

# PCN

Europe

processing & control news

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**PCN** Europe  
processing & control news



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# editorial

Dear Reader,

keeping things simple is a good advice, especially in our modern work environments, where multitasking more often is a juggling game with 5 balls than with 3. But the question is how machines and solutions can not only be developed so that they are easy to handle, but safe for user and environment in every situation for a long time. One solution to this problem is using the brain and expertise of a specialist, when you are not sure if your competences alone will bring the best solution to life.



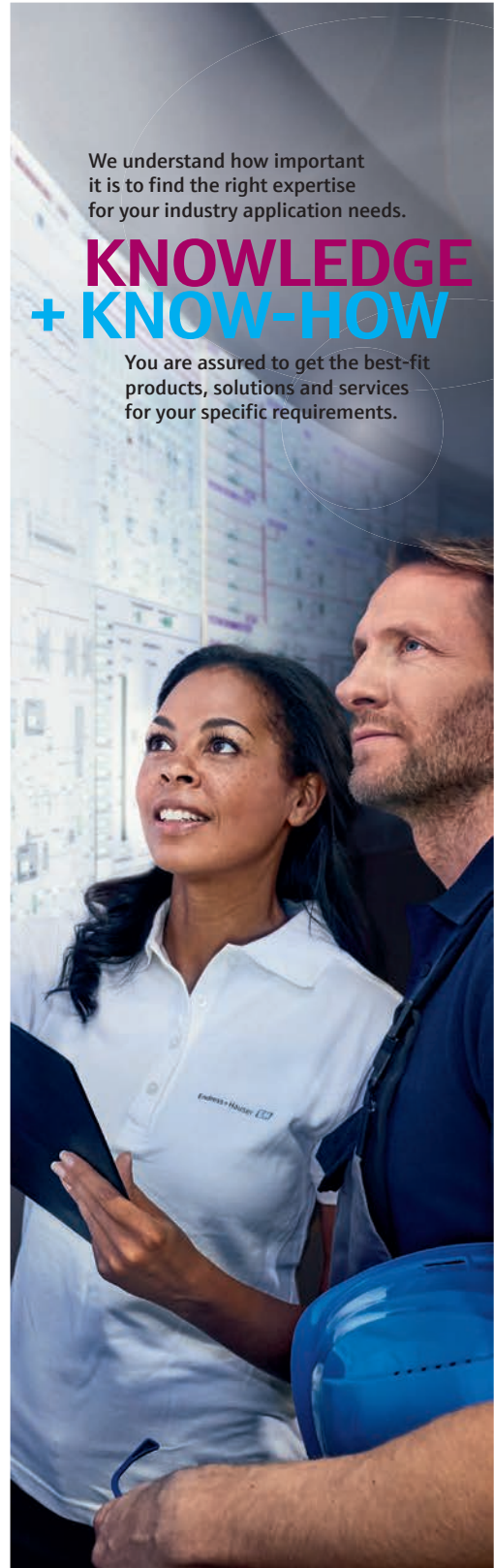
To show you how picking the brain of a specialist can work, we talked to JUMO's Matthias Garbsch. He is product manager for the safety portfolio and introduces the JSP portfolio, which makes handling Safety Integrity Levels easier for the user. You will find the interview on page 8.

After a summer that brought new levels of drought all over Europe, it is wise to think about the reliability of water supply for the future. The editorial on page 14 describes a solution that was found in the southern Black Forest area to secure future supplies with state of the art measurement and automation equipment.

I wish you an interesting read!

Editor of PCN Europe

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Persistent droughts and heat waves in  
many regions of the world are forcing cities  
and municipalities to place a stronger  
focus on the reliability of the water supply  
not only by optimizing  
their networks but  
also by searching for  
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**EXCLUSIVE INTERVIEW:**

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Manager Safety at JUMO about the company's JSP  
portfolio and the advantages for users.





## New Siemens Process Automation CEO

As of October 1, 2022, Axel Lorenz (54) has taken over as the new CEO of Process Automation at Siemens. Previously, the engineering graduate acted as Vice President Control in the Factory Automation business unit at Siemens. He succeeds Eckard Eberle (57), who had been responsible for Process Automation at Siemens since 2014. "Eckard Eberle has set outstanding milestones in process automation at Siemens," says Lorenz. "My focus will be on how we best leverage digital transformation for our customers. At the same time, our goal must be to make the best use of our resources and bridge the gap between innovation and sustainability." On October 1, 2022, Eberle joined Siemens Global Business Services as CEO after eight years as CEO for Process Automation at Siemens. "After many exciting years in the process industry, I am looking forward to a new challenge at Siemens. Axel Lorenz brings everything to successfully shape the future of process automation," said Eberle. Axel Lorenz started his professional career in 1992 as an engineer for project planning and commissioning in the then Siemens Engineering and Software Department at the Berlin branch. Born in Berlin, he studied electrical engineering at the Berlin University of Applied Sciences.



## Top Score for Sustainability

Endress+Hauser once again scored 76 out of a possible 100 points in the EcoVadis sustainability audit. The Group was thus able to maintain its top position from last year and continues to rank among the top percent of comparable companies. With the total number of points, Endress+Hauser was also awarded platinum status for corporate social responsibility (CSR) in 2022. "Our sustainability journey naturally continues. Platinum status demonstrates that we are on the right path," says Matthias Altendorf, CEO of the Endress+Hauser Group. Sustainability is increasingly becoming a business factor. "We receive CSR-related inquiries nearly every day from our customers and partners," says Gerd Gritsch, Corporate Director Quality at Endress+Hauser, who adds: "Given that we help our customers to produce sustainably, we have to set a good example with our own business and production processes." The issue of sustainability is also of importance to growing numbers of employees. Among the ideas was the establishment of two bee colonies on the roof of a new building.



A hobby beekeeper, who is also an employee of Endress+Hauser, looks after the insects; the first batch of honey has already been harvested.

## New Country Manager Appointed for HIMA France

Guillaume Mbow is the new Sales and Country Manager for HIMA France. In his role, he will further expand partnerships with customers from the process and railway technology industries in France and parts of West Africa. With this appointment, the provider of safety-related automation solutions is following its strategy of enhancing customer proximity in key markets and driving the global expansion of its sales and service presence. "In France, we have a large installed base and we are going to expand our partnerships with customers," explains HIMA CEO Jörg de la Motte. "We also see a growing demand for safety-related automation solutions in West Africa. I am pleased that, with Guillaume Mbow, we have gained an experienced Country Manager who will continue to accelerate our growth," adds Jörg de la Motte. Guillaume Mbow will be responsible for further expanding the business in France and the French-speaking countries in West Africa. The graduated Engineer in Informatics and Electronics has more than twenty years of experience in the process industry and has worked in the areas of project management, instrumentation and global customer management, among others.



## Plastics to Oil Recycling Project Continues to Gain Momentum

Recovering crude oil from plastic: British company Mura Technology (Mura) is pursuing this goal with the HydroPRS™ process to advance the circular economy of plastics – a concern also shared by motion plastics specialist igus. Since 2020, igus has been supporting Mura's project as an investor. The first HydroPRS plant for the chemical recycling of plastic waste is currently being built by Mura's subsidiary ReNew ELP in Teesside, England. The recycling pioneer is making significant progress and will commission the plant in early 2023. In the first phase, the plant's capacity is 20,000 tons, which will be increased to 80,000 tons annually. By comparison, the Great Pacific Garbage Patch, the largest accumulation of ocean plastic in the world, located between Hawaii and California, currently consists of approximately 80,000 tons of plastic waste, according to researchers' estimates. In the future, more HydroPRS facilities will be built worldwide – including Germany. Several possible sites have already been identified. One of them is currently in development and is expected to go into operation by 2025.



## HYGIENIC STAINLESS-STEEL SERVOMOTOR

Revised for processes with strict hygiene requirements



**Baumüller** has revised its servo motor series for aggressive environments and industries with very high standards on hygiene, cleanliness and corrosion protection. In addition to the B14 flange option available until now, the B5 option is now also offered for connecting the HYG1 to gearing. With this new variant, the motor can now also be attached to stainless steel gearings, which

facilitates its use in demanding applications in the food industry. Machines in food processing, beverage filling, and the pharmaceutical and packaging industries must be quick and easy to clean. At the same time, bacterial colonies must never grow as a result of accumulated dirt or cleaning agents. Baumüller meets this requirement with the HYG1. Classified under the IP69K protection class, it is quick and easy to clean for minimal downtimes. The compact servo motor has a round stainless-steel housing and, thanks to the single cable solution which connects the main connection and encoder cable without further connectors, requires very little wiring effort. All rough edges were eliminated in the HYG1 in order to meet the highest demands on hygiene and durability, even in aggressive environments.

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## IP67 RFID INTERFACES WITH IIOT FUNCTIONS

Firmware update adds AutoID Companion Specification



A free firmware update makes **Turck's** IP67 RFID interfaces fit for barrier-free communication in IIoT applications, such as for simple product identification and tracking. While the OPC UA server with the AutoID Companion Specification V. 1.01 ensures smooth direct communication with

MES, PLC, ERP or cloud systems, Turck's HF bus mode offers cost benefits for applications with many read points. Users also benefit from the negligible integration effort required for HF and UHF systems. The firmware update makes the TBEN-L5-4RFID-8DXP-OPC-UA the first RFID module with an integrated OPC UA server to support Turck's HF bus mode, which allows the connection of up to 32 HF read/write devices to each individual RFID input. With four RFID channels per module, this means that up to 128 read points can be captured and parameterized centrally. The new firmware also enables the continuous reading of UID/EPC or RFID user data. In this way, an MES or SAP system can for example receive or process data at any time as an event message without executing a method. It is activated by setting a variable that is also still active after a power reset so that the RFID system can continue to reliably supply data even after a power failure.

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## CELLULAR SENSOR-TO-CLOUD CONNECTOR

Bi-directional, always on connection for monitoring



**SignalFire** announces the addition of the new DIN RANGER to the growing family of sensor-to-cloud cellular data transmission products. This new DIN rail mountable DC powered version of the RANGER is ideal for applications with existing power and panel boxes, allowing a simple way to add remote monitoring capabilities to existing systems including pulling data from

Modbus devices. The DIN RANGER requires less than 2.5mA of external DC power, while also offering more inputs and outputs. Due to the unique low power features of LTE-M & NB-IoT cellular technologies, the DIN Ranger integrates with Modbus RTU devices, offering an "always on, bi-directional" connection with a cloud application over cell networks. While SignalFire provides a full turn-key solution that includes the RANGER hardware bundled with a SIM card and its SignalFire Cloud web application, the RANGER is also offered as hardware only - untethered to the SignalFire Cloud. This configuration offers an open platform for easy integration directly into a customer's existing solution. The RANGER products use the open MQTT/Sparkplug standard, which is quickly becoming the preferred protocol for distributed industrial sensor networks.

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## IP69K PRESSURE SENSORS

With improved functionalities and food certification



The new pressure sensors of the **ifm** PI1xxx series are certified according to EHEDG and FDA and meet protection rating IP69K, so that daily cleaning with a high-pressure cleaner is no problem. The sensors use a capacitive ceramic measuring element and are therefore extremely robust. Neither abrasive or corrosive media nor vacuum or pressure peaks can

harm the sensor element. In addition, the sensor permanently withstands 150°C media temperatures and is thus suitable for many high-temperature applications in the food industry. The media temperature can also be read via IO-Link. The PTFE seal, which is permanently maintenance-free, also contributes to the robustness. The sensors, available with different measuring ranges from vacuum to 100 bar, now communicate via IO-Link 1.1 and offer a resolution of about 32 bits. This is especially important for applications where differential pressures are measured and thus only a small part of the measuring range can be used. Temperature compensation has also been improved in the new series. This is important for a much faster restart when cleaning and production temperature are in different range - in many applications this leads to a significant increase in efficiency.

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## INDOOR DUST EXPOSURE MONITOR

Continuous safety monitoring for working places



The **ENVEA AirSafe PM** is a new measuring instrument to monitor particulate matter exposure such as PM1, PM2.5, PM4.25, PM10 and TSP in indoor ambient air. The device is used to monitor safety levels of air quality for personnel as well as to optimize process and dust control systems. The measured data can also be used by health

and safety departments to be proactive in reducing PM concentration and exposure. Using a high-end optical system, the AirSafe PM monitors the air flowing through it, counting particles and defining their sizes. The measured data is treated by a combination of processor-based platform and a unique algorithm. Different particle sizes are measured and classified as PM particles or A or E dust fractions. The housing is made of ABS and aluminium, ensuring the sensor robustness for industrial applications. The sensor has a digital output that alarms when the set limit value is exceeded. As the sensor is designed to be used in industrial areas, a 4 ... 20 mA analogue output is available to be connected to any PLC. In addition to the usual electric signals, the AirSafe PM is also features Modbus communication protocol. Wireless (WLAN) communication allows an easy sensor setup using PC or mobile devices.

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## COMPACT INDUSTRIAL POE SWITCH

For mission-critical networks with high power demands



**Westermo** has introduced a new compact industrial Power over Ethernet (PoE) switch designed to support the growing networking requirements for devices, such as security cameras, wireless access points and monitors. The Lynx 3510 PoE series is capable of supporting networks with greater power demands and is ideal for handling big data, high bandwidth, mission-critical

applications typically found within transportation, manufacturing, energy and smart cities. With power and data provided over the same cable, PoE helps to reduce network complexity and offers greater installation flexibility, reliability, and time and cost savings. The Lynx 3510 PoE enhances network capability by supporting the needs of more powered devices, with eight copper ports each providing gigabit speeds and up to 30W output. This is ideal for power-hungry applications. The Lynx 3510 PoE also offers redundant and fast failover connectivity, with Westermo's FRNT ring protocol ensuring rapid network recovery should a node or connection be lost. To reduce risk and increase cyber resilience, the Lynx 3510 PoE has an extensive suite of advanced cybersecurity features. These can be used to build networks in compliance with the IEC 62443 standard, which defines technical security requirements for data communication network components.

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## HYDROGEN PRESSURE MEASUREMENT

Finding the right solution for every application



Hydrogen is considered a difficult medium because its particularly small molecules can penetrate even stainless steel and also damage a material's structure causing embrittlement or cracks. It is therefore extremely important that measuring devices for hydrogen applications are made of the right materials.

**LABOM** has great experience in measuring devices for hydrogen applications. They developed several series of pressure transmitters that can be used in both standardised and application-defined hydrogen processes. The measuring instruments of the PASCAL CV4 and PASCAL Ci4 series as well as COMPACT CA16 cover a measuring range between -1 and 1050 bar, depending on the capabilities of the individual pressure transmitter, can be used down to -40°C and are also certified with Ex-protection and some with SIL. Hydrogen-proof stainless steels are used for the wetted parts, as well as polymers suited to hydrogen, such as NBR, EPDM and PVDF. The hydrogen tool developed by LABOM can be used to assess the resistance of oil-filled measuring devices. This tool determines whether a diaphragm made of hydrogen-proof stainless steel is sufficient or whether additional gold plating is required.

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## CUSTOMIZABLE COMMUNICATION PLATFORM

Greater information transparency for safer plants



Global software developer **eschbach** is expanding the European setup for its Shiftconnector® Plant Process Management software to further increase support for chemical and pharma manufacturers in

maximizing efficiency and fostering employee safety and production quality. Demand for the interactive management platform has increased significantly since experience from handling the COVID-19 pandemic highlighted the advantages of digital communication among manufacturing teams. In line with this, eschbach is strengthening its regional application and technical teams to step up its local presence and software customization capabilities. Alongside the existing trend to increase digitization and automation in process manufacturing, the Plant Process Management software encourages human-centric, transparent communication involving everyone from the shop floor up. It is unique in capturing and sharing compliance and asset performance data between all levels of personnel, from equipment operators to shift managers and corporate functions. Reporting can be tailored to the needs of each plant and its workcenters, giving a comprehensive, easy-to-review picture of routine actions, flagged events and status. Plants operated by major process manufacturers in 21 countries are already using Shiftconnector.

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# The Easy Way to a Safe Performance

PCN Europe talked with Matthias Garbsch, Product Manager Safety at JUMO about the company's JSP portfolio and the advantages for users.

**PCN:** Jumo has combined several safety-oriented products under the label Jumo Safety Performance (JSP). What do you want to achieve with this and who do you address?

**Garbsch:** Safety topics are constantly gaining in importance, and not only in the process industry. More and more industries are orienting themselves to SIL (Safety Integrity Level) and PL (Performance Level) standards. However, the difficulty here lies in the details. In the case of a device with an Ex marking (explosion protection), users know exactly where and how they may use the device.

A SIL marking on a sensor, on the other hand, does not allow any conclusions to be drawn about the level of risk reduction that can be achieved when using it in a plant. This is because with SIL and PL, the complete mea-

surement chain with all components must always be evaluated and calculated. This usually takes a considerable amount of time. At the same time, an enormous amount of specialist knowledge is required from the user. With the JSP brand, we want to guide users safely through the "jungle of standards". To do this, we combine JUMO products with our comprehensive SIL and PL know-how. The advantages for the user are obvious. He does not have to perform complicated calculations and saves documentation and engineering costs.

**PCN:** Can you please give our readers more details of the key components in the system?

**Garbsch:** Our core competence for over 70 years is temperature measurement. The basic JSP variant is therefore a compact single-channel safety controller with selectable redundant input signals for standard signals and temperature sensors, with which SIL 3 or PL e can be implemented. With a combination of the JUMO safety temperature limiter/safety temperature monitor JUMO safetyM and calculated JUMO sensor technology, the entire SIL measuring chain consisting of sensor, controller, and actuator is already calculated and supplied with a corresponding manufacturer's declaration. Since no complex control system is used, no programming knowledge is required for commissioning. This application can be implemented with almost all JUMO temperature sensor variants. The JUMO safetyM STB/STW Ex is also suitable for ATEX/IECEX/EAC applications and complies with the Pressure Equipment and Machinery Directive.



The safety temperature limiter/safety temperature monitor JUMO safetyM

**PCN:** Which additional measurands are you covering and what Safety Integrity (SIL) and Performance Levels (PL) can be reached?

**Garbsch:** The JSP compact solution can also be used for the measurands pressure and level. In the pressure range, the new JUMO SIRAS P21 AR / DP pressure transmitter is the right partner for SIL and PL and is perfectly suited for safety measuring chains in the process industry.

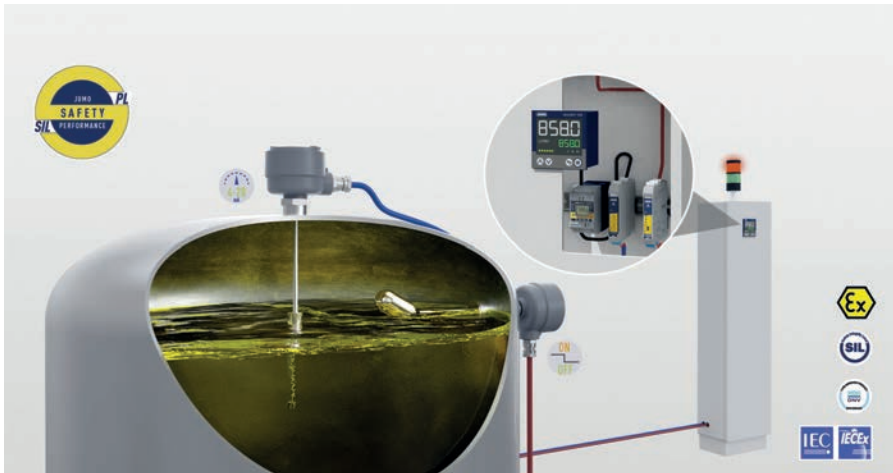
In combination with the JUMO safetyM STB/STW and the JUMO transmitter supply unit, it can be used as a safety chain for SIL2 or SIL3 and is certified according to the Pres-



The JUMO SIRAS P21 AR / DP can be used in combination with other JUMO devices as an immediately operational safety chain for SIL 2 or SIL 3.







*JUMO Safety Performance also enables the reliable detection and measurement of process-critical point levels and filling levels for liquids.*

sure Equipment Directive (PED 2014/68/EU). For this purpose, JUMO provides the required certificates and all safety-relevant system properties in a clear manner, so that the safety assessment effort for the user is significantly reduced.

Another new addition to the JSP portfolio is the "level" measurand variable. This is a system solution up to SIL 2 according to IEC 61508, which is based on the products of the JUMO NESOS series and is available in various expansion stages depending on customer requirements. Starting with the SIL qualified sensor with all the required safety-related characteristic values, through SIL certified sensors, to the certified measuring point, flexible options are available. Qualification and certification are carried out by an independent test center, so that a solid basis is laid for safety-critical applications. The JSP complete solution in the "level" area can also reliably detect line faults such as short circuits and cable breaks from the sensor to the actuator. Solutions can also be implemented in combination with applications in explosion-proof areas (intrinsically safe, Ex i and flameproof enclosure, Ex d) and in ship-building.

**PCN: From your experience, what is the time a potential customer could save, and**

**perhaps you also can give us an example from your practise?**

**Garbsch:** SIL focuses on the evaluation of the safety chain. This typically consists of sensor, control and actuator. Each application must be calculated and evaluated separately. The time required for this depends, for example, heavily on the number of sensors used and on the previous knowledge that the user brings with him. Process engineers who are completely new to this topic usually need extensive training first. Several days or even weeks can easily be spent here before the first SIL chain can even be tackled. One application example for JSP technology is electrical heating solutions. These are always required when the temperature must be maintained or increased in closed process engineering processes. Particularly in hazardous areas, solutions that meet SIL requirements are frequently required here these days.

A Heidelberg-based company has been planning, designing, and building flexible electric heating systems for 40 years, using know-how and technology from JUMO. For example, the company has long installed certified Pt100 resistance temperature sensors from JUMO with EC type examination certification in flexible explosion-proof heaters. The temperature signal is evaluated in a con-

trol and monitoring device (in this case, the JUMO safetyM STB/STW) operated in or outside the hazardous area, which initiates appropriate measures depending on the design or programming. In this way, not only can the operating temperatures of the process be controlled, but also ignition sources arising in the heating due to uncontrolled excess temperatures can be avoided. In addition to low investment costs, the advantages here are lower parameterization costs per application.

**PCN: Bringing information to the users who need it is crucial, especially in an environment with complex technologies. If customers feel the need for more information about the JSP-portfolio or other Jumo products, what can you offer to them?**

**Garbsch:** In addition to products and solution developments, JUMO Safety Performance focuses above all on its high level of consulting expertise. JUMO employees have been trained as JSP product specialists with an own training concept. They have knowledge in the application of the JUMO safetyM, in temperature, pressure, and level measurement technology, in explosion protection, and of course in functional safety (SIL and PL). The JSP competence team works closely with the JUMO engineering team and is available cross-national with its comprehensive know-how.

**PCN6: As a brand JSP is relatively young. What can potential customers expect from you and your portfolio in the near future?**

**Garbsch:** With the measurands temperature, pressure, and level, JUMO Safety Performance already covers a large number of possible applications. Of course, we will continue to launch products on the market that round off the portfolio. For example, we have developed a two-channel Ex-i isolating switching amplifier especially for the level solution. We also see great potential in the further internationalization of the brand via our 25 subsidiaries.

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## Rethinking the Machine

The BEUMER Group has completely redesigned and overhauled its paletpac range of robust palletizers. The modular machines now have identical or similar components and modules and – wherever possible – are based on the same design. The total number of components has been reduced and faster deliveries are possible. If replacement parts are later needed, this will also go faster.

The BEUMER Group offers highly efficient palletizers that deliver many years of service even under tough conditions. “Our paletpac series is keyed to the characteristics of the packaged goods and complies with the customers’ requirements for packing patterns and pallet dimensions,” says Kay Wieczorek, Divisional Director of Product Business at BEUMER. The systems gently handle packaging units of all kinds. “We’ve redesigned our BEUMER paletpac and given it a modular structure,” says Wieczorek. “This has a number of big advantages for our customers.” For example, the performance of the machines can be modified at a later time if necessary, and if there is ever a need for retrofitting or repairs, the new design saves a lot of time.

### SIMPLER INSTALLATION

The new model range not only makes configuration easier, it also simplifies installation. “Pre-

viously, it was necessary to use forklifts with a capacity of up to eight tons,” says Wieczorek. “Now a capacity of five tons is sufficient.” The modules are designed so that they can be picked up from two different sides. This simplifies assembly in confined spaces. Customers formerly received two large modules; now they get three that are more compact, which makes handling simpler. “We now only need standard shipping containers,” says Wieczorek. In view of the container crisis caused by the pandemic, this is a real advantage.

### OPTIMIZED COMPONENTS

BEUMER has redesigned all the modules in its paletpac series in terms of function and utility. It has optimized the motors and drives in the belts and streamlined the design at transfer points, making transport processes much gentler. The size of the assemblies has also been modified for greater efficiency, boosting

the performance of certain modules.

The new BEUMER paletpac has been equipped with a larger deposit table. With maximum layer dimensions of 1,500 x 1,300 millimeters, it can accept bags filled with bulk materials on euro pallets or pallets with other formats.

The developers have also redesigned the pusher, which is used in all BEUMER paletpac models. The undercarriage is the same for both single and double pushers, enabling users to increase the performance of the system at a later time without making big adjustments to the modules.

“Different packing patterns are also possible,” says Wieczorek. “This starts at the layer preparation level. The machine places the bags on the lifting gear in alternation. If the material in the goods is nevertheless unevenly distributed and cannot be equalized when the bags are fed, the BEUMER paletpac can be supplied



The BEUMER paletpac series is keyed to the characteristics of the packaged goods and complies with the customers’ requirements for packing patterns and pallet dimensions.



The lifting gear of the BEUMER paletpac in action. With cement, for example, the machines can achieve a throughput of up to 6,000 bags per hour. Source pictures: BEUMER Group



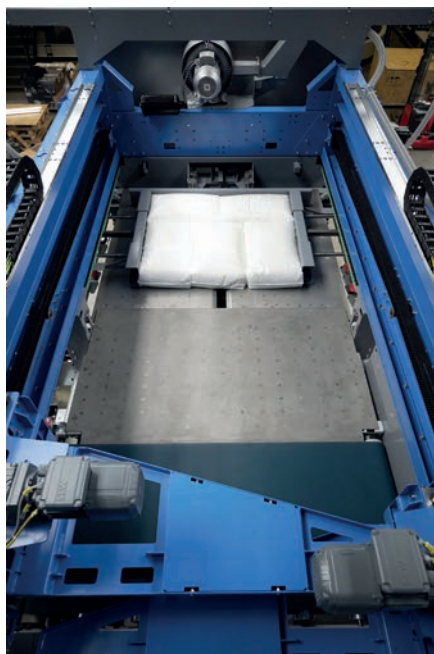
with a turning device in the lifting gear. Rotation of the bags by 180° prevents uneven stacking.

#### CONTROL SYSTEM ADAPTED TO THE AVAILABLE SPACE

When they modernized the paletpac, BEUMER's developers also improved its footprint. The control cabinet bays have a standard configuration, but a space-saving offset arrangement is also possible if required by the customer. The enclosure for the lifting gear also saves space. "We gave this series a slim design," explains Wieczorek. The Human Machine Interface (HMI) is located on the maintenance platform at the layer preparation level. If the operator needs to make adjustments, he or she can see the whole machine at once. Additional control units, for example in the area of the lifting gear, can optionally be installed for even greater convenience.

#### FOCUS ON ENERGY EFFICIENCY

For drive technology, the BEUMER paletpac relies on the MOVI-C modular automation system from SEW. This centralized approach



requires less space in the control cabinet and reduces the number of components in the bay. Energy savings of 20 to 30 percent can be achieved by means of a common DC link in the frequency converters and optimized

*The new BEUMER paletpac with undercarriage for a single or double pusher. Layers with dimensions up to 1500 x 1300 millimeters can be prepared and pushed to the deposit table.*

motion sequences. Energy storage units are another option: "These are an efficient means of eliminating peak loads. They also cut operating costs for users and reduce the carbon footprint," says Wieczorek.

BEUMER has gone to great lengths to ensure reliable operation of the new paletpac generation. One such measure was to subject the palletizers to tough endurance tests. Service technicians now have it much easier if modules have to be serviced or components replaced. For example, belt changes take much less time thanks to better accessibility.

The BEUMER paletpac range continues to offer a wide range of models at different capacity levels. Machines in the low-throughput range stack up to 1,800 bags per hour. Those in the medium and high-throughput ranges stack up to 3,200 and 6,000 bags per hour respectively.

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**JUMO**

JUMO PL  
SIL SAFETY PERFORMANCE

4-20 mA

ON  
OFF

More than sensors + automation

SIL  
Ex  
DNV  
IEC IECEx

## Reliable Point Level and Level Measurement with the JUMO NESOS Series

Float switches and level transmitters via floats from the JUMO NESOS series are now available in SIL 2 according to IEC 61508. JUMO supports project planners and users in the safe implementation of their measurement tasks with liquids. Even line faults such as a short circuit or line break are reliably detected. Measuring point solutions can also be implemented safely and robustly in explosion-proof areas [Ex i and Ex d] as well as in the shipbuilding industry.

Welcome to JUMO.

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# Advanced Dust Pulse Technology Control System

**DPT Control System provides superior monitoring and optimization of the dust collector system performance for increased uptime**

Emerson's new ASCO™ DPT Control System optimizes the performance and improves the efficiency of filtration and dust collector systems by providing accurate and reliable low-level particulate monitoring, early warning leak detection, enhanced cleaning control and real-time diagnostics.

## EARLY WARNING THROUGH LOW-LEVEL MEASUREMENT

Using traditional sensing technology, low-level leakage is hard to detect in environments with high operating pressure, high humidity or oil and steam. The advanced signal processing of the DPT Control System helps ensure accurate, low-level measurement and detection of particles of less than 1 milligram per cubic meter in harsh, high-pressure (maximum 7 bar) and high-humidity applications, like those found in the cement, power plant, incineration, finishing aluminium and chemical industries. By closely monitoring dust collector systems in real time, the DPT Control System can help users locate and address leaks before they become issues, improving energy efficiency and compressed air consumption savings. The loop-powered sensor enables intrinsically safe monitoring of difficult-to-access points of the filtration system, including coil, diaphragm and filter bag. The system's condition monitoring and predictive maintenance capabilities can improve system reliability and efficiency while reducing maintenance costs and unplanned downtime. Its superior linear output can help users track real-time particle emissions levels and meet emissions regulations.



## OPTIMIZED PROCESSES FOR LONGER FILTER LIFE

In addition to monitoring, the DPT Control System optimizes the performance and uptime of dust collector systems of all sizes through efficient and reliable pulse-jet filter cleaning control. For facilities that use large baghouses, application-specific control algorithms can reduce pulsing frequency, which can extend filter life and reduce the amount of compressed air consumed. The control logic can maintain quite low and stable differential pressure during operation and automatically maintains differential pressure within  $\pm 25$  Pa ( $\pm 0.1$  inch) of water column of set point while

minimizing pulsing. This ensures consistent cleaning performance, maintains a proper filter cake and can reduce compressed air use by 15% to 40% over standard, on-demand cleaning and up to 90% over continuous. It also helps ensure consistent airflow to maintain production, ventilation and dust recovery. The system provides extensive general filter pulse jet cleaning control modes, such as easily selectable pulsing patterns and a full range of basic timing modes. Modes include continuous, high/low, single cycle and cycle down.

►► 62914 at [www.pcne.eu](http://www.pcne.eu)



## TRANSMITTER PC CONFIGURATION TOOL

Conveniently configure offline for different languages



Configuring **Knick** transmitters such as those in the Stratos or Protos product lines is a simple affair thanks to the devices' intuitive menu navigation and clear displays. Nevertheless, sometimes it's more convenient if configuration can be carried

out offline on a PC in the office. For such cases, Knick now offers the new ProgaLog 4000 PC configuration tool. The software supports the Stratos Multi Transmitter and the Protos II 4400. Just one software application is required for all device configurations of the two flexibly configurable transmitters. The user selects the transmitter, the installed firmware, and the modules in the configuration tool and is presented on their PC with the same menu structure as displayed on the device. If a new firmware version is available for one of the devices, it can be selected in the current version of ProgaLog 4000 after an update. The transmitter can be fully configured in the configuration tool; each menu item is clearly displayed, making the user's work as easy as possible. You can also select from a range of languages - German, English, Spanish, French, Italian, Portuguese, Chinese, and Korean are currently available. All inputs are actively checked for plausibility, with any errors or gaps in the configuration displayed during use with a direct reference to the source of the error.

▶▶ 62917 at [www.pcne.eu](http://www.pcne.eu)

## PRESSURE TRANSDUCER FOR UP TO 400 BAR

Unchanged accuracy over a wider measurement range



Continuous further development and optimisation of products plays just as important a role as the innovative development of new technologies for **AFRISO-EURO-INDEX**. A typical example of the practical implementation of this company philosophy is the revised pressure transducer DMU 13 Vario, an upgrade of its predecessor DMU 13, which AFRISO is

currently presenting and including in the comprehensive product range. As a combination of a mechanical, current-independent local display based on a Bourdon tube safety pressure gauge and an electrical output signal, the transducer offers maximum readability and optimum options for implementation in existing digital systems. With the presentation of the revised version DMU 13 Vario, AFRISO is, above all, clearly expanding the measuring range of the pressure transducer. While the measuring range of DMU 13 was up to 40 bar, DMU 13 Vario allows for measurements of up to 400 bar. The measuring accuracy of the pressure gauge remains unchanged, and the measuring accuracy of the transducer improves to less than  $\pm 0.3\%$  FSO according to IEC 60770. AFRISO was also able to significantly improve the accuracy in the temperature error band from  $\leq 1\%$  FSO/10K to  $\leq 0.15\%$  FSO/10K.

▶▶ 62817 at [www.pcne.eu](http://www.pcne.eu)



FREE DIGITAL SUBSCRIPTION

## POTENTIOMETRIC LEVEL SENSOR

Measures low-conducting media, even process water



**Baumer** launched a new sensor to make continuous level measurement more convenient and easier. The new CombiLevel PLP70 automatically adapts to outstandingly varied media and offers user-friendly process monitoring thanks to the large

touch display. To users, the most interesting innovation of the PLP70 potentiometric level sensor is its performance in media of low minimum conductivity. Before, previous sensor LSP was able to measure media with conductivity starting at 50 microsiemens/cm. Which now has been surpassed by the PLP70. It will even detect extremely low-conducting process media (starting at 10 microsiemens). This is pushing PLP70 far beyond conventional limits and allows for use in media such as process water. Thanks to the media-independent measuring principle, the sensor ensures ultrahigh precision and repeatability even in the most demanding applications, e.g. low-conducting pasty, adhering or foaming media. Potentiometric level sensor PLP70 - of course with IO-Link interface - enables efficient process monitoring and control with maximum flexibility. The extremely accurate and reliable measurement results offer convenient process optimization, i.e. precise monitoring of filling levels in storage tanks. Thanks to the short response time ( $>100$  msec.) it is also ideal for dynamic processes.

▶▶ 62689 at [www.pcne.eu](http://www.pcne.eu)

## NEW VARIETY OF MOTORIZED ACTUATORS

Expanded valve selection for plant engineers



A total of four **GEMÜ** eSyLite valves now offers plant engineers and operators the opportunity of operating electrically driven plants more efficiently than before. In plants in which, for example, solenoid valves of large nominal sizes consume a relatively large amount of electricity, the GEMÜ globe valves from the eSyLite series are a cost-effective alternative. With low switching cycles and medium switching speed, they take on shut-off tasks just as precisely as solenoid valves, while at the same time scoring points when it comes to operating costs with their low electricity consumption. The

eSyLite series also opens up new opportunities for plant optimization for applications where there have so far been no affordably priced alternatives to electrical ball valves. Where pneumatic valves could not previously be used, and manual valves were relied on instead, a motorized alternative is now available with which the plant can be automated cost-effectively. The new valves complete the GEMÜ eSyLite series. The robust and self-locking motorized linear actuator has a safety switch-off function including overload protection. A manual override and an optical position indicator are integrated as standard.

▶▶ 62870 at [www.pcne.eu](http://www.pcne.eu)

# Water Reliability for the Southern Black Forest Region

Persistent droughts and heat waves in many regions of the world are forcing cities and municipalities to place a stronger focus on the reliability of the water supply not only by optimizing their networks but also by searching for additional sources that could contribute to long-term reliability. Two examples in the German county of Lörrach show how measurement and automation technology specialist Endress+Hauser supports numerous communities with innovative flow instruments.

The municipality of Steinen in the southern part of the Black Forest uses on average 1,800 cubic meters of drinking water per day – half from deep wells and half from around 30 springs. Persistent droughts in recent weeks have led to a significant shift in this distribution. “At the moment we get around one-fourth of the drinking water from the springs – the remainder we can cover with the deep wells,” says water specialist Axel Grether. While water levels in the springs are fluctuating heavily, to date the deep wells have remained quite stable despite the ongoing drought. The level dropped only 50 centimeters between January and the end of July.

“This gives us an edge over other communi-

ties whose only source of water is springs,” says Dietmar Thurn, head of the building authority. The municipality with a population of 10,000 also modernized the water network and installed pump lines and numerous measurement instruments from Endress+Hauser in recent years to monitor the flow and quality of the water. The measurement values are available in real time, providing a better and much faster way to identify and contain leaks in the network. “We’re well positioned for the coming years thanks to these investments,” explains Dietmar Thurn. Districts such as Endenburg, part of which sits more than 900 meters above sea level, can now be serviced from the deep wells in case the supply from the

local springs is temporarily insufficient. Thanks to the measurement instruments, municipal employees can view a display screen in the central water treatment plant in Steinen to determine how much volume is being discharged from the springs. “In the past we had normal meters without data transmission. Now we see the values down to the second, plus we don’t have to drive to the catchment chambers as often, which is a big step forward,” reports Alex Grether.

## NEW SPRINGS UNDER CONSTANT MONITORING

While Steinen believes the municipality is in a good position, climate change is nevertheless forcing them to think about the future. “We don’t know how things will look in 10 years,” explains Dietmar Thurn. To prepare for possible shortages, Steinen is currently employing prototype flowmeters in cooperation with Endress+Hauser for long-term monitoring of two springs in the districts of Weitenau and Schlächtenhaus. Although once part of the regular water supply, these springs are now only being used as a reserve for firefighting because the quality does not adhere to the latest drinking water regulations. “Permanent use of these springs requires costly water treatment,” adds Axel Grether. The water specialist is interested in how the persistent drought period is impacting the springs. Thanks to the integrated mobile connection, he can access the collected data via a smartphone.

Ralf Maier, Grether’s coworker who is located several kilometers upstream in the



As well as being displayed on the instrument, the measurement values can be retrieved with a tablet.







*The pH value is also measured as part of the quality analysis during treatment of the raw water for the potable supply network.*

city of Zell im Wiesental, is also using this function in the same model of flowmeter to monitor a previously untapped spring in the middle of the woods on Zeller Blauen, a mountain that's roughly 1,000 meters tall. Since the spring is still reliable despite the ongoing drought, it could be an interesting source for the mountain village of Blauen if the town's existing spring discharges continue to recede in the long term. "It used

to be that one out of every ten summers brought extreme heat. Now we're experiencing droughts every two to three years. We can barely cover these peak periods up here with the existing spring water," explains Ralf Maier, technical operations manager of the Zeller water utility since 1999. "We're monitoring the spring to see how it flows over a long period of time and to determine how it reacts to climate change."



*The spring on Zeller Blauen is in the middle of the woods, meaning that the discharge can only be monitored with a battery-operated flowmeter.*

#### DIGITAL MEASUREMENT TECHNOLOGY INSTEAD OF A BUCKET AND STOPWATCH

The discharge from the spring has been monitored for four years already – most recently with a flowmeter from Endress+Hauser. "With a battery life of up to 15 years and special corrosion protection, the instrument is designed for reliable long-term operation," explains application engineer Ralf Schweigler. The instrument not only saves the water specialist from manually measuring the discharge with a bucket and stopwatch, but also cuts out most of the weekly drives up the mountain. Considering the 70-kilometer-long pipeline network and limited personnel resources, these tasks were nearly impossible to manage. Instead, the data is encrypted and transmitted directly to a smartphone, and can also be retrieved via a PC in the office.

The city of Zell has traditionally focused on its mountain sources. More than 70 individual springs, in addition to two deep wells in the valley, are used to provide water to around 6,300 residents spread out over a 36-square-kilometer area that includes numerous districts. Most of the spring discharges are abating more and more during the summer, however. "We always had dry periods, but not with the frequency we have recently experienced. Additional pumped supplies will certainly be needed during extreme periods in the future," emphasizes Ralf Maier. With this in mind, the city plans to commission a structural assessment of the water supply. The report will analyze the current state of the infrastructure and determine where improvements are required in the coming years so that residents will continue to enjoy a reliable supply of drinking water in the future.

Among other things under discussion is the construction of a pump line in the district of Gresgen. But as Ralf Maier points out, "The city council only subsidizes water projects that ensure long-term reliability." The water specialist says it will be some time yet before enough information is available for the assessment, but adds that "It's important to already be thinking about the water supply over the mid and long term. Our colleagues in Steinen have already accomplished this task, but we're still in the initial phases."

▶▶ 62919 at [www.pcne.eu](http://www.pcne.eu)



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N° 11 - NOVEMBER 2022

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# Flexible HMI Devices for Applications in Hazardous Environments

The increasing digitalisation and integration of production processes is generating a host of information that needs to be available in the field and thus also in hazardous areas. This information includes system status, maintenance intervals, MES-relevant data and more. To meet these requirements, R. STAHL is launching the fully modular ORCA HMI operator stations.

System operators in the process industry are given a much better overview of the many types of process information generated by the system. In addition to the 22" operator station the new ORCA device platform includes a panel-mount device with three different display sizes (12", 15" and 22")

## EASY SEPARATION

The new ORCA HMI device platform has other special features, too: R. STAHL separated the display from the PC unit, designing them as click-fit modules for Zones 1 and 2 as well as for Division 2. The components of a traditional

operator system were split into two modules: an electronics box (E-Box) containing the computer or thin client, and a display box (D-Box) with the multi-touch screen. These boxes can be freely combined, providing flexibility during maintenance and upgrades. Thanks to the new EasyConnect concept, the display and electronics module can be separated in a few easy steps, without the need for fiddly disconnection of cabling, and the old E-Box can be replaced.

This modularity makes repairs and maintenance a lot easier. The ORCA HMI system has a high degree of flexibility during operations, too. A monitor interface has been integrated

enabling users to directly connect a second screen to the HMI system. This dual monitor solution can be used to access and view two data sources in parallel. One monitor can be used to visualise the PCS, and the other to display maintenance plans for the field devices, production resource management, project control or documentation. Machine data, maintenance, logistics and QM information can also be integrated. Process operators are thus informed promptly of any changes and anomalies and can then initiate appropriate safety measures.

## RFID IDENTIFICATION

The ORCA devices are extremely robust, UV-resistant and, at the front, both GMP and clean-room compliant. The built-in modules guarantee overall IP66 protection and can be installed directly in the hazardous area. At the same time, the luminous widescreen displays are easily readable. The pharmaceutical industry poses a particular challenge. Professional access authority management necessitates a detailed specification of who can access what in which system. Operators usually have to work in several systems, with separate log-on requirements. Authentication via fingerprint or face ID is often not possible because operators are wearing protective gloves and face masks. R.STAHL equips its explosion-protected HMIs with a contactless RFID reader, which reduces the time required for log-on and authorised access to control system, MES and other applications to a minimum. STAHL also offers a migration concept for users of older operator stations.



►► 62916 at [www.pcne.eu](http://www.pcne.eu)







## AIRFLOW MONITORS FOR HAZARDOUS AREAS

Intuitively adjustable sensors with G1/2 threads



**EGE** announces the new series LC 521 GSP-EX22 of ATEX-certified screw-in airflow monitors with G1/2 thread for easy parameterization. The stainless-steel category 3 sensors have a 0.5 to 20 m/s detection range.

They are suitable for flow monitoring of gaseous media in zone 2 and 22 hazardous areas. They are installed in supply or exhaust air ducts with a screw adapter with a G1/2 female thread. The sensors are available in lengths of 32 mm, 49 mm, 101 mm or 151 mm. In applications with a specified air flow, users can set the limit value via the integrated potentiometer. All variants have an IP67 protection rating and can be used in ambient temperatures from -10°C to 60°C.

▶▶ 62886 at [www.pcne.eu](http://www.pcne.eu)

## INNOVATIVE POSITIONER WITH ETHERNET APL

Data exchange with 10Mbits/s in hazardous areas



Positioners have become key elements at the field level as digitalization in process engineering is growing more and more prominent. The innovative TROVIS 3797 Positioners

with PROFINET® communication by **SAMSON** make the best of the new APL industry standard: fast communication, proven two-wire installation and suitability for use in hazardous areas. The positioners exchange data at 10 Mbit/s, which is up to 300 times faster than with today's fieldbus protocols. This allows data to be transferred to asset management and cloud-computing systems in real time and forms the basis for the systematic aggregation of valve data.

▶▶ 62803 at [www.pcne.eu](http://www.pcne.eu)

## HIGH-PRESSURE FITTING SERIES

Single and multiple outlets for individual assemblies



For the instrumentation of high-pressure applications, **WIKA** has provided a new series of fittings and accessories. The fittings, under the model designation HPFA, are designed for pressures from 15,000 to 60,000 psi (1,034 to 4,136

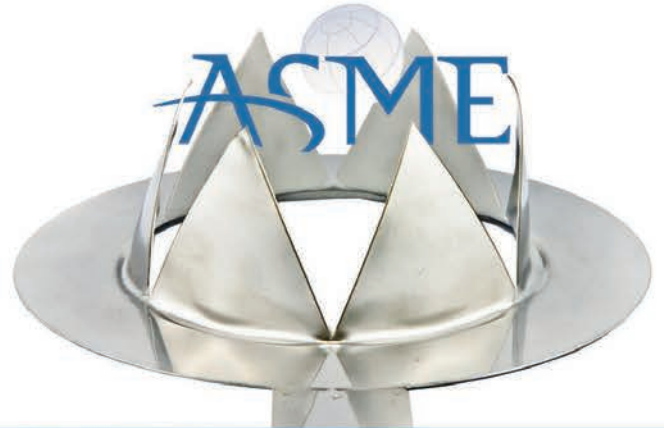
bar). HPFA parts can be combined with the corresponding ball or needle valves from WIKI. They enable a more flexible installation of measuring assemblies, even in confined locations. Versions with multiple outlets enable the instrumentation of measuring locations to be expanded individually. The new fittings are available from high-quality stainless steel in all commonly used versions.

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☀ US Patent Technology  
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## RFID for Increased Safety in Process Technology Plants

In hazardous areas of process automation, even small errors during routine tasks can present high hazard potential. A simple mix-up can result in extensive damage to equipment and the environment, production downtimes, and — in the worst case scenario — risks to the health and life of employees. Automatic identification systems that use RFID technology preclude faults that occur due to human error and also save time.

Liquid media or pumpable media are delivered to plants in the process industry using various methods, including by truck, train, and ship. Once on-site, the media are fed into the production process or into storage solutions via pipeline systems, some of which are kilometers long. The supply and transfer between different sections of the plant is carried out via coupling stations, meaning it is extremely important that these connections are established correctly. Furthermore a frequent requirement of quality assurance is that the lots used in the process must be fully traceable with complete documentation. Incorrect connections at the coupling points can result in production downtimes, waste of valuable raw materials, unplanned plant downtimes, and — in the worst case sce-

nario — dangerous situations. Using RFID as a means of identification at the coupling stations means that errors can be effectively ruled out. Since RFID does not require a line of sight, detection works even in harsh and polluted environments where optical identification methods cannot be used. Faulty connections are immediately detected and can be corrected. When the solution is integrated into the control system, the start-up of pumps or the start of the next process step can be prevented if there is a fault.

The new IPH-30GM-Ex (LF, 125 kHz) and IQH1-30GM-Ex (HF, 13.56 MHz, ISO 15693) RFID read/write heads from Pepperl+Fuchs are two compact devices with ATEX approval for Zone 1 and Zone 21



that can be used for applications in hazardous areas. The rugged stainless steel housings in the well-known 30GM design are UV-resistant, have IP68 degree of protection, and are ideal for installation in harsh industrial environments. A further special feature is the operating temperature range of -20 °C to +70 °C. This allows the read/write heads to be operated outdoors and in the vicinity of cold or heat sources without any problems. This is one example of how Pepperl+Fuchs is expanding its comprehensive portfolio of components for hazardous areas. The RFID heads are designed for connection to the proven IDENTControl system. RFID control interfaces from the IDENTControl family represent the gateway to higher-level systems like PLC or other IT systems. They are available for all common fieldbus systems and industrial Ethernet protocols (PROFIBUS, PROFINET, Ethernet/IP, TCP/IP, MODBUS TCP/IP, EtherCAT) to offer many choices for almost every identification application.

►► 62776 at [www.pcne.eu](http://www.pcne.eu)



## REAL TIME MONITORING OF PROCESS FLUIDS

Accurate measurement in electrolysis sub-processes



Chlorine and caustic soda are essential chemicals, their production is indispensable for downstream chemical processes. Due to the immense production volumes,

small deviations and errors in the individual production steps can mean large financial losses. For this reason, complete and accurate process monitoring is important. With LiquiSonic® **SensoTech GmbH** offers a process monitoring system that meets these high requirements. Precise monitoring of the starting materials already shows its advantages during the preparation of the brine. The concentration of the sodium chloride solution can be precisely adjusted down to 0.1 m%. Maximum saturation prolongs the life of the membranes during electrolysis and saves energy during subsequent concentration of the sodium hydroxide solution. After electrolysis, the caustic soda solution (NaOH) still has to be freed from unwanted NaCl residues and then concentrated to the usual purity. With LiquiSonic®, this process can also be monitored and controlled in real time. After the chlorine gas has been produced, the challenge is to reduce its process-related water content. For this purpose, hygroscopic sulfuric acid is used as a drying agent. The smallest deviations in acid concentration cause poor drying results and high costs or long-term plant damage, e.g., due to rust. LiquiSonic allows checking the sulfuric acid concentration with an accuracy of up to 0.03 m%.

▶▶ 62185 at [www.pcne.eu](http://www.pcne.eu)

## IOT GATEWAYS WITH IOT EDGE INTEGRATION

For a secure remote management at unmanned sites



Many system integrators and engineers face the critical challenge of finding a secure and reliable IloT-gateway solution that offers regular security patches to remedy system vulnerabilities in a timely manner. **Moxa's** newly launched AIG-300 Series IloT gateways come with Azure IoT Edge integration that adds significant value in the form of unique features that help build a cost-

and time-efficient IloT system. The AIG-300 IloT gateway, seamlessly integrated with Azure IoT Edge and powered by ThingsPro, is a solution for reliable, quick, and easy data acquisition and device management. Most IloT applications are deployed in remote, unmanned, and harsh environments such as a smart grid, energy storage systems, solar fields or oil and gas refineries. With capabilities such as resume file transmission, over-the-air (OTA) upgrades, and Secure Boot, the AIG series gateways, located in remote sites, can be upgraded, and maintained to ensure their continuous availability and effectively protected against cyberattacks. To avoid disconnections during device crashes and sudden shutdowns, the AIG series comes with built-in recovery functions to enable rollback to the previous stable version of the firmware for uninterrupted network connectivity at remote sites.

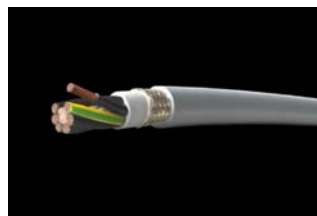
▶▶ 62637 at [www.pcne.eu](http://www.pcne.eu)



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## DRAG CHAIN CABLE FOR HARSH CONDITIONS

Resistant to drilling mud and suitable for oil & gas



Oil and gas production platforms, oil tankers, refinery ships and offshore wind turbines have one thing in common: they put extreme strain on electrical equipment. Therefore, to function reliably, the cables installed

must be resistant to oil, petrol, ozone and UV radiation as well as tolerate coolants and lubricants or cold cleaning agents.

**HELUKABEL's** MULTIFLEX 512-PUR UL/CSA drag chain cables series perform optimally under these demanding conditions. These highly flexible cables are now certified according to the internationally recognised NEK 606 standard (Norwegian Electrotechnical Committee), which defines the requirements for halogen-free cables with resistance to drilling mud. In addition, they comply with the more stringent DNV (Det Norske Veritas) ship approval tests for flexible electrical cables (CP-0417). This ensures that the cables can withstand the toughest operating conditions. Conventional sheathing materials tend to swell when exposed to aggressive agents such as lubricants and coolants, which negatively impacts the cable performance and shortens its service life. The technical PUR polymers used by HELUKABEL are significantly more resistant and therefore lengthen the cable's service life. With this, downtime or disruptions in the production process can be drastically reduced. The cable series is suitable for nominal voltages up to 600 volts.

▶▶ 61832 at [www.pcne.eu](http://www.pcne.eu)

## COLORED M12 CONNECTORS

Plastic coupling elements for higher chemical resistance



Especially for municipal technology, the agricultural sector and the chemical industry, **CONEC** offers overmoulded M12x1 connector variants with coloured plastic coupling elements. In addition to

the standard zinc die-cast or turned stainless steel versions, the plastic elements open up new fields of application. The screw elements are made of PA6 GF20 UL94-V0. As the plastic materials are resistant to weak acids, bases, alkalis and alkaline cleaning agents, the scope of application is where the chemical environment allows no use of zinc die-cast fittings and where stainless steel elements are too expensive. The possibility to choose between 5 colour variants (Black, White, Yellow, Red, Blue, Green) simplifies the assignment of complex cabling and with a terminal cross-section up to 0.75 mm<sup>2</sup>, there are many possible applications. Typical examples of applications are dosing pumps for the treatment of drinking water, waste water and process water, dosing systems and disinfection systems for industrial use as well as applications in the agricultural sector. The connectors offer a protection according to IP67. All articles with plastic coupling elements are manufactured on request and according to individual customer requirements.

▶▶ 62910 at [www.pcne.eu](http://www.pcne.eu)

## Automation Solution Crafted for the Brewing Industry

Connectivity of plant processes will enable sustainable water and energy usage and drive effective digitalization in breweries

ABB has launched its ABB Ability™ Beer-Maker intelligent process control solution to further support breweries in their operational efficiency through digital transformation. ABB's brewmaster, who has the notable achievement of qualifications from Technical University of Munich in Weihenstephan, devised the new package alongside a team with deep process knowhow.

It will benefit beermakers seeking to optimize their processes, reduce their impacts on water and energy resources and meet consumer demand for more sustainably crafted drinks. The new solution is based on the ABB Ability™ System 800xA® distributed control system and will help brewers improve process quality, achieve high engineering and operator efficiency, enhance safety and boost plant productivity. It has been made available to ABB's end customers and channel partners.

### DOMAIN SPECIFIC KNOWLEDGE INSIDE

The process automation solution comprises a technological package including a control system with batch functionality following the worldwide S88 standard and a digital twin to simulate new recipes. Crafted and tested with brewing knowledge from ABB's brewmaster, it can be adapted for each customer using a variety of parameters. Ready-made and tested templates and objects bring a high level of automation and intelligence of plant functions into operators' hands. There is a prepared inventory for queue handling, diagnostics and comprehensive cleaning in place (CIP) support.

### DIGITAL TWIN AND RECIPE SIMULATION

Designed to meet the industry's need for intuitive, visual solutions, BeerMaker will help to



empower operators to manage their preferred operating procedures and have freedom to use the package on computers, tablet or mobile devices. Teams can gain greater process certainty by testing on a real-time digital twin, a complete and operational representation of the control system and a powerful tool for companies deciding on a new strategy to easily simulate new recipes.

Additional digital solutions based on ABB Ability™ Manufacturing Operations Management (MOM) have the capabilities to identify energy consumption, beer or extract losses and provide reporting functions and dashboard visualization. These include the ABB Ability™ BatchInsight concept, which can use

big data analytics to identify process anomalies at the earliest stages. Operators and customer brewmasters will benefit from making decisions in real time to further improve processes, quality and productivity.

Breweries will experience intuitive controls and high-performance human-machine interfacing, fast detection and resolution of process disturbances, consistent alarm messages, report management and standard operating procedures (SOPs), while engineers will benefit from a structured application design with process technology functions, and powerful pre-testing with built-in simulation.

►► 62840 at [www.pcne.eu](http://www.pcne.eu)





## MODULAR CANDLE FILTERS

Standardized product range for lower engineering ti



**BHS-Sonthofen** has restructured its product range for candle filters of type CF as the demand for modularized solutions in the chemical industry and industries adjacent to it has been growing for years. The candle filters are offered in a standardized range with a variety of modules. Customers can choose from a total of 15 different sizes that cover all common applications and market requirements, with filter areas ranging from one to 87 m<sup>2</sup>. Depend-

ing on the requirements, the right filter is selected in cooperation with the filtration experts at BHS. There is a number of ways to expand each module, such as by adding piping modules or control solutions. This means that each machine can be extended or adapted at any point in the future, as all the individual components are compatible with one another - eliminating the need for custom modifications. Standardizing the product range to predefined sizes and components leads to simplified processing, which significantly reduces engineering times and therefore lowers costs. The high degree of prefabrication makes the modularly designed machines easy to assemble. In addition, candle filters also consume less energy, thus saving operating costs.

►► 62915 at [www.pcne.eu](http://www.pcne.eu)

## MODULAR SUSPENSION CRANE GANTRY

For installation without ceiling mount



As the name suggests, a suspension crane system is mounted on a superstructure. As of now, this no longer has to be an existing building structure. With the KBG crane gantry, **J. Schmalz** has designed a modular support system for its SRA aluminium suspension crane system, thus opening up even more application possibilities

for individual crane solutions. Flexibility and availability at short notice were two of the requirements for the development of the KBG. Schmalz therefore also uses the clever modular concept here, which in this case is based on only twelve components. Non-positive connections are made with a special screw set. This simplifies assembly and eliminates errors. In addition, Schmalz uses only one profile size for the entire crane gantry, which it delivers directly with the corresponding holes for the screw set. A crane gantry consists of at least two gates and can be extended as required - even at a later date if the production, assembly and logistics layout changes. The maximum load is 500 kilograms. And independent strength calculations of all load-bearing components according to the finite element method prove that the system assembled later delivers as promised. The entire system is designed according to DIN EN 13001, achieves stiffness class HC3 and S class S3.

►► 62913 at [www.pcne.eu](http://www.pcne.eu)



FREE DIGITAL SUBSCRIPTION

## BATTERY-POWERED LED LIGHTING

Decentralized emergency lighting for hazardous areas



**Eaton** has announced an important addition to its CEAG ExLin linear LED lighting fixtures for hazardous area applications. The new, battery-powered ExLin NE+ provides a decentralized LED solution for mandatory

emergency lighting in case of power failure, in compliance with EN 60598-2-22. Offering a safe, reliable and cost-efficient LED lighting solution for hazardous areas, the ExLin range is certified for use in Zone 1 and Zone 21. Typical applications include oil & gas and petrochemical processing facilities, as well as chemical and pharmaceutical manufacturing. The ExLin NE+ combines lithium batteries (which are more environmentally friendly than nickel cadmium types), state-of-the-art LED technology with optimized thermal management, and a time-tested enclosure to deliver reliable performance for longer in harsh and hazardous environments. They are available in 3L or 5L versions, delivering approximately 1000 lm / 2000 lm for up to three hours in emergency mode. Robust and versatile, these LED lighting fixtures will work effectively in ambient temperatures ranging from -40°C to +45°C. The lighting fixtures are equipped with integrated software that monitors the functions of the luminaire and automatically performs the prescribed function tests and quarterly, partial duty-cycle test in accordance with DIN EN 50172.

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# Getting Real-Time Information from Biotechnological Processes

How Raman process monitoring is providing a spectra of benefits across the biopharmaceutical industry. Dean Stuart, Product Manager at Thermo Fisher Scientific

Biopharmaceutical processes involve the production of substances that are either manufactured in, extracted from, or semi-synthesized from biological sources. These methods are remarkably versatile, and capable of producing everything from vaccines to tissue and blood components. However, processes using live cultures can be much more challenging to control than those using chemical reactions alone, and even slight environmental perturbations can lead to wildly varying end-products. The implementation of process analytical technologies (PATs) at multiple points in the production line can provide real-time information about the process, answering

questions such as: Do the cells have the right amount of glucose? Are too many secondary metabolites building up? Are the cells beginning to produce the product of interest? How much product has been produced, and does it have the right characteristics?

## RAMAN SPECTROSCOPY

Raman spectroscopy is one the most powerful and versatile PATs available today, offering rapid and accurate analysis whether a sample is in solid, liquid, gas, powder or slurry form. The technology relies on the Raman effect – the inelastic scattering of photons – to identify the individual constituents of a sample. It

works by using a fiber-optic probe to direct a laser light at the sample, which energizes the covalent bonds of molecules, causing them to scatter the light. This can either be via an elastic process – with the energy of the molecule unchanged after interaction with the photon – or an inelastic one, where the molecule absorbs some of the energy and causes the scattered photon to change wavelength. Raman spectroscopy uses the inelastically scattered light – collected and interpreted by a detector – to generate a Raman spectrum. This ‘molecular fingerprint’ is unique to each molecule, and enables the qualitative identification of analytes present in the sample. In addition, because the relationship between spectral peak height and analyte concentration is linear, accurate predictions of constituent quantities can be made, even with small volume samples.

## STATE-OF-THE-ART DEVICES TO SUIT MODERN PROCESSES

Raman spectroscopy measurements are non-destructive, rapid and – unlike many other forms of spectroscopy – suitable for the analysis of aqueous solutions, making them ideal for the continuous monitoring of biopharmaceutical processes. Since the composition of product streams in these types of manufacturing lines can vary from minute-to-minute, real-time data indicating the current state of the reaction can be invaluable. Traditionally, the main drawback preventing the more widespread use of Raman spectroscopy has been its reliance on expensive, complex and bulky equipment, requiring technical specialists to be on hand for operation and maintenance. However, recent technical develop-



*Traditionally, the main drawback preventing the more widespread use of Raman spectroscopy has been its reliance on expensive, complex and bulky equipment, requiring technical specialists to be on hand for operation and maintenance.*



ments have allowed for the introduction of more compact, affordable and user-friendly devices, such as the Thermo Scientific™ Ramina™ Process Analyzer. This new generation of instruments offers simplified user interfaces suitable for non-expert operators, and their compact size makes them viable for manufacturing lines and labs where space is at a premium.

#### ANALYSIS OPTIONS TO SUIT YOUR NEEDS

The exact process analytics requirements of each biomanufacturing workflow will differ considerably, depending on the input materials, microorganism, critical process parameters and target end-product. The flexibility of Raman spectroscopy as a PAT lends itself to use across various stages of the workflow, meaning that the installation and operation of Raman process monitoring equipment will depend on both the process and the bioreactor set-up. Regardless of the intended use, the implementation and analysis procedures will fall into one of four distinct categories: at-line, off-line, in-line and on-line. At-line and off-line measurements involve the removal of a sample to test outside of the product stream. While at-line analysis relies on nearby Raman spectroscopy stations for testing, off-line measurement involves the transfer of samples to a formal lab setting away from the production site. At-line or off-line measurements are more than adequate for some processes, and compact analyzers with quantitative analysis capabilities – such as the handheld Thermo Scientific™ TruScan™ RM with TruTools – are ideal for these applications. However, a potential issue with these sampling methods is that, by the time the results are received, some processes may have become irreversibly out-of-tolerance, negating the possibility of any compensatory adjustments. This is especially true in

the case of off-line measurements with a slow turnaround time, and can lead to failed batches that waste raw materials, time and money.

#### IN-PROCESS MEASUREMENT AND CONTROL

In-line measurements rely on the sampling device being inserted directly into the process flow, meaning that samples neither need to be removed from the bioreactor nor sent to a separate location for testing. Likewise, on-line measurements do not require sample removal, but divert a portion of the stream to an adjacent sampling loop in order to perform the Raman analysis. The sample can then either be returned to the process stream or discarded, depending on the application. These sampling and measurement methods allow for extremely rapid turnaround of results, making continuous monitoring of fast-evolving processes possible. When these analysis strategies are combined with control feedback loops, real-time automatic parameter adjustments can be made to keep the process within tolerance. Additionally, intelligent software solutions can use the extrapolation of data trends to predict the future state of the process, giving operators an added layer of confidence that the end-product will in-spec.

#### USHERING IN A NEW ERA OF RAMAN MONITORING

Careful choice of PATs can help to ensure that raw materials, intermediate compounds and end-products are all of the required purity. Modern Raman spectroscopy systems are ideal for the monitoring of biopharma processes, providing non-destructive compositional measurements across a wide array of sample types, without requiring expert users for operation, maintenance or interpretation of results. Their compact size and relative af-



*Compact sized devices allow flexible real time monitoring of biopharmaceutical processes.*

fordability have also made them accessible to smaller and lower throughput facilities, for which traditional Raman solutions would not have been a viable option. In-line and on-line analysis approaches also enable the combination of real-time monitoring with automated process control, offering the potential to allow the manufacture of certain products which would not be commercially viable using at-line or off-line testing methods. Whether enabling the generation of new products, or simply optimizing the manufacture of existing ones, Raman analysis can provide biopharmaceutical manufacturers with the data required to make real-time, informed decisions to optimize their processes.

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# Oil-free Compressed Air Powers Production of Premium Italian Pizza, Cake, and Bread Flour

**Certified Class '0', 100% oil-free compressed air supports the production and packaging of over 350 tonnes per day of 40 different types of flour.**

ELGi Compressors Europe, a subsidiary of ELGi Equipments Limited, announced that Polselli, one of the leading Italian flour millers, selected three state-of-the-art, water-injected AB Series screw air compressors of 45kW to support its entire pneumatic production and bagging requirements. The AB45s provide unmatched air quality in line with the ISO8573-1 Class '0' oil-free air and ISO8573-Class 7 compliance norms, ensuring zero traces of microbial contaminants, high reliability, consistent air quality, and a low lifecycle cost.

Founded in Arce, in the province of Frosinone, south of Rome, in the first half of the twentieth century, from a small artisan beginning, Polselli today is a leading player in the quality milling sector in Italy and a leader in the production of flour for bread, cakes, and pizza. Guided for nearly a century by the entrepreneurial experience of a family that has now reached its third generation, Polselli aims to meet consumers' needs with unique, natural, and innovative products exported all over Europe, North America and some countries in Asia. Installed in January 2022, the choice of three ELGi AB Series oil-free compressors (two AB45 fixed speed and one AB45V variable speed) is aligned with the company's goals to innovate and improve the environmental impact of its operations constantly.

Domenico Polselli, Owner of the third-generation family-owned flour millers, Polselli said, "The Polselli family's passion for wheat is based on quality, transparency, and reliability. These same principles guided our choice when upgrading our existing oil-lubricated compressors. We needed the highest quality of air, ensuring zero risk of oil contamination to meet our strict quality standards and an honest and



trustworthy partner who assured ease of maintenance and the reliability of our compressed air systems. The latter is a critical factor when producing and bagging 40 different types of flour mixes, using around 22 varieties of grain and producing up to 350 tonnes per day. In the six months since installation, the units have performed flawlessly, thanks to ELGi's quality and the service and support provided by SOL IM.I., ELGi's Channel Partner."

Graziano Dal Tio, Regional Manager, ELGi Southern Europe, said, "ELGi's AB Series is a

welcome disruption in oil-free compressed air technology, opening new possibilities for sensitive industrial applications where reliability, high air purity, and energy efficiency are crucial. We have been fortunate to work with Polselli, a company that demonstrates its innovative culture by considering the replacement of existing oil-lubricated compressors and systems, including filters, with the ELGi AB Series."

►► 62888 at [www.pcne.eu](http://www.pcne.eu)



# Versatile Electric Diaphragm Pump

Low-pulsation 3 chamber design in different construction materials

The EVO series™ Electric Diaphragm Pump from ARO is now available from WP ARO. The EVO series™ is a completely new disruptive product with an innovative diaphragm and unique 3 chamber design developed for lower pulsations compared with compared to traditional two-chamber electric diaphragm pumps. Evo series offers a high energy efficiency with its fully electric setup utilizing a 400V AC gear motor and no need for a compressed air system. With a built-in encoder and VFD (Variable Frequency Drive) the pump flow can be easily monitored and

controlled according to the users process parameters. With integrated monitoring, preventative maintenance happens on a predictable schedule. The EVO Series™ Pumps provide real deadhead protection. The built-in encoder can sense the pumping speed, slow the motor down and hold system pressure for long periods of time. Its automated system allows the pump to restart the process without priming and can be programmed for automatic shutdown. For added protection the pumps have a leak detection sensor and were was engineered with second-

ary seals to protect the actuation mechanism. Depending on the media there is a choice of 5 different materials of construction. Selecting from stainless steel, cast iron, aluminium, polypropylene or conductive polypropylene even the the most aggressive and corrosive fluids can be handled. Without the need for a base plate or shaft alignment the pump has a compact footprint and can fit in small operational spaces. There are 2 different models at the moment, offering a flow of 50 gpm - 189 l/min or 40 gpm - 530 l/min.

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## BYPASS ARMATURE FOR WATER TREATMENT

For easy handling and cleaning without tools



Special bypass armatures are available for integrating sensors into water treatment. They are used to accommodate potentiometric, amperometric and conductivity sensors and ensure optimum operating conditions during measurement. The new, Modular Bypass Armature BAMa accommodates all

**ProMinent** sensors for water treatment. It is simply installed in a bypass of the main process line. Important applications are drinking water, water for pool & wellness as well as industrial water such as cooling water and treated waste water. Easy handling and cleaning is one of the advantages the modules offer. Sensors can be removed and replaced without tools. All parts are therefore very easy to clean. Flow-dependent sensors are optimally flowed to, so that water consumption can be reduced to 5 l/h under ideal measuring conditions. The BAMa setup is suitable for solids-laden water. Sample-carrying components are designed so that suspensions with a solids content of up to 10 % and particles up to 1 mm in diameter can be conveyed through the armature. The material is also resistant to chemicals and can withstand temperatures of up to 70° C and an operating pressure of up to 7 bar (at 20° C).

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## ENERGY EFFICIENT ROTARY LOBE PUMP

Upgrade for reduced repair time and improved efficiency



**NETZSCH** has given the TORNADO® T1 rotary lobe pump a facelift and upgraded it. The system can be purchased new and existing systems can be upgraded with it. In addition to the external appearance, the focus of the upgrade was primarily on technical innovations. The first keyword is maintenance. In the past, 36 screws had to be loosened to replace the pump chamber. A well-thought-out design of the new model ensures that only 24 screws will be necessary for the future. In addition, patented sealing sleeves, which are fitted so that they do not come into contact with the medium, ensure that they can be replaced quickly in the event of maintenance. To counteract the currently exploding energy costs, the lobes of the TORNADO® T1 rotary lobe pump have been optimised to reduce the required drive power and save up to 25 percent energy. A flow-optimised inlet and outlet of the pump chamber also ensure less pulsation and vibration. In addition to the increased performance, the system becomes even more flexible for various applications. Up to four different mechanical seal concepts can be used and can also be changed later on. The new bearing concept of the TORNADO® T1 rotary lobe pump from NETZSCH contributes to a significantly increased service life. All versions are ATEX and CE certified.

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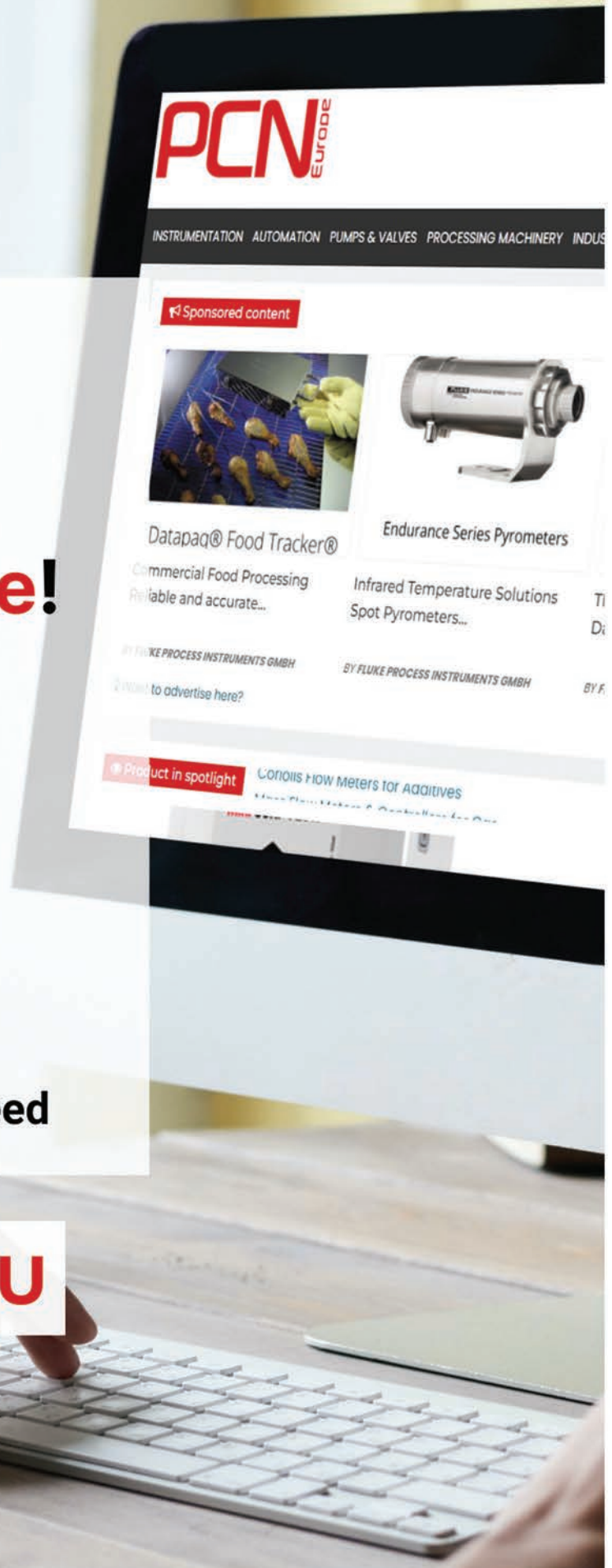




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