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Dear Reader,

From time to time it is a good thing to take a short break from everyday business, think about it and look for inspiration for potential changes and adaptations. Good places to find inspiration for the business are events, where you can usually find a higher concentration of new



ideas and products, than anywhere else. One of the most important industrial shows worldwide is HANNOVER MESSE in April. We had an interview with Arno Reich from Deutsche Messe, the organization behind the show about the challenges and trends. One new thing in Hannover this year will be a change in the layout, that puts software more than ever in the focus, with the placement of all providers in the prominent halls 14 to 17. But not everything will change, the important Automation and Process Automation section will stay in halls 8 to 11. The interview you will find at page 6 and if you still need a ticket for HANNOVER MESSE, you can use the QR-code on the cover to register for your free ticket on the fair website.

But not only at shows you can find inspiration to streamline your business. We have for you brought together some interesting material in this issue. On page 8 you can **learn more about how the complex problems of asset management can be facilitated**. On page 16 you can find another interview we had with Jürgen Skowaisa from Vega about their **newly introduced product line of radar sensors**. He tells us why he thinks they will replace ultrasonic sensors in most level measurement applications soon.

I hope you will have an interesting time with this issue and as usual: Please contact me, if you have feedback for us or an idea for a story, to share with all readers.

Editor of PCN Europe

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**Is Radar the Better Ultrasonic?**

An interview with Jürgen Skowaisa, Product Manager Radar at VEGA Grieshaber KG in Schiltach, Germany about advantages of the technology and the new line of radar devices for a wider field of applications.





## Eco-Design Directive, Water Pumps and the Opportunity for Huge Energy Savings

As part of the EU Commission's ongoing revision to the Eco-Design Directive, pump manufacturers across Europe want to implement the extended product approach (EPA) for water pumps. This would result in not only the pump being covered, but the entire pumping unit, along with the necessary electric motor and control system, falling within scope of the Directive - as is already the case with heating pumps. This proposal would have a huge impact on energy efficiency. After China and the USA, Europe has the third largest electricity consumption in the world - around 3,300 terawatt hours (TWh) per year. More than 300 TWh of this is accounted for by electric pumps. That is the equivalent to the generated output of 30 large coal-fired power plants. The EU Eco-Design Directive aims to improve the environmental impact of energy-intensive products through optimal design. Europump, the European pump association, has determined that water pumps can reduce electricity consumption by 35 TWh from 137 TWh a year. This would make it possible to shut down 4 coal-fired power stations. However, these enormous energy savings can only be achieved if the narrow product approach is abandoned in favour of an extended product approach; the aggregated savings must surely be considered over the entire life cycle of the product and its related system.



## Emerson Completes Acquisition of General Electric's Intelligent Platforms Business

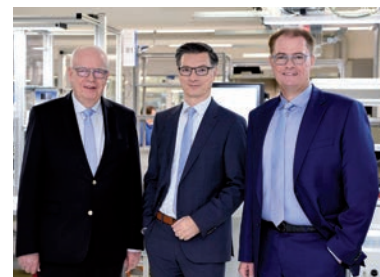
Emerson has announced the completion of the purchase of Intelligent Platforms, a division of General Electric (GE). The addition of Intelligent Platforms programmable logic controller (PLC) technologies will enable Emerson to expand its capabilities in machine control and discrete applications and will provide its customers broader control and management of their operations. Intelligent Platforms, with its portfolio of cloud-connected controllers and devices for smart plants, will serve as a strong complement to Emerson's industry-leading Plantweb digital ecosystem. Through this expansion, Emerson is growing opportunities across process and discrete industries as well as hybrid markets such as metals and mining, life sciences, food and beverage, and packaging. By interfacing Intelligent Platforms' PLC technology with Emerson's leading distributed control systems, customers will be able to connect "islands of automation" within the plant to further enhance operational performance, safety and reliability. Emerson Chairman and Chief Executive Officer David N. Farr said that "This is



another important investment in our global portfolio of automation technologies, offering discrete and machine control capabilities that complement our process control expertise to provide better solutions to our customers."

## Additional Managing Director at JUMO

The managing JUMO shareholders Bernhard Juchheim (left.) and Michael Juchheim (right.) have appointed Dimitrios Charisiadis (middle.) as third managing director with effect from January 1, 2020. He will be responsible for "Sales, Development and Production". Bernhard Juchheim will in future be responsible for "Human Resources", Michael Juchheim for "IT and Finance". Together, the three managing directors will increasingly focus on the topics "corporate strategy and development". Dimitrios Charisiadis has been with JUMO since 2017 as "Divisional Manager Sales Germany and Global Product and Industry Management". The managing partners have decided to distribute the management responsibility of the group of companies on additional shoulders "to expand our scope of action and thus enable greater flexibility and a faster reaction speed," as Michael Juchheim explains the decision. According to Bernhard and Michael Juchheim, it is an important step for JUMO to appoint an external managing director for the first time in the company's 70-year history. With the new management structure, the organizational requirements for further growth and thus the creation and safeguarding of jobs are now being realized.



## Danfoss Acquires Eaton's Hydraulics Business for 3.3 Billion US\$

The Danfoss and Eaton Hydraulics businesses are leaders in the industry and have many organizational similarities, including company culture and a focus on customers, R&D and quality. Both businesses are global with complementary geographic footprints and the combined business creates a broader presence across the world. Furthermore, the acquisition will enable Danfoss to enter the industrial hydraulics market that is served by Eaton Hydraulics. "We take a significant and transformational step in



creating a global leader in mobile and industrial hydraulics. It is a once-in-a-lifetime opportunity to combine our largely complementary portfolios and geographic footprints. Eaton Hydraulics is a highly respected player in the global industry, recognized for its dedicated people and strong brands. By combining the knowledge and experience of the two businesses, our customers will benefit from unmatched expertise from a single partner. With this agreement, we continue to invest in our core hydraulics business and digital solutions to stay a strong technology partner," says Kim Fausing, Danfoss President and CEO. The transaction is subject to customary closing conditions and regulatory approvals and is expected to close by the end of the year.



# Industrial Transformation Is the Key to Overcome Technological Challenges

In this interview, Arno Reich, Senior Vice President of Hannover Messe at Deutsche Messe, gives an overview of this year's Hannover Messe. From digital transformation to carbon-neutrality, individualization and demographic change, Hannover Messe provides a neutral platform where industrial companies and leaders can find mutual solutions to overcome today's challenges

By Sara Ibrahim and Kay Petermann

With the industrial transformation knocking at the door and the urgency of fighting climate change, no company is immune to the numerous challenges that this fast-changing world is bringing. This year's Hannover Messe shows how digitalization is still the top priority, follow by sustainability and innovative approaches towards production and the recruitment of key human resources to make the transformation happen. Always projected to boost international dynamic and innovative industrial markets, the upcoming show will have Indonesia, one of the biggest digital economies in Southern Asia, as partner country.

**PCN Europe: The lead theme of this year's Hannover Messe is Industrial Transformation. How is the industrial world changing if you look at your exhibitors?**

A. Reich: Four trends – digitalization, individualization, carbon neutrality and demographic change – are driving industrial transformation. As a result, customers today face very different challenges compared to only a few years ago, and exhibitors must adopt new technologies, processes and recruiting initiatives in order to help their customers overcome these challenges.

**PCN Europe: Does the decision to choose Indonesia as Partner Country go in the direction of this transformation?**

A. Reich: Yes. Indonesia has set the ambitious goal of becoming



Arno Reich,  
Senior Vice  
President of  
Hannover  
Messe at  
Deutsche  
Messe

Southeast Asia's biggest digital economy by the end of 2020. In order to achieve this goal, it launched the initiative "Making Indonesia 4.0", which focuses on areas such as digitalization of industry, energy reform, education, innovation, and foreign investment.

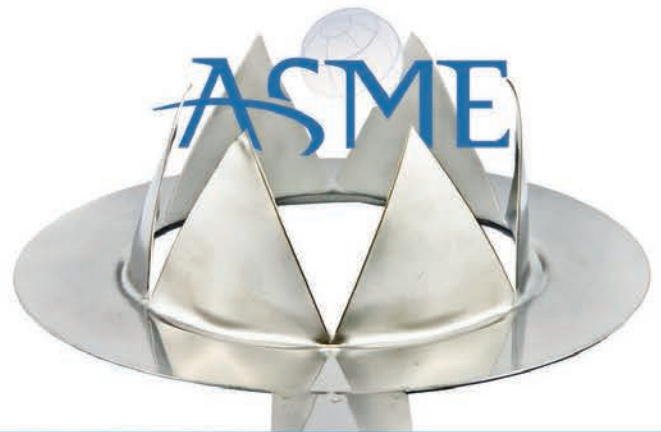
**PCN Europe: Logistics is now one of the major themes at HANNOVER MESSE, after CeMAT in 2018 was still a parallel event to the trade fair. Why did you take this step towards integration?**

A. Reich: We took the step to ensure that visitors fully experience how software, IT and automation interact with logistics. Beginning this year, logistics systems providers will be located with automation companies, while logistics software providers will be located with IT companies.

**PCN Europe: A look at the side events reveals some innovations. After the "Industrial Pioneers Summit" was held for the first time in 2019, the "Global Manufacturing and Industrialisation Summit"**



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**will be added in 2020. What impulses can these events in the direct trade fair environment provide?**

A. Reich: HANNOVER MESSE features more than 80 conferences, forums and special displays that offer visitors a broad range of technical and business expertise as well as networking opportunities. For example, the Global Manufacturing and Industrialisation Summit (GMIS) brings together 3,000 participants to discuss the topic "Glocalisation: Towards Inclusive and Sustainable Global Value Chains".

**PCN Europe: The technological change comes with a period of political and economic instability, trade wars and manufacturing downturn in Europe. How to respond to these bad trends?**

A. Reich: HANNOVER MESSE provides a neutral platform where industrial companies as well as business leaders and politicians gather to discuss the issues you mention. Therefore, we believe in more cross-border cooperation, not less.

**PCN Europe: The world is becoming more and more aware of the disasters caused by climate change and the need to stop it. Industry can do a lot to influence a sustainable approach on a global level. Are industrial companies doing enough? What could be or must be improved?**

A. Reich: Industry is responding to climate change by developing innovative technological solutions for CO<sub>2</sub>-neutral production. Industrial companies understand now that environmentally friendly production is not only a cost-saving measure, but also an indication of social responsibility. As far as improvements, tempo and global cooperation need to increase.

**PCN Europe: Finally, a practical question: what is the situation with regard to digitisation when visiting the trade fair? What opportunities can trade visitors use to make their visit as efficient as possible and take advantage of all the interesting opportunities?**

A. Reich: We maintain a number of digital channels that visitors can use to optimize their visit, including our website (hannovermesse.com), the HANNOVER MESSE App, Social Media, and a Newsletter. We also have offer exhibitors a digital visitor analysis through Waytation, which helps them fine-tune their exhibits and product presentations for visitors.

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# Climbing the Asset Management Mountain

Reaching the summit-and going beyond-requires the right equipment

Authors: Robert Alonso, Rail Solutions Executive, Enterprise Software, ABB and Alessandro Pedretti, Solutions Consultant, Enterprise Software, ABB.

As mountain enthusiasts of all skill levels can confirm, the choice of equipment is critical when the summit to be conquered is more ambitious. For a walk in the hills, a pair of comfortable trainers will do; however, to climb Mont Blanc or Everest, you need oxygen, snow boots, ropes, and more.

Asset management is a mountain in its own right, and while the level of difficulty depends on your organisation, the majority of organisations are under-equipped for the challenges they face. Just as the professional mountaineer needs specialised equipment, the professional maintenance manager needs sophisticated and flexible software solutions for the journey towards mature asset management. In this brief article, we'll highlight a few key considerations for a successful summit.

In the not-too-distant past, paper and worksheets were considered sufficient to manage maintenance activities; these eventually gave way to computer-based spreadsheets, which are still highly prevalent today, but with rapidly diminishing results. The reason



Alessandro Pedretti



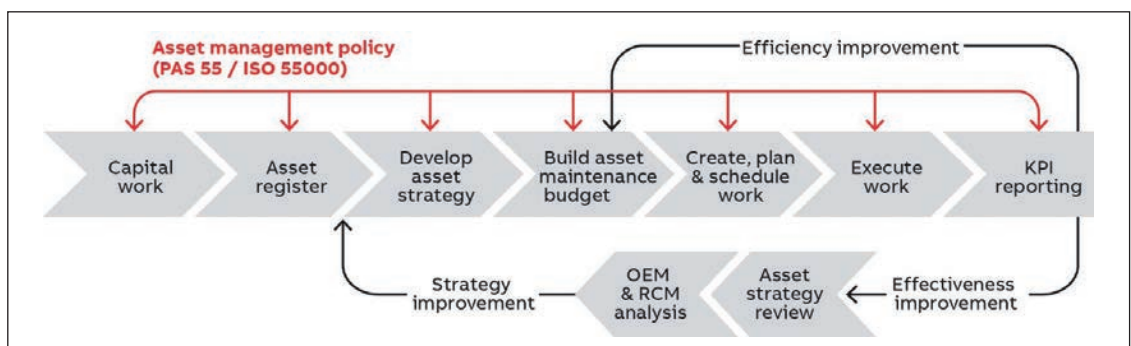
Robert Alonso

is simple: It's the wrong equipment for a much more difficult mountain.

Today's maintenance managers are expected to reduce costs whilst meeting customer demand for higher service levels, all in the midst of growing technological complexity.

Attaining a high level of asset management maturity requires a move to informed, proactive and strategic behavior. This is only possible by fully utilizing the latest technologies in the world of information technology, telecommunications and sensors.

Figure 1- A well-defined asset management policy is essential to success (ABB's Enterprise Software product group)





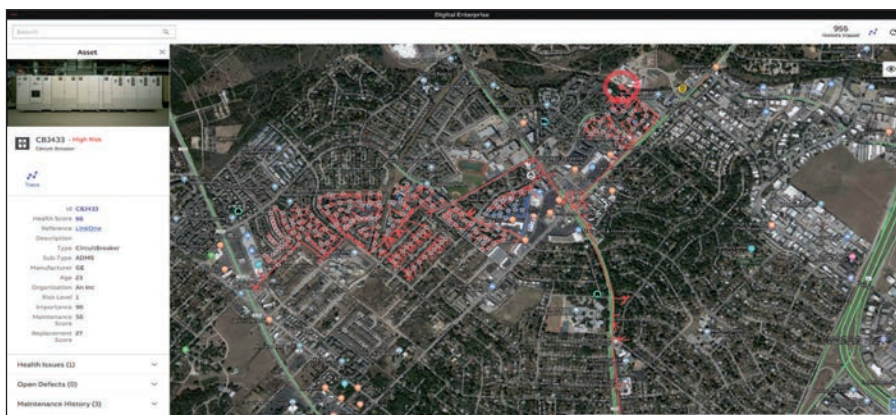


Figure 2- An enterprise wide view.  
(ABB's Enterprise Software product group)

### ALWAYS START WITH A MAP

For any organisation to deliver a consistent outcome, it must have a well-defined asset management policy to provide clear context to the diverse range of people involved in producing the desired results (Figure 1). The PAS 55 standard issued by BSI in 2008 perfectly described the guidelines of this evolutionary path of maintenance management. According to PAS 55, asset management is “a systematic and coordinated set of activities and practices that allows companies, through an optimally managed and sustainable organization of their assets and systems, to improve their performance, reduce risks and expenses and implement their strategic plan during the life cycle of the asset.” This principle has now found its natural home in the ISO 55000 standard, which describes the need for a fully integrated maintenance management system that can support the full breadth of a mature asset management policy to deliver performance, quality, administration, environment, and safety & risk management.

### GEAR UP: THE BENEFITS OF MODERN ASSET MANAGEMENT SOFTWARE

An enterprise asset management (EAM) system is absolutely essential to the modern maintenance manager. It forms the ‘foundation’ from which to drive a comprehensive strategy. An EAM is specialised software that can support the day-to-day control and maintenance of assets as well as the resources who maintain them. This will drive synergies from a holistic company view, uncovering

hidden and unexpected opportunities for improvement. Implementing an EAM system offers major improvements in management and engineering visibility. An EAM system breaks vertical silos, but it also addresses the horizontal silos between operation and strategy. The business intelligence capabilities that an advanced EAM offers provide reports and dashboards to support the visualization of asset health, risks and process compliance. The benefits of an EAM system begin to grow exponentially with the subsequent integration of all key business functions, including financial processes. This introduces the ability to make asset decisions that are optimised from a financial perspective—and this is not limited to just asset performance. When budgets are tight, prioritizing decisions such as capital investments, or what maintenance can be deferred, or solving inefficient resource utilization, becomes critical. An EAM is crucial to helping balance asset risks, costs and performance, allowing sustainable and informed choices that are aligned with a business strategy.

### REACHING THE SUMMIT...

Numerous large asset management organisations have implemented dedicated software and are learning the benefits of this heightened level of maintenance management maturity. But reaching the top of a mountain once is very different from achieving it day after day. To consistently achieve high levels of asset management maturity in an asset-intensive environment, the maintenance

management team must be flexible and innovative. In the mountains, weather conditions can change rapidly, and the experienced mountaineer knows how to adapt; similarly, in a complex industrial context, unforeseen events are common, so it is also essential that software systems are flexible to support ongoing innovation.

### ...AND GOING BEYOND

An EAM system is only the beginning; a gateway to greater digital transformation, where technology enables users to rapidly evolve in line with developing business challenges, which is essential to sustaining mature asset management processes. In a truly digital enterprise, asset performance and maintenance activities are available from a single enterprise-wide graphical interface (Figure 2). Imagine: From one dashboard, an engineering or maintenance manager can view and act upon the health and condition of the fleet of assets, have access to alarms from live sensor information, be able to see the results of performance models, have access to operational status information, to 3D asset diagrams, the ability to prioritise and schedule resources, and more. The heights that can be achieved are dizzying.

### THE JOURNEY BEGINS WITH THE FIRST STEP

Any mountain is intimidating when you're standing at the bottom, but the right tools and equipment make the climb possible—even for the novice. Asset-intensive organisations are complex and beset with ever-evolving challenges. In this rapidly changing business world, it's important to equip yourself with sophisticated and flexible technology that can keep pace with your current needs, support your ongoing initiatives, and enable you to set your sights on ever-higher summits.

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# Delivering Maximum Quality in the Shortest Time

## Re-equipping a toluene diisocyanate plant

Planned downtimes are nothing unusual in process automation. While production is at a standstill, activities in the rest of the factory are proceeding at high speed: necessary adaptations are being carried out to optimize the plant and keep it state-of-the-art. Thus BASF used the planned downtime in Schwarzheide in 2018 for large-scale revisions of several plant components; this included alterations to the instrumentation and control of the toluene diisocyanate plant.

Toluene diisocyanate (TDI) is an important basis for the production of the special plastic polyurethane. It is used especially in the furniture industry in elastic foams for mattresses, upholstery and wood coatings, and in the automotive sector for car seats. At present BASF produces TDI at its plants in Schwarzheide and Ludwigshafen in Germany, as well as internationally in Yeosu/South Korea, Caojing/China and Geismar/USA. The TDI production plant in Schwarzheide now required optimization. Display and operating components were already state-of-the-art. However, process-related components in the E/A periphery needed to be replaced by modern signal adjustment modules and some thousands of E/A cards.

### GOOD PLANNING: THE MAIN DETERMINANT FOR SUCCESSFUL REFITTING

The TDI plant consists of the production plant itself and a chlorine storage facility. Work needed to be done on both parts of the plant. The downtime was planned from the end of June to mid-July, meaning that three weeks were available for the refitting. During this time it was not only planned to replace the components already mentioned, but also to optimize and modernize all the existing wiring. Thus, a competent service provider was needed who could draw up the complete electronic planning documentation in the shortest possible time and in the highest possible quality, as required by BASF. Close and flexible cooperation with the BASF project coordinator was needed in order to find ideal solutions together. Since the project was extremely complex and the time schedule very tight, the chemical com-



The BASF location in Schwarzheide (Source: BASF)

pany brought in two external service providers to make sure of achieving success within the short time window. The project was split into refitting the production plant – which constituted approximately 80 percent of the work to be done – and refitting the chlorine storage facility. The automation experts from Rösberg won the tender for the production plant. They also ensured that despite the involvement of several different participants, the project had a unified documentation structure, and that the overall quality was right. Christian Pöschke, Senior Project Manager for Process Automation at Rösberg, explains: “Several reasons contributed to our being awarded the contract for the project. Firstly, we have been cooperating with BASF

for the past 26 years. We have a lot of on-site experience here, and we are well acquainted with the processes and workflows of BASF. Project coordinators know from experience that we deliver good quality at a fair price.” The choice was also determined by the fact that for years now BASF has been using the I&C-CAE system ProDOK for plant engineering and documentation. Since the automation experts developed the software themselves, they obviously know it inside out. Pöschke adds: “As well as being very familiar with the plant in Schwarzheide, we have accumulated broad experience of similar projects over the years. All these factors helped us anticipate and avoid potential problems. We were also able to use the refitting as an





opportunity to optimize the documentation according to a jointly developed solution, as required by the project coordinator at BASF.”

#### ELECTRICAL AND SAFETY PLANNING

The I&C-CAE system ProDOK supports users in the planning of complex process plants. For instance, the user saves items of information relating to individual sensors, actuators and electrical connections. From these, the system then generates e.g. intelligent circuit diagrams that give a better overview of a system’s quantitative relations. One of the options in these diagrams, for example, is to color-mark the components to be installed and de-installed, for use by fitters on-site.

Because hazardous substances are processed in the plant, as well as electrical planning, safety features play an important role: the specification, layout and allocation of safety functions, and the qualification of the protection system. Other aspects included in the project were legally compliant documentation, explosion protection documentation, management of functional safety, SIL (Safety Integrity Level) calculations, as well as Ex(i) calculations and PTB (German standards laboratory) certificates of conformity. To ensure that after completion of the alterations the documentation would really tally with the situation in the plant, colleagues of the automation experts supervised the

changes in the field and brought the documentation up to date as far as possible directly on-the-spot. Wherever this was not possible, they made redlining revisions in the existing documentation. These were then integrated into the final version.

#### TEAMWORK: ESSENTIAL

To reliably complete a project of this kind within such a narrow time window, two things are needed: good cooperation with the project coordinator, and sufficient manpower. Here it was an advantage that the Rösberg team, whose office is located on site on the Schwarzheide works premises, was able to bring in additional colleagues from other Rösberg locations. Pöschke is especially impressed by the teamwork: “The fact that we completed the project within the scheduled time so reliably, and with such high quality, was largely due to how well we worked together – both internally and in cooperation with BASF. This was only possible thanks to the great expertise and dedication of the people involved on both sides. We were able to bring in colleagues with exactly the competences required; the result was another extremely successful project. However, in projects of this kind we always try to learn as a team, too, so that we can act even more effectively in future.” BASF’s great satisfaction with the work of the automation experts has most recently been expressed by awarding them Best Engineering Contractor 2018. This award honors not only the project itself, but also the cooperation at administrative level.



The distribution and control system of the TDI production plant was modernized during the scheduled downtime. (Source: BASF)

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## HYGIENIC MACHINE LOCKS

Quarter-turns locks for food industry equipment



In order to produce the right product, state-of-the-art machinery and a sterile working environment are critical. And there is no reason why hygiene and modern design cannot go hand in hand, as **EMKA** and the renowned food

machinery manufacturer Seydelmann from Aalen, Germany recently have proven. EMKA will equip eight types of Seydelmann machines with quarter-turn latches and locks. Since the hygiene regulations in the food industry are immensely high and new certifications are always necessary, it was essential to optimise specific machine components. The EMKA hygiene quarter-turn provided to be the optimal solution for a mix of price/performance, as the lock can be integrated into existing machines with little effort. The quarter-turn complies with protection class IP69K. It is dustproof, even at low vacuum in the housing ( $\leq 20\text{mbar}$ ) and waterproof from four spray directions. The stainless steel components are robust and easy to clean, and can withstand the jet of a high-pressure cleaner, for example, to enable efficient "cleaning in place". With the EMKA quarter-turns installing and uninstalling machine linings gets quicker and easier especially during regular maintenance work at machines.

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## MODBUS TEMPERATURE PROBE

Measures Air, Gases and Liquids accurately



The EE074 from **E+E Elektronik** is suitable for accurate temperature measurement of air, gases and liquids. The robust stainless-steel probe can be used for climate and process control in the food and pharmaceutical industries, in clean rooms or in agriculture. The temperature probe offers a high measuring accuracy of  $\pm 0.1\text{ }^{\circ}\text{C}$  and a wide measuring range of up to  $-70\dots 105\text{ }^{\circ}\text{C}$  ( $-94\dots 221\text{ }^{\circ}\text{F}$ ). The IP68 stainless steel enclosure and the fully encapsulated electronics lead to an excellent measuring performance and a longer lifetime even in harsh and condensing environment. The RS485 interface with Modbus RTU protocol facilitates the design-in of the probe. With the optionally available immersion well, the EE074 can be used for temperature measurement in pressurized liquids up to 25 bar (363 psi). The innovative clamp ring allows for fastening the probe in the immersion well without screws and thus without tools. The sensing head with 6 mm diameter is also compatible with other standard immersion wells. Various probe and cable lengths are available, the M12x1 connector and the choice of optionally mounting accessories minimize installation time and costs. An optional adapter and the free configuration software facilitate the setup and adjustment of the EE074. Due to its mechanical design, the probe can be calibrated in a dry-block or liquid bath calibrator.

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►► 58061 at [www.pcne.eu](http://www.pcne.eu)

## SENSOR FOR EASY CONDITION MONITORING

Retrofit sensor for many variables



The multi-function BCM condition monitoring sensor from **Balluff** sets new benchmarks. For an attractive price systems and machine operators get a compact and easy to retrofit solution for continuous condition monitoring and automated monitoring of limits. The multi-talent detects various physical variables such as vibration in

three axes, temperature, humidity, ambient pressure and processes them directly on board. Based on this condition data you can monitor self-defined limits automatically, detect anomalies early, plan service and maintenance in advance, and thereby prevent unplanned stoppages. IO-Link as a communication protocol enables simple and industry-compatible incorporation into the plant and machine environment as well as flexible parameterization. This means how the sensor processes information can be tuned to the specific application. The content of the process data can be freely defined. Up to five measured or pre-processed data can be selected and transmitted cyclically. The data are aggregated and pre-processed in the sensor. Thanks to its dimensions of just 20 mm x 26 mm x 10 mm and a weight of approx. 30 g, this compact condition monitoring sensor can find room in even the tightest mounting spaces.

►► 58272 at [www.pcne.eu](http://www.pcne.eu)

## INLINE MONITORING WITH SMALL SENSOR

Fulfilling special needs in different environments



**SensoTech** offers small and robust inline analyzing devices for measuring tasks in harsh environments. To solve these applications also in hazardous areas the LiquiSonic explosion proof sensors are now available in

a smaller diameter. The sensors are certified as FM, ATEX, IECEx and NEPSI. Under harsh process conditions it is hard to find a robust inline measurement system. In the fields of phase separation, concentration measurement and reaction monitoring the sonic velocity measuring SensoTech devices are setting standards for decades. The maintenance-free LiquiSonic measuring devices record the absolute sonic velocity, a traceable and proven physical quantity, as well as the temperature and determine the temperature-compensated concentration of fluids with high precision. A special electronic housing made of stainless steel was developed for harsh process conditions, as in off-shore applications with a constantly high-concentrated salty atmosphere. It is perfectly fitting for this high corrosive environment. Furthermore, the housings of the LiquiSonic sensors can be manufactured with a separated electronic. This housing is tailored for customers with difficult installation conditions especially in chemistry, off-shore, mining and semi-conductor industries.

►► 58140 at [www.pcne.eu](http://www.pcne.eu)



## MULTI-PARAMETER MASS FLOW CONTROLLER

For gas ranges up to 1,000 L/min



The new **Aalborg** models of differential pressure/mass flow controller simultaneously display Mass Flow, Volumetric Flow, Pressure and Temperature. The DPC57, DPC67 and the DPC77 are designed to control gases 200, 500 and 1000 L/min flow ranges respectively. Standard accuracy is  $\pm$

(0.5% RD + 0.2% FS). Quick (100-150 ms) response time is inherent. Multi-Gas functionality support provides for 90 different gases and gas mixes. "User Defined Mixture" functionality allows to create and store up to 20 custom gas mixes with up to 5 different gases each. Optional local high contrast OLED graphic display with joystick control and Modbus RTU network interface with isolated RS485 transceiver are available. Free, easy-to-use configuration and calibration software (RS-232/RS-485) and programmable set point table with ramping up/down capability of up to 16 steps are included. Also, these high flow units come with two programmable mass flow rate totalizers, High, Low or In Range Alarms with preset action delay for Mass Flow, Temperature and Pressure functionality.

►► 58662 at [www.pcne.eu](http://www.pcne.eu)

## MOTOR PURGE FOR LARGE ENCLOSURE

Availability of system for sizes up to 12 cubic meters



**Pepperl+Fuchs**, introduces a Bebcu EPS purge and pressurization system designed specifically for use with large motors or large enclosures in Zone 1 hazardous areas. The 6100 series purge and pressurization system can purge an enclosure over 450 cubic feet

(12.2 cubic meters), making it the largest purging system available from Pepperl+Fuchs. The 6100 series system is perfect for applications in the chemical/petrochemical and oil and gas industries. It offers optional temperature sensors that can be mounted around the motor for alarm notification or cooling. Additionally, there is automatic pressure compensation for excess leakage from the motor. The 6100 system consists of a control unit, vent, low pressure sensor, and optional temperature sensors. The control unit allows users to configure the system for size of motor, temperature switch points, pressure switch points for leakage compensation and shutoff pressure, extra output for control or alarm, two selectable intrinsically safe inputs for various actions, and up to three temperature sensor inputs that can monitor various points within the motor housing. The intrinsically safe user-interface can also be mounted in a separate housing. The intrinsically safe pressure sensor provides an accurate enclosure pressure reading for safe operation within the hazardous area.

►► 58274 at [www.pcne.eu](http://www.pcne.eu)



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## FOUR-POLE CONDUCTIVITY SENSOR

Ensuring process reliability for a wide measuring range



The **JUMO BlackLine CR 4P** conductive four-pole conductivity sensor with integrated temperature probe is suitable for measuring both low and high conductivities. A wide measuring range from 1  $\mu$ S/cm to 300 mS/cm is covered. The technology also

offers other technical advantages such as reduced sensitivity to pollutants. Furthermore, no disturbing polarization effects, which falsify the measured value, take place. The measuring electrodes of the JUMO BlackLine CR 4P are made of special graphite which is abrasion resistant and robust enough to withstand chemicals. Its proven design allows the sensor to be easily installed in commercially available process fittings with a Pg 13.5 thread. The sensor can be connected to transmitters for electrolytic conductivity such as the JUMO AQUIS 500 CR or the JUMO AQUIS touch. The sensor can also be connected to suitable hand-held measuring devices. JUMO digiLine CR measuring electronics turn the JUMO BlackLine CR 4P into a digital component of modern water plants "4.0" with digiLine or Modbus interface. Typical application areas for the JUMO BlackLine CR 4P include seawater applications, rinsing and purification baths, the measurement of fertilizer concentration, or drinking and well water applications.

►► 58235 at [www.pcne.eu](http://www.pcne.eu)

**FLIR GF77**

*The Groundbreaking, Affordable OGI Camera*

**GROUNDBREAKING UNCOOLED OPTICAL GAS IMAGER FOR DETECTING METHANE AND OTHER INDUSTRIAL GASES**

[www.flir.eu/gf77](http://www.flir.eu/gf77)

►► 58248 at [www.pcne.eu](http://www.pcne.eu)

## SELF-MONITORING TEMPERATURE SENSOR

Avoidance of temperature drift to ensures quality



The new **ifm** TCC temperature sensor permanently compares the measured temperature value to a simultaneously measured reference value. If the deviation is outside the tolerance range, which can be set between 0.5 and 3 K, the

TCC provides an optical signal and sends a message to the central controller. Any malfunction is also signalled. The communication between the sensor and the controller is based on the digital IO-Link protocol. The LED on the sensor head indicates the current status: green for reliable operation, blue for temperature deviation outside tolerance range and red for a serious malfunction. Via IO-Link, the sensor can transmit further data required for comprehensive diagnostics. The set-up of the sensor is also carried out conveniently via IO-Link, for example setting of the tolerance range. There is also a simulation mode in which the process temperature and the reference temperature can be freely selected to verify whether the sensor has been correctly integrated into the controller. Thanks to its fully welded and sealed housing and a new measuring probe design, the TCC is permanently resistant to external influences such as moisture, thermal and mechanical shocks and vibrations. The inline calibration process ensures an accuracy of +/- 0.2 K across the entire measuring range.

►► 58663 at [www.pcne.eu](http://www.pcne.eu)

## ULTRA-COMPACT WEIGHING ELECTRONICS

Fast sampling rate and processing time for high accuracy



Siwarex WP351 is **Siemens'** newest solution for intelligent weighing automation. Measuring 20 mm width by 65 mm height, the module is one of the smallest weighing electronics units available. The device's 1,000 Hz sampling rate and processing time combined with a digital output response time of less than one millisecond guarantee highest accuracy and repeatability.

This capability represents especially in case of checking scales and high-performance filling machines a big advantage, as even within very short weighing times the dosing devices are controlled in an optimal way. As an integral part of Simatic ET 200SP, Siwarex WP351 can be seamlessly integrated into Simatic and non-Simatic automation systems, making it a clever alternative to traditional weighing terminals. The intelligent firmware gives users the ability to control weighing processes directly from the module, thereby reducing the load on the connected PLC. Through the ethernet-connected web server, users can quickly commission and maintain the device - or gain emergency access to the scale in case of a failed or disrupted PLC. Siwarex WP351 is a versatile solution for demanding weighing applications, such as mixing, filling, bagging, checking, or totaling.

►► 58657 at [www.pcne.eu](http://www.pcne.eu)

## CANOPEN FLOW METERS/CONTROLLERS

Metering and Control for a wide range of applications



### Bronkhorst High-Tech

announces the availability of a CANopen fieldbus interface on their flow meters and controllers for gases and liquids, as well as their digital pressure controllers.

CANopen enables system integrators to work with a high level of customization and optimization in any given

application, to achieve best possible communication performance. The fieldbus allows for cyclic communication at 1 Mbit/s with up to 127 nodes in a network segment. Like DeviceNet, the CANopen protocol is based on CAN. For the user, this means that the basic communication features and bus connections are very similar. Bronkhorst has many years of experience with fieldbus communication. With their "multi-bus" concept, the company offers their customers an extensive choice of seven fieldbus interface options. The wide range of digital metering and control devices is applied in many different markets, e.g. the food beverage and chemical industries, gas and fluid analysis equipment, glass and tool coating processes, testing fuel cells for the automotive industry and in machinery used to produce electronic chips, LED lights and solar cells.

►► 58499 at [www.pcne.eu](http://www.pcne.eu)

## DIGITAL POINT LEVEL SWITCH

Industry 4.0 ready for applications up to SIL 3



The **Endress+Hauser** Liquiphant has been installed six million times worldwide. The latest generation of devices is now ready for Industry 4.0. Whether as overflow protection or dry run protection, it today performs many tasks in the automation of processes. But even the most simple measuring principles have to adapt to digital change. The Liquiphant is used in storage tanks and pipelines for level measurement of any liquids. The all-rounder also works where other measuring principles reach their limits due to conductivity, flows or air bubbles. The

Liquiphant has already been developed according to IEC 61508 and the "Safety by design" principle and is therefore designed for use in SIL2 and SIL3 applications. In the technology roadmap to "Process sensors 4.0" NAMUR demands that a second, mobile way to communicate with the sensor must be opened and that the sensor provides information for preventive maintenance and process optimization. Furthermore product information such as manuals or certificates must be available on site at all times. Operators can now communicate with the Liquiphant and the SmartBlue App from Endress+Hauser. The app provides access to all product and diagnostic data.

►► 58221 at [www.pcne.eu](http://www.pcne.eu)





## NEW TARE-COMPENSATED FEEDER

Highly accurate and robust bulk weighing solution



The new **Gericke** DIW-E-STAR weighing system in conjunction with GAC feeders now covers the mid-range of feed rates in gravimetric hybrid feeder portfolio, typically from 10 up to 2'000 kg/h. It is available with hopper sizes ranging from 50 liters to 200 liters net volume. Due to the modular approach, all hopper sizes fit into one weighing frame. All hoppers are equipped with vertical agitators to ensure mass flow even for cohesive powders. Due

to the tare-compensation mechanism the load cell only measures the actual product weight, and vibrations are filtered out. This makes the DIW-E-STAR perfectly suited for dosing tasks where precise feeding in challenging production environments is required.

►► 58616 at [www.pcne.eu](http://www.pcne.eu)

## DUAL INPUT 2-WIRE HART TRANSMITTER

Accurate temperature measurement with redundancy



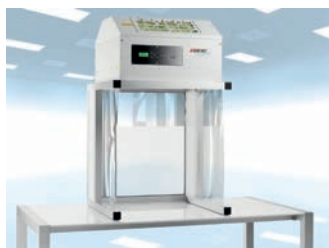
**PR electronics'** new PR 5437 features a unique high-density 7-terminal design, providing a wide selection of dual-sensor input combinations on the market. It allows customers to protect high-integrity process measurements, e.g. in flare stacks or reactors, with an automatic backup in the event of primary sensor failure, while continuously checking on the validity of process values. It also

provides the best accuracy, stability and reliability across a wider ambient temperature range of -50°C...+85°C. Additionally, sensor redundancy and drift detection ensure maximum uptime and process validity, while NAMUR NE107 compliance makes for easier process diagnostics and preventative maintenance scheduling.

►► 58478 at [www.pcne.eu](http://www.pcne.eu)

## PORTABLE CLEAN ROOM STATION

For storage of highly sensitive samples



**Spetec's** CleanBoy clean room station makes it possible to store samples in clean room conditions and create the optimum conditions for highly sensitive measurements in the field of elemental analysis. It brings a practically particle-free

atmosphere straight to any workplace where it is needed. Cleanliness in the technical sense means classified clean room conditions. It is easy to assemble and is immediately ready to use without further installation work and at only a low investment cost. On the tabletop, it is possible to work under class 5 clean room conditions. This is true for both the CleanBoy Mini (table-top version) and CleanBoy Maxi (floor-standing version).

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## 3-A COMPLIANT RUPTURE DISCS

Developed specifically for hygienic applications



Pharmaceutical, food, and biotechnological industries require rupture discs that ensure compliance with the most stringent hygiene regulations. That's why **DonadonSDD** rupture discs have been designed to meet the high quality standards required by 3-A SSI, whose aim is to

ensure public health through hygiene equipment. The discs are entirely made of AISI 316L stainless steel (or other alloys upon request of the client) and feature a smooth surface. Moreover, the rupture discs can be inserted into Clamp fittings or Tri-Clamps, thanks to PTFE gaskets complying with FDA, USP class VI, 3-A, and Eu 10/2011 regulations, and are non-fragmenting, i.e. they rupture without producing pieces.

►► 58477 at [www.pcne.eu](http://www.pcne.eu)

## ULTRASONIC THICKNESS GAUGE

For precise non-destructive wall thickness measurement



**PCE Instruments** offers the wall thickness gauge PCE-TG 300 which can be used for metals, plastics, ceramics and any homogeneous material. With optional sensors, it can measure in angled/hard-to-reach positions. To measure precisely, the sound velocity for the sample must be set. The test head is placed on the sample and an ultrasonic

signal is emitted. The meter will determine the echo of the sample and thus its wall thickness. As the echo-echo material thickness gauge features multi-point calibration, it is possible to measure unknown materials. With the PCE-TG 300, measurements from 0.65 to 600 mm can be made at a maximum resolution of 0.001 mm.

►► 58468 at [www.pcne.eu](http://www.pcne.eu)

## EX D-CERTIFIED ENCLOSURE

Weight and space saving solution with pressure relief



**R. STAHL's** new explosion-protected Ex d EXpressure enclosure technology is a futureproof alternative to conventional enclosure encapsulation. Complete switchgear assemblies and distribution boards can be housed in a single EXpressure enclosure, saving significant amounts of space and weight and

making maintenance a whole lot easier. The innovative ATEX- and IECEx-certified EXpressure switch cabinet series features a unique pressure relief system. Special stainless-steel wire mesh ensures that pressure within the enclosure can be reduced effectively, serving as a flameproof barrier that allows for a controlled flow of gas coupled with heat absorption. The Ex d-certified pressure-relief technology allows for wall thicknesses of just 2 mm.

►► 58498 at [www.pcne.eu](http://www.pcne.eu)

# Is Radar the Better Ultrasonic?

An interview with Jürgen Skowaisa, Product Manager Radar at VEGA Grieshaber KG in Schiltach, Germany about advantages of the technology and the new line of radar devices for a wider field of applications.

**PCN Europe:** VEGA is well known as a pioneer in radar measurement technology, after being at the forefront of this field for the last thirty years. Now you have introduced a new series of sensors. For which applications can the sensors be used and what makes them so special?

Jürgen Skowaisa: Radar used to be a special technology for complex applications where other technologies failed. Radar sensors are designed for a wide pressure and temperature range, which is what makes them expensive. In a lot of applications there are no high temperatures or pressures, but radar would still be the ideal technology. Those are the applications we are focusing on with the new radar devices. Our main focus is the water and wastewater industry, where ultrasonic is still the most commonly used technology. But there are many other applications in which radar has often proved to be

the best choice, e.g. in power plants, but also in small chemical tanks as well as in applications in the food and beverage industry that have lower demands on hygienic design. We also see great potential in the bulk solids industry, from building materials to various applications in pet food production. The main advantage of radar – in comparison to other measuring principles – is that it is not affected by the process conditions and the measured product. Radar is truly a universal technology.

**PCN Europe:** For the new series you actually started from scratch, designing a completely new radar microchip. How long did that take and what features did you focus on in the design process?

Jürgen Skowaisa: Radar is being used more and more in the automotive industry. There are now radar modules for use in simple distance mea-



Jürgen Skowaisa, Product Manager Radar at VEGA Grieshaber KG in Schiltach, Germany



The new VEGAPULS instrument series is available both as compact version with cable connection housing (left in the photo) and as standard version with fixed cable connection (IP68). The new series is complemented by the VEGAMET controller (right in the photo), which can also be used to visualize all measured values.

suring systems. However, these modules are not suitable for radar level sensors that have to meet the high demands of industrial process automation. Their power consumption is too high and their frequency ranges don't fit. That's why we decided to design our own radar chip optimized for level measurement. Working with a microwave semiconductor design company and a semiconductor manufacturer with broad experience in high frequency technology, it took us three years to create the final version of our own radar chip – perfectly designed for a new generation of radar sensors. During its development, our main focus was on low power consumption, an optimized frequency range for level measurement as well as high accuracy.



*Radar level measurement needs no protection against sun or temperature compensation to work*

**PCN Europe: So you are now able to deliver new sensors with a very competitive price compared to ultrasonic sensors. What are their main advantages from a technological point of view?**

Jürgen Skowaisa: When comparing sound waves with electromagnetic waves, you'll see many differences. Sound waves are strongly influenced by temperature, pressure and different gases – the result is significant inaccuracy, as these effects cannot be easily compensated. If an ultrasonic sensor is mounted outdoors, it needs a sun shield or an external temperature sensor to compensate for the heat generated by sunlight. In bulk solids applications, dust and filling noise cause huge problems for ultrasonic measurement because dust absorbs the sound waves and the intense noise makes it difficult to detect the echoes. Radar signals, on the other hand, are not influenced at all by such conditions. This makes radar sensors universal, highly reliable and extremely accurate.

**PCN Europe: What's the difference between the new sensors and the other radar sensors produced by VEGA up to now?**

Jürgen Skowaisa: Our typical radar sensors are always customized to meet the requirements of the particular application and industrial sector, for example when it comes to process fittings, and also to fulfill the special wishes of our customers. The sensors come with the cer-

tifications and approvals required by each individual industry. We offer standard plastic housings as well as metal housings of aluminum or stainless steel. But no so-to-speak "standard sensors" are kept in stock.

The new radar devices are made for standard applications with standard process conditions. For these applications, no sensor variety is required, and a process fitting made of chemically resistant PVDF fits them all. This enables us to offer radar technology at a very competitive price.

**PCN Europe: Explosion protection and communication are two important criteria when it comes to a decision in favor or against products. In which environments can the new sensors be used and what are the interfaces you can provide?**

Jürgen Skowaisa: Even in simple applications, it is sometimes absolutely necessary to use a sensor. VEGA provides all essential approvals for use in hazardous areas, for gas and dust applications.

The encapsulated sensor for gas in Zone 1 or 2 is completely new. With this version, it's not necessary to provide an intrinsically safe power supply. The sensor can be directly connected to a PLC without any barriers, which makes it very easy to use a radar sensor. A loop-powered analogue signal of 4 ... 20 mA is perfect for more than 90% of all applications. VEGA also



provides Modbus and the SDI-12 standard protocol for the hydrological market.

**PCN Europe: Radar measurement used to be a kind of last resort for niche industries showing a very healthy development up to the present. What are you expecting for the next five years?**

Jürgen Skowaisa: Level measurement with radar technology has never been so attractive. The new microwave technologies enable us to design instruments for applications we had never even considered before. Together with high capacity batteries and new wireless communication standards, such as LORA, we now have the technology to design wireless radar sensors for totally new areas of use. Radar is perfect for industry 4.0 and all related, cutting-edge applications.

**PCN Europe: Thank you for these insights.**

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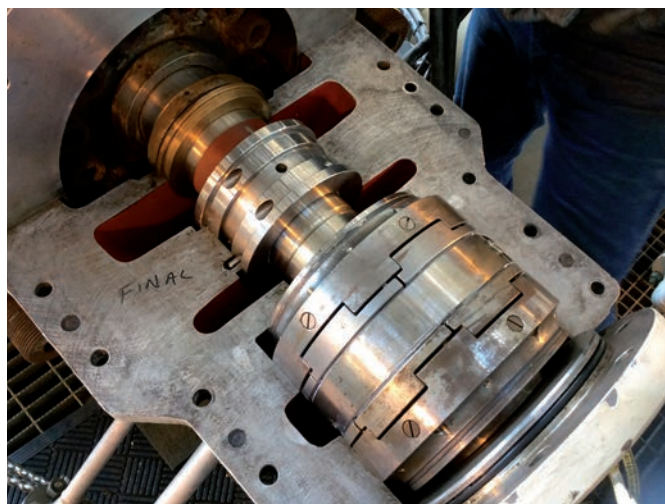
## Injecting New Life Into an Oil Rig Pump

**A water injection pump is brought back to life to maintain productivity after seven years lying dormant.**

Leaving large pieces of rotating equipment dormant for long periods of time is routine when you work in an industry with a high level of mechanical redundancy. If they are not preserved correctly, then getting them back into service quickly can be a challenge. For one offshore platform in the Gulf of Mexico, calling the original equipment manufacturer (OEM) was the deciding factor in getting a water injection pump in this situation back up and running in time to start operating when it was needed.

We all feel the effects of fluctuating global oil prices; it is, however, still a highly competitive market and profitability for the producers is dependent on the efficiency with which oil is extracted. By optimizing process and maintenance schedules, oil companies aim to prolong the viability of wells by operating cost efficiently, but this gets harder out at sea.

Offshore drilling rigs aim to maintain peak performance throughout their production life cycle. One of the crucial pieces of equipment in this process is the water injection pump, which is used to pressurize the well and maximize production rates. It is therefore important to carry out periodic maintenance of these key assets to ensure they continue to perform reliably. All is not lost if the maintenance schedule is somewhat overlooked, as shown in a recent project that



*Considering the harsh marine environment, the pump components were in good condition.*

involved Sulzer revitalizing one of its injection pumps that had remained dormant for seven years.

### **BORROWED PARTS**

The history of what exactly happened prior to the need for recommissioning this standby water injection pump had been lost during various changes in personnel working on the platform. From what information could be gathered, it appeared that of the two water injection pumps on the rig, #2, developed a leak in a Graylock fitting in a piping spool, downstream of the pump itself.

To resolve this issue, pump #1 was shut down and the necessary parts removed to keep #2 operational. Since that time, pump #1 had remained out of service, without any preservation actions - while pump #2 operated continuously. However, after seven years use, it had begun to drop in efficiency, to the point that the platform operator needed to overhaul the pump to ensure continued productivity.

To achieve the overhaul of pump #2 it was necessary to assess the condition of pump #1, resolve any issues and return it to normal operation. This would enable pump #2 to be shut down and overhauled, without an interruption to the productivity of the platform.



*The water injection pump rejuvenated by experts from Sulzer.*





*The tight confines around the injection pumps added to the challenges of the repair project.*

#### CALL THE EXPERTS

Both of the pumps were designed and manufactured by Sulzer who, as the OEM, was the first port of call for the platform operator. Realizing the importance of delivering a rapid response, an offshore-qualified pump engineer was dispatched to the Gulf of Mexico, where he completed the initial inspection of pump #1.

Working in the tight confines of an oil platform takes experience and close cooperation with the other personnel. Mark Lindsley, Field Service Engineer for Sulzer, explains: "We work closely with the platform staff to ensure that every project is completed safely and to the highest standards."

Considering the harsh marine atmosphere that surrounds the injection pump equipment, most of the components looked to be in excellent condition. The comprehensive inspection process highlighted all the areas needing attention, much of which could be completed during the initial visit. Following the inspection, Mark rebuilt the pump thrust bearing and the non-drive end (NDE) radial bearing was replaced using stock that was held on the platform. The gearbox had been cleaned out previously and the lube system flushed in preparation for reassembly when the alignment of the drive train was checked and adjusted. The most obvious issue was the missing piping spool, which would have to be manufactured before the drive train could be recommissioned. In addition, the inspection found that the motor to gearbox coupling would need to be rebuilt, the almost 6'000 kW (7'500 hp) electric motor would need to be tested and an additional shim would be needed for the gearbox to pump coupling.

#### BACK TO LIFE

Following a very successful initial visit, Sulzer engineers set out to assemble a new pipe spool and the parts required to rebuild the coupling. When all the necessary parts were available, Sulzer returned to the platform to complete the installation work.

The charge pump was cleaned, aligned and coupled, allowing the

water injection pump to be started. Once online, the pump performed with very low vibration levels and the operator agreed that it should continue to operate while being monitored.

Mark Lindsley continues: "The whole process has involved close collaboration with the customer, providing onsite support as well as on-shore engineering expertise. Sulzer has OEM engineering capabilities to manufacture high-quality new parts while its worldwide service center network delivers local onsite expertise."

#### REDUCING COSTS

The successful start-up of pump #1 has enabled the platform to start planning the refurbishment of pump #2. Continued operation will prove the reliability of the repaired pump and ensure optimum production levels of the well are maintained. As the OEM, Sulzer has discussed the future needs of the platform and together with the customer, it is making plans for the refurbishment of pump #2.

Sulzer's combination of expertise in the oil and gas sector, professional pump engineering and global service center network is helping to keep oil platforms efficient.

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Which enclosure cooling measures for Food & Beverage?

To guarantee an adequate corrosion protection and easily cleaning, Fandis offers a stainless steel hose-proof hood UL Type 4X for filter fans, that effectively safeguards against water jets and foreign particles by securely sealing the ventilation openings (FDA-compliant).



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## INTELLIGENT LIQUID RING VACUUM PUMP

Smart monitoring functionalities ensure maximum uptime



**Edwards Vacuum** has combined its years of comprehensive know-how and innovative technical expertise to develop a range of new liquid ring pumps the ELRi series. The stainless-steel impeller, endplates, liquid

reservoir and heat exchanger make this pump highly resilient against corrosion and harsh process gases. The internal injection channels reduce the risk of leakage while the horizontal motor flange arrangement saves precious time on maintenance. Use of mechanical seals also ensure reliable operation by preventing leaks as well as extending service intervals. The technology is contained in a compact noise cancelling sturdy canopy protecting and extending lifetime of the electronic components. The ELRi is equipped with not just one but two VSD. While the main VSD matches the speed of the pump to vacuum level by adjusting its speed, the second VSD regulates the water flow through the centrifugal pump according to the operating conditions to avoid risks of cavitation. A patented algorithm always maintains a perfect harmony between the two VSD's ensuring optimal performance. In addition, it is protected against automatic seizure, so users do not have to worry about the pump failure after long periods of inactivity. The ELRi series comes in pumping capacity 750-1050m<sup>3</sup>/h and covers a wide range of applications.

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## EXPANDING GATE VALVE

Positive shut-off of liquid and gas



The **SPX FLOW M&J Expanding Gate (EG) Valve** is highly versatile and can be used in most circumstances where the positive shut off of liquid or gas is required. Its mechanical design delivers an extremely heat resistant seal that is unaffected by line pressure or vibration. Comprising a full bore, through conduit valve with a rising stem and parallel expanding gate and segment, the EG Valve delivers a tight mechanical seal and positive shut-off: both upstream and downstream,

and under both low and high differential pressure. The Model EG Valve provides a superior bidirectional mechanical seal because the two-piece gate assembly expands against the seating areas in the open or closed position. The stem packing does not require lubrication. If foreign matter causes damage to the seat seal during operation, all valves are fitted with an emergency sealant injection provision which will preserve seal integrity until a permanent repair can be made. If valves are to be buried, or positioned in an inaccessible location, these fittings can be extended to meet customer requirements. M&J Expanding Gate Valves are readily available in all the sizes, pressure ranges and trims used in piping systems requiring the positive shut off of liquid or gas. They can operate effectively in temperatures ranging from -45°...+538°C.

►► 58519 at [www.pcne.eu](http://www.pcne.eu)

## RELIABLE INSERTION TURBINE FLOWMETERS

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Insertion turbine flowmeters from **Titan Enterprises** combine proven technology with modern materials and innovative design. The durable PVDF turbine rotates freely on a 316 stainless steel shaft and has special aerofoil shaped blades to extend the dynamic range of the meter. Specially contoured housing further improves the meter linearity particularly at lower fluid velocities. Installation from the side of the flow line is made via a 1.5" BSP or NPT fitting, and versions are available for 'hot-tap' insertion into pressurised lines. Each Titan insertion turbine flowmeter

contains two sensors, one self-powered (for battery operated equipment) and the other an open collector transistor. A reed switch may be specified for hazardous areas where simple apparatus is acceptable. The body of Titan insertion turbine flowmeters is manufactured from AISI316 stainless steel and as standard is supplied with three meters of five core screened instrument cable. This insertion turbine flowmeter can be provided with a directly mounted battery and powered display which will give Flow Rate and Total as well as digital and analogue outputs.

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## MONOBLOCK WITH BALL VALVES

Compact instrumentation valve for critical pressure



**WIKa's** new model IBF monoblock with flange enables the safe connection of pressure measuring instruments to critical processes, for example with natural gas or aggressive, highly viscous and crystalline media. It is available with ball valves and needle valves in double block &

bleed or block & bleed configurations. The compact design of the new instrumentation valve reduces the dimensions, vibration sensitivity and leakage potential of the complete measuring assembly. The 10 mm bore of the ball valves ensures a smooth medium flow. A combination of plastic and metal sealing assists safe operation: In the event of failure of the "soft" seal, the pressure presses the ball seamlessly into its metal seat. The leak tightness of the redundant system has been tested in accordance with BS6755 / ISO 5208 leakage rate A. The manufactured quality of the valve ensures smooth handling with low torque, even at high process pressures. WIKa offers users a customer-specific assembly of monoblock and measuring instrument. Such a "hook-up" is delivered ready-to-use and leak tested.

►► 58279 at [www.pcne.eu](http://www.pcne.eu)





# Downhole Progressing Cavity Pump for Extraction of Saturated Brine

In September 2015, new 4,500 m<sup>2</sup> salt water thermal baths were opened in a spa town in Saxony, Germany, that is steeped in tradition. They are fed from a highly saturated Glauber's salt spring which an environmental office investigated by drilling in 2009. To transport the spa water to the surface smoothly and efficiently NETZSCH designed a solution with a downhole system, a system which had originally been developed for conveyance on oil fields and needed to be tailored for these special requirements.

## EXPLORATION OF HIGHLY MINERALIZED WATER

The state baths in Saxony originally commissioned a planning company with the investigation and development of brine exclusively for geothermal purposes. After exploration – that is a geophysical investigation of fault zones – enabled a suitable site in the Elster Valley to be found, exploratory drilling and an initial pumping trial were carried out starting in 2007. In the process, at a depth of around 1,200 m, they came across highly mineralized water with a particularly high sodium sulphate and chloride content.

## SOLVING THE CHALLENGE WITH ADAPTED DOWNHOLE SYSTEM

For the pilot system, NETZSCH, in intensive collaboration with all parties involved, first of all designed a solution which was able to transport the spa water to the surface smoothly and efficiently and to cover the needs of the planned salt water thermal baths with three pools and a capacity of 450 m<sup>3</sup> of water. The challenge for NETZSCH was that the downhole system which was the basis for the new solution had originally been developed for conveyance on oil fields and needed tailoring to pumping the fluid, which is unique to the whole of Germany, from the well in the Elster Valley.

## RELIABLY PUMPING FROM SPA WATER SINCE 2009

In the end, an NTZ 278 type progressing cavity pump was used. Its body is comparatively



*The thermal baths are fed from a highly-saturated in-house Glauber's salt spring which Vogtland investigated by drilling in 2009.*

In order to prevent the possibility of the salt crystallising during conveyance and grinding the elastomer, the spring water was pumped with a salt content of 22 percent – in other words diluted – and at a temperature of 42°C during the long-term pumping trial. In addition, the speed of the NTZ 278 was set to 100 – 200 rpm, enabling the natural lubricating effect which brine exerts at higher flow velocities to be used and any elastomer abrasion to be avoided.

The NTZ 278 was installed by NETZSCH engineers at the well site in the Elster Valley in 2009, together with the drive head and sucker rod. It was used for more than one year in the context of the long-term pumping trial and, over this period of time, pumped spa water reliably from underground for salt

water thermal baths. As the pump only has a small number of wearing parts, it only generates low life cycle costs. Use of a NETZSCH pump with a heating jacket is currently planned to enable the energy efficiency of the system to be further increased: if this is placed around the pump, the brine warms up and can dissolve more salt. In this way, the lubricating effect increases and the service life would be further extended.

slim and can in principle also be operated with a submersible motor within a well bore. However, a downhole pump with surface drive system was chosen due to the small diameter of 95 mm. The advantage of this solution was also its rapid availability and maximum flexibility in terms of flow rate and the medium being conveyed. No other pumping system can cover such a wide range of flow rates. That is why this pumping technology is used more and more frequently, particularly for test phases.

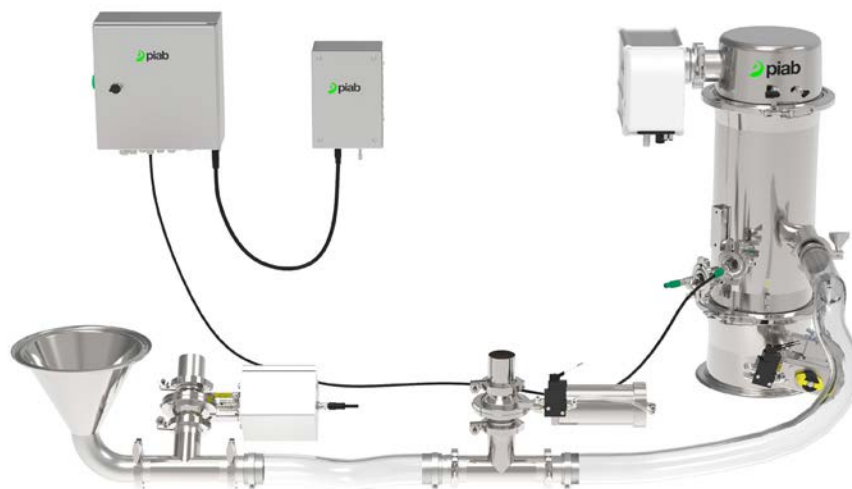
►► 58151 at [www.pcne.eu](http://www.pcne.eu)



## From Large to Small – Bag Handling Made Smart and Easy

Piab's broad portfolio of lifting and moving solutions ensures that powders and granules provided or packaged in bags can be handled automatically. With piSMART® options included direct measuring, documenting and controlling is possible no matter which size or weight the bag is.

Handling of bags is a constant issue across industrial process chains. Be it the lifting of heavy sacks of ingredients like flour in a bakery to the filling of a nutraceutical powder in small stick packs for direct consumption by the consumer in the food and pharma industry. In the first case the challenge is to support the worker in a way that avoids work related back injuries, in the latter the question is of providing the right dosage of powder and later of packing bags into cartons. Piabs Vaculex® VL Sack Lifter allows workers to lift heavy sacks with ease. Regardless of what they are made of – paper, plastic, fabric – or what they contain – flour, sand, pharmaceutical ingredients – all sacks are



*piFLOWp SMART – the “Changeover Champion” does not require manual process adjustment as this worlds-first is able to autotune the conveying process.*

handled with ease with the help of Piab's ergonomic Vaculex vacuum lifter. No more heavy manual work such as lifting sacks for stacking on pallets, emptying into hoppers/feed stations, or feeding/loading/palletising directly into or from a production line. More than one third of all workplace injuries are caused by manual handling. Yet processing staff are still often expected to lift sacks weighing 25-50 kg, risking developing musculoskeletal disorders (MSDs) such as pain and injuries to spine/back and shoulders, and repetitive strain injuries. Vaculex – Piab's semi-automated lifters are designed to take the strain off workers. Offering ergonomic and safe working environments, the Vaculex vacuum-operated lifters also allow for efficiency improvements, elevating the

productivity of a plant by enabling a good flow in handling procedures, and guaranteeing high quality of products through damage limitation.

### AUTOMATED FLOW RATE ADAPTION

The piFLOW®SMART takes on the powder and based on Piab's vacuum technology conveys it to, for example, a mixing or filling station. Thanks to its smart technology it can now autotune its processes, i.e. adapt the flow rate to the material conveyed automatically. This turns the piFLOWSMART into a real “Changeover Champion” as it is now possible to switch between different powders or granules without manually resetting the process. Changeover that would take one hour in a conventional vacuum conveyor takes only 10 minutes in the



*piCOBOT with piGRIP suction cups handling bags for packaging*



company's new and unique vacuum conveyor. A world first, piFLOW<sup>®</sup>p SMART is a self-optimising vacuum conveyor targeted primarily at industries handling many different materials and/or those in which frequent changes need to be made. This makes the conveyor ideally suited for producers within the food and pharma sectors, where its full changeover potential will have great impact, saving time and money. With each new conveying cycle, the piFLOWp SMART will prove its name, using machine learning to automatically tune the process by configuring and optimising a flawless flow of materials, set at the correct rate.

#### SAFELY SHARED WORKING SPACES

Packaging small bags in cartons is the spe-

cialty of Piab's piGRIP<sup>®</sup>suction cups that have specifically soft lips to hold on to the changing surface of a bag. They allow secure and quick moves to enable fast automated processes. Attached to the piCOBOT<sup>®</sup> they can be used with any cobot as a plug and play unit optimized for its energy consumption and equipped with flexible arms to fit every bag size. piCOBOT builds on the idea of safe and flexible human-robot workplace interaction, found to be much more productive than either of them working on their own. Soft design lines guarantee that no one is injured if colliding with piCOBOT.

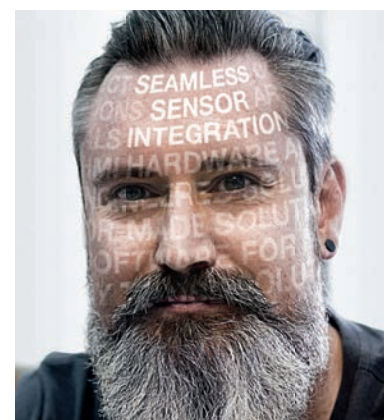
When large sacks need to be packaged Piab offers a forklift style bag gripper an original product of SAS Automation – a company

Piab acquired in 2017. Radiused gripper fingers avoid puncturing of backs while decking plates that are independent from the gripper fingers enable precise bag placement on release. To allow high speed robot movements top mounted bag clamps stabilize the bag. Suctions cups at the outer ends of the gripper can be used to place slip sheets in between sack layers.

With the right tool bag handling can be automated and optimized ensuring that all productive processes keep running and are constantly fed with material in the right quantity, while final products are packed ready for the market.

▶▶ 58700 at [www.pcne.eu](http://www.pcne.eu)

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# Getting a Check-Up From Head to Toe

If a packaging or processing line is no longer running at full capacity, a brief consultation with the general practitioner isn't enough. What food and pharmaceutical producers need to keep their lines going at high output and with good product quality for decades is a thorough audit performed by a team of specialist "doctors". Their mission is to identify the underlying issues and prescribe the right treatment to optimize both performance and processes.

Whether it is the output or scrap rate, set-up or handling time – packaging and processing lines have many areas where subtle problems can hide. Even a line that has been running seemingly efficient for years will eventually see a loss in performance. If this takes place very gradually, it is hard to notice until the initial and the current output is compared. But once a problem is recognized, how is the manufacturer to identify these hidden issues without disassembling the entire line?

The answer is called a "technical audit" – a common service offered by many providers. However, there is a key difference between a standard technical audit, and one conducted by a team of experts from the OEM. Just like in human healthcare, a general practitioner is always a good starting point. But when you need to look deeper into the causes of a health issue, you will likely need to meet with several individual doctors, each of whom examines one specific issue. As a result, it can take weeks, months, or even years to get to the root cause of your symptoms. Machines, however, have a clear advantage over human beings: if they are treated correctly, they can have immediate access to an entire team of specialists with decades of experience in all fields

## BEFORE THE EXAMINATION

Imagine, for example, a flow wrapping line for cookies. The operations and maintenance teams have been successfully working with the line for five years and the cookie producer is generally very satisfied with the line's overall production rates. However, the quality group recently compared the line's



*The interdisciplinary service team plans the technical audit together with the customer.*

current scrap rates with those when it was originally installed and found that the waste rate has grown. The line must have an issue somewhere. A pharmaceutical vaccines producer might encounter a similar situation. The machine's transport system is working at a slower pace than usual and the output has declined. In both cases, the reasons for the discrepancies are not immediately obvious – so both the cookie producer and the pharmaceutical manufacturer decide to invest in a technical audit.

Before the actual technical audit can begin, it is important to understand the customer's perspective. A subset of the technical audit team will interview the customer to discuss

the major pain points affecting the "patient" (i.e., the machine or line) with the experts from the customer side. This discussion results in a list of expectations, goals and possibly what to look for to improve the packaging or processing line's overall efficiency. At this point, the technical audit team will determine the best course of action and define the next steps in the process. During these steps, it is crucial that the service provider and customer are completely aligned with regard to desired KPIs and metrics, i.e., how success is measured. This will be important to providing the customer with solutions that correlate directly to desired improvements in the final proposal.





*Before the treatment plan is put into action, it is discussed with the customer, who prioritizes the most important measures.*

the plan is put into action, a final meeting is convened with the original customer stakeholders to discuss the team findings, assumptions, conclusions and solutions. The customer in turn may prioritize the most important measures and approves the overall process. The treatment plan differs from patient to patient and might consist of measures such as new spare parts, modernizations or even operator training. Before the project is completed, the audit team checks all implemented measures and compares them with the KPIs previously defined together with the customer.

Medical aftercare is just as important for packaging and processing lines as it is for human beings. It is crucial to monitor the success of each measure. Consequently, the audit team visits the patient again after a certain time. Together with the field service team, they check whether the measures have produced the desired results and issue a service report if they have any suggestions for further optimization.

#### THE RESULTS

Above all, service providers and customers focus on the concrete results: have the measures taken reduced scrap, increased output and performance, and have they led to better handovers between different shifts or even individual staff members? After all, a technical audit, combined with the subsequent measures, is a cost-intensive undertaking that should provide a valuable return on investment. The aftercare shows that, just like with people, intensive check-ups provided by different doctors take time and cost money – but in the end, well-being is increased. And in the case of packaging or processing machines, they not only prolong the lifetime of the equipment. They also result in significant savings due to increased line output and efficiency.

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#### THE CHECK-UP

Performing an in-depth audit on an entire line takes time. Obvious problems are easy to see, and solutions to them are usually self-evident. Identifying subtle issues, with several permutations of variables requires a more thoughtful approach. Critical to any analysis is to ensure that the data recorded is accurate. To that end, you have to make sure the line is running in a stable state prior to any data recording and obvious issues are corrected immediately.

It is imperative that the audit is performed on the product most important to the customer. This is determined in the initial team meeting with the customer and normally defined as the product where the customer experiences the biggest shortfall in profit or performance. It can also be defined as the line where efficiency gains are of prime importance. While auditors are collecting data, the technical team is analyzing line stoppages and scrap generators. The experts examine each process step within the line, retrieve the data and compile this information in a comprehensive overview. Based on this overview, the “doctors” can now assess their patient’s condition in detail and draw some initial conclusions and can see at which points the results differ from the expected performance.

If, for instance, excessive rejects and stoppages are occurring at the wrapper, a common assumption by the customer is that some machine tuning or a few new components will restore the line’s usual rates. However, as mentioned previously, the technical audit is meant to uncover hard to find issues. The technical team identifies that the real issue is in the product distribution, product infeed or other upstream parts of the process. The data on the pharmaceutical company’s vaccine filling line, in turn, might reveal problems with the transport system, which calls for a technical update. At the same time, the team may identify issues in handovers of the line between shifts. In this case, other specialists can provide operator training as a suitable remedy. All in all, the expert technical team identifies the root cause while the audit team quantifies and correlates the impact the issues have on the system.

#### TREATMENT IN PROGRESS

Once the previously hidden issues have been clearly diagnosed, the team can make treatment recommendations. The equipment and service supplier creates a quotation and a roadmap for improvement measures with estimated improvements in the customer KPIs as designated at the initial meeting. Before



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# Highly Secure Remote Maintenance in Industrial Environments

Weighing up opportunities and risks for plants of remote maintenance in the digital age is a key challenge for companies in the process industry. Cyber threats are rightly recognized as a potentially critical danger for all businesses. Nevertheless, it would be a big mistake to exclude remote maintenance from the outset, as this would mean foregoing many positive aspects.

Alexandre Terentiev, DCS Expert – TÜV Functional Safety Engineer, SIS at HIMA Group

Why and when should remote maintenance be considered at all? The main reasons for using a remote maintenance solution are the constant increase in digitization and the growing networking of products and services. From an economic point of view, there is also a need for an effective, global use of resources, and remote maintenance is an ideal tool in this context. A core consideration here are the regulatory requirements that a remote maintenance solution must meet to make it safe and secure. Before employing any remote maintenance solutions, it is important to not only consider the security risks, but also the positive eco-

nomical aspects, in other words: weighing up the risks and benefits. Many advantages of remote maintenance – which we will examine in more detail – are obvious: For example, remote maintenance of process plants via public networks in an industrial environment provides users with considerable cost advantages. On the other hand, the associated risks must be adequately controlled in view of the possible consequences. If an industrial user's production facilities do not have an effective protective shield, a single security gap makes production processes vulnerable to attacks – with potentially serious outcome. A vulnerabil-

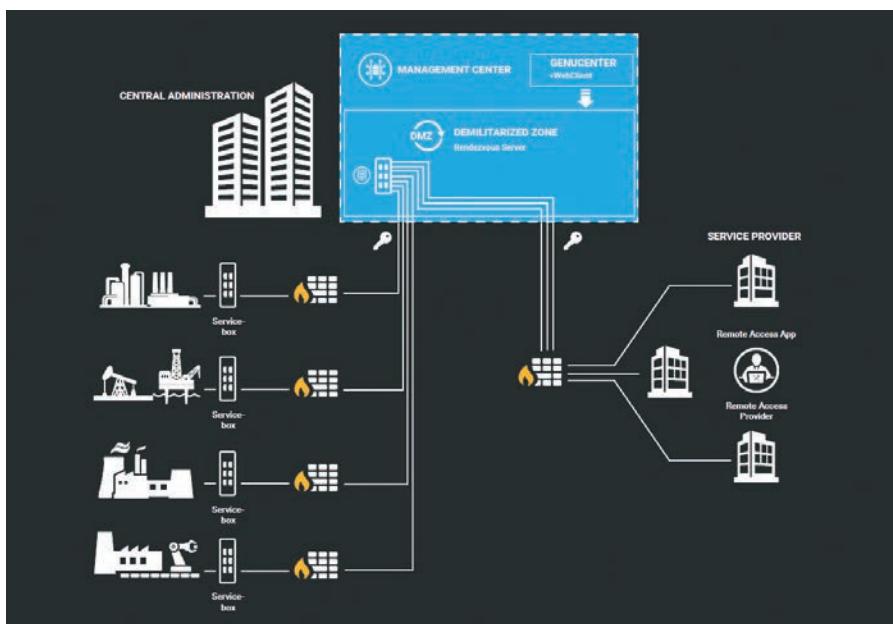
ity in a process network can lead to a possible reduction in security and protection and thus to an increased risk of environmental and economic damage.

## ADVANTAGES AND DISADVANTAGES OF REMOTE MAINTENANCE SOLUTIONS

The next step is to compare the advantages and disadvantages of a remote maintenance solution against this backdrop. First, let's look at the advantages: Remote maintenance can significantly minimize service costs and improve response times. At the same time, plant availability can be increased due to shortened downtimes. The high flexibility of remote maintenance leads to optimal monitoring, configuration and control of the system, with complete control over system access from any location and at any time. Every interaction can be monitored and recorded in real time. Ultimately, there are considerable cost advantages associated with remote maintenance of process plants via public networks.

Possible disadvantages include a key issue: A solution that does not meet the highest safety and security requirements can make the production process vulnerable to attacks. In fact, only very few solutions available on the market meet the regulatory requirements, such as those specified by the German Federal Office for Information Security (BSI). At the same time, the constantly changing and increasing threat situation is placing significantly higher demands on security.

When introducing remote maintenance solutions, considerable know-how is required to manage the primary problem of security risks



HIMA offers a solution that meets the highest requirements for secure remote maintenance in industrial environments.





*Safe remote maintenance can positively influence production. No access granted to operators beyond DMZ.*

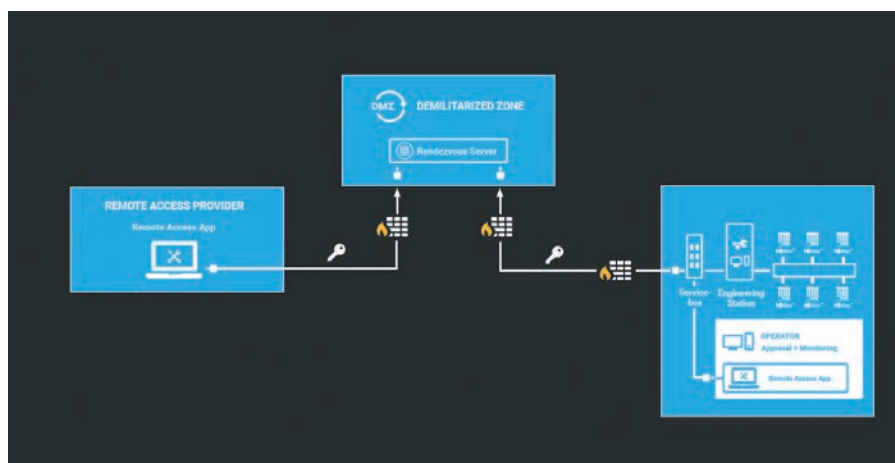
efficiently. Ideally, this safety and security know-how is already available in your own company, alternatively, cooperation with a trustworthy partner can provide the necessary expertise.

#### REMOTE ACCESS MEETS SMART SAFETY PLATFORM

A functional concept that meets all safety and security requirements must be seamless, without any gaps. From the user's perspective, it makes sense to use a comprehensive security environment from a single source. HIMA has taken up this challenge and combined the know-how of the IT-security specialists from genua with its own safety expertise. The result is a highly secure remote access solution that complements the previously presented HIMA Smart Safety Platform (SSP) concept.

#### WHAT SHOULD A REMOTE MAINTENANCE SOLUTION BE ABLE TO DO TODAY?

The German Federal Office for Information Security (BSI), the central point of contact for IT security issues in Germany, helps to avoid risks faced by plant owners and operators. The BSI publication on cyber security provides an overview of the generic requirements for industrial remote maintenance according to the current state-of-the-art. The BSI recommends the use of a uniform solution and the location of the remote maintenance component in the demilitarized zone (DMZ) as well as the use of dedicated systems for remote maintenance. Connections are always established from the inside to the outside. The granularity of the accounts and strong authentication mechanisms are further criteria for a secure remote maintenance solution. Besides secure protocols, secure cryptographic procedures must be used. Other points listed by the BSI relate to password security, attack detection, risk analysis and the principle of minimalism.



#### WHAT DOES THE SECURE REMOTE ACCESS SOLUTION FROM HIMA AND GENUA DO?

The uniform secure remote access solution from HIMA and genua complies with the BSI recommendations. It provides a uniform application for all remote maintenance cases and also enables a central management solution. Using a single solution also reduces complexity, another major customer benefit. A dedicated server is implemented as a central remote maintenance gateway in the DMZ, thus ensuring full control through an upstream DMZ. With the Rendezvous solution, no unilateral access from the remote maintenance service to the customer network is permitted. Instead, all maintenance connections run via a Rendezvous server installed in a DMZ, where both the maintenance service and the customer establish connections in an agreed time window.

The Rendezvous server establishes and maintains the continuous maintenance connection. Service engineers can now access the local engineering environment, which is segregated from the rest of the customer network by the remote maintenance app. The machine operator can also monitor the remote maintenance channel using the dual control principle.

As required by the BSI, the new remote maintenance solution also enables attack detection by identifying any failed authentication

attempts. All remote maintenance access attempts are fully monitored and recorded for inventory purposes. The time window for remote accesses can also be restricted as required. Interactions can be tracked via central monitoring, with the added benefits of central patch management, logging and alerting. An important consideration for users is also the investment security through IPv6 support and continuous product maintenance. Another positive aspect is that the HIMA remote maintenance solution is not limited by proprietary solutions. The highly secure remote maintenance solution enables comprehensive support of processes and user roles. It is easily scalable through central management, even for large environments – a further economic advantage for the user.

#### CONCLUSION

The high-availability remote maintenance solution presented by HIMA und genua complies with BSI recommendations and fulfils the highest safety and security requirements. Users can integrate the solution seamlessly in the HIMA Smart Safety Platform concept. HIMA customers will therefore benefit from significant advantages when using the remote maintenance solution presented, while effectively covering all central security risks.

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## FIELD-MOUNT ENCLOSURE

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**Moore Industries'** D-BOX Field-Mount Enclosure for Head-Mount & Hockey-Puck Instruments can handle a wide array of instrumentation including meters, temperature transmitters, indicators, pressure, level and flow transmitters, integrators, and other head-mount and hockey-puck instruments. The enclosure is made with high-impact materials that protect instruments

even when installed in harsh field conditions. Designed to meet Type 4X, IP66 ratings, the D-BOX is resistant to ultraviolet rays and chemicals. It meets standards for enclosing indoor and outdoor electronic instruments approved for use in both Intrinsically-Safe and Non-Incendive areas (US and Canada) or Ex ia, ib and ic areas (Europe and International). The D-BOX can be ordered with a variety of options, ports, and body heights. It is available with single 1/2-inch entry port NPT female conduit fitting or dual 1/2-inch entry port NPT female conduit fittings. Models without entry ports and conduit fittings are also available. Solid or clear covers are offered as well as high body or low body heights. Lightweight and rugged, the enclosure conveniently installs on a surface or 2-inch pipe.

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## GUIDED RADAR LEVEL TRANSMITTERS

Specific designs for different process requirements



**KROHNE** introduces new additions to the OPTIFLEX series of guided radar (TDR) level transmitters. Each device is designed for specific areas of application in different industries. OPTIFLEX 3200 is the first choice for applications with

hygienic requirements in the Pharmaceutical and Food & Beverage industries. It features a CIP/SIP-suitable hygienic design for liquid level and interface measurement in small vessels with process conditions up to +150°C/ +302°F and 40 barg/ 580 psig. Insensitive to steam, foam and condensation, the device offers a measuring range 0.6...4 m/ 1.97...13.12 ft with an accuracy of  $\pm 2$  mm/  $\pm 0.08$ ". OPTIFLEX 6200 is designed for solids from granulates to powders in the Chemical, Agri-Food, Metals as well as the Minerals & Mining industries. It can be used for level measurement in silos up to 40 m/ 131 ft with a measuring accuracy of  $\pm 2$  mm/  $\pm 0.08$ ". Designed to withstand high traction loads and process conditions up to +200°C/ +392°F; 40 barg/ 580 psig, it is insensitive to dusty atmosphere or deposits on the probe. All new TDRs feature 2-wire 4...20 mA HART 7 communication with an optional second output (current or relay) and a real-time clock for event logging. They have been developed SIL 2/3-compliant according to IEC 61508 for safety-related systems and come with various Ex approvals.

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## LOW-COST OPTICAL GAS IMAGING CAMERA

Fixed-mount uncooled camera for continuous detection



A new camera in **FLIR Systems'** optical gas imaging (OGI) series, the connected GF77a provides upstream and midstream gas processors, producers, and operators with the ability to monitor continuously for invisible, potentially dangerous methane leaks at natural gas power plants, renewable energy production facilities, industrial

plants, and other locations along a natural gas supply chain. FLIR designed the GF77a to combine its industry-leading gas detection features with an uncooled, fixed-mount camera platform at nearly half the price of FLIR Systems' fixed-mount, cooled platform. The camera is engineered to detect industrial gases such as methane, sulfur dioxide, and nitrous oxide to improve inspections and reduce the chance of false readings. Featuring a FLIR-patented High Sensitivity Mode (HSM), the technology enables better detection capabilities by accentuating movement to make gas plumes more visible to the user. The radiometrically-calibrated GF77a also measures temperature, making it a solution for monitoring tank levels and inspecting components that may overheat. The FLIR GF77a provides advanced connectivity protocols that allow for seamless integration into gas monitoring systems to meet the needs of the oil and gas industry.

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## ADVANCED OXYGEN ANALYSERS

Remote access for flexible software configuration



Oxygen is the latest parameter to be added to **Signal's** advanced range of Series 4 continuous gas analysers. The AURORA is a Paramagnetic Oxygen Analyser for accurate percent measurements in

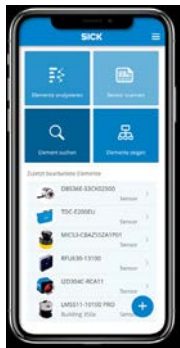
incineration processes, inert atmospheres, medical and safety for humans, internal combustion engine exhausts and many more applications. As a Series 4 instrument, the AURORA is supplied with software for remote access and control over the Internet, and with an optional touch-screen colour display, the AURORA is simple to operate on site. To ensure flexibility, users are able to specify their required configuration and programmable contact closures are available for gas path control. Offering long-term reliability the AURORA delivers outstanding performance - 0.1% resolution and 0.1% linearity. Remote access to Series 4 analysers means that users can perform a number of key functions from the comfort of their own office. This includes analyser set-up and configuration, remote viewing of readings, the collection of logged data and remote troubleshooting; all of which saves the time and cost of site visits. The Paramagnetic Oxygen analyser will remain in operation for many years giving accurate and dependable readings. The series 4 platform augments this reliability with embedded firmware and remote operational software running over Ethernet.

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## APPS FOR SENSOR DIGITALIZATION

Smart solution for higher plant availability



The Integration Space solution from **SICK** has been providing holistic solutions for SICK's digital services since 2019. It makes it easy to implement Industry 4.0 applications, and opens up new opportunities for increasing efficiency. The company's own start-up is now delivering new solutions. Who among you knows where which sensor with what status is located in your factory? A challenging situation that can cost you a lot of time and money if one of the sensors suddenly stops working. Because now the search for the fault begins. It was this issue that gave SICK an idea: "We want to make it easy for our customers to create more transparency in their world of sensors while at the same time increasing plant availability and productivity". The offering comprises the Installed Base Manager app, the SICK Asset Hub, the Monitoring Box, and Predictive Services. The Installed Base Manager is the first SICK app that allows all installed sensors and machines to be quickly and easily digitalized, including serial numbers, locations or photos. The app provides the user with a clear display of all relevant product information for his assets and - in conjunction with the SICK Asset Hub software tool - can be used to plan and monitor all maintenance and repair activities. Furthermore, related documents such as inspection logs, test reports or calibration certificates can be made accessible online.

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## INTELLIGENT VALVE ISLAND

High ingress protection rating allows field installation



**Bürkert** has increased pilot valve installation options with the launch of the Type 8653, an intelligent pneumatic valve island. The device is designed for installation outside a control cabinet, bringing the valve island closer to process control valves and actuators. Meeting the needs of process automation applications in the pharmaceuticals,

food & beverage, cosmetics and water treatment sectors, the Type 8653 offers a fieldbus interface and an ingress protection rating of IP65/67. Generally, valve islands are utilised to control process valves and actuators from within control cabinets. With facilities becoming more interconnected, Bürkert has introduced the Type 8653 to provide status information, diagnostics and transmit information to superordinate controls, such as PLCs. Model variants offer native support for communication via bus and CANopen, with the addition of a Type ME43 Fieldbus gateway also allowing integration with EtherNET/IP, PROFINET, Modbus-TCP and CC-Link. The new device has been designed to be installed as closely as possible to valves or actuators, which, matched with its high ingress protection rating, means it can operate independent of an electrical cabinet. This reduces the emphasis on specifying costly control cabinets, pipework and cabling - adding value to the installation.

►► 58278 at [www.pcne.eu](http://www.pcne.eu)



FREE DIGITAL SUBSCRIPTION

## CLAMP-ON STEAM METER

Non-invasive measurement of steam with large range



**FLEXIM** presents the new clamp-on ultrasonic flowmeter for steam with FLUXUS ST. The new measuring system offers the same advantages as FLEXIM's well known flowmeter series FLUXUS: Reliable and accurate flow measurement from outside the pipe, free from pressure loss, wear and tear, and maintenance. The installation requires minimal effort, no pipe work, and never affects operation and supply. The acoustic measuring method proves to be impressive with its exceptionally high measuring dynamics, is highly sensitive even at very low flow velocities and functions independently of the flow direction. Due to this large flow range (flow velocities from 0.01 m/s up to 60 m/s), there is no need to reduce pipe diameter to fit an inline meter's requirement of minimum flow velocity. Moreover, the non-invasive measurement does not cause any pressure loss. The transducer mountings can be completely insulated to reduce any heat loss to the environment. FLUXUS ST measures volume and mass flow of saturated and superheated steam at temperatures up to 180 °C / 356°F. The clamp-on ultrasound system is available as both a stationary and a portable meter: FLUXUS G721 ST is the stationary flow meter and offers a variety of digital communication interfaces such as Profibus, Modbus RTU, TCP and others.

►► 58083 at [www.pcne.eu](http://www.pcne.eu)

## COMPACT FLOW SENSOR WITH IO-LINK

Stainless steel addition to the robust fluid portfolio



**Turck** is presenting its FS+ flow sensor - another product from its fluid sensor series. The robust sensor comes with a highly robust stainless-steel housing, together with a one-piece translucent front cap and is operated via wear-free touchpad. In addition to flow, the FS+ can continuously measure the temperature of the medium. How the probe is aligned in the pipe is not important here. The bicolor

11-segment LED strip enables either flow or temperature values to be displayed as required. Optimum readability guarantees here the possibility to turn the sensor housing and display freely around 340° even after mounting. For rapid commissioning, the FS+ makes it possible to detect PNP/NPN signals automatically. Users can also set a switch point in just a few seconds using the Quick Teach function. Thanks to the Delta Flow monitoring functions, all Teach functions are only activated when the flow is constant, thus eliminating any potential sources of error. Robust materials and the seamless sealing concept of the sensor enable compliance with protection types IP6K6K, IP6K7 and IP6K9K. This enables the FS+ to be used in harsh environments and, for example, to reliably monitor cooling circuits or cleaning processes.

►► 58139 at [www.pcne.eu](http://www.pcne.eu)



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25-26  
Antwerp  
[www.pumps-valves-expo.be](http://www.pumps-valves-expo.be)

### Industrie

31.03 - 03.04  
Paris  
[www.global-industrie.com](http://www.global-industrie.com)

## APRIL

### Solids

01-02  
Dortmund  
[www.solids-dortmund.de](http://www.solids-dortmund.de)

### Hannover Messe

20-24  
Hannover  
[www.hannovermesse.de](http://www.hannovermesse.de)

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