop as a direct response to many queries on the subject of risk assessment. And we have just concluded a training programme with courses at nine different locations worldwide for an international customer on the subject of LOTO (Lock Out Tag Out). The participants in each course report on their experiences. This is very valuable for us and is incorporated into our range of courses.

What occasioned Pilz to provide a qualification such as CMSE®?

In the last few years, there have been great changes in the area of machinery safety, both in legislation and standards. The subject of safety has also become more complex, when seen from a technical point of view. In operational practice, this presents considerable challenges to the Company.

We can give an answer to these with CMSE® – both with an eye on the international and local standards situation and on their technical implementation.

With our worldwide network of experts, we are able to look at and convey topics at an international level but still ensure that the regulations and special features applying locally are also part of the qualification in each case. TÜV NORD is our partner in such matters. CMSE® is therefore offered by the technology leader for safe automation and certified by a worldwide acknowledged test organisation.

And what has the response been like?

We were naturally somewhat tense at the beginning as to how the concept would be received. That we have just awarded the certificate to the 1000th graduate completing the course is a sure sign that our customers worldwide recognise and value such a qualification. I personally found remarkable the reaction of a student in the course who had not passed the final exam: He had learned a lot, but now knew where the gaps in his knowledge lay. He wants to pursue his studies and then repeat the CMSE® exam. I'm sure then he'll pass!

1000th expert for machinery safety

In 2013, Pilz, together with TÜV NORD, developed the international qualification CMSE® - Certified Machinery Safety Expert. In the meantime, this qualification programme teaches comprehensive knowledge about the machine life cycle, in 22 countries worldwide. In Australia, the 1000th participant has just acquired the qualification. That shows: CMSE® has developed into a standard for certified further education in the field of machinery safety.

Once they have passed the final exam, the participants in the CMSE® qualification course can be proud to hold the certificate in their hands. As it is evidence, certified by TÜV NORD, of the person's own competence in the field of machinery safety. Rod Burton's delight was particularly great. The electrical engineer from the Australian system integrator "Machinery Automation & Robotics" received in Sydney the 1000th certificate of this qualification. "The qualification to CMSE® was very challenging for me. I can now advise, train and guide the engineers in our company on the subject of machinery safety – from the concept via the integration to the validation," reported the fledgling CMSE®.

For this, the qualification tackles complex technical questions and conveys the necessary content over the entire life cycle of a machine – from the legislation and the world of standards via the risk assessment up to application of functional safety principles. Worldwide regulations concerning occupational safety and health protection are also focal points. The training, especially for design engineers, safety and development engineers from the fields of automation technology as well as maintenance, lasts four days as a rule, is internationally standardised but still takes national requirements into consideration.

For those interested, all information on the contents and dates can be obtained on **www.cmse.com.**

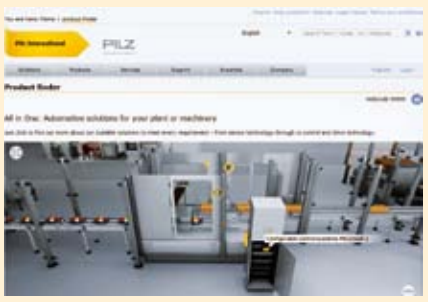
Webcode: web10370

Online information at www.pilz.com

Congratulations: Scott Moffat (left), managing director of Pilz Australia and New Zealand hands over the 1000th CMSE® certificate to Rod Burton.

In brief ...

Pilz's product finder – simple search, quick results



The new product finder at www.pilz.com supports the fast search for the suitable product. With one click, those interested can find out more about the scalable solutions for each requirement – from sensor technology through to control and drive technology – including safety and automation. In this, the product in use on the machine is displayed in the product finder. It is therefore obvious at first glance for which applications the various devices are suitable. The operating and visualisation systems which facilitate installation and maintenance of the machine can also be found there.

Different automation solutions for small, simple machines through to large, networked plant and machinery provide maximum flexibility. Regardless of whether the user wants to standardise safety, safety and automation are to be combined in a peripheral device or a solution for the complete automation is required – the product finder displays the suitable product.

Webcode: web5171

Online information at www.pilz.com

France is ready

The signs point to growth. After the economically difficult years, the French industry is again looking optimistically to the future because of changing framework conditions such as lower Euro exchange rate, lower oil prices and the greater impact of economic incentive measures in the form of tax credits for recruitment of new employees, for example. Industrie 4.0 is also a topic.

"I am convinced that the automation market will experience greater growth in 2016," said the forward-looking François Obert. He is convinced that "the companies are now activating investments that they put off time and again in the last few years".

François Obert can rely on his 20 years of experience in various automation technology companies in making this assessment. He is now the new managing director of Pilz France, since June 2015, and finds a well-positioned team: "We are ready to grasp the opportunities that arise!"

The French Pilz subsidiary is one of the oldest companies in the Pilz Group: Starting in 1969, the now four offices and around 40 employees in Paris, Lyon, Lens and the headquarters in Strasbourg look after the customers. Cable cars, logistics and energy are among the most important fields of activity, in addition to the classical industry sectors such as automotive and mechanical engineering.

"Pilz is acknowledged in France as market leader for safety automation," Obert relates. To continue its success story, the subsidiary is extending its solution portfolio. In addition to individual components, the customers are increasingly requesting complete solutions for safety, automation, motion monitoring and process engineering. The sensor and motion offerings as well as the automation system PSS 4000 will play an important role in the future.

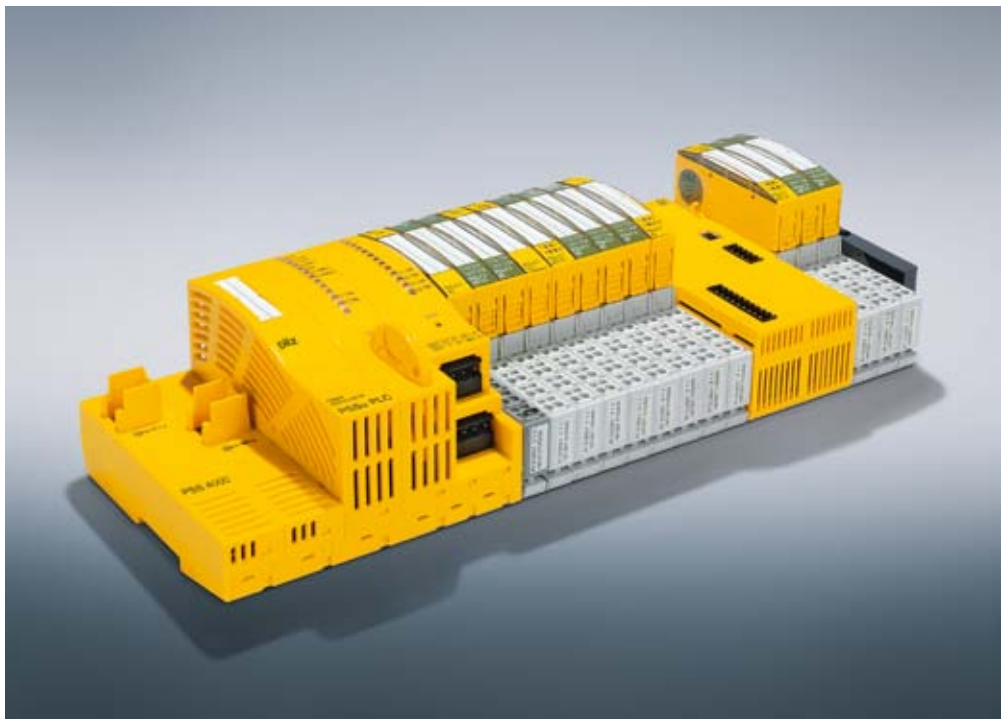
Keyword "future": Industrie 4.0 is also an increasingly important subject in France "because of the networking between IT and manufacture, Ethernet is taking on more and more communication tasks in the workshops. For this process of change, the customers require a more powerful advisory service from the automation supplier – especially on the subject of safety," Obert said. The French have recognised this at an early stage and already extended their service activities some time ago. "We are very well prepared to carry out complete automation projects, including advisory services, engineering and commissioning."

Motion monitoring for all instances

A high productivity in manufacture is closely linked with a safe rotational speed and motion monitoring of axes. Pilz as full-range supplier provides the suitable solution for every requirement in implementing rotational speed and motion monitoring – whether it be drive-integrated or a stand-alone solution.

Previously, static safety measures ensured the protection of persons, at plants and machinery. Today, on the other hand, axes may, for example, be checked with opened door and horizontal motion monitored by the person in the direction away from him or at limited speed towards him, so long as there is enough space for the person to take avoiding action and this motion can be safely monitored at the same time. The main advantages of safe motion monitoring are an enhanced productivity and shortened set-up times.

According to the new Machinery Directive, when the drive is brought to a standstill, the operating status must be safely monitored and maintained. The motion monitoring safety functions must also be guaranteed. The term “safe” is understood in terms of functional safety from the machinery safety standards EN 61508 and EN ISO 13849-1. Pilz can offer the right solution, depending on the application.



The new compact I/O module enables extended motion monitoring functions with the control systems PSSuniversal PLC and PSSuniversal multi of the automation system PSS 4000.

Drive-integrated or external solution?

In safe rotational speed and motion monitoring, a distinction is always made between a drive-integrated system and an external measuring system. Pilz as full-range supplier has the suitble system for every application. PMCprotego DS (servo controller with plug-in card for safe motion monitoring) is, for example, an integrated Safe Motion solution and intervenes in the process with control action in an emergency. If an axis moves too quickly, braking occurs automatically.

Safe motion monitoring is implemented separately from the machine and drive control using an external monitoring device. It ascertains reliably if an axis moves too quickly or in the wrong direction by actively “listening into” the sensor signals. This variant offers further advantages: for example, the monitoring of only one axis can be done with the PNOZ s30 stand-alone rotational speed monitor. The safety functions can be set directly on the device using a rotary switch. Or the user employs the configurable control system PNOZmulti 2 and gets a rotational speed and standstill monitoring from the new motion monitoring modules of up to two axes in accordance with EN 61800-5-2. The modules are simple to configure via the PNOZmulti Configurator software.

The third external and fully programmable complete solution for interlinked plants and machinery is the automation system PSS 4000 – for safety and automation. It makes a large number of modules and various IEC-61131-3 editors and building blocks available to the user. The speed monitoring module PSSu K F EI provides, in addition to safe speed monitoring, a local trip and the passing on of these shutdown signals to further speed modules and subsequent axes. Up to eight axes in a system can therefore be safely monitored and when a speed limit is reached can be switched off within a few microseconds without an additional PLC cycle time. The PSS 4000 also provides the option for implementing, with the control systems PSSuniversal PLC, position monitoring (safe speed and safe position) with safe counter modules in combination with two encoders up to SIL 3 and PL e.

Webcode: web5096

Online information at www.pilz.com

Apropos PSS 4000

With Mat P. on his automation tour

PSS 4000 APPLICATIONS

Whether it’s an application in packaging, automotive, transport technology, metal processing, … – as an automation expert., Mathias P. is in worldwide demand. His friends and his wife call him Mat. Here he tells us about his life with and all around the automation system PSS 4000.

Mat, let’s drive to the mountains over the weekend and go hiking. The weather will be wonderful!

Hiking? That doesn’t sound very action-packed … But when I can make you happy, I’ll naturally come along. Let’s drive to Oberaudorf in the Alps, on the German-Austrian border.

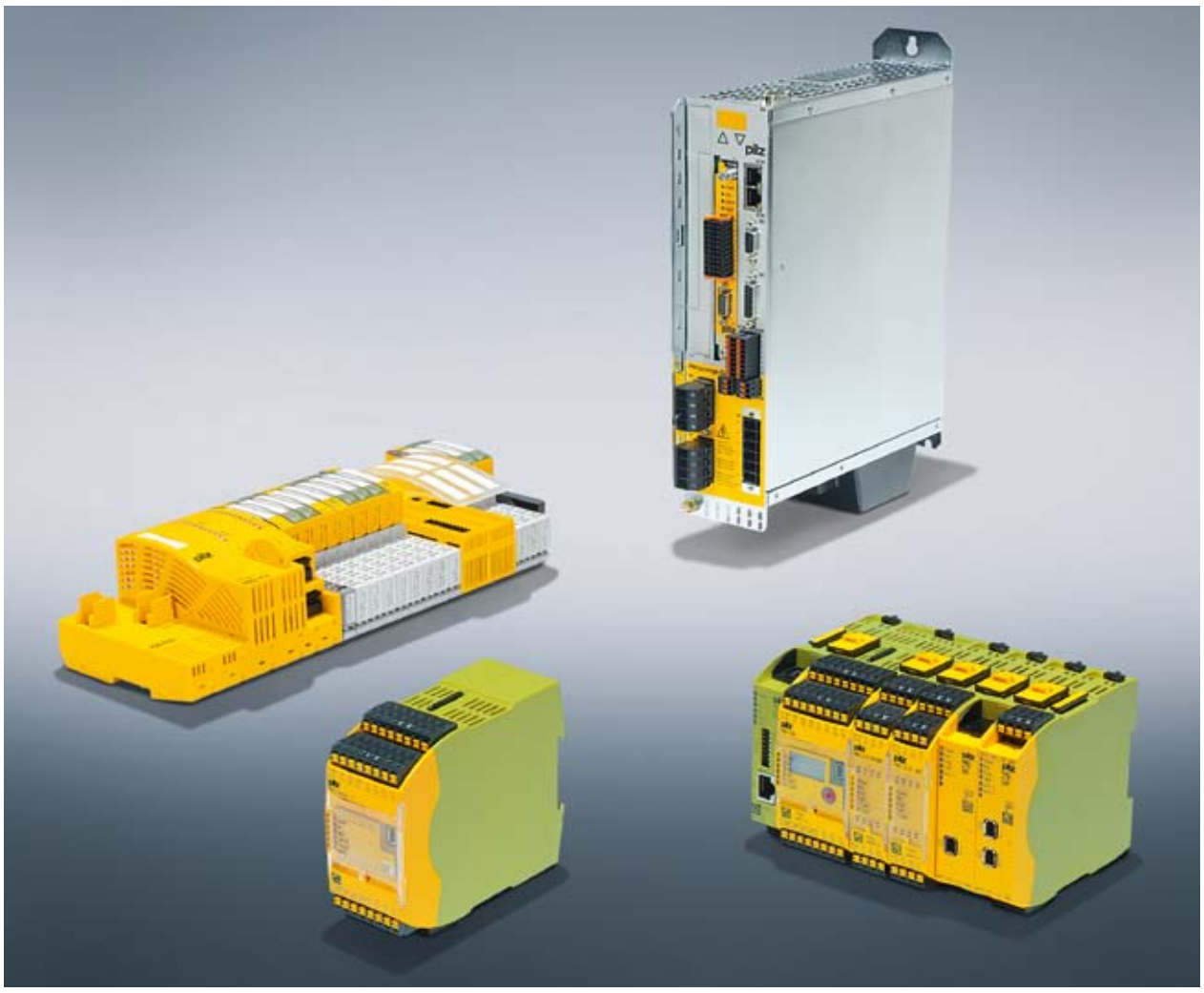
Just a moment, you are up to something! Why Oberaudorf of all places? Has that something to do with automation again? I thought there is not so much industry in the mountains …

Darling, you’ve seen through me again. But automation does not just make sense in factory shops. There is a flying fox run in Oberaudorf. Hanging on a steel cable, you “fly” at up to 80 km/h for a stretch of 700 metres – over the mountain meadows from the top station directly into the valley to the “Target Tower”.

That sounds extremely fast. What happens if something goes wrong? Hiking would be a bit safer.

I can put your mind to rest there. The flying fox run in Oberaudorf is the safest in the world! Not least because of the automation system PSS 4000 from Pilz which monitors the entire stretch and the braking system in which it evaluates all operating data. More safety is not possible!

PSS 4000 in other words. I knew it was that! OK, then let’s drive to Oberaudorf. And then I can perhaps persuade you to come on a short hiking tour after the run.



Safety relays PNOZsigma – PNOZ s20 with semiconductor outputs!

With especially narrow housing widths and compressed functional variety in each device, the safety relay PNOZsigma provides the maximum of function in the smallest space, for example for valves or contactor extensions.
A new feature is the PNOZsigma contact expansion module with two instantaneous safety outputs using semiconductor technology with a width of just 22.5 mm. With dual-channel output switching, the device achieves PL e and SIL CL 3 in combination with the base device; PL d and SIL CL 2 with single-channel output switching.

Up to five PNOZ s20 can be easily and quickly connected directly to a base unit, PNOZ s3 for example, with one hand via a plug-in connector. With the contact extension module PNOZ s7.1, the number of semiconductor outputs can be extended almost without limit by means of cascading.
The user can reduce the wiring effort by 20 % using contact extension thanks to the plug-in connector. One variant with spring-loaded terminals helps to shorten the installation times yet again.

Webcode: web5229

Online information at www.pilz.com

New language versions for the Mobile Safety Inspector app PASmsi

With the Mobile Safety Inspector PASmsi, users of smartphones and other mobile terminals can assess the requirements for a safe machine. The most diverse calculations can be made in four clear categories. No knowledge of the mathematical correlations is required. Simply answer the pre-defined questions, for example, to calculate the required risk level for a machine. The app will make all the calculations in the background and provide the result immediately.
In addition to German and English, the app now supports the following languages: Spanish, French, Italian, Polish, Chinese and Japanese. Contact details are now available for each country where the user can turn to when he has questions on machinery safety. The app can be downloaded free of charge for Android (Google) and iOS (Apple) operating systems from the respective stores.

Webcode: web10924

Online information at www.pilz.com

True power monitor PMD s10 – now even higher performance

The true power monitor PMD s10 can calculate derived quantities such as level, volume, torque or air pressure from the measured true power. The PMD s10 monitors switching thresholds and at the same time outputs an analogue voltage or current value, proportional to the true power. This enables monitoring of underload and overload thresholds per relay contact and per analogue signal (for the evaluation in a PLC).
The extension to the measuring range enables powerful plants machinery to be monitored. It is now possible to monitor power levels from 1 W up to 1.15 GW. An early-warning system for hazardous plant states can be implemented with the help of this true power monitoring relay. Wear can be detected and treated before mechanical components fail, e. g. bearing or filter. This prevents expensive damage to mechanical parts, plant standstills and danger to persons.

Webcode: web5215

Online information at www.pilz.com

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