

INDUSTRIAL ENGINEERING NEWS

- 10 Robot-Assisted Sawing:** more flexible and efficient production, less operating costs
- 14 Low-Voltage Motors** in the world's steepest funicular railway
- 20 Exclusive Interview** Benny Magrafta, Head of Unitronics' R&D Software Department, tells about the company and its product news
- 24 3D Printing** empowers manufacturers big and small to innovate and reduce time to market

Guided Operator Solutions for Manual Assembly Applications

page 18



EXCLUSIVE INTERVIEW

Marc Siemering,
Senior Vice President -
Industry, Energy & Logistics,
Deutsche Messe AG

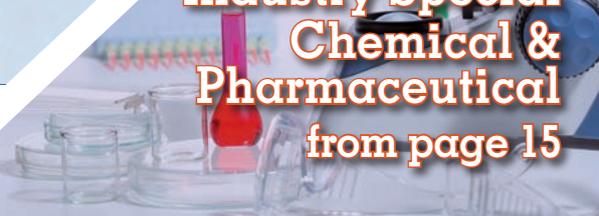
page 8



13 Lightweight Cobots for Heavy-Duty Jobs

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Industry Special
Chemical &
Pharmaceutical
from page 15



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Orhan Erenberk

Dear Reader,

In our first issue of the year, we have included a **Chemical & Pharmaceutical Industry Special** for the first time in IEN Europe's 43-year history. We also have focus sections on **Machinery and Robotic Systems** as well as **3D Printing and Additive Manufacturing**. Both topics are not only required in modern production by big players but are gaining more and more importance for SME's too.

In our upcoming issues we will go on keeping you informed on the latest product news and technology innovations that might be useful in your daily work. For example, in **March** we will have a special on **Energy Efficiency and Renewable Energy** and a focus section about developments for the **Factory of the Future – IIoT – Industry 4.0**. A large part of our **April** issue will be dedicated to the **Hannover Messe**, for the first time sharing the fairgrounds with **CeMAT**, so Industry 4.0 will meet with Logistics 4.0. Another April spotlight will be on **Motion Technology and Drive Engineering**. Our **May** issue will show you new trends in **Identification and Vision Systems** and **Power Supplies** as well as a preview of the biggest European Show in the field of test & measurement and sensors, **SENSOR+TEST** in Nuremberg.

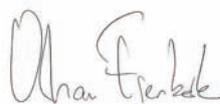
Closing the first half of the year, the June issue will offer a **Food and Beverage** industry special and a **Predictive Maintenance** focus.

If you have interesting new products, applications, white papers or developments from your company covering any of these or other industry topics and would like to introduce them to the industrial community, please feel free to contact our editorial team at editor@ien.eu.

Finally, an important development we have been working on intensively in the past few months is the redeployment of our websites. **ien.eu** went online in December, as you might have already noticed, and all other websites in the family will follow. We are proud to present the new websites in a **modernized look and optimized visibility** on mobile devices. We have added new options for easy access to resources and **content personalization**, that will give users even better opportunities to find relevant content to match their professional profile. Try it now and visit ien.eu



Wishing you a successful 2018, full of innovations, we look forward to hearing from you,



Editorial Director - TIMGlobal Media

In the next issue:

Industry Special Energy Efficiency and Renewable Energy

- 5 Industry News
- 8 **Exclusive Interview:** Marc Siemering, Senior Vice President - Industry, Energy & Logistics, Deutsche Messe AG talks about the Digital Transformation at HANNOVER MESSE and CeMAT
- 10 **Product News Feature:** Machinery and Robotic System
- 14 ABB low-voltage motors are powering world's steepest funicular, continuing its longtime mastery of Swiss mountain railway technology
- 15 **Industry Special:** Chemical & Pharmaceutical
- 20 **Exclusive Interview:** Benny Magrafta, Head of Unitronics' R&D Software Department, tells IEN about Unitronics and the new compact, connected, capable UniStream 5"
- 23 **Product News Feature:** 3D Printing and Additive Manufacturing
- 26 **Product News**
- 30 Index and Events



New PROCENEC Office in Manchester, United Kingdom

PROCENEC announces the official opening of its new office in Manchester, United Kingdom. The new office enables PROCENEC to provide even better services to its British customers. The opening of this brand new UK office is a natural follow-up for PROCENEC. By now serving the market itself, PROCENEC is able to give its name more shape in the British market for PROFIBUS, PROFINET and Industrial Ethernet. PROCENEC will build further on the successful cooperation with its UK distributors, which it has been doing for years and will continue doing so. PROCENEC wants to thank them for their support. PROCENEC's new Sales Engineer for the UK, Jonathan Machin, will manage the UK office and actively promote PROCENEC in the UK market. The PROCENEC UK office will be operational from the 1st of February. The new office will be PROCENEC's fourth office after Wateringen (the Netherlands), Karlsruhe (Germany) and Brescia (Italy). It will focus on sales activities in the first place, but PROCENEC has the ambition to also become an official Training Center in the UK in the long run.



Strong Growth in 4th Quarter 2017 for Schaeffler

Schaeffler announces its preliminary revenue figures for 2017. The company increased its revenue to approximately 14.0 billion euros (prior year: approximately 13.3 billion euros), growing by 5.9 percent at constant currency. Fourth quarter revenue rose to approximately 3.5 billion euros (prior year quarter: approximately 3.4 billion euros), up 8.5 percent at constant currency. This represents one of the highest quarterly growth rates the company has generated in recent years. As a result, Schaeffler has closed the year 2017 with revenue significantly above the revenue guidance of 4 - 5 percent (at constant currency) for the full year 2017. Both the company's divisions have contributed to this encouraging performance. While Automotive division revenue increased to 10.9 billion euros (prior year: approximately 10.3 billion euros), representing a constant currency growth rate of 5.9 percent, the Industrial division grew its revenue to approximately 3.1 billion euros in 2017. At constant currency, this represents a growth rate of 5.6 percent. In the 4th quarter, the Industrial division's constant currency growth rate of approximately 9 percent even exceeded the 8.3 percent constant currency growth of the Automotive division.



Schaffner News: Improved Profitability and New COO

The Board of Directors of Schaffner Holding AG has appointed Max Bänziger (50) as Chief Operating Officer (COO) and member of the Executive Committee. He will take up this position on 1st April 2018 at the latest. Max Bänziger replaces Ah Bee Goh (66), who will retire as Vice President Global Manufacturing and COO after more than ten years. The Schaffner Group returned to growth in fiscal year 2016/17 and strongly improved its profitability. Compared to the prior year, order intake rose by 6.5% to CHF 199.5 million (PY: CHF 187.4 million). In the year under review, gross margin improved by 2.8 percentage points to 28.4% (PY: 25.6%) thanks in part to higher volumes, and free cash flow grew to CHF 5.0 million (PY: CHF 2.4 million). As in the prior year, the Group invested CHF 16.7 million in research and development. All divisions reported increased sales and customer growth. The EMC division increased the number of its new customers worldwide and growth of 4.7% in segment sales. In the fiscal year the power quality business, which is integrated in the EMC division, launched its second generation of passive harmonic filters and expanded its service and sales network. Through advances in operational excellence, EMC was able to somewhat reduce production costs despite higher raw material prices.



TE Connectivity Negotiates with ABB to Acquire its Entrelec®

TE Connectivity has recently entered into exclusive negotiations with ABB to acquire ABB's entrelec® terminal block business. The transaction is subject to the satisfaction of certain conditions including receipt of customary regulatory approvals and prior consultation with employee representative bodies. ABB's entrelec® terminal block business was founded as entrelec in 1920 and serves customers in more than 70 countries. The business comprises research and development, product development, marketing and sales and management activities in Chasieu, France; and with main manufacturing sites in France and Poland. By adding the ABB's entrelec® terminal block offering, under the product brand entrelec, TE Connectivity would be able to offer a complete system for power, signal and data connectivity with special focus on harsh environments. This system would be a crucial part of TE's future product portfolio - and would contribute to the company's ability to offer customers some of the most comprehensive products, technologies and services within the industry.



How our robots see an apple



For delicate handling and high precision

MITSUBISHI ELECTRIC adds delicate to the list of dull, dirty and dangerous jobs for robots! From fruit and food packing where any bruise or blemish impacts the bottom line to the handling of thin SiC wafers in the electronics industry and the packaging of pharmaceutical products, MITSUBISHI MELFA robots perform not only with high speed and high precision, but also as if each item is made of the finest crystal. Combining high-speed robot motion and delicate precision handling by the ideal gripper for your needs, our turn-key robot solutions robotize the handling of fragile products and can deliver significant increases in both the quality and quantity of production output. With MITSUBISHI ELECTRIC Factory Automation, you and your customers enjoy all the fruits of your labor.





Flexible line integration delivered by modular Linear Transfer System and its Smart Carriages is unveiled at SPS

Mitsubishi Electric presented the latest developments of its modular Linear Transfer System (LTS) with Smart Carriage technology at SPS IPC Drives. The new versions of the Smart Carriages build on their existing technical advantages – including on-board intelligence and data memory, plus freely configurable tracks – but now include on-board battery power to enable even more productivity. Operator safety is also addressed without compromising productivity: as workers approach, the Smart Carriages will first slow down, and then stop, but only in the section where there is a potential hazard.

The innovative system addresses industry challenges such as shorter response times to new market trends, increased demands for customisation, and cost pressures. It offers greater production line flexibility by using on-board intelligence and connectivity to allow each carriage to behave differently and autonomously, enabling Smart Carriages to choose the optimum route.

►► 54480 at www.ien.eu



Mitsubishi Electric previews extension to its range with collaborative robot

At SPS IPC Drives in November Mitsubishi Electric set up a demonstration of production in an Industry 4.0 environment that included a new collaborative robot, working together with an operator without safety barriers.

Collaborative robots are designed to work in close proximity with people in a production cell, unlike fast and powerful industrial robots which have to be located behind protective barriers for safety reasons. Free from this restriction, collaborative robots can be readily and flexibly deployed anywhere in the production environment.

Importantly, while the precision of some collaborative robots may be reduced in comparison with industrial versions, the Mitsubishi Electric model's performance characteristics mirror those of the company's industrial autonomous robot range. This means a repeat accuracy of ± 0.02 mm, despite the inclusion of sensitive force/torque sensors. Load capacity of the shown robot model is 5-6kg and reach is 800-1000mm.

►► 54481 at www.ien.eu



Full suite of special function CPUs for MELSEC iQ R PLC

Mitsubishi Electric highlighted the benefits of the PLC as a platform for automation at SPS IPC Drives with a complete set of dedicated CPU modules for the MELSEC iQ R Series PLC. A CNC CPU module and a robot control CPU now complement the existing options for analogue and digital I/O, motion, positioning, process control, safety and networking, delivering a unique solution that integrates the full suite of control and automation processes onto one common platform.

Providing a complete automation system on a single PLC backplane, the modules provide control capabilities with reduced I/O processing times. Furthermore, direct integration with the PLC along with recent SIL2 (safety integrity level) certification helps to reduce total operation cycle times and guarantee performance levels and provides an ideal foundation for smart manufacturing as part of the journey towards Industry 4.0.

►► 54482 at www.ien.eu

First results of the CLPA/PI initiative announced at SPS IPC Drives

SPS IPC Drives 2017 saw the first results of the cooperation between the CC-Link Partner Association (CLPA) and PROFINET & PROFIBUS International (PI), when the CLPA unveiled the first working coupler device that implements the CC-Link IE/PROFINET interoperability specification. This will enable easy transmission of information between the two protocols, leading to end users and machine builders benefiting from total transparency between CC-Link IE and PROFINET, the two most prevalent networking protocols in Asia and Europe respectively.

Developed by CLPA and PI partner Hilscher, the unveiling of the device marked another milestone in the on-going cooperation between the two associations. The announcement of the first working coupler on the CLPA stand at SPS 2017 less than a year after the completion of the specification underlines the importance that the market ascribes to the cooperation between CLPA and PI.

CLPA-Europe General Manager John Browett comments: "The 2015 fair saw the announcement of the cooperation between CLPA and PI, and at the 2016 fair we announced the completion of the specification to enable seamless integration between the two protocols. Now we have the first operating coupler, demonstrating that CLPA and PI, working with their partners, have delivered on the promise to produce working solutions. Hence the promise of increasing transparency and offering maximum

flexibility to end users and machine builders as they operate globally has been realised."

With the new Hilscher coupler, users can effectively achieve communication between different parts of a line on separate networks, hugely increasing transparency and integration. Hilscher's NT 151-CCIE-RE coupler transmits data bi-directionally between CC-Link IE and PROFINET, offering simple network integration. The NT 151 works as a CC-Link IE Field Intelligent Device on one side and as a PROFINET IO-Device on the other, allowing both network controllers to communicate with each other. Fundamental mechanisms include a mapping model to map data from both sides, diagnostics for coupler and networks, and a SyCon-based DTM that works as the coupler configuration tool.

Hilscher Business Development Manager Armin Pühringer comments: "The simple bridge between the two networks will dramatically reduce the engineering work that has traditionally been necessary to achieve integration across the heterogeneous network architectures that are a fact of life in numerous plants around the world."

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All the Colours of the Digital Transformation at HANNOVER MESSE and CeMAT

Interview with Marc Siemering, Senior Vice President - Industry, Energy & Logistics, Deutsche Messe AG about the parallel events from April 23 to 27

IEN Europe: In 2018 there will be a change in the leading trade fair themes. For the first time, IAMD (Integrated Automation, Motion & Drives) will be launched, a combination of the trade fair themes Industrial Automation and MDA (Motion, Drive & Automation). What was the trigger for that change?

Siemering: Industrie 4.0 erases borders between industries and shortens innovation cycles. Not only industrial companies have to react to these changes. HANNOVER MESSE also has to adapt to the new reality. Companies from the power transmission and fluid technology sectors have traditionally exhibited biennially at the show, but market demands have changed. In the digital age, companies bring products to market faster than ever and therefore want to display their innovations more often. An annual presentation at HANNOVER MESSE is the solution for these companies. Therefore, we combined Industrial Automation and Motion, Drive & Automation (MDA) to form IAMD—Integrated Automation, Motion & Drives. Of course, we still offer a home to the companies that want to exhibit every two years

IEN Europe: Under the IAMD brand, the topic of digitization/industry 4.0 is to be communicated worldwide and made tangible. What has been the response so far?

Siemering: The market has responded positively. From a technological standpoint, Industrial Automation and MDA were already growing together during the past few years. The fusion follows the logic of a global market that both offers and demands more and more cross-industry and cross-system solutions and networked products. The new IAMD strengthens HANNOVER MESSE's position as the world's leading tradeshow for Industry 4.0. From components to data management in the Cloud, HANNOVER MESSE provides an overview of the complete solution and not just the separate parts. This strong brand and the key players behind it also give us more influence in the international exhibition market.

IEN Europe: On the website of the Hannover Fair you can find the announcement of more than 500 events in the IAMD environment. What spectrum of events can trade visitors expect?

Siemering: Every year we stage more than 80 conferences with more than 1,700 talks and panels about a broad range of topics. Some examples related to IAMD are the Motion & Drives Forum in Hall 23, the



Marc Siemering, Senior Vice President - Industry, Energy & Logistics, Deutsche Messe AG

special area Smart Power Transmission and Fluid Power Solutions, and the Industry 4.0 Forum. Participants in these events will learn about the next steps on the way to a smart factory.

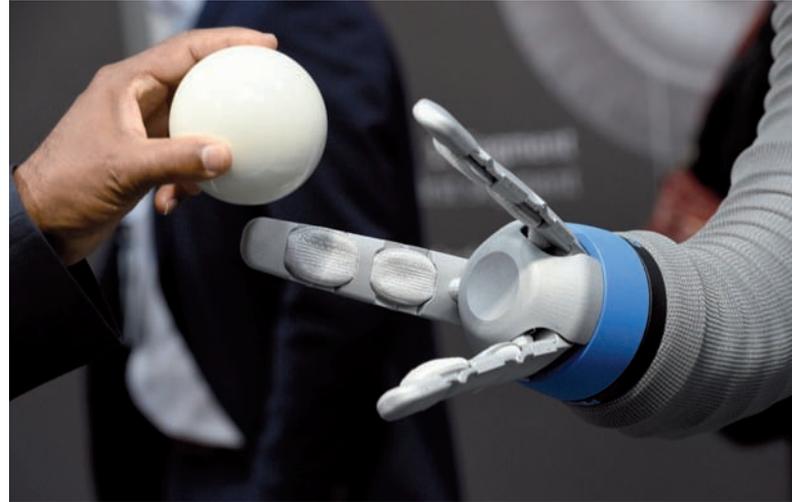
IEN Europe: The topic Industry 4.0 has already reached a degree of maturity at the last Hanover Fair that a large number of marketable products have been exhibited. What figures and developments are you expecting this year?

Siemering: In 2018, for the first time we are staging HANNOVER MESSE together with CeMAT, the world's leading tradeshow for intralogistics and supply chain management. This brings a new dynamic to the show,

further driving the digital transformation of industry through the interplay of automation and energy technology, intralogistics, IT platforms and artificial intelligence. Our lead theme “Integrated Industry – Connect & Collaborate” shows the potential of this development. HANNOVER MESSE is the pacesetter for Industry 4.0. Only in Hannover will you experience the rapid development of Industry 4.0 and its consequences. And only in Hannover can you see the digital transformation of industry presented as a complete system.

IEN Europe: Already during the last editions of the Hannover Messe, the topic of robotics, especially with regard to the aspect of human robot collaboration, aroused great interest among the visitors. These topics will of course also be in the spotlight at CeMAT, which will take place parallel to Hannover Fair for the first time in 2018. In your opinion, which visitors can benefit from this constellation?

Siemering: Robotics will play a big role in 2018, too. ABB, Epson, Kawasaki, Kuka, Mitsubishi, Schunk, Stäubli, Universal Robots, Franka Emika and Yaskawa - the list of companies signed up for HANNOVER MESSE 2018 reads like a “Who is Who” of the industry. Robotics companies, system integrators and providers of gripping technology demonstrate their solutions for smart factories and intelligent warehouses. It is no secret that robots and driverless transport systems have become indispensable in modern production facilities and automated warehouses. Robotics firms continue to set new standards for man-machine collaboration. Moreover, the trend that more and more small and medium-sized companies are discovering reasonably priced, flexible robotics solutions remains unbroken. At CeMAT, the startup Magazino from Munich will show its robotics competence with two robots: TORU picks cuboid ob-



jects in e-commerce shipping warehouses and is already in commercial use. SOTO works similar to TORU, but can handle much larger and heavier objects such as small load carriers or boxes up to 15 kilograms. SOTO is currently in the prototype phase and will go into operation later in 2018.

IEN Europe: At the leading trade fair Digital Factory, the focus is on industrial software along the entire process chain in production. Is this a “little sister of CeBIT”? Where do you see similarities and differences?

Siemering: Digital Factory and CEBIT are two completely different events. As part of HANNOVER MESSE, Digital Factory serves the manufacturing industry. The exhibitors show IT and software solutions for virtual product development, production planning, process control, and predictive analyses as well as concepts that enable the secure distribution of data in the digital factory. CEBIT has a completely different, much broader scope: It provides a 360-degree view of digitalization in companies, government and society.

IEN Europe: The fair’s partner country will be Mexico. The country’s economic relations are strongly oriented towards its northern neighbour USA. Where do you see the greatest opportunities and points of contact for Europe and Germany?

Siemering: Mexico’s relationship with the USA, until now its biggest trading partner, stands at a transition point. Right now Mexico is very interested in growing trade with other countries as well as promoting structural change with the necessary infrastructure domestically. Mexico will use HANNOVER MESSE to present a range of innovative products, systems and industrial sectors as well as to expand its trade and economic relations with Germany. Germany is already Mexico’s most important trading partner in Europe and fifth most important worldwide. Furthermore, Germany is the fourth biggest European investor in Mexico and sixth biggest worldwide.

IEN Europe: Thank you for this interview Mr. Siemering!

» 54488 at www.ien.eu



Robot-assisted Sawing for Greater Productivity

Automation and robotics are rapidly gaining ground in metalworking - and sawing technology is no exception. Robot-assisted systems are taking over more and more work steps following the sawing process, make production more flexible and efficient, improve working conditions and significantly reduce operating costs

In recent years, the demands have increased on metal processing in every industry, including the steel trade, automotive manufacturing and machine engineering. Customers want greater manufacturing flexibility, from batch sizes of one item to large-volume production. The variety of materials and sizes is steadily increasing. At the same time quality standards are rising, and there is continuous pressure to cut costs. To hold their own against international competitors, companies need versatile and efficient solutions for a wide variety of production tasks.

Countless uses for robots

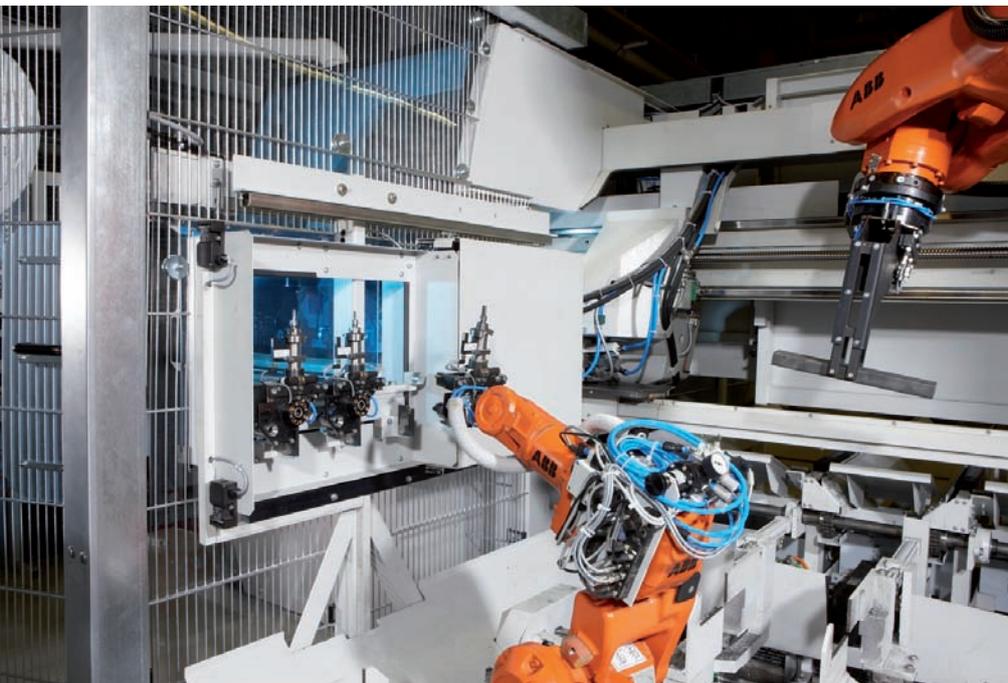
Sawing technology plays a key role in metal processing and offers many opportunities for optimisation. More and more operators of sawing systems are intelligently linking their work processes and automating them with robot support. The benefits are obvious: Industrial robots are fast, reliable and precise, and if necessary they can work 24 hours a day without human intervention. They don't get tired or fall ill, and they can handle a wide range of tasks when equipped with the necessary tools. "Our robots help

us with a number of handling and conveying tasks and efficiently perform many machining steps," says Volker Bühler, group manager for robotics at the sawing and storage technology specialist KASTO.

Automation starts right with material feeding. The material to be cut is conveyed to the machine by means of suitable equipment, for example roller conveyors or magazines, thus sparing workers the effort of lifting and carrying, and reducing the risk of injuries. Depending on how it is equipped, the sawing machine itself can also run attended. Material is fed to it automatically, and an intelligent machine control system sets all parameters, such as cutting length and cutting speed, based on the job data. State-of-the-art production saws can thus carry out a variety of jobs in sequence, with different materials and diameters, and operate autonomously for long periods.

Removal, machining, stacking - automatic from start to finish

Industrial robots also have considerable potential when it comes to handling and processing finished cut parts. For example, they can remove them from the machine, thus relieving workers of this repetitive task. When equipped with appropriate tools, robots can also perform tasks like deburring, chamfering, marking, centring or measuring workpieces. Cut parts can be weighed, sorted by size or job, and stacked on pallets or placed in containers. The parts can also be transferred directly to a driverless transport system. "For complex processes involving various work steps, we also use combinations of different robots and clamping devices,"



Robot-assisted systems are taking over more and more work steps, starting with removal of the cut parts and continuing through deburring, weighing, centring and marking, all the way to sorting and stacking



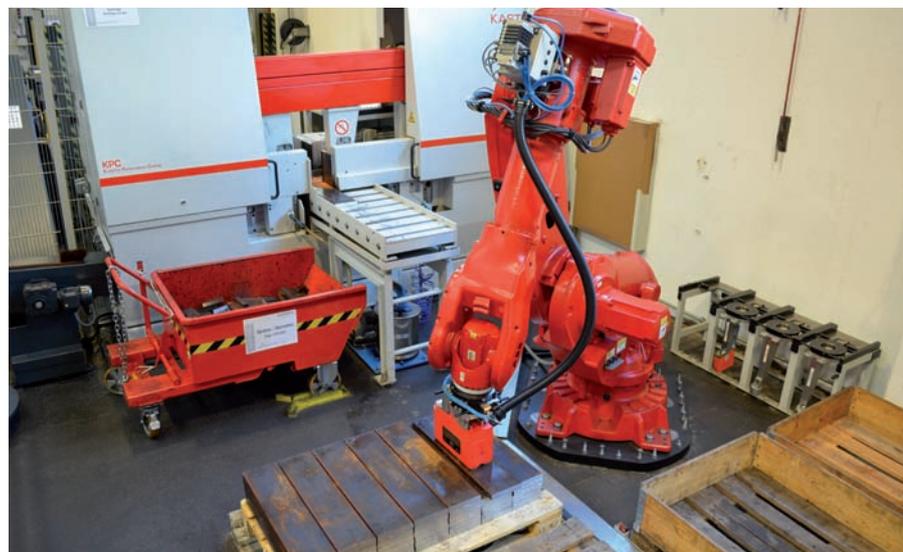
*Robotics are rapidly gaining ground
in sawing technology*

explains KASTO expert Volker Bühler. When large quantities of material are sawed with only a few different component geometries, it is relatively easy to automate the downstream processes. The situation is different with custom sawing involving diverse materials and dimensions. "The greater the variety, the harder it is to cover all the possibilities," says Volker Bühler. The choice of robot tools is an important factor. A robot must be able to deal with all the objects it encounters while using as few aids as possible. This reduces procurement costs, minimises idle times and increases productivity. Users have a choice of mechanical, magnetic or vacuum-operated grippers. The grippers should be as compact as possible to give the robot easy access to the cut parts.

Sawing technology on course to Industry 4.0

With the help of the right components, sawing can be combined with other automated operations to create complex, highly integrated systems that are seamlessly connected in a continuous material flow. This includes upstream storage as well as downstream handling and processing. For example, KASTO

implements combined storage and sawing systems for its customers in which all storage, handling, sawing, marking, palletising and bundling processes are completely automated - from storage of the raw material to retrieval of the cut parts. The control software can be linked to existing ERP systems like SAP for greater transparency and efficiency. Sawing can be integrated with other processes like turning or milling in digitised, self-configured production systems such as envisioned in Germany's Industry 4.0 initiative. Automated sawing technology offers significant advantages to users. Many processes can run unattended and much faster, which increases productivity and reduces the need for personnel. It is easier to make up the difference when employees are ill, and robots can keep working even during breaks or after shifts. The result is lower personnel costs and greater flexibility in terms of capacity utilisation. Companies can react more easily to order peaks and dramatically reduce idle times. This can make a big difference economically: "We've calculated that, depending on the shift model, an investment in an industrial robot with a ma-



The cut parts are of better quality, because robots machine them with equal precision, sort them reliably and stack them neatly

chine like our KASTOvariospeed saw pays for itself in less than a year," says Volker Bühler. "When you consider that systems like this are used for more than ten years on average, users can reduce their operating costs for a very long time."

Benefits for both users and customers

Robot technology also helps to improve working conditions. It relieves employees of heavy, tiring and monotonous tasks. The risk of accidents and injuries is reduced. Moreover, the cut parts are of better quality, because robots machine them with equal precision, sort them reliably and stack them neatly. This provides benefits not only for operators of automatic sawing facilities, but also for their customers.

► 54320 at www.ien.eu

TRANSPORT ROBOTICS FOR OUTDOORS

Efficient material flow solutions for outdoor operations



E&K Automation is specialized in automatization of material flow and storage solutions by manufacturing innovative and flexible AGVs (Automated Guided Vehicles), so called transport robots. The company configures intelligent and efficient solutions for highly diverse transport tasks, and that

even for outdoor applications. The clients of EK benefit enormously from the constant production chain by operating with outdoor AGVs in order to connect two production buildings and, at least, they benefit from the permanent track-n-tracing of their material flow. While industrial AGVs normally drive indoor on clean concrete, even ground floors - that mostly are the best floor conditions for AGVs - applications in outdoor areas always present new challenges such as crossing rail tracks or the integration into in-house traffic regulations. In addition, the vehicle technology and the transport goods must be protected against rain, snow, cold or heat. For a constant outdoor operation and to protect the goods from bad weather days, the vehicles are completely covered and equipped with roller doors. The transport robotic concepts for outdoor applications can also be realised with fully automated serial fork lift trucks.

►► 54419 at www.ien.eu

ELECTROHYDROSTATIC PUMP UNIT

For a wide range of applications in machine building



Moog enlarged its product range of Electrohydrostatic Pump Units (EPU) with the EPU size 80cc in order to help customers address a wider range of applications. The product line now includes the sizes 19, 32 and 80 cc. The EPU size 80cc is ideal for machine builders and operators seeking

cleaner and more energy efficient options that meet the requirements for high force actuation. The Moog EPU enables the deployment of a decentralized drive system and eliminates the need for a hydraulic power unit (HPU) and complex piping thereby reducing the overall machine footprint. The compact product design features a unique interface that enables direct mounting on to a cylinder thereby minimizing the requirement of additional space on each axis and enabling easier installation and maintenance for a lower total cost of ownership. The EPU is the heart of Moog Electrohydrostatic Actuation Systems (EAS) which is a compact alternative to traditional electrohydraulic or electromechanical actuation systems for applications with high force requirements. The Moog EAS is a modular actuation system comprised of the EPU, a Servo Drive (MSD), manifold and an optional cylinder. Highly versatile, the EPU has been developed to meet the needs of industries such as metal forming, heavy industry and plastic machinery.

►► 54422 at www.ien.eu

ACTUATOR WITH HIGHLY REPEATABLE FORCES

Delivering up to 22.500 N for 30 million cycles



INMOCO has introduced new electric servo actuators into its product offering. Made in California by Diakont, DA Series actuators are ruggedly built and offer long, reliable service for demanding

industries. They use robust components such as planetary roller screws with state-of-the-art thread designs produced using special hardening processes. The actuators featuring integrated permanent magnet synchronous motors (PMSMs) and their incorporation into production machinery and equipment is facilitated by their compact dimensions. The DA99-W2 series actuators are intended for resistance weld guns and similar applications. They provide upwards of 30 million welding cycles, with highly-repeatable forces up to 22,500N (5000 lbf). With extremely high force capabilities, the DA140-2 actuators are ideal for applications such as robotic joining, pressing, and self-piercing riveting. DA67 units are intended for dispensing and liquid/sealant injection metering systems and offer accurate force and speed capabilities in a 67mm (2.7 inch) frame size. The ultra-compact DA82 delivers reliable performance for space-constrained applications such as injection moulding and hot runner systems. The electric actuators deliver high product quality, resulting in better performance and reliability, and lower life cycle costs.

►► 54421 at www.ien.eu

FROM 'HELPING HAND' TO FULL AUTOMATION

Modular robot for feeding and part processing



ProFeeder from **RARUK Automation** is a compact, mobile and modular robot cell that can be easily moved between production and processing machines to increase productivity. It is designed to accept a robot arm and can be systematically

expanded to give manufacturers a growth path to full automation. Part handling up to 10 kg ProFeeder Light is the foundation product which comprises a basic, stand-alone unit with one manually removable parts' tray with a capacity for up to 780 units, depending on their size. Ideal for use with most CNC machines, ProFeeder Light can handle a wide variety of parts up to 10 kg and is used as extra 'manpower' for small batch production or the first step towards greater automation. It can also be expanded at any time to incorporate additional functions such as turning, deburring or cleaning. The most advanced option is ProFeeder Multi that introduces a lift module that automatically presents trays to the machine for parts to be processed; its capacity is eight trays. This solution makes it possible to run a fully automated four-shift operation or even lights out production. Manual input is limited to machine supervision, pre-filling the parts' trays and replacing the mover at the end of the fourth shift.

►► 54418 at www.ien.eu





Lightweight Cobots Take on Heavy-duty Jobs - Even Welding

Flexible solution without need for costly robotic welding cells

Sure, cobots are lightweight: the largest UR10 robot is under 29 kg/64 lbs, so they're easy to pick up and move from one process to another. But they're no lightweights when it comes to heavy-duty processes like welding. In fact, there's already a range of cobot welding systems to choose from. Surprised? Don't be. It's just one more smart application for these flexible, cost-effective, and easy-to-program automation tools. The flexibility and ease-of-programming of cobot-based welding systems make them especially well-suited for low-volume/high-mix environments, as well as custom or small-template welding processes. But with high accuracy and repeatability, these systems can also handle long runs with consistent quality. Welding tasks can be programmed in as little as half-an-hour by workers who have no previous experience, and programs can be saved and reused, saving the expense of trained robot programmers. Lightweight cobot welders can be mounted on tabletops, hung from ceilings, or installed into existing welding booths, offering more flexibility than manual welders or traditional fixed robots. Several companies have already announced cobot welding systems.



Universal Robots (UR) and ARC Specialties recently announced the first collaborative MIG welding system in the US. The SnapWeld Collaborative Robot Welding package is a cobot-assisted, interactive welding system that can be deployed in existing, manual welding booths, so it eliminates the need for costly new robotic cells. The system is ideal for small job shops that are struggling with the budget, programming, and space requirements of traditional welding robots.

The SnapWeld system includes a Profax wire feeder and water-cooled torch for welds up to 600 amps, along with the UR robot. One of the big advantages of using cobots for a welding application is the ease of programming. SnapWeld was developed with and verified by Universal Robots through the UR+ platform facilitating direct software integration into the UR programming environment, enabling advanced settings to be easily programmed directly on the robot's teach pendant.

"We are getting a lot of requests for integrating Universal Robots in welding booths, so we saw this as a unique opportunity to develop an integrated low-cost system for gas metal arc welding (GMAW) applications that no one else in the market is currently offering," says John Martin, Vice President of ARC Specialties, a Certified Systems Integrator of UR robots.

Settings include features such as wire-feed speed and burn-back time, gas-flow time, and crater-fill time with instant feedback on welding volts and amps. The result is a fully integrated, low-cost system for gas metal arc welding (GMAW) applications that is ideal for low-volume/high-mix shops.

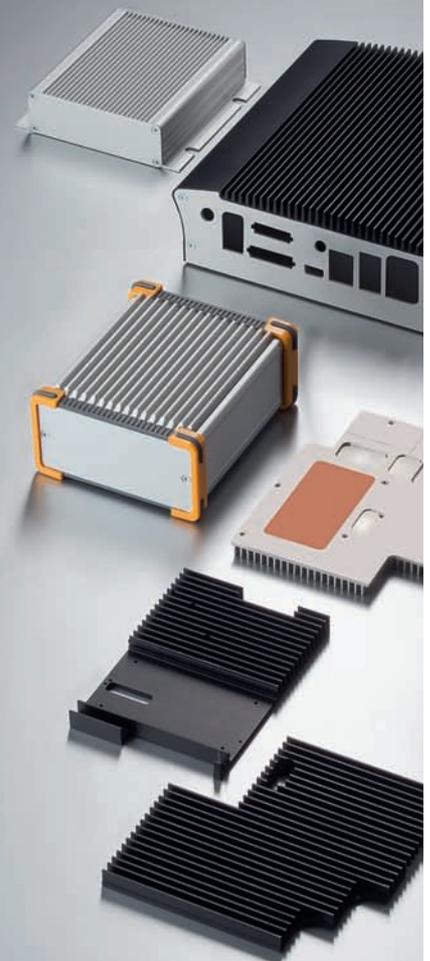
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Low-Voltage Motors in the Swiss Alps



ABB products are powering world's steepest funicular, continuing its longtime mastery of Swiss mountain railway technology

The world's steepest funicular railway has gone into operation in the Swiss Alps, a 1.7-kilometer route whose two 36-passenger cable cars are powered by electric motors designed and built by ABB. The new funicular, replaces one dating to 1933. Climbing a track that has a gradient as steep as 110% - an angle of nearly 48° - the vehicles link the valley station Schwyz-Schlattli with the ski resort village Stoos.

Futuristic design and features

The vehicles employ a futuristic design of cylindrical cabins that rotate to remain horizontal through even the steepest parts of the journey. ABB, which has more than a century's experience in powering transportation solutions to tame Switzerland's mountain peaks, supplied the two 1.2-megawatt low-voltage motors that power the new Stoos funicular. Operating at a speed of 10 meters per second, and taking 3 to 5 minutes per trip, the train can transport as many as 1,500 riders an hour in each direction. Two energy-saving ABB frequency converters ensure continuous speed control. The extreme steepness of the railway, which runs

through three tunnels and across two bridges, posed big challenges to the project, which took five years to complete. In addition to its importance for the local tourism industry, the funicular guarantees the basic supply system for the Stoos region and the 150 residents of the car-free village.

125 years of leading railway technology in the Swiss mountains

ABB has a long history of solving the challenges of transporting people and goods up, down and through the Swiss Alps. These days, the company's technology powers mountain conveyances ranging from ski chair and gondola lifts, to funiculars, aerial tramways and full-scale trains. But as far back as the late 19th century, an ABB predecessor company was providing the essential technology for the Rhaetian Railway - the first electric mountain railway in Switzerland. Because of the steep, rugged topography and climatic extremes of the Graubünden region in the central Alps, the railway and the trains had to meet exceedingly high engineering standards. ABB provided

practically all of the electrical components for the traction units and a large part of the railway power supply. The high Bernina Pass, through which the Rhaetian Railway still runs and is now powered by modern ABB technology, is listed as UNESCO World Heritage site. And for the world-famous Jungfrau Railway, a 9-kilometer cog railway that

began operation in 1912, ABB was responsible for the electrification that made the route possible. Today, ABB technologies still ensure that the Jungfrau Railway trains safely carry more than a million passengers a year - even during heavy snowfalls - to the Jungfraujoch, which at 3,454 meters above sea level is Europe's highest train station.

The technology ascent continues

ABB motors and converters are also essential to the Urdenbahn, a cable gondola system that has served the vast Arosa-Lenzerheide ski resort since 2014. One of the longest aerial cableways in Switzerland, spanning 1.7 kilometers without a single mast, the system has a load capacity of 150 persons per cabin and can transport 1,700 people an hour in each direction. Operating as two cableways that run in parallel but function independently, the Urdenbahn can be flexibly adapted to passenger traffic, reducing costs and increasing energy efficiency. Another impressive ski-resort application of ABB innovation are the motor drives used for the gondola lift between the resort town of Engelberg and the Stand station at Titlis Mountain, near Lucerne, Switzerland. The lift features the Rotair, the world's first rotating gondola when it went into service in 2014. The Rotair provides 360-degree panoramic views during the five-minute trip - making it popular not only with winter sports fans but also summer tourists. The Swiss Alps have long been a proving ground for ABB technologies that are then used all over the world. And now, the Stoos funicular joins ABB's Swiss family of leading-edge mountain transport technology.



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FILTER HOUSINGS FOR API MANUFACTURING

Exceptional resistance to corrosive chemical damage



Amazon Filters offers bespoke filter housings and high-performance filter media used in the manufacture of Active Pharmaceutical Ingredients (API's) - vital building blocks for producing final pharmaceutical products. Amazon Filters has introduced two unique filter housings to cope with these difficult applications, one using

Tantalum metal deposition and the second being an all PTFE construction, both exhibit exceptional resistance to corrosive chemical damage. Drawing upon its extensive experience of serving the pharmaceutical industry - Amazon Filters is also able to recommend the most appropriate filter to offer compatibility with the diverse range of chemicals and solvents used in API manufacturing. For API manufacturing processes which involve aggressive media (such as concentrated acids) or high temperature the Amazon Filters range of SupaPore cartridges can be supplied in Halar, PTFE or combinations of these materials to suit almost all pharmaceutical fluids. These cartridges are available with ratings as fine as 0.1µm and up to over 100µm, so are suitable for all API particle control applications.

►► 54439 at www.ien.eu

LIGHTWEIGHT AIR HOISTS

For a wide range of applications



The latest Profi TI series air hoists from **J D Neuhaus** (JDN) ensures their suitability for a wide range of applications in the process industry, from food, beverage and packaged goods, to chemical, pharmaceutical and biotech. JDN's range of Profi TI air hoists is extensive (up to 100 tonne carrying capacity), but models in the 0.25 to 2 tonne lift capacity range are proving increasingly popular for process industry applications. A number of infinitely variable speed-control systems (including remote control) help users achieve accurate load positioning. Different trolleys can also be offered to meet customer demands. Of particular note is the low-headroom design. When only low headroom is available and

standard trolleys do not meet the application's requirements, JDN low-headroom trolleys are recommended. There are many advantages of using JDN low-headroom trolleys, such as a low-wear patented motor-brake system thanks to fewer components and no additional motor lubrication is required.

►► 54441 at www.ien.eu



VERSATILE EVAPORATOR

Available in different optimised configurations



The compact benchtop EZ-2 Series evaporator from **Genevac** has been designed to meet or exceed the solvent removal needs of most laboratory scientists.

Using the most advanced

proven technology in evaporation science, the EZ-2 Series has been designed specifically for solvent removal in many areas of scientific research, whether concentration of samples or complete drying is required. For many applications an optimised EZ-2 evaporator is available to suit your solvent removal needs. The EZ-Envi is created specifically for concentration of volatile solvents prior to analysis, the EZ-Standard for drying water and volatile solvents, the EZ-2 Plus for working with solvents with higher boiling points - up to 165°C and the EZ-2 Elite for more difficult solutions such as DMSO and NMP, or fast freeze drying. EZ-2 evaporators can be further modified for the most difficult and hazardous solvents, a special model exists for those working with potentially explosive solvents such as diethyl-ether. Alternatively, for laboratories who remove concentrated acids and acid chlorides, a corrosion resistant construction EZ-2 HCl is the system of choice. Each EZ-2 evaporator is compatible with a wide selection of sample holders.

►► 54440 at www.ien.eu



TAMPER EVIDENT LABELLER

For temper proof security of cartons



The new Tamper Evident Labeller from **LSS** is in compliance with the European Falsified Medicines Directive (FMD) 2011/62/EU. Part of this directive is the requirement for tamper

proof security of cartons. The Tamper Evident Labeller from LSS seals the carton. As an option, a printer and vision system of any brand can be integrated to provide each carton with a unique identification for track & trace and serialisation. The LSS Tamper Evident Labeller has a capacity of up to 300 cartons per minute. It provides tamper proof sealing of reverse tuck end and airplane closing cartons. The flexible machine handles cartons ranging from 50 to 220 mm in width, 15 to 120 mm in height and 40 to 120 mm in length. Both transparent and non-transparent labels can be applied. Due to its small foot-print, the new Tamper Evident Labeller is easy to fit into any production area and can be used as an off-line or in-line unit. The user-friendly HMI makes the machine very easy to operate. The Tamper Evident Labeller is designed with focus on minimising the time spent on batch change and line clearance. When entering the LSS Tamper Evident Labeller, each carton's position and length is registered.

►► 54443 at www.ien.eu



VENTILATED CABINET

Affordability and great flexibility



The **Asynt GP540** is a new bench-mounted, general-purpose,

ventilated laboratory cabinet designed for use in a wide range of applications. The compact GP540 uniquely combines true affordability with great flexibility and is optimised for applications such as weighing, handling and examination of samples but can also be simply reconfigured to change the function of the enclosure. The front panel of the GP540 can be easily removed, providing open access to the interior and facilitating the easy placing and positioning of equipment within the cabinet. The base is open to allow the GP540 to be positioned over fixed or heavy equipment, but the GP540 can also be easily upgraded to include an integral aluminium base if preferred. A low noise, 2-speed fan efficiently draws air in through an H14 HEPA filter.

►► 54448 at www.ien.eu

PROGRAMMABLE PUMP

For multiple programming platforms



The Programmable Pump from **Fluid Metering, Inc.** combines FMI's

precision valveless STH Stepper Pump with integral programmable driver in a compact design ideal for integration with OEM instrumentation. The driver provides precision servo control of the STH pumps stepper motor for resonance-free, quiet operation. Having 5 programmable inputs and 2 outputs, the Intelligent Pump is compatible with multiple programming platforms including, Visual Basic, C/C++, Delphi, LabView. Analog 0-5 VDC, RS-232, and CANopen protocol are supported with an optional EtherCAT communication module available. The Programmable Driver and Stepper provide precision control of FMI's CeramPump® integral valveless piston pump.

►► 54451 at www.ien.eu

CO2 PROBE

Resistant to hydrogen peroxide



The digital EE871 probe from **E+E Elektronik** measures CO2 concentration

up to 50,000 ppm (5 % CO₂). The compact probe is now available with a special filter cap, which ensures high accuracy and long-term stability in H₂O₂ contaminated environment. This opens up new applications for the EE871, particularly in the pharmaceutical and biotech industries, where hydrogen peroxide is used for cleaning and sterilization purposes. The CO₂ infrared measuring principle (NDIR dual-wavelength technology) of the EE871 is inherently insensitive to contamination. The auto-calibration compensates for ageing effects and provides excellent long-term stability. Thanks to the multi-point CO₂ and temperature adjustment, the EE871 offers a high measuring accuracy over the entire temperature range from -40 °C to 60 °C.

►► 54450 at www.ien.eu

SYRINGE PUMP

Meters fluids in nano litre quantities



The Symax Syringe Pump from **Spetec** is used to meter fluids in

micro or nano litre quantities and features a stepper motor drive, precision carriage, syringe holder set and replaceable syringes. The stepper motor is connected directly without gears to the drive spindle, so reducing the mechanical play between the drive and the syringe to a minimum. This results in a direct connection between the input pulse signal and liquid output. Due to the high resolution of 25 600 steps per revolution, the motion of the individual steps is virtually undetectable. The delivery range lies between 0,5 nano litres and 44 ml per minute. The pump can be used autonomously with a foot switch or integrated into a system. Configuration: Stepper Motor, Controlled via PC software.

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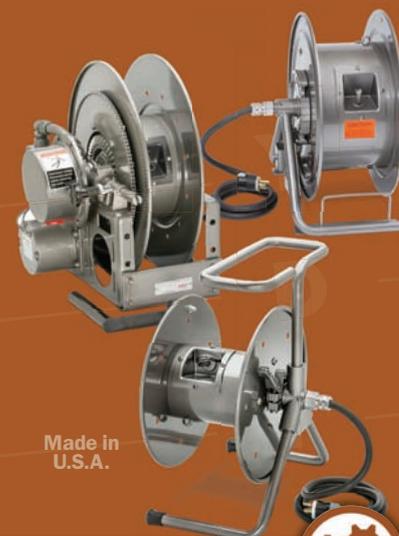
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GUIDED OPERATOR SOLUTIONS

For medical device assembly applications



Mitsubishi Electric's Guided Operator Solutions for manual assembly applications demonstrates how improvements in quality and productivity can be achieved. These solutions also enable

the seamless transfer of production data from manual assembly operations to higher-level enterprise systems, supporting the digital transformation within manufacturing. Mitsubishi Electric's Guided Operator Solutions are already being used by leading automotive OEMs to aid with quality control in manual assembly processes and efficient stock handling. Similarly, customers are using the solutions for assembly operations in the semiconductor industry to optimise product quality management. Among the many other areas of interest are life sciences and medical device assembly applications. Giving the operator a clear visual indication of which parts to pick and in what sequence, the Guided Operator Solutions help to improve quality. This is especially important for today's assembly operations that are becoming increasingly complex and as the costs of addressing potential quality problems grow.

►► 54444 at www.ien.eu

BLOWDOWN EVAPORATORS

Optimise microplate sample preparation productivity



Porvair Sciences has posted a new online video demonstrating how nitrogen blowdown evaporators offer a useful tool for removing the solvent dry-down bottleneck in LC/MS sample preparation. In the new video the presenter demonstrates how nitrogen blowdown evaporators can quickly and easily remove most chromatographic solvents, enabling fast recovery of dry compounds and allowing

re-suspension of unknown mixtures in optimised solvents for LC/MS analysis. Additionally, the video introduces Porvair Sciences complete range of MiniVap and UltraVap blowdown evaporators. Blowdown evaporators give significant throughput advantages to laboratories looking to optimise microplate sample preparation productivity. Faster than centrifugal evaporation, significant increases in sample throughput can be achieved through Porvair advanced evaporator head technology and innovative manifold design, which directly injects heated nitrogen into each individual well of the microplate simultaneously. Porvair Sciences blowdown evaporators have been designed to be simple to install, operate and maintain.

►► 54446 at www.ien.eu



HYGIENIC CABLE GLAND

Provides simple cable entry and high cable retention



Optimas' Components Division has recently introduced the HD Hygienic Cable Gland to its UK range, which offers the required specialisation to effectively seal cables in this environment.

Designed to provide simple cable entry and high cable retention for panel and enclosure installation, the Hummel Hygienic HD Cable Gland offers a wide range of specialised features that make it an optimum selection for hygienic applications. Constructed from 316L Stainless Steel with a Silicone hygienic seal - the gland displays excellent corrosion resistance. This allows the component to withstand virtually any wash down procedure, regardless of frequency. In fact, the gland itself is rated to IP69K, ensuring ingress protection during high pressure water wash downs at 80°C. As a result, service life is exponentially increased. Another concern for components in hygienic environments is ease of cleaning. A smooth and efficient design is key for preventing contaminants from sticking to a component, which is why the low-profile Hummel Hygienic HD Cable Gland has been designed to achieve a surface roughness of less than 0.8 µm. As a result, the component can be easily cleaned as part of an existing sterilisation policy.

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CONTINUOUS FLOW REACTOR SYSTEM

Designed for easy, safe and efficient operation



Uniqsis offers a FlowSyn™ continuous flow reactor system. It is a compact integrated continuous flow reactor system designed for easy, safe and efficient operation. The FlowSyn™ range includes models for performing single or multiple homogeneous or heterogeneous

reactions, either manually or automatically. The range of chemistries that can be explored with Uniqsis' integrated and modular flow chemistry systems grows ever wider and is exemplified by the growing number of applications published both in the academic press and in Uniqsis' own application notes. Typical examples of flow chemistry applications include hydrogenation, nitration, bromination, metalation, molecular rearrangements and synthesis of compounds such as dihydropyridine, indole, pyrazole, quinolinone and benzimidazole. Using the FlowSyn™ system and 3D printed reactor chips, Hilton Group research chemists have been developing a continuous flow approach to the Suzuki-Miyaura reaction. The flexibility and ease of use of the FlowSyn system has enabled rapid reaction optimisation.

►► 54447 at www.ien.eu



Sub-Freezing Air Dryer

Provides -20 degrees Celsius pressure dew point at 70 percent lower energy costs

Ingersoll Rand has introduced its new Sub-Freezing Air Dryer. By incorporating its 146 years of engineering expertise and heritage, Ingersoll Rand has designed a dryer that provides -20 degrees Celsius (-4 degrees Fahrenheit) pressure dew point at 70 percent lower energy costs. Ingersoll Rand's new Sub-Freezing Air Dryer is compatible with oil-flooded rotary compressors, oil-free rotary compressors, centrifugal compressors and reciprocating compressors. "The new Sub-Freezing Air Dryer achieves class leading air quality, previously only attainable with far costlier drum or

desiccant dryer technology. We have developed new technology that provides our customers with high quality, -20 degrees Celsius dew point air, from a high performance regenerative refrigerant dryer in an efficient and economical package," said Rolf Paeper, Vice President of product management and marketing for Compression Technologies and Services at Ingersoll Rand.

Compressed Air Needs

The Sub-Freezing Dryer supplies a constant ISO Class 3 -20 degrees Celsius (-4 degrees Fahrenheit)



pressure dew point air, regardless of changes in demand or ambient temperatures. This allows customers to dependably meet the compressed air needs of their operation." The Sub-Freezing Dryer has a lower total cost of ownership than traditional regenerative desiccant dryers and has an 80 percent lower maintenance cost than drum dryers. Unlike drum and desiccant dryers, there is no costly periodic desiccant replacement, and with no desiccant required, downstream particulate filtering is not needed.

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FASTER THAN A SPEEDING BULLET

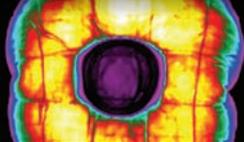
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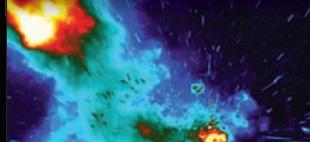
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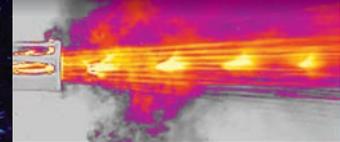
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Compact, Connected, Capable: 5" All-in-one PLC

Benny Magrafta tells IEN about Unitronics and the new UniStream® 5". He has over 25 years of experience in automation. Starting in the field as an engineer, he put that experience to good use when, 18 years ago, he became Head of Unitronics' R&D Software Department

IEN EUROPE: Unitronics is a name that is gaining considerable industry recognition. How old is the company? What were the first products and how did it develop?

Magrafta: I joined Unitronics the same year the company was founded, in 1989.

Our original goal was to execute turn-key automation projects using PLCs manufactured in-house. Each project has its requirements - and its problems. We were a young, creative startup, and so we believed in the 'think outside the box' approach. This creativity is embedded in the company's DNA. It is why Unitronics has developed groundbreaking, award-winning products in the realms of both hardware and software, and why we have a reputation as innovators in the field of industrial automation. I am proud to be a part of Unitronics - today, our controllers are marketed via a global distribution network of over 160 distributors in over 50 countries. Our Logistics Solutions division serves well-known companies such as Teva pharmaceuticals, and our new, "green" sector: automated parking technology, served by Unitronics' award-winning Parking Solutions division.

IEN EUROPE: Judging by appearance alone, Unitronics products do not seem to be typical PLCs. Your new UniStream 5" is a good example. What is the concept behind this?

Magrafta: True - our controllers are not typical in appearance, and this is the story behind it: In those early years, an HMI was a few buttons and maybe a single-line text display. It was clear to us that the HMI was the window into the soul of the application, the absolutely best way to improve operational efficiency. And so we created what we called the "OPLC" (Operator Panel + Programmable Logic Controller). Today, we call them All-in-One PLC + HMI controllers. As far as I know, Unitronics was the very first company to create and manufacture such programmable controllers. Our products are based on this concept, and so they do not 'look' like typical PLCs - the front contains the HMI panel, the rear the PLC, and our controllers generally offer either built-in or snap-on I/Os. Today, of course, the HMI is generally a color, resistive touch-screen. Our new UniStream 5", like most Unitronics controllers, is a single, convenient, integrated device that you install to serve as both operating panel and PLC - that means reduced wiring, and eliminates the hassle of programming to establish PLC-to-Panel communications.



Benny Magrafta, Head of Unitronics' R&D Software Department

IEN EUROPE: How does the UniStream 5" compare in terms of functionality?

Magrafta: Don't be fooled by the compact size! UniStream 5" is a member of our UniStream series - powerful PLCs, powerful HMIs, embedded with multi-processors and multi-O/S (LINUX & RTOS). They differ in HMI screen size, 15.6", 10.4", 7" and now 5" - but all offer a rich range of built-in functionality.

Let's look, for example, at our set of advanced Data Tools. The Data Sampler records dynamic application data, say, tracking multiple temperature values, which UniStream regulates via embedded, auto-tuned PID. You can display the running values on the HMI screen using Trend or Gauge-widgets. You can easily log those values into Data Tables, where you can organize and manipulate data via Ladder, or let the user do it via HMI. The PLC can export them to Excel, attach them to an email and send it - or export the values into Data Recipes, to control



dynamic, complex production processes.

Did I say HMI? You can do the same via your web browser - UniStream includes an embedded Web Server. Or, use your favorite VNC app to view and operate the HMI program remotely.

Or take Alarms, easily configurable, multi-level Alarm displays that are compliant with the ISA standard, ANSI/ISA-18.2-2009, or UAC - multi-level User Access Control - that prevents unauthorized access.

IEN EUROPE: Software is always an important factor. What would you tell a potential user, who is not familiar with your products, about the concepts guiding your software development?

Magrafta: As the head of Software R&D, my guiding concept is Keep It Simple. Unitronics software is All-in-One, to match our controllers. You build your control program, design HMI screens, configure hardware and implement communications in one simple environment.

UniLogic, the software for UniStream, is designed to slash development time in half. Here are some features that make it a true time-saver:

- Design and Re-Use Paradigm: You build Ladder and C functions, design HMI screens, create Web pages, and save them in a Library to reuse in other projects.
- Tag Database + Structs: In addition to user-created tags, UniLogic automatically creates structs - data tags of different types organized into a single unit - to simplify configuring and managing hardware, communication, and complex functions such as PID.
- Drag-and-drop Ladder: Elements snap into place for quick programming, aided by Intellisense; typing a few characters rapidly locates elements and assigns tags.
- Drag-and-drop Graphics Library, User Controls, Widgets: Drag and drop elements to easily design attractive HMI screens and complex Web pages. Media widgets make it simple to display .pdf files or run videos on the HMI.
- Multi-language support: it is simple to integrate translated languages, and the HMI display language can be switched in an instant - we support Asian languages such as Chinese.
- Communication via configuration, not programming: for protocols such as MODBUS, CANopen, and EtherNet/IP, plus the Message Composer that enables communications with devices such as frequency converters, bar-code readers, and printers via Ethernet, CANbus or serial 3rd-party protocol.

IEN EUROPE: What industrial sectors do your products serve? How about special requirements, e.g. for robustness under environmental conditions?

Magrafta: Our controllers target a broad range of sectors: water technologies, pumps, oil & gas, power and energy, packaging, F&B - they have even been integrated into Data Centers.

Many of our products are certified for hazardous environment standards, CFR-21.11, and F&B spray-and-wipe industry standards.

IEN EUROPE: Industry 4.0 is an important issue, growing in importance every day. Which functionalities are built into your product range to support your customers in the age of 4.0?

Magrafta: UniStream supports Industry 4.0 via its advanced communication features.



"We have found Unitronics to be one of those companies which inspire you to push the boundaries". David Graham, Coating Systems International. Pharmaceutical Industry

Since the controller supports SQL Client, it can communicate via existing Ethernet infrastructure to interface with factory ERP/MRP servers. You can run tag, struct, array, and complete table queries.

You can also access your controller via VNC - or web browser - and control it from a remote location. Ethernet interfaces and TCP/IP support also provide access to the PLC for file transfers (FTP) and email support, so that the PLC can send messages directly to personnel. SNMP support enables you to integrate UniStream into the IT infrastructure, and manage it as an IT asset.

We have more features under development—this is a major focus of activity!

IEN EUROPE: The issue of Customer Support plays an important role in selecting new products. What is your philosophy in this field?

Magrafta: Our R&D team works hand-in-hand with our support team to implement Unitronics policy of customer care. We provide personalized support, delivered by actual people - our customers never go through a maze of automated answers. Call us by phone, send us an email, or post a question in our lively Tech Support forum - your questions are answered by a member of the Unitronics team.

IEN EUROPE: Is there anything else you would like to tell our readers?

Magrafta: I cannot stress this enough: selecting the manufacturer that stands behind a brand of controllers is a major decision. It is every bit as important as your CPU and I/O requirements. Your selected brand must have a complete, full product range that can meet the requirements of your customers, and meet the standards applicable to their sector. Check that the manufacturer provides a high level of customer care, that support, whether technical or sales, is easily available and prompt. When you purchase a PLC, remember that you are also selecting the company that stands behind that PLC – and that this decision, over the long run, can have a major impact on your success in industrial automation projects.

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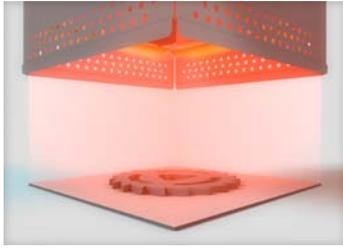
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INFRARED HEATING FOR METAL PARTS

Increasing the quality of printed components



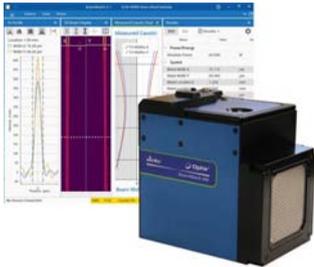
Heraeus Noblelight is developing innovative, efficient infrared heating technologies such as construction space heaters, which solve one of the most urgent problems of additive manufacturing: unwanted

stress on materials during the printing of metal components. Heraeus offers a package with a full range of services, from consultation to simulation of heat distribution to provision of a customized infrared solution. In additive manufacturing preheating the powder bed is an important step. Infrared heat can be used for this purpose. The real benefit: Infrared emitters heat the metal powder in an especially homogeneous (i.e., uniform) manner, because the source of the infrared radiation can be precisely aligned with the construction space of the particular application, and precisely adjusted for the particular material with regard to performance, form, and wavelength. The result is an increase in the quality of the printed metal component. In addition to the type of powder material, the distribution of heat in the chamber is also a critical factor. Thanks to special simulation processes, Heraeus can determine the optimal heat distribution for a customer's particular manufacturing equipment. Both development time and expenses are reduced in this way.

►► 54449 at www.ien.eu

NON-CONTACT LASER BEAM MONITORING

Measurement of laser characteristics



Ophir distributes the Ophir BeamWatch AM, the industry's first non-contact laser beam monitoring system for additive manufacturing. BeamWatch is a lightweight, compact system designed for real-time measurement of focal shift during laser startup of powder bed fusion

manufacturing processes. It measures key beam size, position, and quality parameters, including focus spot size and beam caustic. These measurements allow users to more easily determine when the beam is aligned and in focus, providing more consistent metallurgy. Measurements can be displayed as tabular, 2D, and 3D views, providing a quick and realistic display of laser characteristics. "Additive manufacturing processes, such as Selective Laser Sintering (SLS) and Selective Laser Melting (SLM), require symmetrical, uniform, and stable power density distribution of the laser beam," said Gary Wagner, General Manager, Ophir Photonics (U.S.). "This requires a beam spot size and intensity that is maintained within a finite acceptance window when delivered to the material that is to be transformed. Users need to understand where the system laser beam is focusing, if the focus is stable, and, if not, where focus occurs after the system has thermally stabilized in order to avoid structural weakness in the AM build.

►► 54437 at www.ien.eu



FAST POLYMER 3D PRINTING

Processing of materials up to 300°C



EOS introduces its EOS P 500 system for additive manufacturing (AM). The system addresses companies who want to mass produce polymer parts on an industrial scale in combination with premium part

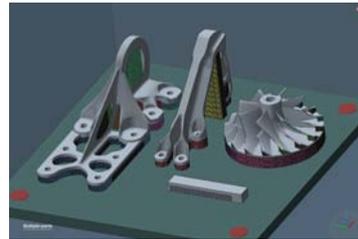
quality. The new system offers high efficiency for lowest cost-per-part, comes automation ready and can process polymer materials, which require operating temperatures of up to 300°C. With the EOS P 500 businesses receive smart and robust technology to foster a reliable, flexible and cost-effective production. The P 500 builds twice as quickly as the current fastest laser sintering machine by Eos thanks to a dual-laser system fusing the powder, and a new recoater. The latter applies a new layer of powder to the building platform with high speed (600mm/s) and maximum adjustability. The P 500 preheats polymer material in advance to reduce layer times. The system can also reuse all recycled powder for the next build job at higher fill rates, further increasing the efficiency of the system. The steps before and after the actual build process are streamlined substantially: Pre-heating of the exchangeable frame and cool-down of the used exchangeable frame (containing the manufactured part) take place outside of the EOS P 500. Switching between the exchangeable frames is extremely short - within 15 minutes after a build job is completed, a new one can be started.

►► 54435 at www.ien.eu



3RD GENERATION OF SIMULATION SOFTWARE

Optimization for metal-based AM processes



Simufact has announced the release of the third generation of its software solution for the simulation of metal-based additive manufacturing processes, Simufact Additive 3. It will now provide a thermo-

mechanical method, which allows users to have a clearer overview of the effects of thermal energy by providing insights for the global temperature of the component. Users can then use this data to determine both deformation and the influence of the base plate. Simufact Additive 3 offers a Linux solver in addition to the Windows Solver. Thereby, the software is now available for simulations on Linux computers for instance on high performance Linux clusters. Simufact Additive 3 focuses on analyzing the layered calculation of the build process with the new thermo-mechanical simulation method. Users can now receive global statements about the heat behavior in the component, such as thermal peak loads, in order to recognize overheated areas at an early stage. During the production of additive components, not only does the work piece undergo distortions and stresses; the base plate also influences the printing process and subsequent steps. In Simufact Additive 3, engineers can examine these and other influences of the base plate on the component.

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Capture the Market: Scalable, Continuous Production

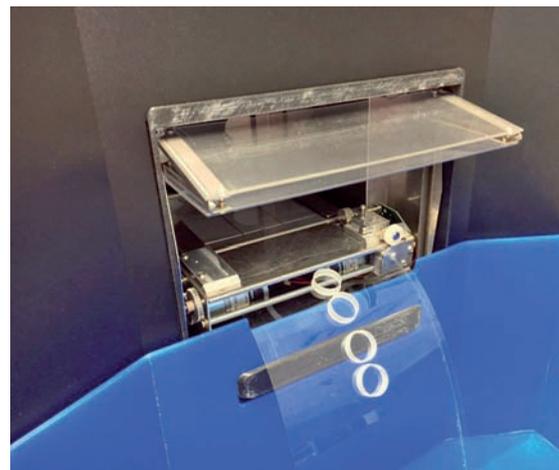
3D printing empowers manufacturers big and small to innovate and reduce time to market. But not every manufacturer owns a 3D printer. Those that don't turn to sources like In'Tech Industries to fill that need

In'Tech specializes in manufacturing plastic parts and offers engineering, tooling, injection molding and additive manufacturing services. According to Jason Lilla, In'Tech regional account manager, there's a growing number of manufacturers that need additive manufacturing capabilities for rapid prototyping, or a bridge to production before final injection molding is complete. "We're interested in a share of that market and hopefully we can help people get their parts quicker for testing fit, form and function," said Lilla. The hurdle, however, is getting beyond the one-build-per-printer paradigm. Individual

3D printers have a limited production capacity per build, and require human intervention to remove the parts and initiate a new job. To serve more customers with expanding production needs, that formula has to be scaled up dramatically.

Multiplying Throughput

To meet these growing market demands, In'Tech adopted a new additive manufacturing model: the Stratasys Continuous Build™ 3D Demonstrator. This 3D printing innovation sets a new standard with automated, continuous production. Typical 3D printers can be compared to series production, with a



A completed part is automatically ejected from the build chamber



The 9-printer Continuous Build 3D Demonstrator at In'Tech Industries

single printer producing one build at a time in succession. But the Demonstrator turns 3D printing into a parallel process, with multiple print engines building simultaneously. The Stratasys Continuous Build 3D Demonstrator consists of modular racks of three print engines, which can be scaled up to increase production capacity. In'Tech currently uses a 9-unit system, but sees the possibility of adding more. "We can run all nine print engines on one part to speed throughput or we can run them individually. It gives us greater flexibility to meet the customer's needs," said Neilson.

Increasing capacity to serve more customers simply requires adding more printer racks. Neilson says that can happen within a week, rather than the three to four months it would take with other types of equipment. "If we can continue to add print engines that



Completed parts are collected in the catch bins

quickly, we'll have no problem keeping up with customer demand, no matter how big our customer base gets," he adds.

Optimizing the Supply Chain

Increased throughput is one benefit, but the real beauty of the Continuous Build Demonstrator is a new level of 3D printing automation. It prints the parts, ejects them and starts a new build without human intervention. Multiple jobs can be printed and print queues are automatically apportioned, based on printer availability, maintaining an efficient build schedule. If a print engine experiences a problem, the downstream jobs are automatically distributed to another available printer. "We like that it's plug-and-play, so if there are any issues with a print engine, it can be easily replaced with another unit and be back up and running very quickly," said Neilson.

In'Tech sees this innovation as a boon for

their ability to meet increasing production demands. It gives In'Tech's customers what they need, when they need it, through an automated, continuous-production process. That means making parts in sufficient quantities so injection molding customers don't incur the expense of hard tooling for limited production runs. This lets customers analyze and make adjustments as needed, avoiding the cost to modify tooling. Instead, they can quickly adjust designs and get the parts they need, typically same day or the next. Mark Neilson adds that for some applications, the quality of the Demonstrator parts are near-injection molding quality.

Even in the initial stages, this new 3D printing paradigm has already shown its promise for In'Tech Industries. "We're excited to get this going and start to see it run full-form and we're excited to expand it," said Neilson.

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PHASE CHANGE CONDUCTIVE MATERIAL

Alternative to conventional thermal conductive pastes



Fischer Elektronik presents new phase change thermal conductive materials which provide an alternative to the conventional thermal conductive pastes. The new material types combine the advantages of high thermal perfor-

mance together with the reliability of phase change material. The thermal conductive material FSF 15 P and FSF 20 P is solid in its delivered condition and begins to flow at a phase change temperature between 52 °C and 48 °C each. Hereby microscopic small unevennesses between heat source and a heat sink e.g. will be compensated. During the moistening air escapes out of the area of the boundary layer, which leads to a significant reduction of the thermal impedance and to an optimal heat transfer resistance.

►► 54404 at www.ien.eu

SERIAL-TO-WIFI GATEWAY

Bringing serial devices to wireless networks easily



Artila announces Aport-213, the Single Port Serial-to-Wifi gateway available on the market. It is the ideal choice that provides connectivity for serial devices, such as meters and sensors to 802.11 wireless local area networks. Eliminating the need for the development of a wireless LAN driver and security supplicant, it

is ideal for minimizing upfront engineering investment and reducing time to market. There is no need to write special drivers for specific operating systems since Aport-213 can be configured as a transparent bridge. This allows a Serial device to communicate wirelessly with no modifications required to your existing software. The gateway supports cloud connectivity with different protocols.

►► 54398 at www.ien.eu

OPTICAL GAS IMAGING CAMERA

Detecting chemicals that are invisible to the naked eye



The **FLIR GF346** is a revolutionary optical gas imaging camera capable of finding carbon monoxide and a number of other gases. It is unbeatable for detecting even the smallest leaks. The camera offers a complete unique method of tracing leaks to their source by visualizing this in an

image. The GF346 can scan large areas rapidly and pinpoint leaks in real time. It is ideal for monitoring plants where it is difficult to reach components with contact measurement tools such as gas sniffers. Literally thousands of components can be scanned per shift without the need to interrupt the process. Using a GF346 safeguards personnel from the dangers of CO poisoning, reduces repair downtime and provides verification of the process.

►► 54405 at www.ien.eu



RUGGED DATA RECORDER

For fast results in interactive vehicle testing



HBM's new SomatXR CX22B-R data recorder enables reliably acquiring and storing measured data in mobile applications such as vehicle testing. The data recorder is well-suited to be used in harsh environments, owing to

its extended temperature range of -40 to +80°C. Additionally, it is shock- and vibration-proof, and has an IP65/IP67 degree of protection provided by its water-, dust-, and shock-proof enclosure. Both centralized and distributed measuring systems can be implemented. The pre-installed catman measurement software facilitates acquiring and storing data in .bin format. This format includes measured values, traceability data, and parameters set for measurement and testing, and allows for conversion to other formats.

►► 54397 at www.ien.eu

OUTPUT POWER SUPPLY WITH 24V, 60W

High surge power feature, of 7.5A (180W) output capability



Globtek is pleased to announce availability of the GTM91099 model 24V, 60W output power supply, with a high surge power feature, of 7.5A (180W) output capability for 100mS pulse time. This model is DoE Efficiency Level VI compliant, and safety certified for Medical, ITE

and general-purpose products. This capability is ideal for handling motor starting current surges, electric valves, and other types of gear. Due to its small size, and economic 60W design, it can help keep OEM product system costs under control. espoke, customized enclosure colors, housing designs, output cord types and lengths, as well as customized packaging, Open Frame or ruggedized to various degrees of Ingress Protection are available upon request.

►► 54402 at www.ien.eu

MOTION CONTROLLER WITH ETHERCAT

Equipped with additional connectivity options



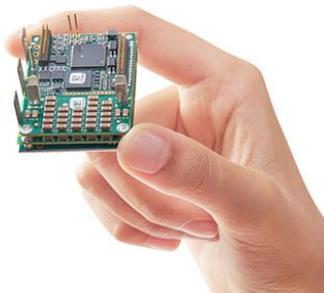
maxon motor is equipping its EPOS4 positioning controllers with additional connectivity options. They can now be integrated into any EtherCAT network as a slave by using an expansion board. EPOS4 positioning controllers by

maxon motor are now able to communicate via EtherCAT using the CoE standard (CAN application layer over EtherCAT). The EtherCAT card can be combined with the EPOS4 controllers in a housing, as well as with all EPOS4 modules. EPOS4 Compact designs with EtherCAT versions will follow at a later date. This expansion for the world of Ethernet-based communication protocols further expands the areas of application for the compact positioning controllers.

►► 54487 at www.ien.eu

HIGH-POWER SERVO DRIVE

Delivering 10.000w of qualitative power



Elmo Motion has doubled the power of its ultra-small, already powerful servo drive Gold Twitter to suit the most demanding applications in the era of Industry 4.0. With a weight of only 33 grams and continuous currents of 160A (80V) and 140A (100V), the new Double Gold Twitter delivers over 10,000w of

qualitative power, proving a great fit for applications that require a reduced footprint and high power, such as large robotic vehicles, antennas and tracking systems, high power machine tooling, large printer rolls and more. The Double Gold Twitter is among the smallest STO-certified (IEC 61800-5-2, SIL-3) servo drives on the market. It features Elmo's proprietary and innovative Fast and Soft Power Switching Technology (FASST), which ensures optimal power-device switching and delivers over 99-percent efficiency and negligible electro-magnetic interference (EMI). This extreme efficiency allows for its miniature size, meaning that the Double Gold Twitter can be placed on a moving load, on the motor or inside the motor, helping engineers save space, improve machine performance, reduce cables and eliminate electrical cabinets, while delivering unprecedented power.

►► 54403 at www.ien.eu

KIT FOR PREVENTIVE CONDITION MONITORING

Easy status evaluation for rotating parts and bearings



The starter kit for preventive machine monitoring from the manufacturer Adlink, distributed by **Acceed** consists of an acceleration sensor with a retention magnet and 3 m connection cable, the data recording module USB-2405 (24 bit, 4 channels) as well as the graphic evaluation software Phoenix GM

Lite. The kit is ready for operation and only requires a laptop for the software and the USB cable for data and power connection for mobile field application. The oscillation recording process for preventive condition monitoring the status for rotating elements and bearings is particularly efficient. The software analyses the data recorded from rotating components, monitors the machine status based on the oscillation bandwidth and can emit alarms in accordance with the configuration used, in as far as defined thresholds are exceeded. The alarm thresholds can be set freely or in accordance with standards using ISO 10816 (Evaluation of Oscillation of Machines). Software configuration is fast and simple using graphic analysis blocks which are compiled for the desired function. This also enables more complex multi-task analyses without specific programming knowledge. The module is suitable for the digitalisation of oscillations from vibration or acoustic measurements with the connection of microphones or acceleration sensors.

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OEM PRESSURE TRANSMITTERS

With I2C interface for areas at risk of explosion



The **KELLER** D-line boasts a unique combination of highly robust industrial pressure transducers and the popular I2C interface. The new D Ei series is approved for gas group II applications and can be used to measure absolute and relative pressures in zone 0. Pressure transmitters with an I2C interface are normally only

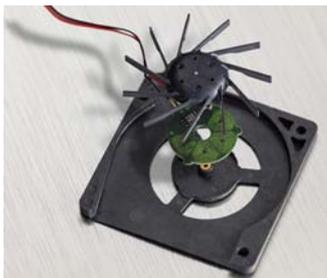
available in plastic or ceramic "consumer" housings, with only the compensatory parameters being stored in a memory. The intrinsically safe OEM transmitters from KELLER, however, have their own built-in DSP (digital signal processing) core, which balances and standardises the output values.

►► 54461 at www.ien.eu



AUTOMOTIVE-GRADE FAN DRIVER ICs

Can be used in ultra-small applications



Melexis announces new automotive-grade fan driver ICs for automotive and other applications where a highly reliable, ultra-small solution is needed. The US168KLD and US169KLD are automotive grade single-chip solutions for driving single-coil brushless DC

fans and motors. As a result of their soft-switching characteristics, they ensure low levels of EMI and acoustic noise, making them ideal for in-cabin automotive applications such as sensor fans as well as other applications such as cooling fans for wireless chargers, computing, audio and multimedia. The devices include a highly sensitive integrated Hall effect sensor.

►► 54463 at www.ien.eu

COLLABORATIVE ROBOT FOR HRC

Works together with an operator without safety barriers



Mitsubishi Electric offers a new collaborative robot, working together with an operator without safety barriers. Collaborative robots are designed to work in close proximity with people in a production cell, unlike fast and powerful industrial robots which

have to be located behind protective barriers for safety reasons. Free from this restriction, collaborative robots can be readily and flexibly deployed anywhere in the production environment. Importantly, while the precision of some collaborative robots may be reduced in comparison with industrial versions, the Mitsubishi Electric model's performance characteristics mirror those of the company's industrial autonomous robot range.

►► 54465 at www.ien.eu

B-STAGED EPOXY

For potting, encapsulation, coating and bonding



Master Bond EP36FR is a unique one component, high performance epoxy for bonding, encapsulation, potting and coating featuring flame retardancy. It meets the Airbus specifications. This epoxy

features good heat resistance along with some flexibility at elevated temperatures. It can withstand thermal and mechanical shocks and resists rigorous thermal cycling. EP36FR bonds well to a variety of substrates including metals, composites, glass and many plastics. It has good chemical resistance to water, fuels and oils. It is used in all kinds of aircraft applications where protection is needed from flames, smoke and materials that might burn; particularly, electronic components.

►► 54462 at www.ien.eu

LASER TRIANGULATION SENSORS

Measure displacement, distance and position



The optoNCDT 1420 laser sensors from **Micro-Epsilon** offer a unique combination of speed, compact size, performance and application versatility. Their high measurement accuracy and measuring rate enable dynamic

measurements of displacement, distance and position with up to 4kHz and their fields of application are therefore wide-ranging. The optoNCDT 1420 laser triangulation sensors measure displacement, distance and position on a non-contact, wear-free basis. The small all-rounders provide high precision measurements along with a compact design, offering high performance across a wide variety of applications.

►► 54464 at www.ien.eu

UNIVERSAL PANEL METER

For integration in a wide range of applications



The new universal panel meter DP20 from **Omega** delivers high performance in a 1/8 DIN size for panel mount and integration in a wide range of applications. The DP20 accepts universal inputs, including thermocouple, RTD, Process (mA & Vdc), resistance, and a true RMS voltage and current. The meter

also has a Fast Access Menu-Front Key Access to Modify the Alarm Set points and Max/Min Memory. The Meter is also password protected, has an IP54 Front Panel and 5 levels of Brightness Intensity.

►► 54154 at www.ien.eu



MICROCONTROLLERS FOR ENDPOINT DEVICES

Enable simple firmware updates



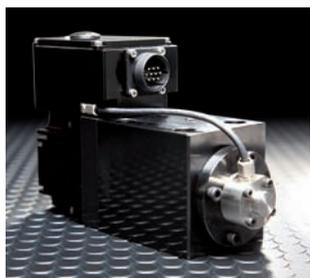
Renesas has expanded its RX65N/RX651 series. The new microcontrollers meet all the security requirements of endpoint devices in industrial automation, building automation, and smart metering systems. Furthermore, they

enable simple firmware updates and cost-effective HMI solutions. The new members of the RX65N/RX651 series boast a Trusted Secure IP to ensure a high level of security. Through the integration of encryption hardware accelerators - such as AES, 3DES, SHA, and TRNG - and secure access, the encryption key is protected by the Trusted Secure IP. Moreover, the boot code is protected by a secure Flash area.

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DIRECT ACTING HIGH-SPEED SERVO VALVE

Usable in hydraulic and pneumatic applications



Santest offers the new DA Series of "High Speed Servo Valves" for hydraulic and pneumatic applications, employing "Dual Halbach Magnet Array" which reinforces magnetic tandem. As a result, the higher response and surpassing anti-contamination characteristics can be obtained. A

voice coil of tandem differential configuration is inserted in the annular space of "Dual Halbach Magnet Array" and a spool is so fixed at the end of coil that it may move axially and freely together. When current is supplied in intensified magnetic fields, the voice coil itself generates strong thrust force and moves together with spool in an axial direction.

►► 52692 at www.i-en.eu

OVAL GEARED FLOWMETER

Monitors oil flow to critical bearings in heavy machinery



Titan Enterprises develops an adapted version of its OG5 to monitor oil flow to the rotating cylinder bearing mechanism at the heart of a system. To ensure reliable operation monitoring of lubricating oil flow and pressure to the

main drive bearings in crusher units is critical. The specification for the flowmeter included that it could not impede lubricant flow and had to have a low pressure drop even at full flow with cold, thick oil. While Titan Enterprises standard OG5 flowmeter met the flow requirements the standard 1-inch diameter flow pathway was considered too small as it may restrict lubricant flow.

►► 54469 at www.i-en.eu



OEM CUSTOM LENS ASSEMBLIES

For critical medical and nuclear applications



Resolve Optics is an organisation specialising in OEM custom lens assemblies. The company delivers thousands of custom lens assemblies per year - from complex high-speed imaging lenses and material sorting

inspection lenses, to radiation resistant lenses for critical medical and nuclear applications. Over the last 25 years, Resolve Optics have built a world class, quality accredited global supply chain that ensures they can obtain unprecedented quality at competitive prices. In addition, Resolve Optics has invested in an array of in-house testing equipment to insure suppliers meet their demanding requirements.

►► 54467 at www.i-en.eu

OPEN AND CLOSED FUSEHOLDERS

Revised to improve fire protection



SCHURTER offers the world's broadest range of open and closed fuseholders. The fuseholder standard IEC 60127-6 has been revised with the aim of improving fire protection. Accordingly, since October 2017, Edition 2.0 has required all fuseholders placed on the market to meet these new requirements. All product variants

which have been converted during production are listed in the downloadable overview table. The production batch date from which the new configuration was delivered is also listed here. SCHURTER is in a position to offer replacements for a competitive product that does not (yet) meet the new fuseholder standard.

►► 54468 at www.i-en.eu



MEDIUM-FORMAT 3D PRINTING SYSTEM

Works according to a so-called multi-laser principle



TRUMPF presented the world's fastest and most productive medium-format 3D printing system at the formnext trade fair in Frankfurt. TruPrint 5000 works according to a so-called multi-laser principle with three beam sources and is

equipped with optics specially designed by TRUMPF. In combination with the exposure strategies developed by TRUMPF and the optimally adjusted process parameters, the TruPrint 5000 cuts exposure time per job by a factor of three. Based on Laser Metal Fusion (LMF) manufacturing technology, the system uses laser power to generate complex metallic components layer by layer in the powder bed.

►► 54153 at www.i-en.eu

Orange for companies advertising in this issue

A	ABB Automation	14	M	Master Bond	28
	acceed	27		maxon motor	26
	Amazon Filters	16		Melexis Technologies	28
	Artila Electronics	26		Micro-Epsilon Messtechnik	25, 28
	Asynt	17		Mitsubishi Electric	6, 7, 18, 28
D	Deutsche Messe	2, 8		Moog	12
E	E&K Automation	12	O	Omega Engineering	28, 32
	E+E Elektronik	17		Ophir Spiricon	23
	Elmo Motion Control	27		Optimas	18
	EOS	23	P	Porvair Sciences	18
F	Fischer Elektronik	13, 26	R	R.A. Rodriguez	12
	FLIR Commercial Systems	19, 26		Renesas Electronics	29
	Fluid Metering	17		Resolve Optics	29
G	Genevac	16	S	Santest	29
	Globtek	26		SCHURTER	29
H	Hannay Reels	17		Simufact Engineering	23
	HBM Hottinger Baldwin Messtechnik	26		Smalley	27
	Heraeus Noblelight	23		Spetec	17
I	Ingersoll Rand	19		Stratasys	24
	Inmoco	12	T	Titan Enterprises	29
J	J.D. Neuhaus	16		Trumpf	29
K	KASTO Maschinenbau	10	U	Uniqsis	18
	Keller	28		Unitronics	20
L	LSS Etikettering	16		Universal Robots	13

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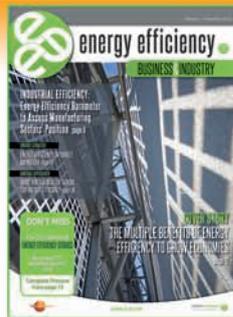
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