

INDUSTRIAL ENGINEERING NEWS

18 Interview with Roger Bou, Managing Director of the IOTSWC

20 20 Revolutionizing Automation: Recent Developments Driving Rapid Growth

22 Interview with Neil Hannay, Senior R&D Engineer at Titan Enterprises



Innovative Solutions and Intellectual Property with DCS Technology

The DCS has been the link to production information from the plant floor for decades. Mark Taft from ABB gives a review on DCS technology, digital transformation, and sustainable production

page 8

10 Robots in Production: What has Changed, and Why Understanding the Role of AI is a Key to the Future



185
Powering a Greener Future with Photovoltaic Cells

@ieneurope

LET'S TWEET!
Follow us!



www.ieneurope.eu



Read the latest **digital issue** of **IEN Europe** on www.ien.eu

**SUBSCRIBE
FOR FREE**



Over 12,000 product news & applications for engineers and buyers in the industry!

Industry 4.0 – Automation – Motors & Drives – Sensor Technology

Artificial Intelligence – Hydraulics & Pneumatics – Industrial Equipment & Supplies

Vision & Identification – Test & Measurement – Electronics & Electricity – Energy Efficiency

www.ien.eu
marketing@tim-europe.com

IEN europe
Industrial Engineering News

Editorial Director:	Orhan Erenberk o.erenberk@tim-europe.com
Editor:	Anis Zenadji a.zenadji@tim-europe.com
Editorial Support Energy Efficiency:	Flavio Steinbach f.steinbach@tim-europe.com
Associate Publisher:	Marco Marangoni m.marangoni@tim-europe.com
Production & Order Administration:	Francesca Lorini f.lorini@tim-europe.com
Website & Newsletter:	Carlo Cucchi c.cucchi@tim-europe.com
Marketing Manager:	Marco Prinari m.prinari@tim-europe.com
President:	Orhan Erenberk o.erenberk@tim-europe.com

ADVERTISING SALES OFFICES**EUROPE**AUSTRIA/SWITZERLAND
Monika Ailinger
Tel: +41 41 850 44 24
m.ailinger@marcomedia.chBENELUX,
NORWAY, SWEDEN
Nadia Liefsoens
Tel: +32-(0)11-224397
Fax: +32-(0)11-224397
n.liefsoens@tim-europe.comFRANCE
Roxanne Akbulut
Tel: +33 06 52 31 41 56
r.akbulut@tim-europe.comM'fumu Tiya Mindombe
Tel: +32 465 443 530
m.mindombe@tim-europe.comGERMANY
Simone Ciolek
Tel: +49-(0)9771-1779007
s.ciolek@tim-europe.comITALY, SLOVENIA
Andrea Rancati
Tel: +39-02-7030 0088
arancati@rancatinet.itTURKEY
Onur Dil
Tel: +90 212 366 02 76
Fax: +90 212 366 58 02
E-mail: o.dil@tim-europe.comUNITED KINGDOM/DENMARK/
FINLAND
Dave Harvett
Tel: +44 (0)121 705 21 20
daveharvett@btconnect.com**NORTH AMERICA**Hamilton-Murphy Global, LLC
John Murphy
Tel: +1 616 682 4790
Fax: +1 616 682 4791
john@hamiltonmurphy.com**JAPAN**Ichiro Suzuki
Incom Co. Ltd.
Tel: +81-(0)3-3260-7871
Fax: +81-(0)3-3260-7833
isuzuki@INCOM.co.jp**OTHER COUNTRIES**Cristian Son
Tel: +39 027030631
c.son@tim-europe.comDigital File Requirements available at:
www.ien.eu/technical-guidelines/© 2022 TIM Global Media BV
Production by design3, Milano, Italy
Printing by Logo Srl - Padova, ItalyPOSTMASTER
Send address changes to:
Industrial Engineering News Europe
Marco Prinari - m.prinari@tim-europe.com**FREE DIGITAL SUBSCRIPTION**Anis Zenadji
a.zenadji@tim-europe.com**Dear Readers,**

The comeback of Hannover Messe brings us good news in the dynamic of the industry side, while we do not see yet an end to the conflict in Ukraine, as well as in the rising prices in alimentary goods and oil. We also hope that the Shanghai port's situation will change where companies' materials and, sometimes, workers are stuck there through the zero Covid Chinese policy.

In this last issue before summer, you will find a great interview of Mark Taft from ABB about innovative solutions and intellectual property with DCS Technology, and sustainable production and transformation into a decarbonized industry.

Moreover, at page 10, is displayed an interesting piece summarizing our interview with Oliver Giertz, Strategic Product Manager Servo & Robotics, Mitsubishi Electric, Factory Automation EMEA - on why more robots will appear in new places since they are becoming smarter. We also discussed the fact on why in our shared digital future this actually a good idea is.

In addition, page 18, you will find out an exclusive interview of Roger Bou, Managing Director of the IOTSWC fair in Barcelona on the comeback of fairs after the pandemic.

Last, do not miss the release of our Webmag special Hannover Messe!

We wish you a pleasant and interesting reading

Editor for IEN Europe

**FREE
Digital
Subscription**

In the next issue:

Digital Thread & Material Handling 4.0

- 5 **Industry News**
- 8 **Exclusive Interview** with Mark Taft, ABB
- 10 **Robots in Production: What has Changed, and Why Understanding the Role of AI is a Key to the Future**
- 14 **Digital Manufacturing Enables Choice of 40,000 Models in a Five-day Delivery Window**
- 16 **Powering a Greener Future with Photovoltaic Cells**
- 18 **Exclusive Interview** with Roger Bou, IOTSWC Managing Director
- 20 **Revolutionizing Automation: Recent Developments Driving Rapid Growth**
- 22 **Exclusive Interview** with Neil Hannay, Senior R&D Engineer at Titan Enterprises
- 25 **Product News**
- 30 **Index & Events**



Announcement: Financial Statements of the SCHURTER Group 2021

Record year for the SCHURTER Group: At the end of 2020, the increasing number of incoming orders was a promising sign. As a result, the SCHURTER Group was able to achieve strong growth in 2021 of 14.2 % from CHF 259.3 mil. to CHF 296.1 mil.

The «Switzerland/Southern Europe» region recorded an increase of 13.6 % compared to 2020. Meanwhile, areas such as Eastern Europe with +24.6 %, Northern Europe with +9.7 %, as well as India/West Asia with +48.5 % were in some cases able to record massive increases compared to 2020. Germany with +4.1 % was able to gain little benefit from the general upswing, particularly in Input Systems. It was, however, able to compensate for this with its strong business results in medical technology in the previous year.

Markets in Asia and the USA again recorded large increases (Asia-Pacific +19.0 % and America +36.8 %), which can be attributed to the enormously high demand from global distributors and their forward-looking inventory management and availability. The strategic business unit «Solutions» suffered increasingly from material shortages during the reporting year. Nevertheless, it was able to implement important projects and, after a weak year in 2020, posted gains again in the reporting year. In Input Systems, the pandemic-related additional orders from medical technology failed to materialise, resulting in a marginal year-on-year decline. A breakdown by strategic business areas shows a plus of 21.8 % to CHF 207.2 mil. for Components, a minus of 0.3 % to CHF 89.0 mil. for Input Systems and +7.63 % to CHF 29.4 mil. for Solutions.

It is encouraging to see that the market regions reported adjusted figures in accordance with Strategy23 in the reporting year for the first time. Investments in tangible assets and equipment were also decisively implemented. At the same time, long-term objectives were also prioritised: projects such as the expansion of the Lucerne, Hungary and India locations as well as the relocation of SCHURTER in China (Shenzhen) to a much larger building were all successfully completed.

A profit after taxes that has more than doubled in comparison with 2020

Thus, in addition to record turnover, record values were reported in the performance of the SCHURTER Group. At CHF 22.3 mil., the profit after taxes for 2021 was significantly higher than the previous year's figure (CHF 9.4 mil.). In relation to sales, both profit +7.5 % (+3.6 %) and cash flow +11.3 % (+8.1 %) were clearly above shareholders' targets at CHF 33.5 mil. (CHF 20.9 mil.). At +9.7 % (+5.4 %), EBIT was at the upper end of what the MEM industries consider to be the norm. Despite the difficult environment, the number of employees in the SCHURTER Group was increased by 9.4 % and totalled 2237 employees as of 31 Dec. 2021. It is therefore hardly surprising that the production sites in the Czech Republic (Železný Brod) increased by 10.0 %, the Czech Republic (Jihlava) by 18.4 %, China (Shenzhen) by 22.6 %, Hungary by 18.2 % and India by 42.0 %. Recruiting additional professionals in Eastern Europe has proved difficult as the labour market has completely dried up.

The order backlog pointed in only one direction: upwards. The situation at the begin of the year began at CHF 23.7 mil., then rose steadily to an unprecedented CHF 58.9 mil. at the start of the year, an increase of 148.8 %. The enormous order backlog led to massive over-utilisation in all production plants. This could only be partially compensated for by the deployment of additional staff and substantial overtime.

Outlook

The SCHURTER Group started 2022 with full order books. However, the major challenges for the group remain. In Components, the company is still dealing with the difficult recruitment of missing technical specialists coupled with a lack of input materials and insufficient machine capacities. Input Systems and Solutions are mainly struggling with the poor availability of corresponding input materials. Incoming orders remain at a high level but are expected to decline somewhat during the course of the year. Nevertheless, the SCHURTER Group is looking ahead to 2022 with great confidence.



The headquarters of the SCHURTER Group in Lucerne



Yokogawa Acquires Dublix, a Company that Improves the Efficiency of WTE

Yokogawa Electric Corporation announces that it has acquired all shares of Danish company Dublix Technology ApS, a provider of solutions that improve the efficiency of waste-to-energy (WTE) and biomass power plants. The addition of Dublix's combustion control and boiler performance enhancement solutions to Yokogawa's lineup of control, monitoring, and maintenance systems will enable the provision of solutions that make both WTE and biomass power plants more efficient and profitable. WTE and biomass power plants incinerate fuels such as municipal household waste, waste wood, wood pellets, palm seeds, bagasse, and rice husks. Given that the fuel contains mostly non fossil portions, less fossil CO₂ is produced. Moreover, as this kind of fuel provides a more reliable supply of power than other renewable energy sources, demand for such power generation as a distributed power source that supplies power to nearby communities is increasing.



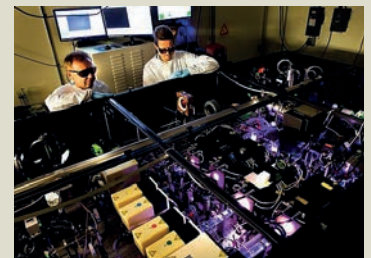
Emerson Expands its Catalogue of Robust Angle Seat Valves

Emerson has expanded its range of angle seat valves with the new ASCO™ Series 290D, available now in Europe and globally by late 2022. After 25 years of proven use in the field, Emerson identified key opportunities to optimize this series for new and existing markets. The robust, modular design of the expanded 290 Series comes with a new array of valve bodies and actuator materials, fittings, functions, certifications and accessories. Significant features include fugitive emissions certification, switch box with IP69K protection level and safe actuator dismounting. These customizations improve process efficiency and safety while reducing costs in many applications, including industrial, food and beverage and specialty chemical. In the new ASCO Series 290D, a wide range of valve bodies, actuators, options, control box and certifications are provided for enhanced application versatility. Built-in modularity makes it possible to interchange different actuators on the same body for on-site modification of the valve characteristics after assembly.



Optical Surfaces has been Selected for its Telescope System

Sponsored by the U.S. National Science Foundation, the ZEUS laser facility is being constructed to allow a Petawatt laser pulse from one of its beamlines to collide with a beam of GeV-energy electrons generated by its other beamline. In this collision, the electrons will encounter a Zettawatt (1021 watt) equivalent laser power as measured in their rest frame. Globally, only a few optical manufacturers can produce off-axis optics as part of the delivery system of sufficient surface quality to enable ultra-high-power lasers to focus their massive energy onto



targets only a few microns in size. Under these extreme conditions the laser-matter interactions can produce energetic beams of electrons and protons as well as bright, coherent sources of x-rays which enable researchers to address fundamental questions in areas including plasma physics, x-ray radiography, proton therapy and fast ignition experiments. Using in-house production techniques developed over the last 50 years and benefiting from a highly stable manufacturing environment largely immune from vibration and thermal variation, the company's engineering team can produce fast-focusing off-axis mirrors with unmatched surface accuracy, surface quality and surface slope errors.

ELGi Introduced its LD Series at Autopromotec

ELGi Compressors Europe debuts the LD Series in Europe, alongside its comprehensive portfolio tailored for use by small to large-scale auto industry suppliers, manufacturers, and OEMs at Autopromotec in Bologna, Italy. The new LD Series is an innovation in piston air compressor technology for small to medium-sized garages with intermittent compressed air demands. Has also been showcased the ELGi's AB Series, from 11-110kW – a disruption in oil-free compressed air technology, opening new possibilities for automotive manufacturers requiring reliable, high air purity and significant gains in energy efficiency and sustainability, at a low total cost of ownership. In addition, the ELGi's EN Series, from 2.2-15kW - is designed to encapsulate all functional components and the compressor within a common housing. With their small footprint, high reliability, and low maintenance requirements, the compressors are ideal for all small to medium auto industry operations where size, efficiency, and cost matter.



The Planned New F-gas Regulation Supports Siemens Vision

On April 5, 2022, in order to more tightly control fluorinated greenhouse gases (F-gases), the European Commission has released a legislative proposal to update the 2014 F-gas Regulation. Sulfur hexafluoride (SF6) has been used for more than 35 years in electricity transmission and distribution equipment as a switching and insulating gas. However, SF6 is the most potent greenhouse gas, with a warming potential 25,200 times higher than carbon dioxide (CO2) and an atmospheric residence of up to 3,200 years. As one of the leading manufacturers, Siemens has already developed F-gas-free alternatives, using Clean Air (natural origin gases) for gas-insulated switchgears. While also using proven vacuum switching technology, it is possible to replace SF6 as an insulating and switching gas with a completely fluorinate free gas, thus avoiding any possible impact on environment and health. The "blue portfolio" makes it possible to modernize and expand existing power grids at the highest levels of safety and simultaneously reduces the ecological footprint without compromising on performance or economic feasibility.



PTC to Acquire Inland Software

PTC announced that it has signed a definitive agreement to acquire Inland Software for approximately \$280 million. Inland develops and markets the Codebeamer™ Application Lifecycle Management (ALM) family of software products, including a next-generation, cloud-ready, fully integrated offering. The acquisition is expected to significantly broaden and deepen PTC's ALM footprint across safety-critical and regulated industries. Subject to the satisfaction of applicable closing conditions, the transaction is expected to close in PTC's fiscal third quarter. Inland is headquartered in Stuttgart, Germany and serves an impressive array of global enterprise ALM customers operating across the automotive, life sciences, consumer electronics, and aerospace and defense industries. PTC plans to offer Codebeamer standalone and in conjunction with both its Windchill and Arena PLM offerings, and to continue to enhance and support its existing ALM solution.



Interroll and Viastore to Work More Closely Together

Interroll and viastore have agreed to work more closely together in the field of conveyor technology in the future. The managing directors sealed the corresponding cooperation with a handshake at LogiMAT, the international trade fair for intralogistics solutions, now underway in Stuttgart, Germany. The aim of this agreement is for viastore to use Interroll's conveyor technology products in its projects in the future. In addition, the two companies aim to use joint technology platforms, exchange know-how and use tools to optimize processes from planning to installation. The viastore GROUP, headquartered in Stuttgart and employing around 700 people, is one of the leading international suppliers of turnkey intralogistics systems for industry and commerce, as well as warehouse and material flow management software and accompanying services.





New M series High Power

- Up to 430A max rated current
- Unipole & Multipole inserts including mixed high & low voltage contacts
- Broad range of lightweight aluminium shells
- Compact design for space savings
- High shock and vibration resistance
- Reverse gender configuration
- Wide temperature range -55°C to 200°C
- Sealed to IP68 mated; IP68 unmated as options
- Ratchet-coupling mechanism

LEMO SA - Switzerland
Phone: +41 21 695 1600
info@lemo.com
www.lemo.com/contact





► 62024 at www.ien.eu



FREE DIGITAL SUBSCRIPTION

N° 6/7 - JUNE/JULY 2022

www.ien.eu

Innovative Solutions, Intellectual Property and Investment with DCS Technology

The DCS has been the link to production information from the plant floor for decades. Kay Petermann from IEN D-A-CH interviewed Mark Taft from ABB who gives a review on DCS technology, digital transformation, and sustainable production.

DCS technology (Distributed Control Systems) is well established in a broad range of industries. What were and are the key drivers for the technology and have they changed?

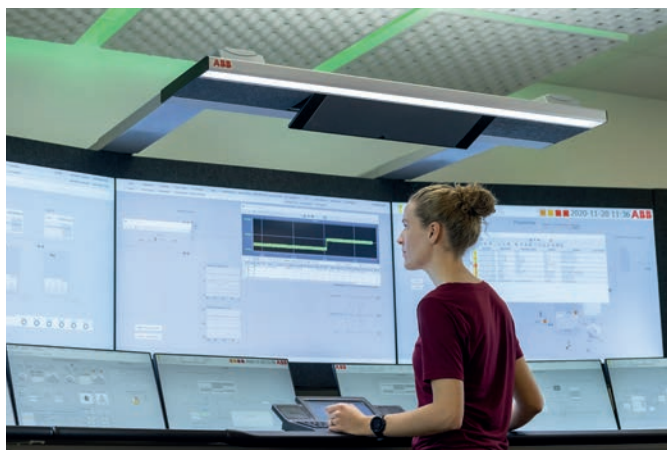
Mark Taft: DCS technology has aimed to provide safe, efficient, and reliable operation of industrial processes. However, today's automation practitioners want more from their suppliers, including innovation agility, and reduction of the lifecycle costs of their automation.

Our customers are working through several standardization initiatives. Examples include the Open Process Automation Forum (OPAF), a consortium of end-users and automation providers working to define a standards-based, open, secure, and interoperable architecture for tomorrow's process automation systems. It aims to integrate best-in-class components and preserve asset owners' application software at a significantly lower cost.

NAMUR has defined an open architecture model NOA (NAMUR Open Architecture) that segregates core control and automation functionality from non-time-critical monitoring and optimization applications described by the Industrial Internet of Things (IIoT).

With digital transformation more and more data is created in every production line. How can this information be turned into helpful insights of processes?

The DCS has been the link to production information from the plant floor for decades. ABB has a long history of integrating electrical sys-



Mark Taft, Group Vice President at ABB

tems, telecoms, CMMS, asset management, documentation, and optimization applications into our system, giving the user consistent access to plant assets for maximum efficiency and performance.

New standards such as OPC UA, and APL with PA DIM provide platform independent access to the information source, while also aiding high level interoperability between systems and applications from different suppliers. With cloud and edge technologies, we can separate non-critical extended automation applications from the core control assets. This gives more computational power, and more agile deployment of technologies such as AR, VR, machine learning and artificial intelligence at the edge, without disrupting plant process control.

In constantly changing markets companies need more flexibility for their production processes. How can up-to-date DCS system support customers here, especially when it comes to a modular automation approach?

Modularity is key to more flexibility and enhancements to our current automation systems will have modular hardware and software. Independent modules will be integrated to provide the system level





interaction, orchestration, and consistency that our customers have become accustomed to with our Extended Automation offering. These individual modules may be upgraded or replaced without affecting the automation solution.

Process control applications will be based on libraries of reusable application function modules, cutting effort. Using well-defined communication interfaces will avoid the need to coordinate these functional modules.

NAMUR's MTP or modular automation concept evolves this with a standardized, modular concept applied to the automation associated with process "skids" provided by equipment and process OEMs to offer full process control and operations support. A major pain point in automation has been mapping data and commissioning interfaces to third party PLCs and controllers. Standard interfaces make it easier to integrate controllers into complete processes. Combined with modular implementation, processes can be adapted quickly to make new products.

Sustainable production and transformation into a decarbonized industry are important challenges for you and your customers. How can you support your customer's efforts and help them, e.g. when it comes to integration of more volatile sources to their energy mix?

Industry is trying to adopt renewable, zero-carbon energy sources. Many will need to electrify processes to use wind and solar generation as well as grid-supplied electricity from renewable sources. There will also be the need to switch sources to take advantage of optimum costs.

Renewables are intermittent and also need energy storage. Optimizing process operations under these constraints requires vendors who can integrate process automation and electrification.

ABB has this expertise and is identifying which process and material buffers can partially offset renewable intermittencies. Optimization strategies need to consider that a particular process heater can be turned off for 20 minutes without upsetting production, while a nearby piece of rotating equipment cannot withstand a power sag of even five milliseconds without tripping.

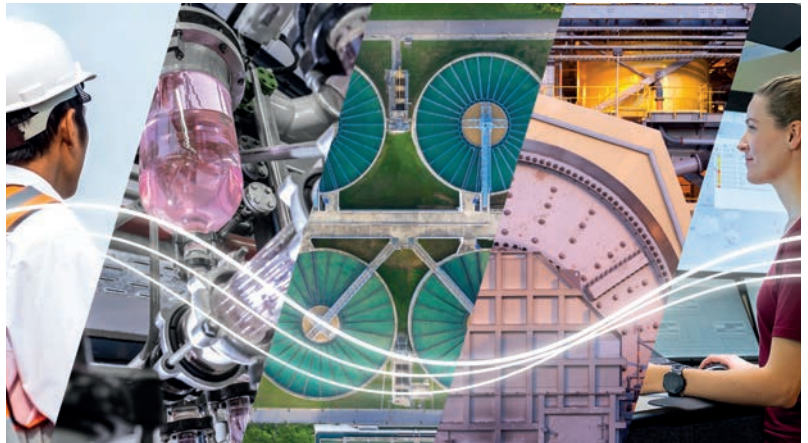
Demographic shift is affecting the industry and will do even stronger in the future. What concepts are needed in the future for a safe, and effective production?

One issue is knowledge lost from retiring operators. Tomorrow's operators will not only monitor levels and pressures but maintain optimal operations throughout the plant's lifecycle.

Artificial intelligence can help create a decision support system from existing data sources such as process, alarm, and event data; engineering documents; standards and safety procedures. A new digitally native workforce will find this more attractive.

These trends can lead to increasingly autonomous plants - particularly in dangerous or remote locations - overseen by remote operators aided by experts around the globe.

The shortage of experienced talent has led ABB to design its next gen-



eration automation systems to use pre-made, pre-tested functional software supplied complete with elements for control, visualization, and associated services.

Overall process orchestration of the software modules will be facilitated by the system, with control engineers moving from programming control logic to configuring process-specific automation requirements. As well as saving time and effort, quality controls on pre-tested code will help the unit get operational quickly. It will also allow the agile control strategy upgrades and reconfiguration of processes to fulfil demand for new product variants.

Automated engineering methods will help develop process control logic. For example, piping and instrumentation diagrams (PI&Ds) can directly generate a good first estimate of effective control logic.

ABB is an innovation leader in automation and DCS technology over a long time now. What developments are you expecting for the next few years?

ABB's next-generation technology for Process Automation Systems will empower industries to compete in a fast-changing world by delivering adaptable and reliable, integrated, modular and secure automation solutions for autonomous operations and sustainable performance.

The systems will facilitate digital transformation and collaboration between people, systems and equipment through secure OT/IT integration, ensuring the safety of people and the environment.

These systems will be engineered and deployed with tools providing a more modular and flexible, simpler and faster, more automated project engineering execution and commissioning process.

ABB has an installed base of over 35,000 systems. We have a history of balancing new technology introductions against production continuity, and a sustained commitment to protecting our customers' investments, by providing a path forward for their systems.

Our next generation systems will allow our customers to use the latest, innovative solutions while protecting their intellectual property and investment in applications, meaning they can retain their current ABB control infrastructure when moving from existing to new technology.

►► 62500 at www.ien.eu



Robots in Production: What has Changed, and Why Understanding the Role of AI is a Key to the Future

IEN Europe talks to Oliver Giertz, Strategic Product Manager Servo & Robotics, Mitsubishi Electric, Factory Automation EMEA - on why more robots will appear in new places as they become smarter, and why in our shared digital future this actually is a good idea.

"All manufacturing businesses are currently somewhere on a digital automation journey. Regardless of how advanced the industry sector is, those that successfully adopt new technologies will gain an advantage. The challenge for each individual company is understanding the options that are available now and making the right investment choices for the future."

So, IEN asked 'what kind of partnerships should companies seek out and what is Mitsubishi Electric's direct experience with recent events?' 'Our direct experience with recent events is that there has been a short-term increase in demand for automation in production facilities, simply because the Covid pandemic has caused an acute labour shortage. However, a good automation partner is always looking to the future and will recommend solutions that improve sustainability and profitability in the long-term. Hence, we have worked with our customers and application specialists to deliver components and systems that are practical right now, but also help meet the challenges we can all see in the future.

The knock-on effect of this is that automation solutions, particularly robotics have had to become much easier to use. It's taken a huge amount of programming and systems development within the robot



Oliver Giertz,
Strategic
Product
Manager Servo
& Robotics,
Mitsubishi
Electric, Factory
Automation
EMEA.





The industrial cobots and robots from Mitsubishi Electric can improve the timeframe for production changes, add flexibility and can be connected within an IT-environment.

itself to make the set-up software and its controller are simpler to operate. This makes life easier both for the integrator during installation and for the operator to make changes to the robot's set-up and behaviour while in-use.

I'll come back to this point about making robots easier to use and how AI fits in, but first it's worth mentioning that market demand is also driving change. Particularly for consumer goods where batch sizes are getting smaller. I would say the key word is Lot #1 where the number of possible product variations is virtually infinite, and the robot has to adapt like a human worker would.

We've overseen applications for example where a robot is used to customise an individual item that was ordered online. A real example of IIoT at work. Regardless of whether the robot is completing an assembly sequence, assisting a human with a difficult work holding task, or simply helping to pick-and-pack irregular items on a production line, we are getting closer to our robots - as they are getting smarter.

To make a production line more flexible, when compared to the past, changes needed to be possible without any mechanical adjustments. Manual parameter changes for product changeover for example take too long and are costly. Robots help to reduce the changeover time and increase the flexibility. Additionally, Mitsubishi Electric offers this by employing different solutions within the realm of digitalisation, this includes everything from programming to safety, maintenance, data storage and processing, plus far-reaching connectivity options.

Advancements such as Edge processing, cloud services and artificial intelligence feature inside the products we sell within and around robotics. The overall objective however is to enhance their efficiency and their effectiveness, while making them easier commission and deploy. Practical things like maintenance can be made more cost effective very quickly. Our latest robots have a form of AI onboard, and they monitor their own activity, the service algorithm can then predict when maintenance is required. It can even order replacement wear parts and service kits to arrive when they are needed.

The upshot is that a robot can work longer between service intervals and completely prevent predictable failures. This a good segue back

into why the operators don't require a deep knowledge about the programming of the robot to carry out the hardware integration. We are getting closer to true plug-and-play operation.

We have moved more toward graphical visual programming, so going for a drag-and-drop user interface - like you have on a tablet or on a touch PC. All it takes is for the user to move the blocks into place, so everybody can directly see and understand how the robot can be programmed, without knowledge of coding. For our cobot products, we go a step further. The MELFA ASSISTA robot is a good example, it allows the user to set it in 'teach' mode and then physically manipulate the arm to the exact spot where it is needed, tell it what action to take from a menu and press 'record'. That function is now stored and ready to deploy.

Keeping a close distance

Meeting new demands for physical distancing between workers has also created an opportunity for cobots. Taking for example our industrial Cobot the MELFA ASSISTA, it can improve the timeframe for production changes, add flexibility and reduce planning. There is also the bonus that robots almost always relieve people from the more monotonous, boring or repetitive tasks. Which inevitably increases speed and efficiency, at the same time as improving consistency and quality. A Cobot's operational speed is usually limited due to safety regulations as it relies mainly on low-torque operation to be 'touch-safe'. What is different about our MELFA ASSISTA model, however, is that it can also be combined with safety equipment like safety light curtains and safety scanners. In this operating mode it can run at higher speeds, so working faster if no human is close to the system. Like the industrial robots, if a human is detected by the scanners the robot will adjust down to the calibrated speed and then can work safely with the human present.

So, looking at it from an integration perspective, we think it is faster. It could also be more economical compared to an industrial robot as well; and if you only plan to use it in the calibrated mode, you can use less space compared to the industrial robot.



Our offer also includes a cobot mounted on an AGV/AMR or trolley, which can be deployed quickly to different places inside the manufacturing process wherever there is demand. These units can recognise each individual workstation and change its operating routine to match. The Cobot can be used without physical barriers but still ensure safety while working together with human personnel, so will fit more easily into an existing manufacturing set up. Improvements in vision systems and safety sensors have also transformed the deployment of conventional high-speed industrial robots. Even large industrial robots do not require physical cages and interlocked gates anymore. Using safety scanners or safety light curtains instead allows robots to operate very quickly when people are not present, but slow-down in stages as a person's proximity increases. They also speed-up again much faster when a person steps away, which can transform flexibility, and overall productivity.



Because they are often deployed in pairs or multiples, we use AI to automatically avoid collisions and work out the most efficient path of movement both before and after more than one robot is deployed together. On a PLC based system three robots can communicate over the back plane, automatically checking each other effectively in real-time. This leads to faster deployment and less space required on the production floor, which creates a virtuous circle of cost saving and reduced footprint. The lack of safety fences and rigid access control measures for example results a smaller initial investment cost required when integrating a robot into an existing manufacturing process.

Changes for the better

Vertical integration into the production environment is also a critical path to improved deployment, and this aspect of connectivity is worth mentioning at this point. We are offering a OPC UA robot companion specification that makes use of the OPC UA standard which is designed to provide a secure connection between automation devices (like our robots) up to the cloud.

Our Iconics SCADA visualization suite provides very easy to understand visual operational status and maintenance data. It is another convenient window into key information about the individual robot - from the serial number to the software driver version number and so on. We are taking predictive and preventive maintenance information directly from the robot and then pushing this data via OPC UA or MQTT into the cloud so that everybody with a dashboard can have up-to-date visibility.

For this reason, in the future, I can see some aspects such as maintenance and deployment becoming even simpler, while the sophistication of operation increases exponentially. You can already see how for some tasks; the robots don't need to be programmed. If you follow this thought, it's easy to predict that Robots will rely more on the AI functionally they already have, and we develop algorithms that allow the robot to find its own movement pattern to optimise cycle times and power down automatically to maximise energy saving for example. Market demands are changing more frequently and quickly - that's why we are always working to add maximum flexibility and efficiency to our robots. To support workers and become a partner in the manufacturing process. This is also the reason our robots have been made smarter using AI capabilities, and why we have incorporated a meaningful number of options to connect them with an IT environment.

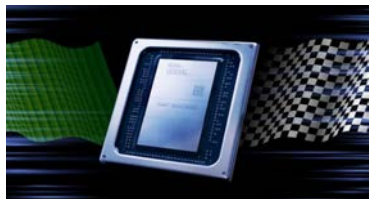


► 62499 at www.ien.eu



ADAPTIVE COMPUTE ACCEL. PLATFORM

Premium version with AI Engines



AMD-Xilinx announced it has added Versal Premium with AI Engines to the Versal Premium series, providing high-performance signal processing for next-generation wireless

and radar systems. Part of the 7nm Versal Adaptive Compute Acceleration Platform (ACAP) portfolio, Versal Premium with AI Engines is optimized to meet the demands of signal processing-intensive applications in the aerospace and defense (A&D) and test and measurement (T&M) markets. Versal Premium with AI Engines delivers a 4X increase in signal processing capacity and additional functionality, at reduced power and with a smaller footprint, compared to the prior generation 16nm Xilinx devices. In the T&M market, it addresses the growing demand for wireless testers as part of the global 5G rollout, applications such as 5G protocol testers and production testers as well as semiconductor automated test equipment. The Versal Premium series with AI Engines eliminates I/O bottlenecks with up to 9Tb/s serial bandwidth, and offers significantly reduced size, weight and power through heterogeneous, power-optimized integration of hardened, ASIC-like cores such as 100G/600G Ethernet cores, 400G High-Speed Crypto Engines, DDR memory controller, and integrated PCIe Gen5 blocks.

▶▶ 62387 at www.ien.eu

IIOT PLATFORM FOR ASSET MONITORING

Prevent unplanned downtime



Online asset monitoring systems have traditionally been expensive, complex, and required users to have deep domain expertise. As a result,

many plants and factories end up monitoring only the most critical assets, leaving up to 85% of their plant floor unprotected and unmonitored. **Sensata IQ** delivers a cost effective, easy-to-install solution that enables factory managers and maintenance engineers to intuitively monitor all their assets from anywhere, including on a smartphone, PC, or tablet. The cloud-based platform uses artificial intelligence to process data from a broad portfolio of Sensata IoT devices and qualified third-party sensors to gain insights into the health of each asset. Plant managers get reliable and easy-to-understand alerts regarding their facility's equipment health before assets fail, thereby reducing unplanned downtime and optimizing maintenance strategies to minimize labor and parts expenses. "By leveraging Sensata's deep sensor domain expertise along with AI technology, the Sensata IQ platform can reliably and accurately identify machine anomalies, characterize faults, and extend the working life of assets," said Naoto Mizuta, Vice President of Industrial at Sensata Technologies. "We are working closely with customers and partners to develop scalable solutions that make it easier and more affordable to implement remote monitoring and predictive maintenance strategies beyond the critical assets in a plant."

▶▶ 62389 at www.ien.eu



FREE DIGITAL SUBSCRIPTION

50W OPEN FRAME AC/DC POWER SUPPLIES

Come with a 3000 VAC reinforced isolation system



Traco Power offers the TPI 50A-J as a 50 Watt AC/DC open frame power supplies series with a 3000 VAC reinforced isolation system. Traco's TPI line specifically focuses on providing cost efficient industrial power supplies in compact designs.

Extending the existing TPI range this new series provides a peak power function which enables it to deliver up to 140% of the rated power for up to 5 seconds. Excellent efficiency of up to 93% allows a compact design and an operating temperature range (natural convection) of -40°C to +60°C without derating, while going up to +85°C with either load derating or forced cooling. It is designed to meet the ErP directive (< 0.3 W no load power consumption) and EMC characteristics dedicated for applications in industrial/automation and test & measurement fields. High reliability is provided by use of industrial high-quality grade components and an excellent thermal management. This makes the TPI 50A-J a fitted solution for any demanding industrial devices or space critical applications. The series is compliant to CE, RoHS and REACH.

▶▶ 62410 at www.ien.eu

LINKAGES

SYSTEM-BASED
HIGH PRECISION



automatica

Hall A5 - Booth 229

Online configurators, a SHOP with more than **12,000 standard parts** and the skills needed to produce and deliver them **quickly** and in **top quality**. That is why we are the ideal partner for everyone who needs reliable linking elements - whether in small, medium or large runs. [Find out what we can do for you!](#)

mbo Osswald GmbH & Co KG
D-97900 Kuelshelm-Steinbach
Tel +49 9345 670-0
info@mbo-osswald.de
www.mbo-osswald.com



Systematic solutions for
linking technology

▶▶ 62163 at www.ien.eu

Digital Manufacturing Enables Choice of 40,000 Models in a Five-day Delivery Window

Mitsubishi Electric's Nagoya Works Shinshiro Factory in Japan has manufactured three-phase motors since its establishment in 1974. Through e-F@ctory based Digital Manufacturing processes and concepts, the company demonstrates the factory's capabilities for flexible, high quality production.

Mitsubishi Electric's Nagoya Works Shinshiro Factory, located in Shinshiro, Aichi Prefecture, Japan, has manufactured three-phase motors since its establishment in 1974. At this factory, they significantly overhauled the manufacture of a key product range, the SF-PR series. By utilizing e-F@ctory based Digital Manufacturing processes and concepts it is now possible for customers in Japan to choose from 40,000 models available in a five day delivery window, or for those prepared to wait 15 days, the choice expands to 2.3 billion different product variations covering the majority of customer's needs and applications. Made entirely in Japan, from material procurement to parts processing and assembly, the number of product variations and the short delivery window demonstrates the factory's capabilities for flexible, high quality



production with shortened lead times and improved productivity. "To deliver a wide variety of products in a

short period of time, our target was to tackle the long manufacturing lead time," said Hiroyuki Akita, General Manager of Nagoya Works' Shinshiro Factory, Mitsubishi Electric Corporation. "We focused on how we handle the entire production schedule and how we could shorten each process, from the manufacturing of parts and products to the shipment of these products. This is where we leveraged e-F@ctory to synchronize our complex manufacturing processes."

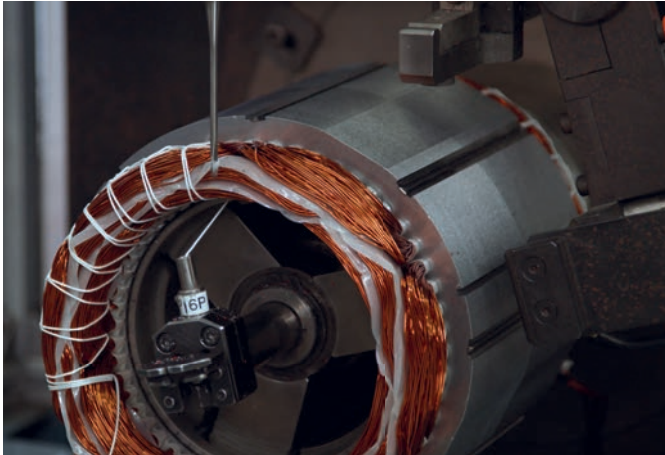
One of the key variations in motor specification is the electromagnetic performance, which greatly affects the characteristics of the motor. This is varied by the density of the windings of the coil around its iron core and is matched to the customer's selected motor performance.

"With e-F@ctory, we were able to increase productivity by reducing the time we need for complex procedures like preparing the set-up for the winding process and also the winding process itself," Hiroyuki Akita continued.



Mitsubishi Electric's Nagoya Works Shinshiro Factory has manufactured three-phase motors since its establishment in 1974.





e-F@ctory helped the factory to increase productivity by reducing the lead time for complex procedures like the winding process and its preparation.



The work time was measured by attaching sensors to the tool holders



"We wanted to determine where each process began and ended to measure the work time," explained Noboru Shirakura, Senior Manager in charge of Manufacturing Engineering at the Shinshiro Factory



"Our target was to tackle the long manufacturing lead time," said Hiroyuki Akita, General Manager of Nagoya Works' Shinshiro Factory, Mitsubishi Electric Corporation

The winding process is a mixed line where automation and manual work co-exist. The production management system gathers "work time" from the automated machines, and also sees how much time each worker needs for each process.

"We wanted to determine where each process began and ended to measure the work time," explained Noboru Shirakura, Senior Manager in charge of Manufacturing Engineering at the Shinshiro Factory. "Each worker's movements are basically lifting up the tool and placing it back again, so we measured the work time by attaching sensors to the tool holder."

Another key factor around a motor's specification is the shaft that rotates inside the motor. The specifications of the shaft need to be customized depending on how the motor is used

and that takes time to adjust on the shaft line unit by unit.

"Our competitive advantage would rely on the automation of the shaft machining process and how much time we can reduce in this process," said Hiroyuki Akita.

Noboru Shirakura added, "The bottleneck in the shaft line was the final grinding process. We wanted to shorten this process. So, we replaced part of it with turning in the preceding process."

To reduce the machining performed by the grinder, data captured by the real time e-F@ctory process is fed back from the grinder to the NC lathe to stabilize the machining accuracy.

At the Shinshiro Factory they are now considering new ways to utilize the data collected

by the e-F@ctory Digital Manufacturing concept.

"We are currently trying to deal with tool wear in machining equipment. Determining the optimal setting will help us manage tool life and improve efficiency," Noboru Shirakura explained.

With a tool wear diagnosis system, data can be automatically collected to determine the optimal wear value, or tool life.

Noboru Shirakura added, "Previously, we set tool life spans based on our experiences, but with the new system we may be able to use tools for a longer period than before. This will help us reduce tool costs."

e-F@ctory can be linked to the software platform "Edgecross" to easily collect and leverage data from machines of different brands or even older machine tools. This helps not only to visualize machine tool data and improve productivity, but also introduce a low-cost system in a short period of time.

"The three-phase motor is a mature product, so to be competitive in the market we would need a wide lineup and short delivery time, and in this aspect, e-F@ctory plays an essential role. Without e-F@ctory, we would not be able to provide products in such a short delivery time," Hiroyuki Akita concluded. "By utilizing data for production, we now see new opportunities in this mature market. We will be able to create new services."

There is no end to making improvements in manufacturing. And there is no end to business development.

▶▶ 62501 at www.i-en.eu



Powering a Greener Future with Photovoltaic Cells

Richard Bethell, Technical Director at Solid State Supplies, discusses use cases for outdoor energy harvesting photovoltaic (PV) cells and the far-reaching capabilities they provide for remote monitoring.

A future of energy harvesting and the end of a reliance on alkaline batteries is fast approaching - with demand now higher than ever for electrical solutions that can provide more power.

Power supply designers looking for device grid-independence for low power applications will often use a battery in their design. However, single use batteries can be an environmental nightmare if they are not properly disposed of. Chemicals from batteries which are incinerated or put in landfill can pollute lakes and streams, vaporise into the air, or leach into groundwater, exposing the environment to highly corrosive acids and bases. It is possible to recycle batteries but, according to figures published by the Environment Agency, the UK only has a target of recycling

45% of the annual volume of batteries placed in the market by producers – and in 2020, it fell short of meeting this target.

Rechargeable batteries are a much greener alternative to single use batteries but still require connection to the grid once the charge is depleted. This can be costly, involving expensive intervention and maintenance by service technicians.

An alternative solution is energy harvesting where power is collected from the immediate environment. This allows perpetual operation with no requirement to connect to the grid, and very low or no maintenance costs. The main energy harvesting techniques used for autonomous applications are firstly outdoor solar as it's the most efficient, followed by thermo electric generators, vibration and

lastly RF transmission. There are also other energy harvesting techniques that are being developed presently such as fuel cells and bio cells. All these technologies generate energy that is then stored in batteries and supercapacitors. Integrating energy harvesting techniques with storage elements in active tags turns them into autonomous active tags.

The benefits of photovoltaic cells

Photovoltaic (PV) energy harvesting is one of the most popular solutions and uses a PV cell – a rigid or flexible array that turns photons into electrical energy. PV cells are widely applicable given that a light source is available in most environments, whether indoors or outdoors. They are also relatively low cost yet have a higher power output compared with many alternative energy harvesting solutions. However, to be used continuously, you still need a method of storing energy so that your application will work when there is no light to power it. Supercapacitors are currently being used for this and one of their advantages is that they have a much longer life compared to batteries. This can be as long as 15 years in many cases, and they have the advantage of being able to supply high peak pulse currents for RF transmitter applications.

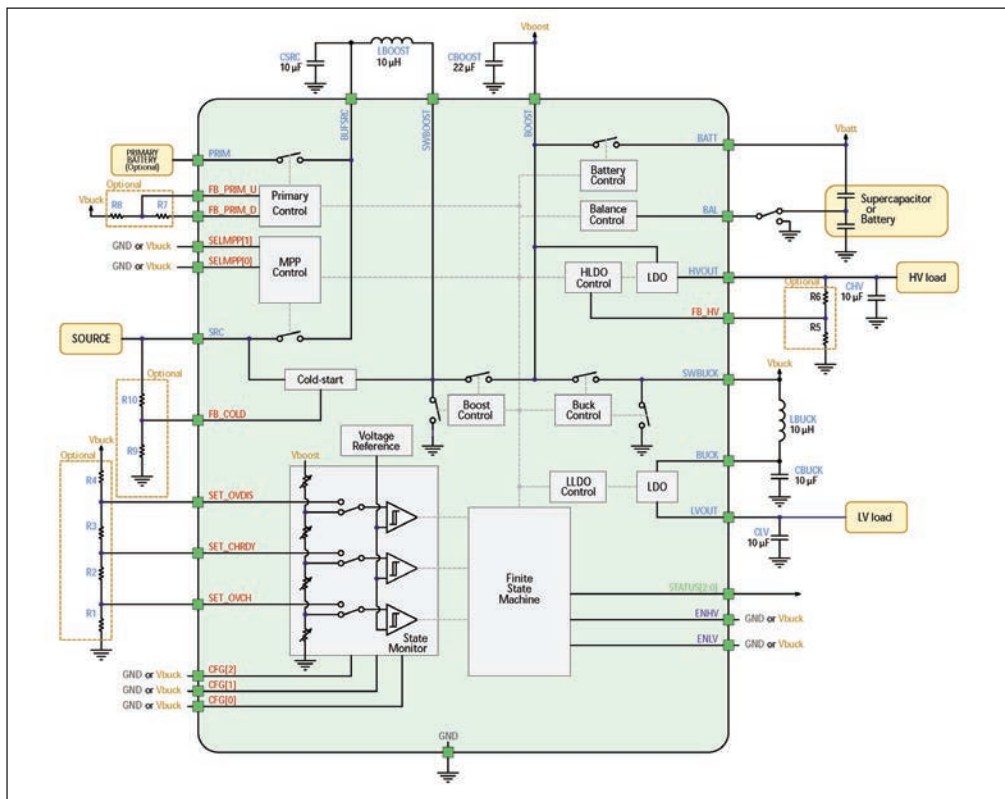
PV cells are most commonly used in outdoor applications but can also be used indoors in environments like offices or hospitals where LED lighting is on fairly constantly for 8-12 hours a day. However, whether your PV cell is intended for indoor or outdoor use, you will need to connect it to an energy harvester and then consider the following:

1. How much energy do you require?
2. Do you need to use a capacitor, superca-



Tags with a PV energy harvesting cell as the power source can be used to track livestock.





Block diagram of the e-peas AEM10941 energy harvester chip.

capacitor or lithium polymer (LiPo) battery to store energy?

3. Do you need to add a primary battery as a keep alive cell during dark/off periods?

A PV cell with an efficient and flexible energy harvesting architecture is key to addressing the above questions. You could use the E-peas AEM10941, an integrated energy management circuit that extracts DC power from up to 7-cell solar panels (see Fig 1 below). This type of PV cell ultimately eliminates the disposable battery storage element in a large range of wireless applications such as industrial monitoring, geolocation, home automation, e-health monitoring, and wireless sensor nodes. Energy is stored in a rechargeable element and supplies the system with two independently regulated voltages. The AEM10941 features very low levels of input energy to the harvester with a cold start from 380 mV input voltage and 3 μ W (typical). Due to the very efficient design of the chip architecture, the AEM10941 can harvest energy on an overcast day when light input levels are low. It also supports the additional input of a keep alive cell (long life primary battery) to ensure the storage element is charged when harvesting doesn't occur. These options are flexible storage options depending on whether a capacitor, supercapacitor or battery is selected.

Monitoring water levels

Due to the evolution to an autonomous and connected world, design engineers are developing devices adaptable to a great many applications that can establish a connection to other devices. Their designs need to be wireless and use the energy that nature provides as much as possible. PV cells can be used in sensors deployed to measure water levels in areas prone to flooding. These sensor nodes should always be operational to provide constant monitoring and avoid loss of data sampling. The nodes are often located remotely so their energy source cannot be grid-dependent or rely on a battery that needs recharging or changing regularly. A PV energy harvesting cell allows the nodes to be self-sustaining and remain operational continuously, transferring data through a LoRa or NB-IoT wireless module. The data is then processed and stored through a web structure where the alarm function is implemented if action needs to be taken.

Tracking livestock with energy harvesting smart tags

Energy harvesting can also be used to power sensor and communication tools on smart trackers to remotely monitor livestock movements on farms. This enables the collection of

valuable data on cattle herds giving information about their position and grazing patterns, with the ability to set alarms if any animals are not moving as expected or have crossed a boundary. The tracker is attached to the animal's ear and contains an accelerometer, a LoRa communication module, GPS transceiver, a passive NFC tag and PV energy harvesting cell as the power source. The size of the PV cell has to be dimensioned depending on the power requirements of the application.

The future is bright for energy harvesting

Energy harvesting technology is an "enabling technology" that expands the use and opportunities of IoT utilisation, enriches lives and enhances social resilience, as our application examples show. The low current and increased processor power and memory of embedded devices means that they can sustain longer operational life in the field before being replaced. By using energy harvesting and replacing batteries with supercapacitors as an energy store, engineers have a more environmentally friendly way of powering IoT devices.

*Richard Bethell, Technical Director
at Solid State Supplies*

►► 62424 at www.ien.eu



FREE DIGITAL SUBSCRIPTION

N° 6/7 - JUNE/JULY 2022

www.ien.eu

"If the Pandemic Has Proven Something Event-wise, is that Nothing Can Replace In-person Networking"

IEN Europe interviewed Roger Bou, the IOTSWC Managing Director on his feelings about the comeback of the fair as well as the exciting topics that have been discussed

IEN Europe: After 2 years of a pandemic break, the IOTSWC will be able to take place as a live event from May 10 to 12. What will be the main highlights? Could you give us a preview?

Roger Bou: Well first of all, the main highlight will be to gather the whole IoT industry in person again after the two-year hiatus. I know for sure that companies and experts are eager to resume meeting at the event once again and breathing new impulse into the ecosystem of digital transformation of industries through disruptive technologies. We are going to host over 300 exhibitors including ABB, Altair, Amazon Web Services, Digicert, EMnify, ESRI, Fiware, Hitachi, Hornet Security, Huawei, KNX, Libelium, RFPD, Relayr, Siemens and Trellix, and 250 experts, headed by Ann Dunkin, Chief Information Officer (CIO) at the US Department of Energy and author of Industrial Digital Transformation: Accelerate digital transformation with business optimization, AI, and Industry 4.0.

In addition, IOT Solutions World Congress will be jointly held for the first time with Integrated Systems Europe (ISE), the world's leading professional audiovisual and systems integration show. This will establish an unparalleled ecosystem for digital transformation to professionals from many industries and provide a unique opportunity to explore the crossroads between two different sets of disruptive technologies. IOTSWC will bring to the table the leading experts and companies working on Artificial Intelligence, Digital Twins, Internet of Things and Quantum Computing and ISE will deliver leading companies from the professional AV industry as well as international experts in the field of systems integration in numerous industries. The goal of this cooperation is to highlight the two events' common ground that offers new ideas and means of collaboration for attendees and exhibitors.

What can visitors expect from this come back and what is provided for those who are unable to return to the fair for various reasons?

Visitors will be able to take advantage of the experience and knowledge of both companies and experts from a wide array of industries and places, getting a clear image of what can transform a business and provide a competitive edge both through use cases from large corporations and also tailor-made solutions from small but highly specialized companies.

Along these lines is our Testbed Area, one of our trademark initiatives, through which we showcase tangible examples of successful combina-



Roger Bou, IOTSWC Managing Director

tions of disruptive technologies. As always, we've selected a total of 10 projects from such industries as Automotive, Construction, Food, and Urban management, to name some.

Cybersecurity will also be one of the main themes at our show. This has become a critical field within the technology landscape as an essential layer for every solution and to underline this importance, the





Barcelona Cybersecurity Congress, an annual event co-organized with the Catalan Government, will be jointly held on the same dates as the IOTSWC. The event brings together the main cybersecurity agents and experts and aims to analyze the current challenges in this field, defining patterns to protect against cyberattacks at a sectoral level, and presenting real solutions, tools, and success stories to extend the culture of cybersecurity across all industries.

Do you think that digital networking will also have its importance even after the health crisis?

First of all, if the pandemic has proven something event-wise is that nothing can replace in-person networking. After two years of being apart, companies, experts, and customers we're eager to be able to meet again and do business face to face. But we've also learnt that the digital medium is an invaluable tool that help us take the event to new horizons.

That is the reason why we've launched IOTSWC EXTEND, an online community for content and networking that goes beyond the physical event. The program will not only include networking tools during the event but also all year long. Additionally, those who join the program will also have access to exclusive audiovisual content created just for our community. Including our most inspirational keynote sessions from the physical event, but also awe-inspiring talks and sessions from the brightest minds in industry.

The great internationality of visitors and exhibitors has always been one of the positive features of IOTSWC. What are you expecting from exhibitors this year, and what do you expect from visitors?

Well this year will be something different for sure. One of the main goals of IOTSWC is to gather the key actors in our ecosystem. That means companies, experts, innovators, etc. But more importantly having the right individuals within each company, the real decision makers. If you take a look at the names of exhibiting companies and speakers you can see that is exactly what we bring to the table. But this year we are offering something more. The joint celebration together with ISE and the Barcelona Cybersecurity Congress will provide an unparalleled platform the limits of which we yet have to discover.

I'm sure that the 2022 edition of IOTSWC will not only be what our visitors expect but it will be much more, and eye and mind opening

edition that probably will witness new opportunities for many of our attendees.

What impulses or insights do you expect from the trade fair and exhibitors in the field of connectivity?

High-performance connectivity is at the heart of the digital transformation of industrial systems but also will become fundamental at our homes and also throughout our cities. We're expecting a wide range of solutions highly adapted to the specific requirements of different applications that will have security at the core of every implementation. I believe that the pandemic drastically reduced the development and deployment of wireless solutions based on 5G and that we are going to see a great number of 5G applications that take advantage of broader data streams and reduced latency. The Infrastructure and Automotive industries will probably be the ones spearheading this movement.

The testbed area is a trademark of IOTSWC. Can you tell us more about these experimentation platforms?

Since its inception, IOTSWC has always had the goal of providing the right tools and examples for companies from many industries to be able to transform themselves and embrace innovation. Testbeds are the embodiment of that. Experimental platforms designed to implement innovative solutions and test them in real-life operating conditions. Moreover, these tests aim at creating ground-breaking products or techniques with the potential to generate new international standards.

As we've done every edition since 2015, we will be hosting a total of ten of these examples at our Testbed Area. They will range from the Automotive industry to Construction, Food, and Urban management and some of them also have a sustainability angle that we believe is critical today.

For example, we will be showcasing a smart refrigerator that uses AI cameras to reduce food waste and apply dynamic pricing based on existing stocks that prove how technology can change better suit our businesses, the customers' needs and the environment's reducing waste and energy consumption.

▶▶ 62425 at www.ien.eu



Revolutionizing Automation: Recent Developments Driving Rapid Growth

As a result of the disruptions the pandemic caused to the global supply chain, automation is expected to grow even faster, and the variety of industries and applications that stand to benefit from automation is nearly limitless.

Potential abounds in the automation and control space today: prior to the COVID-19 pandemic, the market already was poised to grow immensely over the coming years.

It's become abundantly clear that automation solutions like robots are not going to replace workers or eliminate jobs in the ways that were predicted in the early days of automation. Instead, we are now seeing robots taking over the manual, mundane and/or repetitive tasks that may pose a safety risk to employees, or more simply, tasks that they don't want to do. This is allowing those same employees to learn valuable new skills and move up the employment ladder.

Automation also helps companies keep up with supply and demand even when there may not be human employees available to fill positions, as happened during the pandemic. For example, Intel recently announced that they're building two new, fully modernized facilities in the U.S. that will utilize automation in order to produce chips at a much higher rate than would be possible if they solely relied on the 3,000 employees they plan to hire.

Getting started with automation and control solutions is easier than ever before. Here's a look at recent developments and trends that are revolutionizing the industry.

DIY

Today, the average person is much more comfortable using technology than ever before due to the proliferation of smartphones, home automation systems, e-commerce shopping and other tech solutions that are ubiquitous throughout society.

At the same time, automation and control solutions are becoming more user-friendly and



*Eric J Halvorson, Strategic Programs,
Digi-Key*

accessible, which allow engineers who have never tackled an automation project to set up and code an automated device or teach a robot in a language and/or program they are comfortable using.

As a result of these trends, many industrial engineers today are very comfortable buying automation products online. It's not uncommon for these engineers to undertake a small project in an industrial setting by teaching themselves through online research, reviewing resources from manufacturers, watching videos and more – often times, they can take on small or medium-size projects without any outside support.

Quite often, companies adopt automation first for safety. Safety is of top importance and employee injuries are not only costly but can also impact employee confidence and launch



*Eric Wendt, Director, Automation &
Electrical, Digi-Key*

expensive and time-consuming investigations with regulatory organizations. That's why many companies start their automation journeys with safety improvements and go from there.

A great example of a small safety project that may be doable on your own with some research and elbow grease is a safety light curtain – a device that shines invisible beams of light across an area and slows or stops a machine or process from happening when something disrupts the beam. These curtains are great for many applications – they're fairly simple to set up, still allow access to the machine, and help keep people safe.

Of course, there comes a time when doing it yourself just won't cut it anymore. Large, complex automation projects usually require support from a team of experts called systems integrators.



Systems Integrators

One of the biggest obstacles to larger-scale automation projects – beyond finding the right parts that are interoperable in a specific setting – is choosing the right things to automate. This is where it really becomes crucial to partner with an expert system integrator to help identify areas that can or should be automated to help your organization save time and money in the long term.

Systems integrators provide tremendous value to their customers. They often review production processes in a plant and identify the areas that could be improved with automation – and then they both design and build custom equipment, production lines, machines and more to help that process. They are also essential partners for setting up and testing these solutions, integrating them into existing processes, analyzing how much time and money an organization might save and much more.

A great example of this is in Digi-Key's product distribution center expansion (PDCe) project at our headquarters in Thief River Falls, Minneso-



ta. We worked closely with KNAPP to design a new system from the ground up, work through bugs, identify new areas of opportunity and more. They will also be available for several years after the project is complete to help train employees and continue refining the system.

Automation Within Digi-Key

Digi-Key carries the leading automation and control brands that enable the world's ideas – including in our own warehouse.

Digi-Key first began utilizing automation and control solutions in our own warehouse 30 years ago. As the company grew, leaders real-

ized that automation was an essential element in scaling up its fulfillment operations – improving quality, increasing capacity and enhancing efficiency.

The first example of automation at Digi-Key was the use of a tote routing system, and since then, a myriad of additional automated solutions has been introduced, relying on the very components we offer in our product portfolio: sensors, motors and controllers,

robotics, cables connectors, power components and more.

There's really not a segment of the automation market that isn't poised for growth over the next five years. At Digi-Key, we are looking forward to seeing what products leading automation suppliers bring to the market, as well implementing many of these innovations in our own operations to enable future scalability and success.

Eric Wendt and Eric Halvorson, Digi-Key Electronics

▶▶ 62504 at www.ien.eu

COMPLETE LONG REACH ETHERNET SOLUTION

Engineered for digitizing building automation networks



Analog Devices introduced a complete 10BASE-T1L Ethernet solution designed for building automation networks. Digital, connected automation equipment enables holistic building management ranging from heating ventilation and air conditioning to occupancy comfort. The new

ADIN2111 adds Long Reach Ethernet connectivity to controllers, sensors, and actuators, delivering insights for more efficient and sustainable building management. Ideally suited for use within small, power-constrained edge devices, the ADIN2111 provides up to 50 percent power consumption savings and up to 75 percent in PCB real estate versus discrete implementations. The ADIN2111 is designed for daisy chaining data in line and ring networks utilizing existing deployed single twisted pair cabling infrastructure within buildings, shrinking retrofitting costs. The enhanced diagnostic features reduce commissioning, installation, and system downtime by troubleshooting problems quickly and effectively utilizing the real time information on link quality and fault location provided. Compliant to the IEEE 802.3cg standard, this solution enables Ethernet connectivity over 1.7km of cabling, supports ring redundancy and soft real time protocols like Modbus/TCP, BACnet/IP and KNX.

▶▶ 62421 at www.ien.eu



FREE DIGITAL SUBSCRIPTION

Sensis: a new way to monitor electrical panels



Sensis is the IIoT device for data collection, monitoring, controlling and predictive maintenance of electrical panels.

Follow us:



www.fandis.it/lp/sensis/en



www.Fandis.com

ORANGIS
ambient control

▶▶ 62037 at www.ien.eu

In the Times of the Fuel Issue, Metering Fuel Consumption can be Achieved Using Flow Measuring Devices

Neil Hannay, Senior R&D Engineer at Titan Enterprises looks back on times of constraints with Covid-19 and Brexit, design improvements in flowmeters as well as their use in the production of biofuel.

Neil Hannay is Senior R&D Engineer at Titan Enterprises. He joined the company in 2018 to manage the development of new flow measuring systems. His previous experience over the last 25 years includes project managing industrial research and development, focusing on process devices and processes for gas and liquid systems for the oil and gas, chemical, food, water and pharmaceutical sectors. He began his career in water treatment process and equipment design, focusing on flocculation, ozonation and biological treatment processes and devices and then moving to biological and chemical process development in the food and chemical industries. Over the years, Neil has accumulated expertise in gas and liquid flow control and measurement and customer process integration.

IEN Europe: What is the impact of Brexit and Covid-19 in regard with your activity and sector?

Neil Hannay: The manufacturing industry is certainly beginning to feel the knock-on effects from Brexit and Covid-19, both in terms of material costs and lead times. As a UK manufacturer, the majority of our materials are sourced from UK suppliers but further down the supply chain when materials are sourced overseas, that is where we are seeing a rise in costs. Those costs are, as expected, passed back up the chain which ultimately has an impact on our own product prices. Materials such as stainless steel and electronics/circuit boards are examples of components that are struggling to catch up with production times and also carry a hefty price increase.

On the upside, the flowmeter market has remained strong and the industries that we supply into have come back fighting. Titan itself has maintained its level of investment in R&D and are now ahead of pre-Covid sales levels. We are also working with our suppliers to minimize the knock-on effects to our customers.

Can you tell us more about the design improvements that have been made in your oval gear flowmeters?

The increase in production lead times for stainless steel casting gave us an opportunity to make some product design improvements, particularly regarding our Oval Gear (OG) flowmeter range. We have pressure tested a new machined stainless-steel design for the bodies and caps of Titan's OG3 and OG4 flow meter models. The pressure capability of both these compact rugged positive displacement flow-



Neil Hannay, Senior R&D Engineer, Titan Enterprises

meters has increased from 50 bar to a maximum operational pressure rating of 100 bar, making these more affordable units for some users. The high viscosity design of the body type for the OG3 and OG4 flow meters, standardizing the location of the spindle in the cap as well in the body and incorporating a recessed spot face to give extra protection on the critical seal face, have made the products more durable. These design modifications overall, have enabled us to limit any price increases to these products and extend the range of applications they can be utilized in.

What are the main challenges of metering fluid flow in high accuracy, rapid batch control applications?

Flowmeter resolution or granularity has always been a potential issue with batching processes. Operating a reliable batch filling process is contingent upon all process conditions being constant - pressure, temperature, viscosity - to ensure repeatability. For high-speed batching systems, additional considerations must be taken into account: choice of equipment, type of flow meter used, piping and overall process design. Electronic flow meters - ultrasonic, Coriolis



Metering fuel consumption in high performance vehicles



and electromagnetic - usually have fixed measuring periods, presenting a trade-off between response time and affordability. Mechanical flow devices can be problematic for any hygienic requirements, so electronic flow meters, such as Titan's Atrato® ultrasonic flowmeters with no moving parts, are desirable for high-speed batching, as they cope with a wide variety of liquids and can be easily cleaned, making them ideal for hygienic processes.

What characteristics of your ultrasonic flowmeters make them suitable for use in many liquid flow conditions?

The advantages of ultrasonic flowmeters are that they give outstand-

ing accuracy, have a fixed pressure loss at all flow rates, and are reliable over a wide range of pressures and temperatures. Ultrasonic flowmeters such as the Atrato®, are an ideal solution for measuring low flows. With no internal moving parts, they do not interfere with the flow, can measure most types of liquid, do not require liquid conductivity, are not influenced by changes in viscosity, and have good turndowns.

What applications could benefit from precise measurement of fluid flows in the future?

Two specific applications come to mind, particularly in light of the



Design Improvements for Titan's Oval Gear Flowmeters



Ultrasonic flowmeters in high-speed batching





KOKO Networks makes clean cooking fuel accessible to African families

current fuel crisis. With the increased cost of fuel, people are becoming more interested in understanding and monitoring the real efficiency of petrol/diesel fuel systems and how to optimize them. An engine's fuel consumption and hydraulic oil flow is important within the transport industry, from high performance vehicles and trucks to large super tankers and boats. Metering fuel consumption can be achieved using flow measuring devices such as Titan's Oval Gear flowmeters.

The other prominent sector is intravenous drug administration where accurate dispensing is paramount. We have done some extensive pioneering work with a USA medical company to produce a disposable ultrasonic flowmeter that would measure the volume of liquid manually injected into a patient. Accurate dosing of drugs in a medical environment, such as in chemotherapy treatments, can be controlled and monitored using flowmeters.

Do you foresee an expansion in the number of applications that use flow measurement devices?

Building on the fuel issue, the green energy and environmental sustainability market is expanding.

Precise batch dosing within the chemical processes involved in the production of biofuel is critical. Companies such as Green Fuels, use Titan's Oval Gear flow meters within their biodiesel plants converting bio waste into sustainable biofuels.

Incorporating Titan's NSF-approved 800 series turbine flowmeters, we are playing a vital role in supporting KOKO Networks, a pioneering company in East Africa that has created a scalable solution to the

dirty fuels problem. Bioethanol, a sustainable by-product of the local sugar industry, is an ultra-clean alternative cooking fuel. KOKO's fuel distribution model delivers cheap, safe and clean cooking fuel into African homes, removing the need for single-use plastic bottles and the reliance on the more traditional cooking fuels of charcoal and paraffin.

What technical developments do you foresee for flowmeters in 2022?

The focus technology for Titan at present is our ultrasonic liquid flow measurement devices. With the fast-paced technological developments within the electronics industry, there is scope to produce more accurate and bespoke flow measuring systems at an affordable price, especially desirable within the food and pharmaceutical/medical markets. Taking our Atrato® ultrasonic flowmeter product design understanding, we have pushed both electronics and physical design to improve the overall performance window. We have recently launched our new software interface for the Atrato, greatly improving its functionality and are looking at other applications within the medical and food and drinks industry.

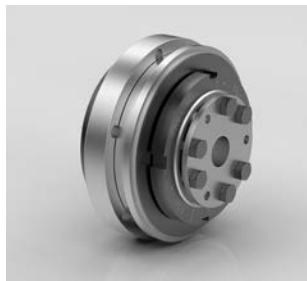
We are also investing in R&D to explore the use of different materials for flow meters suitable within different applications where chemical resistance, longevity and hygiene for example, are priority. In addition, increasing our add-on / complimentary equipment for our flowmeter range, such as a new programmable pulse converter with analog outputs, is an area of technological development for Titan.

▶▶ 62400 at www.ien.eu



TORQUE LIMITER FOR INDIRECT DRIVES

Overload protection with integrated bearing



To protect high-quality machine parts and products, mechanical torque limiters are used in almost all mechanical and plant engineering. With the smallest torque increases, they react within a few degrees and separate the input and output in a matter of seconds. Therefore they interrupt the torque transmission. The

stroke of the switching plate can be sensed by means of a sensor and an emergency stop of the machine can then be initiated. The separation is forced and purely mechanical, which means that a power failure or the like has no effect on the function. Since the **ENEMAC** safety clutches are provided with a 360° synchronous locking position, they engage again automatically after one turn, so the torque limiter can be made operational again after a stop by slow start-up, without lengthy assembly work. The ECK series is characterized by its high concentricity and is suitable for use in indirect drives with high bearing forces. It is equipped with an integrated ball bearing on which the output element gets securely mounted. The safety coupling has a conical clamping hub for shafts up to 65 mm for fastening on the shaft. The torque limiter ECK can be installed at up to 4000 rpm in an ambient temperature between 243 K and 473 K.

▶▶ 62383 at www.ien.eu

3-D SENSORS WITH FREE SOFTWARE

For high-precision 3-D point cloud images



The SmartRunner Explorer 3-D from **Pepper+Fuchs** can be used to create highly precise 3-D point cloud images in addition to 2-D images and therefore achieve a more detailed representation of objects. The different sensor versions are available with stereo vision or time-of-flight technology (ToF) and

can be used in a wide variety of applications; for instance in goods inspection on conveyor belts or pick-and-place applications in robotics. A high chip resolution enables the generation of extremely detailed 3-D data to produce images of even the smallest objects as well as their physical properties. The optimized depth information in the z direction can open new fields of application. The data structure of the devices remains unchanged regardless of which sensor version and technology is selected. This means that software only needs to be written once for a specific device version and can be flexibly transferred to other versions. The integration work required is thus significantly reduced when using multiple sensors. For short detection range applications, the stereo vision version is equipped with two cameras with a resolution of 1.4 MP. For dynamic applications with larger detection range, the ToF version has a camera with VGA resolution (640 x 480 px) and a high measuring rate of 30 Hz.

▶▶ 62367 at www.ien.eu



FREE DIGITAL SUBSCRIPTION

MODULAR ENCODER

With energy harvesting technology



AMM33 multiturn modular encoder from **Lika Electronic** is perfect for servomotors and motors in general, and the best choice for weight-sensitive, confined space applications thanks to the minimum footprint and the use of the Energy Harvesting Technology. It can

produce electricity and power the multiturn counter so battery and multiturn gears can be eliminated. Batteryless and gearless multiturn design provides more compactness, reduces the wear, and increases the accuracy. AMM33 is frameless, light-weight, and bearingless. The outer diameter is 33 mm and the blind hollow shaft is 6 mm. The magnetic operation without moving parts and contacts limits the risk of failures due to wear, vibration, shocks, and mechanical stresses. It can be equipped with SSI and BiSS interfaces. The singleturn resolution is up to 18 bits, the number of revolution is 65,536. The selected components of the AMM33 enable an extended operating temperature range -40°C to +115°C / -40°F to +239°F.

▶▶ 62435 at www.ien.eu

Constant Torque Spring and Power Spring for Retractable, Counterbalancing, Power Source Application



Since 1966

MING TAI

MING TAI INDUSTRIAL CO., LTD.

Tel: 886-2-26228651 Fax: 886-2-26220202

E-mail: mtis@powerspring.com.tw

www.powerspring.com.tw



▶▶ 61988 at www.ien.eu



Helical In-Line Geared Motor Platform

Enhanced modularity concept & specific "low noise" gear design

Bonfiglioli introduced its new helical In-Line geared motor platform EVOX as an innovative approach for the geared motor market. Efficiency, reliability, modularity and performance were the drivers behind the development of the EVOX geared motor platform. Through an enhanced modularity concept, EVOX extends the product range of Bonfiglioli with new solutions for a wide spectrum of applications. The uncompromised selection of commercial components, the broad use of gear grinding processes, and specific "low noise" gear design make the EVOX platform a benchmark product in terms of reliability and efficiency.

Freedom and flexibility to use EVOX in any orientation

The first products of the EVOX geared motor platform are the new helical In-Line gearmotor CP combined with the new asynchronous

IE3/NEMA premium high efficiency electric motors. The synergies between these two new concepts create an efficient, strong, small and simple gearmotor ecosystem. The In-Line gear units already released are: 55, 100, 200, 335 Nm with motor power between 0.12 and 1.5 kW IE3. Will follow sizes 500 and 650 Nm with motor power between 2.2 and 7,5 kW.

The EVOX Platform is characterized by a new simple and clean design, suitable for any application environment furtherly featured by optional C3/C4 surface protection or by ATEX rating (explosion proof protection). The EVOX CP gear unit is ideal also for higher precision demanding applications, thanks to the reduced backlash configuration available in the standard catalogue. In addition, EVOX CP helps eliminate any customer experienced friction, thanks to an innovative lubrication concept that allows the gearmo-

tor to be used in any mounting position, thus overcoming the need of changing oil level and oil plugs configuration. This will give users the freedom and flexibility to use the product in any orientation.

Condition monitoring and predictive maintenance, both sensed and sensorless

The geared motors will be available both in compact and IEC flanged versions, allowing customers to choose between a standardized motor and a dimensionally optimized configuration. BXN motor, the IEC standard, and MXN motor, the compact version, share most of the configuration and options, including brake, incremental and absolute encoders, thermal sensors and switches. The new standard motor terminal box is shaped with its nine PIN connectors, for up to eight different voltages at 50Hz or 60Hz power supply with a single winding, making it suitable for the EU, US, Indian and Australian market. Further six windings cover the rest of the world.

Bonfiglioli R&D team designed the entire EVOX platform to enable condition monitoring and predictive maintenance, both sensed and sensorless. During the development of the EVOX CP gearmotor, a complete mathematical model relating thermal behaviors of the gearmotors to the electrical variables has been developed. This will enable effective sensorless condition monitoring and predictive maintenance directly managed by our AxiaVert Inverters acting as an edge computer. In the near future, the EVOX Platform will include other product range extensions.

►► 62498 at www.ien.eu

Bonfiglioli EVOX



1200W AC/DC POWER SUPPLY

With adjustable 'near to zero' output voltage



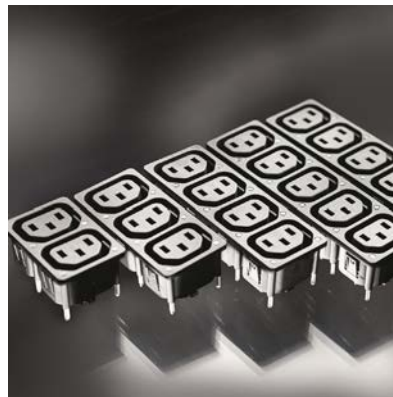
Powerbox (PRBX) has announced the release of the 1200W rated OFI1200A AC/DC power supply for industrial applications. Optimized for conduction cooling, the OFI1200A offers high performance levels across a baseplate temperature range of -40

to +95°C without the use of a fan. The power supply operates with a wide universal input range from 85 to 305VAC with power factor correction (PFC). Covering a large range of applications, its output voltage and current can be adjusted from near zero to the maximum allowed for each model. The PRBX OFI1200A has been designed to guarantee optimal heat transfer from the dissipating components to the baseplate, delivering a high level of performance within an operating temperature of -40 to +95 degree centigrade at baseplate. Depending on the assembly method and the overall cooling conditions, a derating may apply as specified in the technical documentation. To cover a large range of applications, the OFI1200A operates with a wide universal input range from 85 to 305VAC (Nominal 100 to 277VAC). The unit includes a PFC with a coefficient of 0.98/0.95 (110VAC/230VAC). The OFI1200A is available in three versions of single output DC voltage, 12V/84A ; 28V/43A and 48V/25A. Using a high efficiency topology, the typical efficiency for the 48V output unit at 230VAC input is an excellent 92%.

▶▶ 62313 at www.ien.eu

F TYPE IEC STRIP BLOCK

Maximum flexibility and a wide range of variants



The demands on power distribution units are very individual. For this reason, **SCHURTER** is launching the 4750 series, an appliance socket strip with maximum flexibility and an unprecedented range of variants. The number of outlets can be freely configured from 2 to a maximum of 7, whereby

each outlet already has a cord retention system (horizontal or vertical). This is an indispensable requirement for power distribution units in data center applications or in medical technology. In addition, the 4750 appliance strip-block is available in a broad range of Terminal variants (PCB, solder or Quick Connect versions) as well as with freely configurable light pipes to indicate an individual status. To keep track in 3-phase systems, the 4750 series is available in three different colors white, grey or black. There are four possible hard-wired bus variants (L/N/PE, N/PE, PE or PE/L), which again massively reduce the wiring effort while manufacturing. This as a further goal to offer a product, perfectly fitted to the customer's needs.

▶▶ 62430 at www.ien.eu



Get your



ticket now!

ACHEMA2022

INSPIRING SUSTAINABLE CONNECTIONS

#back2live:

22 – 26 August 2022

Frankfurt, Germany

www.achema.de

**World Forum and Leading Show
for the Process Industries**

ACHEMA is the global hotspot for industry experts, decision-makers and solution providers. Experience unseen technology, collaborate cross-industry and connect yourself worldwide to make an impact.

Are you ready? Join now!

ATX STANDARD SERVER BOARD

From industrial servers to edge AI applications



AAEON announces the official launch of the ARES-WH10 server board. Powered by the 3rd Generation Intel® Xeon® Scalable Processors (formerly Ice Lake-SP), the ARES-WH10 server board leverages processing performance and

expandability to deliver a platform that is powerful and flexible with the scalability to match any application. The ARES-WH10 server board is designed to combine industrial reliability and performance with AI capability on a standardized platform. Built on the ATX standard form factor, the ARES-WH10 server board is powered by the 3rd Generation Intel Xeon SP, delivering the next generation of high-end computing performance and support for vital data integrity and security technologies. The 3rd Generation Xeon SP brings higher processing speeds and Intel® Deep Learning Boost™ technology, allowing for greater acceleration and more efficient processing for AI server applications. The ARES-WH10 server board comes equipped with three PCIe Gen 4 [x16] slots and one PCIe 3.0 [x8] slot with in [x16] form factor, allowing the board to power up to four GPUs. This support enables the ARES-WH10 server board to power performance demanding applications from edge AI servers to AI-based visual inspection. Additionally, the ARES-WH10 server board offers three PCIe 3.0 [x4] slots in [x8] form factor, perfect for frame grabbers, AI accelerators, or for functional add-ons to meet the needs of individual applications.

▶▶ 62505 at www.ien.eu

MOTION CONTROL PROGRAMMING

For automated tile manufacturing equipment



Delta Electronics DVP50MC series motion controller is capable of controlling up to 24 axes in one millisecond. This solution supports both single-axis motion

instructions, such as velocity, torque, and position, as well as multi-axis instructions, such as electronic cam (E-CAM) and gear. G code can also be used. On the connectivity side, CANopen, RS-232, and RS-485 are available in addition to EtherCAT for the motion control and an Ethernet port. Other signals can be wired to the 16 high-speed inputs, while eight high-speed outputs provide additional control options. The DVP50MC also supports an SSI absolute encoder and two incremental encoders to provide servo position feedback. The multi-axis airless station only requires three axes for its three independent translators. To implement this, three ASDA-A2-E series servo drives with STO safety function were coupled with three 180 mm, 3 kW ECMA series servo motors featuring integrated encoders. The servo drives link back to the motion controller via EtherCAT. By combining these two components, the team benefitted from precise control provided by the 1 kHz frequency response and 1 ms settling time. This provided superlative vibration suppression for accurate material application during tile processing. A further benefit of these servo drives for this design was the support for up to 720 electronic cam (E-CAM) points in the ASDA-A2-E.

▶▶ 62506 at www.ien.eu

IPC FOR SURVEILLANCE IN PUBLIC TRANSPORT

Delivers 1080p real-time live display monitoring



ICP Deutschland. Intelligent monitoring functions in buses and subways can help reduce crime. Likewise, vandalism can be prevented, and fare evasion can also be reduced through intelligent monitoring, which in turn increases

operators' profits. Video evidence also contributes significantly to the prosecution of criminals. How can the MP1-D help analyze crime on public transit in major cities? For traffic surveillance, the MP1-D's rugged design provides 1080p real-time live display monitoring with efficient recording through hardware accelerated video decoding compression technology that enables simultaneous live playback, recording and archiving. The MP1-D's optional 5G support provides low-latency network connectivity. 5G support turns the MP1 into an edge device, enabling faster interaction between individual vehicles and the control center without the need for servers in remote data centers as with traditional cloud applications. With 5G support, live video transmissions and vehicle statistics can be sent to the control center in real time. The dispatch system can contact the MP1 system directly and request information such as live images from the vehicle. The MP1-D can provide up to 8 PoE connections, allowing high-resolution IP cameras and other sensors and peripheral security devices to be installed without a separate power supply.

▶▶ 62502 at www.ien.eu

HIGH PERFORMANCE VIDEOSCOPE

With 7 probe options



Teledyne FLIR released the FLIR VS80 high-performance videoscope series, a professional inspection tool for use in a wide variety of commercial and industrial applications. To enable the widest range of visual inspections, the FLIR VS80 is designed as the most

versatile and powerful videoscope in its class. The VS80 is outfitted with a 1024 × 600 high resolution (HD) seven-inch touchscreen display and is available for purchase in seven different kits with the option to purchase waterproof, ultra-slim probes that can be swapped in and out within seconds. Probe options include a 4.5 mm diameter two-way articulating probe; a four-way articulating probe; a plumbing spool probe with a 25- meter cable; single HD and dual HD visible camera probes; a standard definition probe; and a general purpose thermal camera probe. The live reference image comparison on the display screen helps make historical or 1/2 standard image comparisons easier. Inspectors simply add a side-by-side reference image with the live videoscope imagery. They can then quickly compare the imagery to see if a component has changed since previous inspection, or if it needs repair or replacement.

▶▶ 62507 at www.ien.eu



OPTICS FOR NUCLEAR SYSTEMS INTEGRATORS

Can operate in medium and high radiation environments



Celebrating over 25 years of experience in the nuclear industry, **Resolve Optics** is able to quickly adapt existing designs to produce optimized non-browning fixed focus and zoom lenses for Nuclear Systems Integrators

supplying monitoring systems to operate in medium and high radiation environments. The Model 357 non-browning zoom lens for instance is one of them. Suppliers of tube or shielded CMOS cameras, for use in the nuclear industry, require lenses and optical systems that can withstand exposure to high levels of radiation and sometimes endure extreme temperatures. All optical elements used in Resolve Optics radiation resistant lens designs are made using cerium oxide doped glass or synthetic silica enabling them to withstand radiation doses of up to 100,000,000 rad and temperatures up to 55°C without discoloration or degradation of performance. These radiation resistant lenses provide high image resolution and minimum geometric distortion from 400 to 750nm. Today Resolve Optics non-browning lens expertise is helping nuclear systems integrators operating in a growing number of different and interesting applications subject to radiation including supplying the lenses for use in a high-radiation-resistant pan-tilt-zoom tube camera deployed in Chernobyl, Ukraine.

▶▶ 62351 at www.ien.eu

INTRINSICALLY SAFE TEMPERATURE SENSOR

For high ambient temperatures



Surface temperature measurement in hazardous areas without contact is made possible, even where the ambient temperature is as high as 180°C, with the new ExTempMini pyrometer from **Calex Electronics**.

With no need to provide cooling, the cost of installation is much lower and the risk of coolant leaks completely eliminated. The ExTempMini is an intrinsically safe two-piece pyrometer with a miniature sensing head that can be used in high ambient temperatures, and a separate electronics module. The sensor is ATEX, IECEx and UKCA certified for all surface Gas Zones up to Zone 0 (sensing head) and Zone 1 (electronics module), and Gas Group IIC. It is also certified for use in Japan (JapanEx). Applications include conveyor ovens, dryers, curing, and high-temperature material processing. The sensor is suitable for non-reflective, non-metal materials and painted surfaces. Target temperatures from -20°C to 1,000°C can be measured accurately, with a response time of just 240 ms. The sensor has a two-wire 4-20 mA output and is fully configurable via optional USB and RS-485 interfaces. A suitable Intrinsically Safe isolator is required on the 4-20 mA/power loop. Explosion proof pyrometers typically have bulky, expensive housings, however because the ExTempMini uses Intrinsic Safety as the method of protection, it is compact and low-cost.

▶▶ 62503 at www.ien.eu



FREE DIGITAL SUBSCRIPTION

IIOT PLATFORM FOR ASSET MONITORING

Prevent unplanned downtime



Online asset monitoring systems have traditionally been expensive, complex, and required users to have deep domain expertise. As a result, many plants and factories end up monitoring only the most critical assets, leaving up to 85% of their plant floor unprotected and unmonitored. **Sensata IQ** delivers a cost effective, easy-to-install solution that enables factory managers and maintenance engineers to intuitively monitor all their assets from anywhere, including on a smartphone, PC, or tablet. The cloud-based platform uses artificial intelligence to process data from a broad portfolio of Sensata IoT devices and qualified third-party sensors to gain insights into the health of each asset. Plant managers get reliable and easy-to-understand alerts regarding their facility's equipment health before assets fail, thereby reducing unplanned downtime and optimizing maintenance strategies to minimize labor and parts expenses. "By leveraging Sensata's deep sensor domain expertise along with AI technology, the Sensata IQ platform can reliably and accurately identify machine anomalies, characterize faults, and extend the working life of assets," said Naoto Mizuta, Vice President of Industrial at Sensata Technologies. "We are working closely with customers and partners to develop scalable solutions that make it easier and more affordable to implement remote monitoring and predictive maintenance strategies beyond the critical assets in a plant."

▶▶ 62389 at www.ien.eu

CONTROLLERS WITH FLEXIBLE CONNECTIVITY

Built-in security, open protocols and high performance



PACSystems RSTi-EP CPE200 family from **Emerson** saves money and time with built-in security, open protocols and high performance. CPE 200 series controllers offer open communications through OPC UA

Secure and other common industrial protocols to enable flexible connectivity to a wide variety of devices over high-speed 1GB Ethernet. This new family of compact PACs helps OEMs successfully meet customer requirements by minimizing the need for specialized software engineering talent. CPE 200 controllers will deliver large programmable logic controller (PLC) capability in a small, cost-effective, IIoT-ready form factor so machine manufacturers do not need to sacrifice performance for price. The CPE 200 series comes with security-by-design, open programming, and open communications built in to simplify connectivity to external analytics software platforms while reducing cost and complexity for OEMs and end users. The controllers offer open communications through native, pre-licensed support for OPC UA Secure and other common industrial protocols for flexible connectivity over high-speed Gigabit Ethernet. IEC 61131 programming languages and C help engineers write and run the high-performance algorithms that enable proprietary production strategies and advanced automation technologies.

▶▶ 62508 at www.ien.eu

Companies in this issue

Orange for companies advertising in this issue

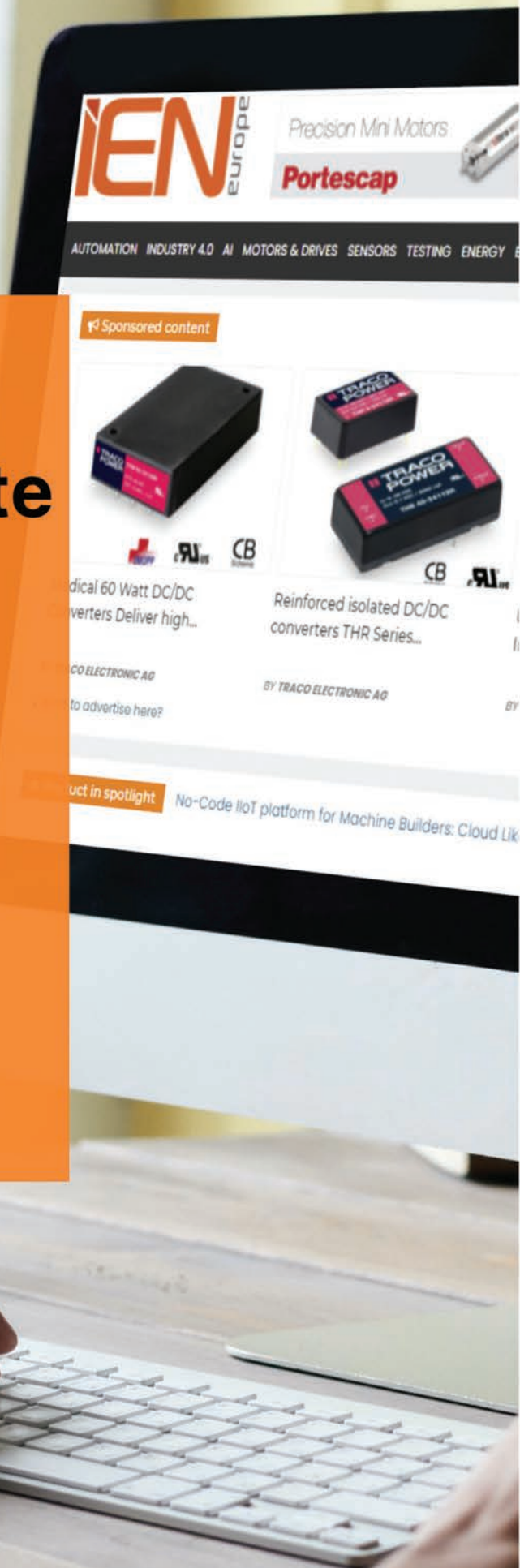
A	AAEON	28	M	MBO OSSWALD	13
	ABB	1, 8, 9		MING TAI	25
	ANALOG DEVICES	21		MITSUBISHI ELECTRIC	10, 11, 14, 15
B	BONFIGLIOLI RIDUTTORI	26	P	PEPPERL+FUCHS	25
C	CALEX ELECTRONICS	29		POWERBOX	27
D	DECHEMA	27	R	RESOLVE OPTICS	29
	DELTA ELECTRONICS	28	S	SCHURTER	5, 27
	DIGI-KEY	20		SENSATA TECHNOLOGIES	29
E	EMERSON	29, 32		SIEMENS	13
	ENEMAC	25		SOLID STATE	16
F	FANDIS	21	T	TELEDYNE FLIR	28
	FIRA DE BARCELONA	18		TITAN ENTERPRISES	22
I	ICP	28		TRACO ELECTRONIC	13
L	LEMO	7	X	XILINX	13
	LIKA ELECTRONIC	25			



The NEW IEN Europe website is online!

- | Faster loading time
- | Better responsive design
- | Easier to read
- | Relevant contents
- | On-demand Webinars
- | Clearer request form
- | Integration of Twitter live feed

WWW.IEN.EU





Turn data into actionable insights

Increase availability, improve quality, and enhance energy management with easy to implement IIoT solutions from Emerson. From measuring critical parameters in your production process, to detecting leaks, to improving predictive maintenance, intelligent pneumatics – such as the AVENTICS™ AF2 series flow sensor – provide actionable insights that enhance decision-making and help optimize the performance of your manufacturing operations.



Discover how we enable you to unlock potential in your business

AVENTICS™

The Emerson logo is a trademark and a service mark of Emerson Electric Co. © 2022 Emerson Electric Co.


EMERSON

CONSIDER IT SOLVED