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Gossage:Gossip

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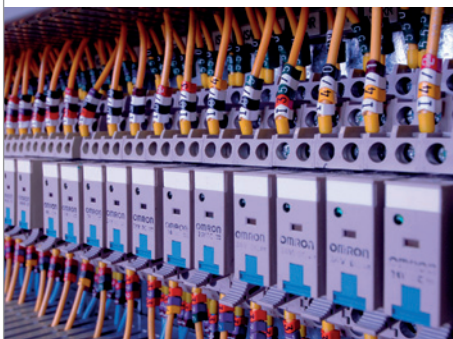
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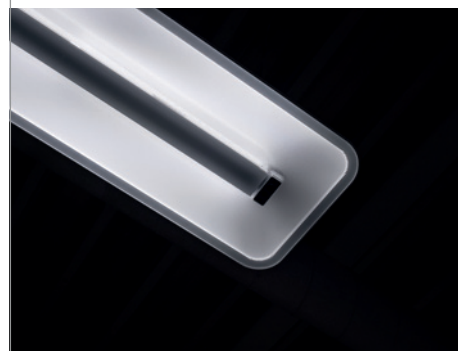
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Leading-edge UPS

Centiel, the UK subsidiary of Swiss-based UPS manufacturer, Centiel SA, will exhibit its UPS solutions at Data Centre World to be held at Excel in London, 21-22 March on stand: D1035. Centiel will, for the first time in the UK, demonstrate: CumulusPowerM its three-phase, modular UPS system which offers '9 nines' system

availability and very low total cost of ownership plus: PremiumTower™, a three phase standalone UPS for critical loads of between 10kW and 60kW.

Michael Brooks, managing director of Centiel confirmed: "Availability continues to be the major concern for data centre managers and those working in other

environments requiring clean, continuous power. Unlike traditional multi-module systems, the CumulusPower technology combines a unique Intelligent Module Technology (IMT), with a fault-tolerant parallel Distributed Active Redundant Architecture (DARA), to offer industry leading availability of 99.999999%.



Order for Norway's largest electric bus project

ABB will supply fast chargers for a unique dual-manufacturer electric bus program, helping to make public transportation in Trondheim fossil-fuel-free in 2019.

The city of Trondheim, the former Viking capital of Norway, now better known today as the country's technology capital, is making a big commitment to electric mass transportation. Local officials have agreed to deploy 35 fully electric buses, 25 from Volvo and 10 from Heuliez, operating on four routes to become the largest electric bus fleet in the country.

Both bus models will be charged by eight ABB Heavy Vehicle Chargers (HVCs), in one of the first projects worldwide where fully electric buses from different manufacturers use the same charging infrastructure.

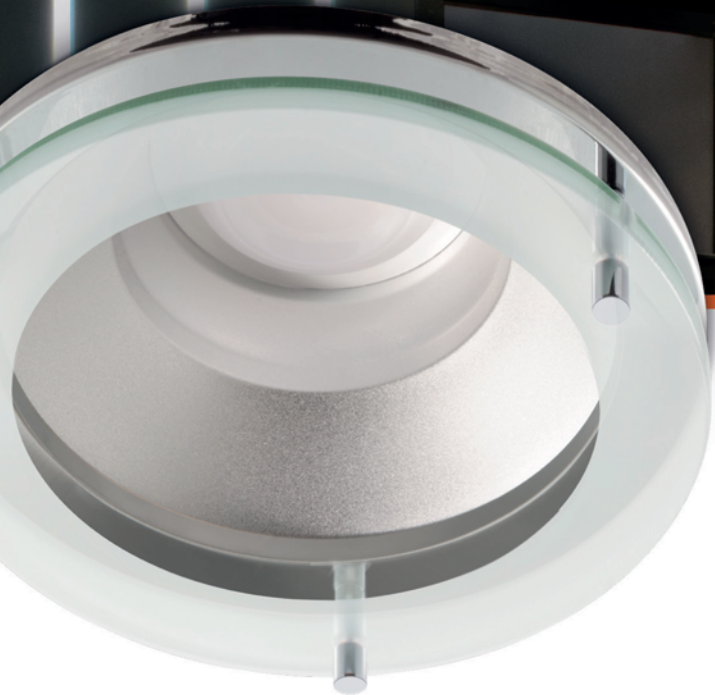
The buses will be operated by Tide Buss in Trondheim on behalf of the Trøndelag County Council.

"Working with ABB enables us to deliver a high quality and reliable solution, which allows operators from different networks to work simultaneously and share infrastructure," said Per Olav Hopsø, head of the Transport Committee of the Trøndelag County Council. "This not only provides good economies of scale and return on investment, but continues to support our forward-thinking approach in delivering first-rate modern infrastructure for our region. With the help of innovative companies such as ABB, public transport within the city of Trondheim will soon be fossil free."

The ABB HVC 450P chargers to be used

can recharge a battery in three to six minutes and can each provide 450 kW DC output power. The chargers utilise the OppCharge standard, using an overhead pantograph to connect the charger to conductive rails atop the bus. The chargers will be installed at the endpoints of four bus routes, each between 12 and 15 kilometers-long, including some remote locations. Buses will be recharged at the end of the routes during layover time. In a demonstration of the technology, ABB in the UK last September showcased an OppCharge charger working with a Volvo fully electric bus like the ones to be used in Trondheim.

The HVC 450P chargers will be delivered in February 2019 with operations due to start in August that year.



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NICEIC launches membership scheme for students

NICEIC has launched a new student membership scheme to offer greater support to the electricians of the future.

The scheme is free to join for all students and apprentices currently undertaking full or part time courses within the electrotechnical industry. All those who join will be able to access the latest advice and support which will complement their current training and development.

Darren Staniforth, senior training development manager at NICEIC commented: "As the leading brand in the electrical industry NICEIC has a responsibility to work with, encourage and promote those who will be working in the sector for years to come.

"The student membership scheme will ensure all those who join have access to the most appropriate technical information and advice which will ultimately help them in their career.

"It complements the work we have done in the past with our Apprentice of the Year competition and Jobs for the Girls campaign and further demonstrates our commitment to helping those who will help shape the future of the electrical industry."

The scheme is open to anyone currently undertaking relevant technical competency training; full-time, part-time or apprenticeship within the industry. Those who sign up will receive:

- Welcome pack



- Membership certificate
- Regular E-news and bulletins
- Free quarterly Connections magazine
- Access to discounted products
- Free admission to award-winning NICEIC events

- Technical advice and support
- Increased visibility for future employment opportunities

For more information about joining please visit www.niceic.com/join-us/student-membership

Scientists and engineers are the real superheroes

Choosing STEM, means the opportunity to do something life changing', is the resounding message left with young people by global music artist, tech entrepreneur and STEM education advocate will.i.am and futurist Brian David Johnson, at a book talk and signing, hosted by the Institution of Engineering and Technology (IET).

The authors teamed up for the event at IET London: Savoy Place, to discuss their new young-adult novel, 'Wizards and Robots' – an action-packed, STEM-inspired adventure.

Sharing the IET's vision to inspire young people about the countless possibilities studying STEM (Science, Technology, Engineering and Maths) presents, they gave an insight into their own work and vision, predictions for the future of tech, including robots as companions and sentient technology, and how the innovators of tomorrow have the power to change the world.

will.i.am said during the Q&A: "I was a recipient in the past of someone thinking forward, paying forward and giving me an opportunity. I was bused from the ghetto to a better charter school to learn science, technology, computers, oceanography, physics...Somebody doing good changed my life. So now that I have an opportunity to do good, I want to do that for other folks.

"Engineering is the coolest thing in the world, but it's also the world's best kept secret. If you want to solve the world's problems, this is the way you go about it. That's some superhero stuff right there. The real superheroes are scientists and engineers."

will.i.am received his Honorary Fellowship from the IET in 2017 and whilst at Savoy Place, took the opportunity to sign his name in the IET's 'Roll of Honorary Fellows and Faraday Medallists' book. The honour dates back to 1873 and is awarded to esteemed

scientists, technicians and engineers, recognised by the IET as having made a significant contribution to the advancement of engineering and technology innovation across the world.

Nigel Fine, chief executive of the IET, said: "will.i.am is an enthusiastic user of technologies in both his professional and personal life, fusing the worlds of technology, culture, fashion, and artificial intelligence across his work and is an incredible STEM role model to young people. I am delighted that he is being recognised by the IET for his work.

"The IET inspires young people about STEM and how its endless possibilities could lead to an exciting and fulfilling career in engineering and technology. Having advocates like will.i.am adding so much passion to its importance, will go a long way to ensuring we secure the next generation of engineers and innovators."

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National Apprenticeship Week

BSRIA is celebrating National Apprenticeship Week 2018 (NAW 2018) – running from Monday 5th to Friday 9th March 2018 – which brings together employers and apprentices from across England to celebrate the success of apprenticeships.

The theme of National Apprenticeship Week 2018 is Apprenticeships Work and showcases how apprenticeships work for individuals, employers, local communities and the wider economy.

Julia Evans, chief executive, BSRIA, said:

“With the housing industry set to receive £44bn in financial incentives to increase supply to 300,000 new homes a year by the mid-2020s, the biggest annual increase in housing supply since 1970, construction and engineering apprentices are crucial.

Apprenticeships attract diverse talent and ensure industry is future proofed. They can deliver improved productivity, employee retention and bring new ideas and ways of working into the workplace.

They also help communities by creating a stronger and fairer economy where lives are transformed and people can fulfil their potential. Indeed, apprenticeships are especially essential for up-and-coming builders to get into the workplace: we hope this week can highlight the importance of such crucial careers and trades.

We need to change the image of our industry and make it a more attractive career proposition. BSRIA is calling for the focus to shift from one of being a ‘construction industry’ to one focused on ‘the built environment’.

One of the major threats to housing building is the skills shortage in construction. And the need to curtail the skills gap and attract more people into construction careers is more essential than ever since Brexit, as many of BSRIA’s members – and the wider industry – rely on skilled workers from Europe.

An apprenticeship can take you anywhere and young people, engineers and entrepreneurs alike can rise to the top through traineeships and apprenticeships.”

The spirit of NAW 2018 fits in well with BSRIA’s INSPIRE project which is working with local schools, national and local politicians and the media to promote STEM and change its perceptions. In the summer of 2017, BSRIA continued its tradition of building and sharing knowledge by recruiting a 21-year old summer intern to give her experience in the professional workplace and

undertake a perceptive report: available to download: Inspiring Tomorrow’s Engineers – which considers engineering careers over a wide selection of industries.

BSRIA is delighted to be celebrating the 2018 Year of Engineering and will be run-

ning a series of events and careers days with local schools and colleges. This national campaign is designed to increase awareness and understanding of what engineers do among young people aged seven to 16, their parents and teachers.



“It takes 20 years to build a reputation and 5 minutes to ruin it. If you think about that, you’ll do things differently.”

Warren Buffett

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GOSSAGE

“Something NOT rotten in the state of Denmark”

Wind turbines in Denmark generated 14.8 TWh during 2017. That is some 43% of that country’s total electricity consumption during the year. Add to that a further 0.8 TWh from solar. That makes wind and solar 46% of the Danish power mix.

Scroll back just ten years, to 2008. At that point, renewables were responsible for less than 20% of Danish electricity. And the then Danish government was much mocked (by non-Danes) for setting a target of delivering 50% of its power consumption from renewables by 2030.

As it is, with four different new offshore windparks now under development - Horns Rev3 next to Esbjerg, and Kreigers Flat in the Baltic Sea, plus the more pedestrianly named North Sea South by Rinkobing, and North South North by Harbore – the chances are that this objective will be achieved the best part of a decade ahead of time. And to think how much all those energy experts used to scoff about windmills...

“Still debauching the currency”

As the trend for sustainable investing gathers pace, bitcoins stand out for precisely the wrong reasons. According to Digiconomist, the “mining” of bitcoins consumed 32.7TWh of electricity during 2017.

If bitcoin miners made up a single country, it would rank 62nd in the world by electricity consumption. Huge “mining” farms – warehouses of whirring machinery- have been set up in countries like Iceland, and Norway, havens for low-cost electricity and low temperature environments to help cool equipment.

The other major centre for such “mining” is China, where most of the electricity being used is from coal-fired power plants. Thus adding gratuitously 160,000 kilotonnes of carbon dioxide into the atmosphere.

And all primarily to enable the washing clean of dirty money from illegal activities. Surely even Donald Trump cannot condone the widespread use of such a bogus currency?

Not waving, but drowning

Of the list of vanity projects just asking for the government to pull the plug, none is quite such a money sink as the proposed Swansea Bay barrage. Described in an off-the-record comment as “eye-wateringly expensive” by Business Secretary Greg Clarke, the advocates of this £1.3bn financial boondoggle are reduced to claiming that –were the scheme to be scrapped – hundreds of jobs will go at plants that would otherwise be making the turbines.

Since wheeling out discredited former Tory junior energy minister Charles Hendry in support, to a resounding yawn, the barrage backers are reduced to ever more ingenious arguments to justify the vast cost. Now they are claiming that they would learn so much about construction at Swansea that the Welsh coastline could one day be ringed with cheap-as-chips barrages. Much the same canard is also being promoted by Electricité de France re their “family” of new nuclear stations.

And because waves operate 24 hours a day, the promoters’ other key punchline is that this barrage would provide the old nirvana of “baseload electricity.” With advanced battery technology and demand management able to immediately react to current pricing, the entire concept of the primacy of “baseload” is already outdated. The Swansea bay barrage is offering an “eye-wateringly” expensive way to solve yesterday’s problem.

Not on speaking terms

Flush with being promoted to attend all cabinet meetings, business department minister Claire Perry is busy bemoaning the failure of local authorities to apply to buy and install new electric vehicle charging points. At £7,500 per chargepoint, and even with a government contribution under the excitingly named On-Street Residential Chargepoint scheme, cash-strapped councils have not exactly been lining up to spend their council tax money on such items. After 14 months, only Portsmouth Council and Kensington Council have yet gone ahead.

Perhaps their reluctance may also be the knowledge that Claire Perry’s views about the merits of installing electric vehicle charging points seem to have escaped her fellow business department minister Richard Harrington.

Last year as part of a revised directive on energy usage in Buildings, the European Commission proposed that attached to all larger commercial buildings, whenever constructed or refurbished, there should be some electric charging points for vehicles. When the initiative was discussed by the energy ministers from the 28 member countries of the European Union (of which the UK is still one), guess who didn’t vote in favour of it being adopted? None other than Harrington himself. On behalf of the UK Government.

Representing the same government department now chastising local councils for not being gung-ho for electric vehicles. Mind you, unlike his colleague the fragrant Claire Perry, energy minister Harrington has ostentatiously never been invited to attend any Cabinet meetings. So maybe it is Harrington who is out of step?

Bench pressing

Trendy London Borough of Islington Council installed six “smart benches” for its council taxpayers to sit upon. These were called “smart” because each equipped with solar panels. The idea being that users could recharge their mobile phones at a “customer interface.”

Alas it had forgotten to apply for planning permission before doing so. And when it did so, Islington’s own planning committee turned round and refused planning permission for five of the six. The offending solar panels then had to be removed. All this at a cost of over ten thousand pounds to the local council taxpayer.

So, not smart benches at all. More like dumb benches.

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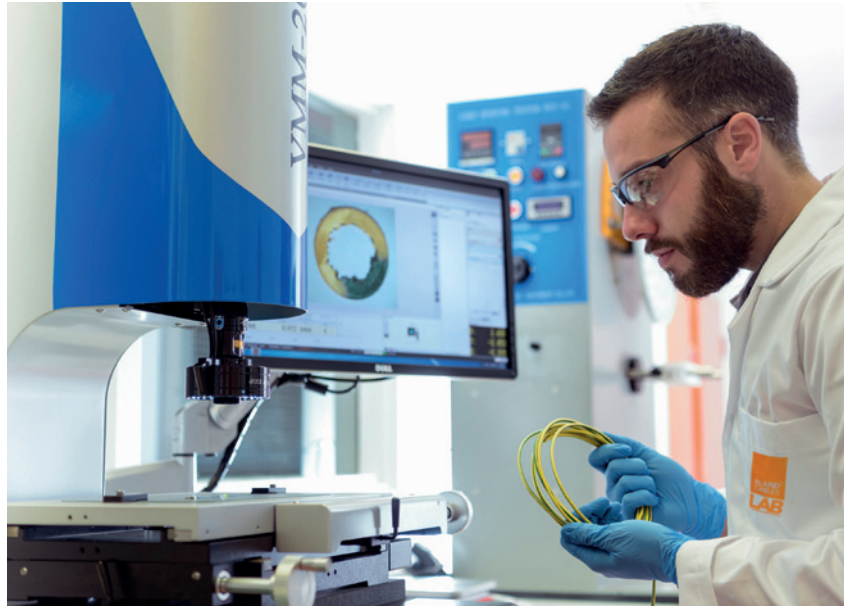
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ELECSA

Quality matters with cables: It's about more than you think



For most people, the myriad of standards and regulations you must navigate when selecting and specifying cables can be daunting. When you start to look for someone to provide answers it seems everyone says the same thing:

- Quality assured cables
- Confirmed regulatory compliance
- Global logistics against complex delivery schedules

But surely there's more to what makes a great cable supplier? What really sets the good ones apart?

If you're a quality-conscious organisation then you're probably looking for cable solutions – more than just simply the product, but a combination of services and expertise that turns a supplier into a trusted partner.

Admittedly, first things first, the cable itself has to be of the highest standard and demonstrably so. UK Lab tested in an ISO17025 UKAS-accredited facility to provide evidence of the quality and compliance. There's a raft of cable legislation, including CPR compliance, and a huge number of standards that each and every cable must meet. Unless you're a cable

expert, would you know what to look for and how to assess it? Being at the forefront of cable R&D helps too for when you need to design against specific installations or applications, or require geo-specific third-party approvals. After all, sometimes an off-the-shelf solution just doesn't fulfil all your needs or work in the environment.

But quality is something that permeates throughout a business. It's in the interactions and attitude too. It's seen in the little things: having full tech specs at your fingertips on the website, having a FastQuote tool to make the quotation and order process simple, or a friendly (and knowledgeable) voice at the end of the phone if you prefer to speak direct. Once you've made the decisions as to the cable you cut to length and calibrated to seamlessly match the glands, connectors and terminations you've ordered alongside it so that time isn't lost or costs incurred trying to make them fit at the point of install. Suggestions including cable harnessing and pre-terminated lengths can also offer cost savings that you perhaps hadn't considered.

But the real quality comes in having the expertise of a good technical team and project management team in your corner.

Technical experts who provide advice on cable selection decisions, providing answers and practical, compliant solutions to complex requirements from the specification stage through to completion. Project managers to make sure you get the right cables delivered to the right site at the right time. A PM team that not only has experience relevant to your industry but are qualified to provide advice having passed the NICEIC City & Guilds BS7671 17th Edition Wiring Regulations course (and will re-train in the 18th edition when released in July). It's that team who can utilise project-specific local hubs to despatch and deliver cables same-day for urgent requirements - after all, we all know that sometimes project demands can be fluid! You need a team that accommodates even those requests that are a little left-field from the usual scope of cable supply as quickly and painlessly as possible. You want a supplier that does whatever it can to take the pressure off you and keep the timelines on track.

In essence, it's comes down to trust: Trusted cables, trusted technical advice, and a trusted team. Quality shows in all aspects of cable supply when it's underpinned by a trusted relationship. **ER**

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Understand your opportunities

A year since the opening of the HellermannTyton Academy in Cannock, Claire Philpott, events manager at HellermannTyton, explains the importance of training to help electrical contractors to better understand the opportunities now available in cable management

Electrical contractors must be able to deliver speedy, efficient and cost-effective service, to provide thorough work, nimble turnaround and competitive prices. With so many different products on the market, it can be difficult to know which one is best suited to help contractors achieve this. This is where a more hands-on approach to training can reap rewards.

Take cable management, for instance. There is still the perception that all a contractor needs to keep an installation neat and tidy is to choose the right size of cable tie and off they go. The reality is that modern cable management is highly sophisticated and versatile in the breadth of solutions available to contractors. Cable management covers everything from heavy duty fastenings for challenging environments, to insulation and protection products, to RFID and other forms of identification.

Traditionally, it has been difficult to access detailed product information beyond getting the flyer on a particular product. This is why we developed the HellermannTyton Academy, a global initiative dedicated to delivering interactive training sessions for customers and wholesalers. We believe, by arming our customers with the knowledge they need, we can help contractors to complete installations more quickly and effectively, comply with ever-changing legislative requirements, and differentiate themselves from competitors through superior quality and service.

The UK's first HellermannTyton Academy opened at our Cannock facility in January 2017. From the start, we made it an interactive experience. With nine workbenches covering our major product groups – including fastenings and fixing, identification products, cable insulation and protection – visitors get the best possible overview of what can be achieved in cable management.

We believe that, to effectively service an



electrical contractor, you need to think like one. The academy enables everybody to experience common electrical applications, and access our products to cut, connect, and install cables in a real working environment.

Whether holding one of our regular customer days, or something tailored to a specific organisation, HellermannTyton experts are on hand to deliver live demonstrations of our latest products and proven best-sellers.

For end users, there are two key benefits. We're helping those involved in the supply chain – from wholesalers to specifiers – to understand, sell and advise on the right product every time, to meet the exact requirements of each job. More usefully, we can demonstrate how multiple products can work together to give customers more integrated, effective cable management solutions.

The academy offers more than training. It gives customers direct access to our design and manufacturing facilities. Even the best stocked wholesaler may find, for some niche applications, that the required product may not even exist. Customers can approach us with their specific design requirements; we'll work with them to design and manufacture that product.

In 2017, HellermannTyton held over 70 ACADEMY events. This included nearly 300 customers and other external visitors, including many leading electrical contractor

groups, wholesalers and distributors.

Alongside the academy, we've invested in extensive, state-of-the-art conferencing facilities. As well as being the perfect base for HellermannTyton's internal meetings and training programmes, we're happy to make these available to customers for awaydays, meetings, training and conferencing. Over 500 visitors have used the conference rooms to date.

And for those who can't make it to Cannock, our two InnoVans are well-stocked, portable demonstration vehicles, which have travelled all over Europe to visit customers at their own locations. They're an ACADEMY on wheels.

For 2018, HellermannTyton has added several demonstration areas and features to make the HellermannTyton Academy even more interactive. Three new benches showcase insulation and protection products, and RFID capabilities. An overhead suspension offers the chance to see the HellermannTyton Autotool in action. There is also a bigger focus on how wholesalers and distributors can benefit from new product development.

We are looking forward to inviting more customers to this facility in 2018. Customer training is at the heart of our strong relationships, helping electrical contractors to deliver even better service – and a wider range of cable management products – to customers. **ER**

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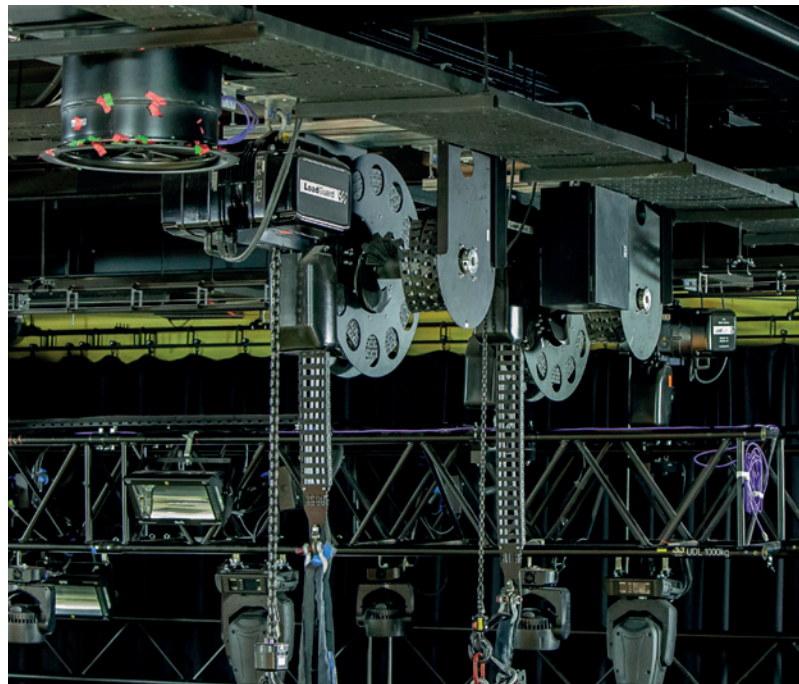
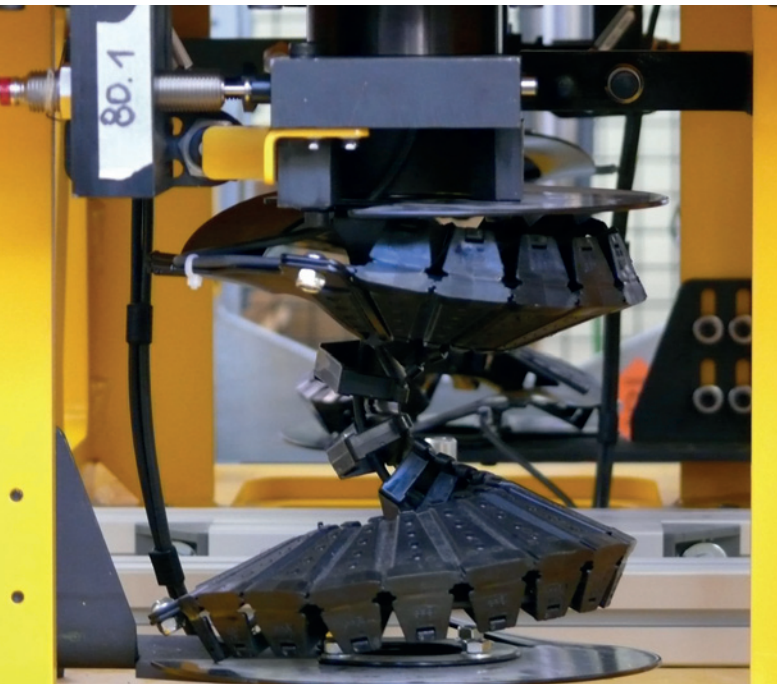


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Managing cables in moving lighting, sound or set applications

Moving lighting, sound or set almost always require cables for power, data and signals. Elinore Mackay caught up with Justin Leonard, energy chain director at igus, to find out the issues around cable management in theatres and on stages and movie sets



With the increasingly advanced technology for modern lighting, sound and effects, the complexity and required flexibility grows. So does the number of moving cables needed for power, data and control systems. Conventional cable reelers are often used for these applications; they are reliable and have served the industry very well but they do have their limitations. These are becoming more and more obvious as we enter this multimedia age with high speed data and digital services.

IN YOUR EXPERIENCE WHAT IS THE MAIN LIMITATION OF A CONVENTIONAL REELER?

The slip ring is at the core of a cable reeler, and that has its limitations. In some ways these limitations have to do with reliability due to the effects of corrosion or debris getting into the system, which is generally not a common problem in the theatre

or studio but it can become an issue for outdoor venues.

However, the biggest issue is that the slip ring can limit the number of services that can be managed. It also becomes quite complicated when trying to move bus systems and power systems together; this either requires the use of separate reelers or a composite cable, which will invariably be very expensive and nearly always be of a bespoke design.

ARE THERE ANY OTHER SITUATIONS WHERE THERE MAY BE AN ISSUE?

Yes. If the management of fluids or fibre optic cables is required, it becomes almost impossible using slip ring cable reelers. If it is possible, it is incredibly expensive.

One of the key backdrops to this is the ever increasing need for faster Ethernet data rates... the next step will be to move from copper cables to fibre optics, which can handle much higher data rates.

Additional benefits are that fibre optic cables are physically easier to handle as they are much lighter than their copper counterparts and can handle multiple channels of data.

All these points combined mean that the traditional cable reeler is starting to struggle as a concept to keep up with these demands and some of the bespoke requirements of venue type applications for moving cables and hoses.

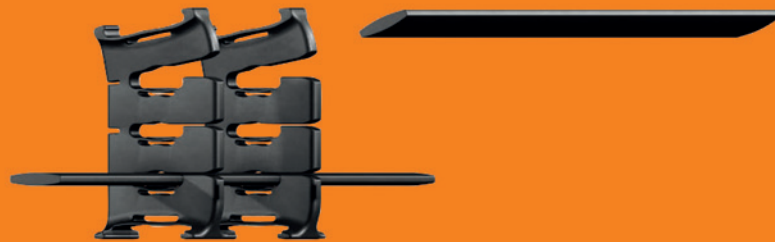
WHAT IS THE ALTERNATIVE TO A CABLE REELER?

Taking a new approach to solve some of these problems, the e-spool system dispenses with the slip ring by using a rotating conical energy chain – called twisterband – that enables a continuous end-to-end connection. Also, instead of using a bespoke composite cable, which is expensive, e-spool can accommodate multiple cables, as well as provide physical ►

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guidance and protection.

An additional benefit of using this system is that different cables can be added into the energy chain; this means that instead of having a large, quite stiff composite cable, single cables for the different functions lie side-by-side. Indeed, any combination of data, control, power and fibre optic cables can be accommodated, as well as hoses for air and water or whatever is needed for the particular application.

Offering even more flexibility, the e-spool can be fully extended and cables can be added or replaced easily without the need to develop a new composite cable or the time for carrying out re-rigging. For example, if the installation is being upgraded from Cat5e to a higher speed Ethernet or even moving to fibre optic technology, it is a relatively simple cable replacement.

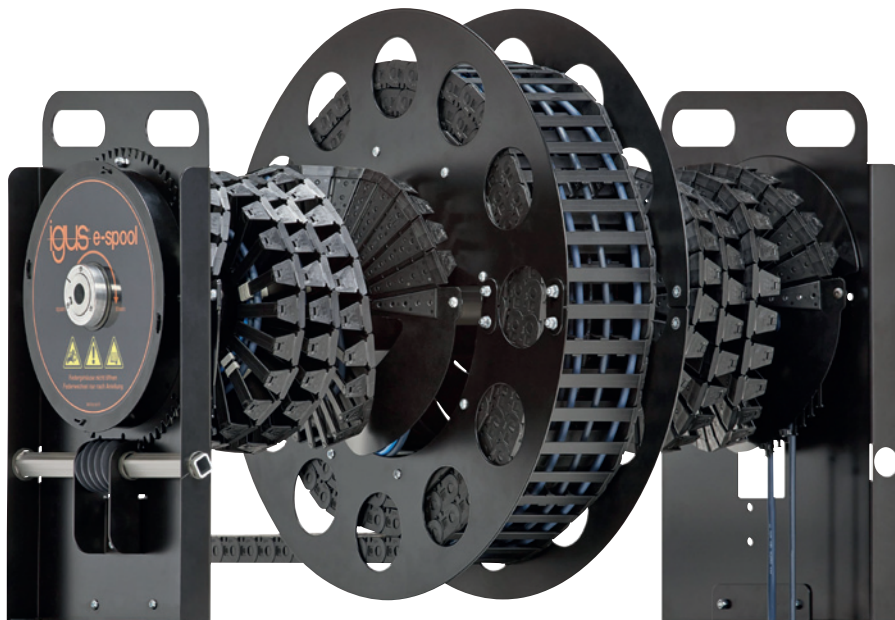
SO TELL ME MORE ABOUT TWISTERBAND – HOW DOES IT WORK?

The conical twisting chain, called twisterband, enables a true end-to-end connection for the cables. The system wraps around and rotates in two orientations – one around the core and the second a conical helix of chain that rolls around. This allows up to 7000 degrees of rotation, or just over 19 complete turns. twisterband is available in a range of sizes and, importantly, different types of media to be combined together, whether it is data, control, power or fibre optic cables, or even hoses for air and water. The link-by-link construction of the twisterchain allows cables and hoses to be added or changed easily.

WHAT ARE THE CAPABILITIES OF E-SPOOL?

We have a fairly mature family of e-spool types. The e-spool mini is a 2m extension that holds 3 or 4 small cables and is approximately a 300mm cube in size with spring retraction.

The e-spool manual system handles a single cable or hose length of 5m. It has a ratchet on it so the cable can be pulled out, locked into position and attached to something and then pulled to release the locking system and retracted. Typical applications for this manual system is for charging or a temporary connection where the cable needs to be completely moved away when not being used.



The e-spool standard range is available in three extension lengths of 4m, 7m and 14m, with a single- or double-sided feed. If more cable capacity is required, a second twisterband is added on the opposite side of the drum to feed 2 sets of cables into the reel. The energy chain on the reel, which manages the cable down or up, is wider than the single feed system to accommodate the additional cables. In terms of size, the largest 14m e-spool unit is roughly a 900mm cube. The spring retraction system is housed in an external cartridge, which is replaceable, and the tension is tuneable to suit the particular application.

For lengths beyond 14m, the loads involved for retracting the cables particularly in the vertical plain start to become too high for spring mechanisms, instead, an electric motor is used with a closed loop control system. Standard e-spool power units with extensions of 25m are available, though longer lengths are possible.

ARE THERE ANY COMMON RULES OR GENERAL GUIDANCE FOR USING E-SPOOLS?

The most important rule is to segregate the cables and hoses correctly in the twisterband and energy chain, this is to ensure that they remain untwisted and prolongs the lifetime of the system. Appropriate separation components are provided with the chosen e-spool unit.

The second point to remember is that the cables can only be stacked in the twisterband and then at a maximum of 2 high. In the chain of the reel this is not advised – if there were cables in the inner and outer sides of the chain, the outer side would have a longer path length as the reel coils and uncoils, which

would mean that there's relative motion between the two path runs, reducing cable life.

Both ends of the cables, at the twisterband infeed and the end of the energy chain, need to have strain relief, ensuring that they are properly tied down. This is particularly important in vertical installations to overcome the forces of gravity, which can pull the cables through the system.

The maximum cable diameter for use in e-spools is 17mm. If a cable with a large number of cores is required, this can be split up. For example, a 36 core power cable at 2.5mm² would be split into 3 cables of 12 cores each. In theory, larger cable diameters could be used but in practise, when the cables are bigger than 17mm, they are stiffer and therefore difficult to move.

Another point to bear in mind is that the maximum extraction and retraction speed is 1m/s. This assures that the tension of the spring or speed of the motor is harmonised with the speed of the e-spool thereby avoiding slack within the system.

The last point to consider is the cables themselves; for reeling systems, it is strongly advised to use a good dynamic cable. The complex twisting involved in the e-spool will shorten the lifetime of a standard static cable considerably – even with a low duty cycle, the non-linear effect can destroy the cable within a short time frame.

ARE THERE ANY OTHER POINTS TO CONSIDER?

When using e-spool for the first time, our engineers are at hand to offer support and guidance throughout the system design and installation. **ER**



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Manufacturing extravaganza set to return

The biennial co-located events; Drives & Controls, Smart Industry Expo, Fluid Power & Systems, Plant & Asset Management, and Air-Tech Exhibitions – are once again set to return to Birmingham's NEC (Halls 8, 9 and 10) from 10 -12 April 2018, alongside MACH 2018

New to the co-location of DFA events for 2018, is the inaugural Smart Industry Expo.

The new event will give exhibitors the opportunity to communicate directly with senior management across the whole of the UK industrial spectrum, from managing directors, financial directors, and owners to process/control and IT/ automation management, plus many more who are all seeking guidance in order to prepare for this smart engineering transformation.

The 2018 co-location will be at least

1000m² bigger than the 2016 exhibition, thanks to the addition of the new Smart Industry Expo event.

The entrance to the Smart Industry Expo will be dominated by a double-stand occupied by Schneider Electric, covering around 150m² – twice the area that the company had at the previous Drives show in 2016. Another exhibitor transferring to the new event is the sensor-maker ifm electronic, which has also increased its stand space, by 20m².

The Smart Industry Expo has also attracted

Festo (which has not appeared at the Drives Show for many years), as well as other well-known names such as Universal Robots, Harting, Panduit, Sigmatek, Senseye, Codra, Exor and Applied Automation.

Smart Industry Expo will be one of the UK's most comprehensive dedicated events focusing on the Fourth Industrial Revolution and transforming to a smart manufacturing era.

CO-LOCATION OF EVENTS

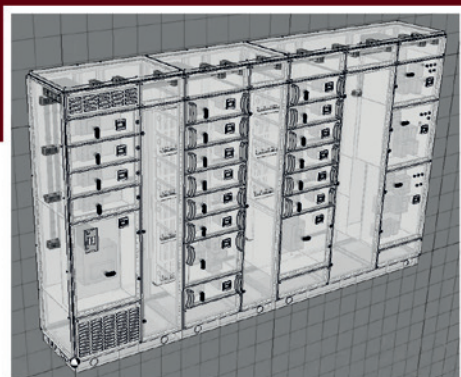
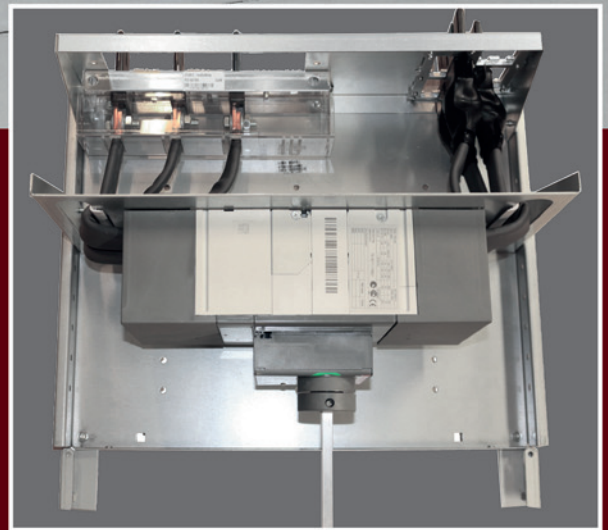
Drives & Controls Exhibition will once again bring together key suppliers of ►

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state-of-the-art equipment representing the multi-tasking culture of today's design engineer, covering critical areas such as energy efficiency, machine safety, drives, motion control, robotics and automation plus much more, all under one roof. With the advent of the smart factory, Drives & Controls Exhibition is an essential source of technological and engineering information.

More than 100 companies have already signed up to exhibit at the Drives Show, with a further 25 booking stands for the new Smart Industry Expo event, which is dedicated to the factory of the future.

First-time exhibitors in the Drives & Controls Show will include Charter Controls, Wiska, ETA Enclosures, Eldon, EBM Papst, Finder, Elmo Motion, Procentec, Fischer Connectors and Infranor. TEC Motors is returning with a 128m² stand that is 60% larger than the one it had at the 2016 show. Phoenix Contact is more than quadrupling the size of its stand from 16m² in 2016 to 72m² in 2018.

Other returning exhibitors include Beckhoff, B&R, Rittal, Siemens/ HMK, Weidmuller, Danfoss, WEG, Eplan, Beijer, Wago, Mitsubishi, Radwell, IGE-XAO and KEB.

Gambica and the European Transmission Distributors Association will again be hosting pavilions where members will be promoting their activities.

Following the success of the inaugural robotics demonstration zone at the 2016 show, this feature is returning with working displays of the latest in robot technologies, including collaborative devices. Elsewhere, visitors will be able to test their driving skills on a Formula 1 simulator on the Megadyne stand.

Other co-location of events running alongside Drives & Controls Exhibition and Smart Industry Expo, includes; Plant & Asset Management 2018, the UK's premier event for plant, asset, maintenance and works management engineers and directors, showcasing the very latest in condition monitoring, CMMS, outsourcing/contract maintenance, energy efficiency, boilers/ burners/combustion, handling and storage plus much more.

Industry spends huge sums of money maintaining its plant, machinery and building assets and, because of constantly increasing business and financial pressures, there is an on-going need to achieve the

maximum performance from those assets.

The combination of a highly focused exhibition with numerous leading companies showcasing their technologies and concurrent seminars really is a one-stop shop for all industrial engineering professionals to source solutions to these problems.

FLUID POWER & SYSTEMS 2018

While Fluid Power & Systems 2018, is the only event in the UK that is 100% focused on a comprehensive range of hydraulic and pneumatic equipment, together with products that facilitate better electro-mechanic system design and application for improved process automation, control, monitoring and analytics.

Fully supported by the British Fluid Power Association (BFPA), Fluid Power & Systems comprises the largest gathering of world-class companies displaying and demonstrating the latest in mechanical and electro-mechanical equipment.

A convenient one-stop shop

Chris Buxton, CEO of the British Fluid Power Association, commented on the Association's decision to exhibit again at Fluid Power & Systems: "There is no better event for the fluid power market than Fluid Power & Systems; thus, BFPA will be present at the 2018 outing with a larger than normal pavilion augmented with a dedicated Distributor pavilion co-located in the centre of Hall 8."

Whatever your industrial sector, whether engineering, construction, offshore/marine, oil & gas, agriculture/farming, automotive, aerospace etc., Fluid Power & Systems – with free entry for visitors – offers a convenient one-stop shop for all your fluid power and system requirements, including:

- Hydraulics: industrial and mobile, including pumps and power packs, cylinders, valves, motors, heat exchangers, and accumulators. Filters and sealing technologies.
- Pneumatics: valve and valve islands, linear and rotary actuators, air motors, FRLs and other treatment technologies.
- Systems: Electro-hydraulic & pneumatic

systems design; CAN bus technology; process automation; monitoring & control; modelling & simulation.

- Instrumentation: Sensors, switches and controls as applied to fluid power: Temperature, flow, pressure, liquid level, position.

AIR-TECH 2018

In addition Air-Tech 2018 is set to highlight current key themes related to the very latest in air compressor and related technology from companies from around the globe. The event is supported by the British Compressed Air Society (BCAS), and is the UK's only dedicated event for the compressed air and generators market.

Vanda Jones, the British Compressed Air Society's executive director, commented on its presence at the key industry event: "As the UK's only dedicated exhibition for the compressed air, generators and vacuum market, Air-Tech is an ideal chance for visitors to keep up to date with all the latest developments in our industry. For BCAS, it is an ideal opportunity to engage with manufacturers, distributors and end users alike, and for us to provide impartial advice about legislation, standards and technical issues. Events like Air-Tech are more vital than ever over the next two years because it brings our industry together to understand issues that affect us all; such as Brexit."

Visitors to Air-Tech will be able to see a wide range of equipment and solutions, including the following:

- Accumulators, actuators, air delivery systems and air motors.
- Compressors, cooler tools and cylinders.
- Vacuum systems and generators.
- Displays & meters.
- Filters, fittings, heat exchangers and hoses.
- Instruments, lubricators, manifolds and mobile compressors.
- Pumps, regulators, sensors, software and valves.

SEMINAR PROGRAMME

At a time when engineers are under increasing pressure, and time out of the office for attending exhibitions needs to be balanced against heavy workloads, one growing justification is attending a well-balanced and focused seminar programme where gaining further industry knowledge ►

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is at the core.

Located at the heart of the 2018 co-location is The Knowledge Hub, sponsored by Gardner Denver, which will feature a free comprehensive programme of seminars and panel discussions, with speakers offering expert insight and practical advice on important and topical issues.

As part of the ongoing global transformation to the smart manufacturing era, The Knowledge Hub's theme for 2018 is Smart Factory - Concept to Reality, the journey to a smart future.

Global initiatives and the technological paradigm shift associated with the Industrial Internet of Things, shows that there is a growing opportunity for industry to take advantage of the creativity and entrepreneurial nature of UK companies.

The uptake of smart technologies in the industrial sector will be central to our future, by improving our national productivity, creating higher value jobs, and arming our workforce with the digital skills required in the decades ahead.

The Knowledge Hub fully reflects this and will provide a fascinating insight into the potential plants of the future, with high profile panel discussions and seminars from leading figures in the industry, including:

- Lynne McGregor - Innovate UK
 - Chris Richards - EEF
 - Steve Brambley - GAMBICA
 - Dr Susan Scurlock - Primary Engineer
 - Dave Atkinson - Lloyds Bank
 - Chris Buxton - BFPA
 - Lina Huertas - HVM Catapult
 - Sam Turner - HVM Catapult
 - Jeremy Hadall - MTC
 - Paul Brooks - Santander
 - Mike Wilson - BARA
- Plus many more.

Over the course of the three-day seminar programme, visitors will have the opportunity to experience a complete smart roadmap, with each day of the Knowledge Hub representing a different stage of the smart journey covering all aspect of the digital transformation:

- Day 1: Concept
- Day 2: Transition
- Day 3: Implementation

The UK manufacturing sector has the potential to be a global leader in the industrial digital technology revolution. This year's Knowledge Hub theme Smart Factory - concept to reality, the journey to a smart future, will help ensure visitors seize the opportunities that exist and promote the benefits of adopting emerging digital technologies.

The variety and scope of the seminar programme for 2018 is extremely exciting, adding real value. The combination of leading manufacturing events, with a highly focused seminar programme, will give visitors a genuine opportunity to keep abreast of the latest industry developments.

For the full Knowledge Hub seminar programme, including session synopses, and to register, please visit:

www.fluidpowersystems-expo.com

www.airtech-expo.com

www.drives-expo.com


<http://www.smartindustry-expo.com>

www.maintenanceuk-expo.com

MAINTENANCE SEMINAR THEATRE

In addition to the Knowledge Hub, and complementing Plant & Asset Management 2018 will be a full programme of free technical seminars in a dedicated seminar theatre - The Maintenance Seminar Theatre - with speakers offering expert specific insight and practical advice on important and topical issues concerning today's maintenance professionals.

The Plant & Asset Management 2018 free seminars will include a cross section of topics including; the economic benefits of condition-based maintenance; Maintenance 4.0; improving maintenance and managing plant availability & lifecycle costs; oil sampling and analysis; maintenance, repair and overhaul of rotating equipment, plus much more. These are just a few of the seminar topics being presented in The Maintenance Seminar Theatre at the 2018 Plant & Asset Management Exhibition.

For the full Maintenance Seminar Theatre seminar programme, including session synopses, and to register, please visit: www.maintenanceuk-expo.com 

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- EV Charging
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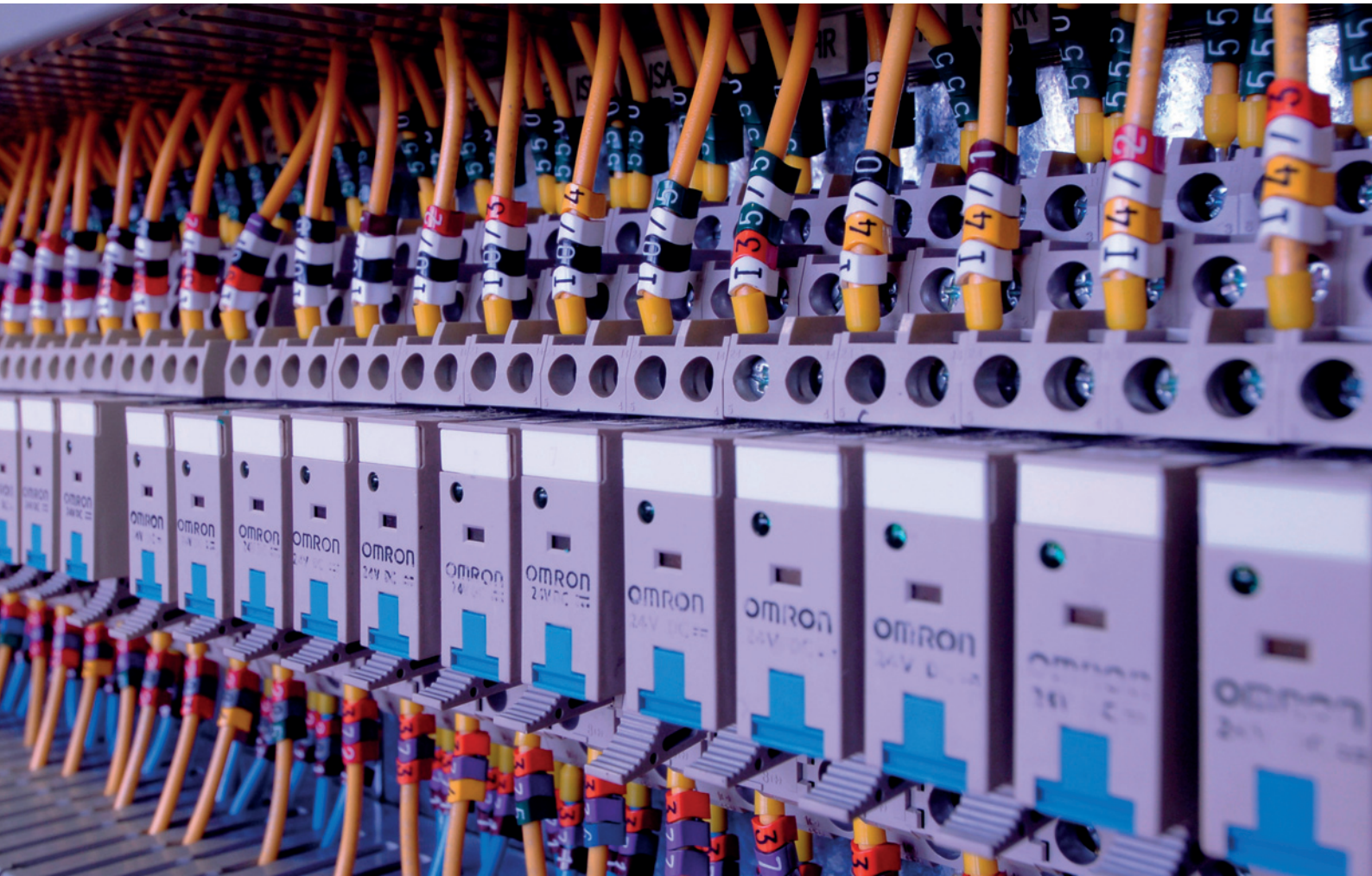
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Preventative maintenance for MCCs

The Beverly Clock has not been manually wound in more than 150 years, but its clever mechanism keeps it ticking with minimal problems. In spite of this, the clock has stopped working on a number of occasions.



By cleaning, maintenance and environmental changes the clock has been kept in operation. To keep a Motor Control Centre (MCC) running, it's important that maintenance is done proactively to prevent costly downtime. Here, Pat McLaughlin, operations director of Boulting Technology, explains why preventative maintenance is so important for MCCs.

MCCs are often at the heart of a manufacturing plant, providing power for equipment across the site. However, their important role often goes unrecognised - for a long time there has been a 'buy and forget' attitude to MCCs. It is a common

belief that once an MCC is installed, it can be left to run independently and maintenance is only needed in the case of a breakdown.

The problem with this approach is that an MCC fault, such as a starter failure, can lead to major downtime by causing loss of power to, or control of, plant equipment. The consequences of interruption to production can mean significant financial losses to a business. Even worse, if documentation is not kept up to date or spare parts are missing, there can be a considerable delay getting processes back up and running.

If the MCC is neglected for an extensive period of time, this can lead to a risk of

catastrophic failure, which leaves companies not only with downtime, but also with a hefty investment to replace the equipment.

LIFE EXPECTANCY

When purchasing a new MCC, the manufacturer will specify the life expectancy, or expected obsolescence, of the equipment. All MCCs have a finite lifetime, but not all of them meet initial expectations. Typically the life expectancy is around 20 years, but in some of the worst cases where components have failed in less than two years; this is usually when a fundamental lack of maintenance and other significant factors such as a very harsh environment has

dramatically reduced its life. Preventative maintenance is a key tool to ensure that the MCC's life expectancy is upheld.

In order to prolong the life of the MCC and limit the risk of breakdown, companies can enforce a Planned Preventative Maintenance (PPM) regime that involves proactive maintenance activities typically every three to six months. Incorporating a structured maintenance regime means that potential issues can be corrected before major downtime and ensures regulatory compliance.

REGULATORY COMPLIANCE

If an MCC is produced in Europe, it will be manufactured in accordance with EN61439 — the standard that defines specific requirements for switchgear and control gear assemblies. If it is later modified, there is a risk that the MCC may no longer comply with this standard. When maintenance involves replacing or changing components, companies need to be mindful of the regulations. Maintenance staff should check for any modifications, and ensure that documentation is up to date.

A new MCC will come with an Operation and Maintenance (O&M) manual with clear instructions on what procedures should be put in place and how to keep the MCC healthy and in-line with regulations. Companies can use this to plan preventative maintenance, ensuring that all important components are checked.

ASSESSING THE SITUATION

To find out the condition of the MCC, maintenance staff can conduct several checks. These can be intrusive or non-intrusive, from simple visual checks to more complex analysis.

It is important to make checks to establish the cleanliness, verify any software and check and backup the parameters on programmable devices. These parameters need to be up-to-date with records. Maintenance staff can make visual checks to look for any discolouration or burnt out equipment.

As MCCs are often tucked away, there is also a danger that vermin can be present. This can cause serious problems with cables or connectors becoming damaged or even destroyed. Maintenance staff should conduct regular checks on the physical condition of cabling. If problems are



It is important to remove the root cause

identified, steps can be taken to restore the MCC to a good condition. If problems are recurring, it is important to remove the root cause.

Restoring the MCC to how it should be is similar to taking a car in for a service.

Common maintenance activity includes cleaning and tidying equipment, cleaning air filtration systems and fans to reduce overheating and replacing the batteries of backup systems.

When a breakdown happens, it is common for maintenance to use a quick fix to get production going as quickly as possible. If previous maintenance has been done for a quick fix, this needs to be resolved by restoring everything to the manufacturer's specification.

The aim of this maintenance is to restore the MCC to its original condition. If any components show wear and tear, these can

be serviced or replaced. If there is a problem with the MCC, companies can then perform the required maintenance.


HEALTH AND SAFETY

MCCs generally present very few health and safety hazards, except when performing maintenance activities. It is vital that companies and their employees are aware of the hazards and take sufficient precautions to manage them. Before working on MCCs, maintenance staff should test the equipment to see if it is 'dead', follow correct procedures in the O&M manual and wear correct personal protective equipment (PPE). A risk assessment and method statement should be produced for each maintenance activity.

INTELLIGENT DEVICES

Smart controls on the MCC can be incorporated into preventative maintenance regimes by logging, informing and indicating the operator of important information. The operator can interpret this information to gauge how well the rest of the plant is performing, allowing for predictive maintenance across the rest of the facility. Therefore an intelligent MCC can be used to flag up instantaneous problems in other parts of the plant, for example if a fan motor is pulling an unusually high current. This allows the operator to investigate and correct the problem before it leads to a larger failure.

Intelligent systems can also store data over a number of days or weeks, meaning trends can be formed and any abnormalities identified well before they cause an issue. This allows more focused PPM regimes to be adopted. It also allows for feedback of results of maintenance activities in that trends should return to normal once they have been completed.

Planned, periodic inspections, simple visual checks and an up-to-date record of all maintenance and modifications are imperative for MCCs. To take things a step further, companies can use intelligent devices to predict where maintenance is required elsewhere in the plant. Proactive maintenance is key to MCCs meeting the manufacturer's life expectancy. By ironing out any faults MCCs can run just like the Beverly Clock, which keeps on ticking. 

The Jewel In The Crown Of UPS Maintenance – Riello UPS Diamond

With more than 30 years' experience in the uninterruptible power supply (UPS) sector, Leo Craig knows just how crucial trusted technical support is to keep data centres, factories, transport infrastructure, and vital public services across the country up and running



Craig is only too aware many of the heady power protection promises made by some maintenance providers don't always live up to their lofty expectations.

Which is why the Riello UPS General Manager is proving actions speak louder than words by launching a ground-breaking new guarantee which puts the customer firmly in control and is set to provide some much-needed shock-therapy to the entire industry.

According to Centrica's 2017 'UK Resilience Report', an astonishing 81% of businesses have experienced at least one power-related failure in the past year. Nearly half of all IT failures are caused by voltage disturbances, whether that's relatively minor spikes, sags, and surges, or more critical power outages. And with even the most conservative estimates suggesting that damaging downtime costs at least £5,000 per minute, such failures all add up to an enormous overall impact in terms of profitability, productivity, and reputation at a time when demands for resilient power supplies have never been greater.

It's clear a reliable and robust uninterruptible power supply (UPS) is your business's first and best defence against such downtime – the ultimate insurance policy that reduces the risk of going offline in the first place, and when the worst does happen,

helps get you back up and running as quickly as possible.

UPS systems are incredibly complex pieces of equipment providing your business with essential ongoing power protection. But as with any item of high-tech machinery, how well it is maintained will impact on reliability, performance, and its eventual lifespan. And no piece of electrical equipment is ever infallible – a UPS is likely to break down eventually.

Whereas a UPS is a data centre's must-have insurance policy, having a sturdy maintenance agreement for the UPS itself should be seen in a similar light, something that gives you long-lasting peace of mind.

PREMIUM POWER PROTECTION DESERVES PREMIUM CUSTOMER CARE

A UPS system is a premium product, whether it's helping power desktop PCs in a home office, the most advanced supercomputers in huge data centres, or state-of-the-art machinery in modern manufacturing factories.

Customers deserve similarly premium levels of aftercare too: clear emergency response times; speedy access to spare parts; technical support from fully-trained and certified engineers; regular Preventative Maintenance Visits (PMVs) at least once a year to

optimise system performance; and remote monitoring to proactively identify and solve problems before they ever become critical.

This vital support should be taken as a given. But far too many times we currently see providers putting their own needs before those of their customers. Maintenance contracts riddled with get-out clauses, full of “ifs and buts”, with little clarity as to what they really mean.

When the worst occurs and your system goes down, you need to know just how long it'll take to get the power back on. Emergency response times are crucial, but does what you're being promised live up to expectations? What even constitutes a “response”? Most providers pledge a four-hour response time at best, on the face of it exactly the rapid reaction you need. But is that simply an automated message acknowledging the issue, a phone call offering technical support, or a certified engineer on-site working to repair the fault? Do you even know?

And if you do receive a rapid response, it doesn't necessarily mean you'll get the problem fixed just as quickly. You could still be left waiting for days for a solution – think of all that damaging potential downtime.

When maintenance providers don't live up to their promises, they should be forced to face the consequences. But on too many occasions there simply aren't any. Customers are tied in to restrictive contracts with 90-day notice periods and have very few options in terms of recourse.

RIELLO UPS: DOING THINGS DIFFERENTLY

There is another way of doing things though. A better way. A forward-thinking approach where control is placed firmly in the hands of the customer. Over more than three decades, Riello UPS has built a hard-earned reputation as one of the UK's leading UPS suppliers.

Our product range covers UPS hardware and software suitable for all environments and load requirements, from 400VA through to 6.4MVA, manufactured using the most innovative and energy efficient technology. All this is backed up by dedicated support and aftercare from an in-house technical team who bring a wealth of industry experience and expertise.

Maintenance plans aren't one size fits all contracts, we tailor them to the specific needs of each customer. We are upfront and honest about what's covered – and what isn't – and our service level agreements (SLAs) are fair, transparent, and have meaning. When you sign on the dotted line you need to be certain about exactly what you'll get.

Emergency response times are guaranteed as part of our SLAs and customers can choose from 12 or 8 working hours, right down to same day 4 clock hours for the most urgent situations that demand the speediest solution.

RIELLO UPS DIAMOND – OUR GUARANTEE TO GET YOU BACK ONLINE (QUICKER THAN EVER)

Which leads us to our latest offering: Riello UPS Diamond. A new benchmark for UPS maintenance in the UK and our clearest commitment yet to putting the customer first.

And just as the excellence of the precious gemstone is assessed using the universal '4 Cs of quality', our industry-leading new maintenance package is built on 4 key principles:

- **Clarity:** 100% guaranteed response and fix times, no hidden charges
- **Custom:** bespoke support tailored to the customer's needs
- **Competence:** all engineers are fully-trained and certified
- **Coverage:** 24/7 availability, nationwide stock of spare parts, thermal imaging, replacement fans, remote monitoring

With our Diamond maintenance plan, not only do we guarantee a four-hour response time from a certified engineer on-site 24/7, 7 days a week. We also commit to a guaranteed fix within a further eight hours – a completely unique service.

And if we don't stick to that promise there's a price to pay... But only by us! If we fail to meet our targets, we'll face financial penalties that benefit the customer.

However, we're supremely confident we've got the capability to make sure our actions do indeed live up to our bold words.

Our entire technical support team are based here in the UK and are just a phone call away around the clock for immediate assistance. Unlike other manufacturers, Riello UPS stocks multimillion pounds worth of stock, spare parts, and components at our UK headquarters and in several strategically-placed warehouses throughout the country. So when disaster strikes, wherever you are based, we can dispatch replacement parts or even full UPS systems to reach your site within 24 hours – in many cases on the same day or within a few hours of a fault first being reported.

We understand just how important it is for customers to know the engineers installing, servicing, or repairing their UPS units are fully-trained and competent. That's why we introduced our own Certified Engineer training programme for both in-house technicians and engineers from authorised UPS resellers, so you can be sure they're 100% up to the task.

Going above and beyond like this isn't the exception with Riello UPS, it's the rule. Cutting-edge thermal imaging technology is used as standard during annual Preventative Maintenance Visits (PMVs), a modern technique that identifies “hotspots” virtually impossible for the human eye to detect. Replacement fans, one of the UPS consumables that needs changing most over time, are included in Riello UPS maintenance plans, unlike virtually all other providers.

Customers can also choose to benefit from our cloud-based remote monitoring service Riello Connect, where they and our maintenance team can study performance data remotely and pick up potential glitches before they have chance to develop into something far more serious.

It's commitment to excellence and added value such as this that you should be demanding from your UPS maintenance supplier. You are entrusting them with one of your business's most critical assets and deserve the reassurance that they are doing everything they can to keep your power protected at all times.





First commercial power-over-ethernet connected lighting system

Philips Lighting and TDC Erhverv, Denmark's largest supplier of integrated IT and communication technologies, have installed the first Power-over-Ethernet (PoE) connected lighting system in the Nordics, using network Cisco network technology.

The Philips lighting system in the newly built smart office in Albertslund Municipality in Copenhagen, Denmark, gives its building managers unique insights into energy use and space utilisation, while enabling office workers to personalise its office lighting using a smartphone app. The project is a key landmark in Copenhagen's Lighting Metropolis initiative.

The smart office features a Philips PoE connected lighting system with occupancy sensors integrated with Philips SmartBalance and Philips PowerBalance luminaires. Approximately 400 LED light fixtures are connected to Cisco's secure networking technology and powered by the small electric charge carried by the network's Ethernet cables, which also route data acquired by the sensors to the

building's management system.

Albertslund Municipality foresees the energy-efficient connected office lighting system as a paradigm shift in public digital management and service.

"The new connected lighting system provides us with an infrastructure fit for the digital age. The municipality expects that the results will be promising enough to broaden the use of such technology to ►

"You have a choice" is the unofficial motto of the competition in connections code of practice. Just because the DNO own the network in the area you require your connection it doesn't mean you have to accept the full quotation from them. Competition gives you a choice and ensures the best possible service for you as the customer.

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Non-Contestable works can only be carried out by the relevant DNO (this is ordinarily works the DNO need to carry out to facilitate your connection onto their network).

Contestable works can be carried out by either the DNO or by an accredited contractor; Companies that provide these services are known as an Independent Connection Providers (ICP). These require accreditation via the National Electrical Registration Scheme (NERS)/Lloyds Register; SPEC Ltd are a NERS accredited contractor upto 132kV

As an ICP, SPEC Ltd can carry out the following services under the contestable works:

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- Liaison with the DNO
- Design Works for your new connection
- Procure materials and plant for the connection work
- Trench excavation and duct installation - on site
- Trench excavation & duct installation – offsite
- Construction of substation buildings & civil works
- Cable Installation
- Substation plant installation and commissioning
- Excavation for jointing bay - on site
- Excavation for jointing bay - public highway
- Testing & Recording of assets installed by ICP

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other municipality buildings - with the initial focus on buildings used for administration, healthcare and learning. Environments where lighting can be adjusted by staff to meet their needs and have sensor-based functions are becoming increasingly important," said Niels Carsten Bluhme, Director of City, Environment, Culture & Employment at Albertslund Municipality.

The smart office represents a milestone in the EU-funded 'Lighting Metropolis' initiative, which plans to make the whole of Greater Copenhagen a vibrant laboratory for connected lighting. The Albertslund Municipality smart office is one of the initiative's initial projects and joins more than 25 other demonstration projects under development, from lighting for psychiatry to traffic lights and lighting for schools.

BRIGHT AND CONNECTED

The connected lighting system uses Cisco PoE switches that transmit power and data over standard ethernet cables. Data acquired by the sensors in the lighting fixtures will provide new insights into the building's use and operations. Information, such as light levels, energy consumption and room occupancy, will help building managers to optimize energy use and management of the office space. The connected lighting system also gives office workers the ability to control the lighting and other

building services with their smart phones. This supports the Municipality's goal of creating an excellent working environment that increases employee satisfaction and productivity, ensuring that employees have the right light for any given task.

"We are looking at an exciting future where we will see smart buildings that provide valuable information on their use. Light typically accounts for about 40% of a building's electricity use.

Switching to Philips connected LED lighting can result in electricity savings of up to 80% as well as lower maintenance costs, gains in productivity and last, but not least, an optimized working environment," says Astrid Simonsen Joos, CEO of Philips Lighting for the Nordic Region. "We are pleased with our groundbreaking collaboration with Cisco, TDC and Albertslund Municipality on this project, which is the first of its kind in the Nordic region," she added.

DIGITAL PARTNERSHIPS FOR THE FUTURE

This latest smart office implementation further underlines the capability of the global relationship between Philips Lighting and Cisco.


"Cisco has continuously been a leader in technology-driven innovation that helps us build a sustainable and intelligent future.



The smart office environment we have built in collaboration with Albertslund Municipality, TDC and Philips Lighting is a world-class example. A converged solution of network technology, electricity, light and dynamic input from office users has given us the opportunity to create a more energy efficient, vibrant and adaptable environment that paves the way for the future," said Claus Holm, Regional Sales Manager, Cisco Northern Europe.

TDC Erhverv installed the system and other technologies, including Wi-Fi and video conferencing equipment, and led the project's overall management.

"We are very pleased with this project that points to the future of offices. It is important for us to develop Denmark's digital capabilities and a project like this illustrates how a digital future may be created in partnership with public and private parties, showing the way forward," said Marina Lønning, CEO of TDC Erhverv.

The new smart office in Albertslund went into service in autumn 2017. 



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The three-phase CMC 430 extends the successful CMC family

The OMICRON success story started over 25 years ago with a single CMC model. The CMC family meanwhile covers a wide variety of applications – from the manual testing of electromechanical relays with a high burden, through to automated testing in IEC61850 environments.

In which application areas will the CMC 430 be found? Our new product takes on board the feedback from customers for a highly portable protection test set. We have pushed the limits of what is technically feasible: at 8.7 kg (19.2 lbs), the CMC 430 is currently not only the lightest three-phase protection test set in the world, it is also an extremely accurate calibrator. It is the ideal instrument for all the calibration tasks associated with power meters, transducers and power quality measuring instruments, and for relay testing with sensitive threshold values or low signal inputs.

UNCOMPROMISING DESIGN

The CMC 430 expands our portfolio with an extremely compact solution for applications in which portability is particularly

important, such as testing in remote stations and in installations that are expensive to reach or difficult to access. We have developed two clever transport options specially for the CMC 430: first up is a multi-functional carry case that does service as a worktop for a notebook and mouse and, secondly, a trolley with a backpack function. The housing has a reinforced surround to allow the device to be used without any concerns in the harshest conditions. The ergonomic handle, integrated into the housing, provides the highest degree of carrying comfort. The CMC 430 also remains fully operational across an ambient temperature range of -25 to +50°C.

POWERFUL KIT

From a technical viewpoint, users of the CMC 430 have access to an extensive range of kit and reserves of power. The test set possesses six electrically isolated analog and binary inputs, plus six voltage and three current outputs (6 x 150 V and 3 x 12.5 A respectively). One DC input (± 10 V/ ± 20 mA) and one Aux DC output (12 - 264 V) for an auxiliary voltage, a communications interface and some accessories complete the package.

For safety reasons, live outputs are identified acoustically and visually on the device itself. As all ports and control elements are located on the front of the device, a great deal of flexibility is permitted with regard to its positioning and it is particularly quick and easy to connect. In addition to its wired capability – using an Ethernet cable or USB port – it is also a very simple matter to connect it to a wireless network.

MATURE CONTROL SOFTWARE

Test engineers can take advantage of a range of proven software packages when using the device: apart from Test Universe, the comprehensive testing package, another solution suitable for quick manual tests is intuitive control software CMControl. This program is available for Windows PCs and Android tablets. The RelaySimTest software goes a step further to facilitate system-based tests and distributed testing across several CMCs.

EnerLyzer Live, the testing module, enables the CMC 430 to be used both for hybrid measurements in real time and comprehensive signal recording and analysis. The module supports the acquisition of analog and binary signals, IEC 61850 GOOSE messages, sampled values and the recording of transients.

ENERLYZER LIVE

The EnerLyzer Live measuring tool enhances the CMC 430 with additional functions for the analog and digital recording of measurements and signals:

- Live monitoring and analysis of all measured variables
- Hybrid measuring and recording of conventional signals, GOOSE messages and sampled values
- Time-stamped measurands using PTP or IRIG-B time sources
- Fault recording
- High measuring accuracy at a maximum sampling rate of up to 40 kHz





The lightest protection test set and calibrator

Our 3-phase test set **CMC 430** is the newest member of the CMC family and combines its outstanding performance as a relay tester and calibrator with hybrid measurement and recording facilities. Its lightweight and rugged design ensures excellent portability. Appropriate software tools also allow numerous applications from quick manual testing to distributed scheme tests which makes the CMC 430 a highly flexible solution.

Discover our new CMC family member.

www.omicronenergy.com/newCMC430

The power core paradigm shift

Modern electrical systems that use inductors, such as renewable applications, rely on efficient electronics for power conversion and switching. Here, Steve Hughes, managing director of power quality specialist REO UK, explains how the choice of electromagnetic core materials — particularly new ones like amorphous cores — can make all the difference to your application

According to the Fundamentals of Electric Circuits by Charles Alexander and Matthew Sadiku, “An inductor is a passive element designed to store energy in its magnetic field. They are used in power supplies, transformers, radios, TVs, radars and electric motors”.

An inductor is one of the three types of passive linear elements, along with capacitors and resistors, that make up a circuit. The main difference between a capacitor and an inductor is that, where a capacitor stores charge in an electrical field, an inductor stores the energy in a magnetic field.

Because an inductor opposes any change

in the direction of current flowing through it, it is particularly suited to blocking AC current and only letting DC through.

Although any material that conducts electrical current has inductive properties, to produce a practical inductor, a coil of conductive wire is wrapped around a core. More commonly known as a choke, coil or reactor, an inductor generates a magnetic field to store electrical energy when an electric current flows through it.

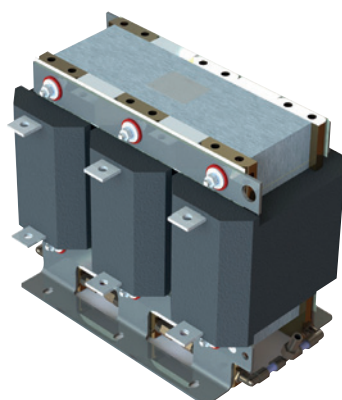
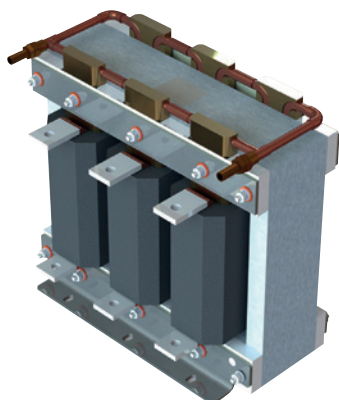
Storing energy is necessary in a variety of electronic applications. As the need to produce clean energy becomes increasingly important, high frequency switching and power transformation necessitates the need for energy-efficient components

that can switch faster and exhibit fewer conduction losses. Fifty years ago, for example, the high frequency inverters that make renewable generation possible today simply did not exist.

There are a few factors that can affect the strength of the inductive force generated in an inductor. These include the magnetic field flux density and the permeability of the core, which are affected by variables such as the number of turns of the coil, the cross sectional core-area covered by the coil, the length of the coil and the core material.

As electric current flows through the inductor’s coil, it generates a magnetic field. The number of magnetic field lines passing through the surface of the conductive





material (the magnetic intensity) affects the density of the resulting field, which is why the geometry and shape of the inductor is important to maximise the flux density.

CORE MATERIAL

Once the coil variables have been optimised, the next variable is the permeability of the core. Permeability is the measure of how well a material can support a magnetic field within itself. Using a ferromagnetic core with a high permeability — usually made of iron, but can also be made from nickel, cobalt or other iron alloys — significantly increases inductance compared to using a coil made from air or steel.

While a high permeability is preferable, the core's material affects its saturation limit. This is when an increase in the applied magnetic field intensity does not continue to magnetise the core material, leading to flux density levelling off. This effectively means the inductor stops acting as an inductor, potentially leading to excessive current waveforms damaging components such as sensitive semiconductor materials.

Similarly, the construction of the core material can also affect the level of losses the inductor incurs. Choosing the right core material can also impact other crucial factors such as weight, operating temperature and size of the finished inductor. Design engineers must consider these factors when choosing their core material.

FERRITE CORE

One of the most common types of core, ferrite cores are typically made from iron and its alloys. These cores were traditionally created in response to the need for inductors to operate at higher frequencies. However, as applications began to demand frequencies higher than 20 kHz, the traditional laminated core design became less and less effective.

Traditional laminated cores were made using thin sheets of iron coated in an insulating material and stacked together to form a core. This method provided an effective means of reducing losses such as eddy currents compared to solid cores.

For higher frequency applications, ferrite cores are created using iron powder mixed with an insulator and binder material and compressed under high pressure. The resulting core has a distributed air gap where the energy is stored in tiny air gaps that occur between the small particles of

“ Exotic core materials more accessible for use ”

iron in the substrate.

This means that the core delivers a high permeability with a uniform temperature and performance curve. It also means that the losses are distributed across the material. Producing ferrite cores in this manner is relatively cheap but is reserved for relatively low frequency applications and are only practical to manufacture to a diameter of around 140mm.

NANOCRYSTALLINE CORE

Although nanocrystalline cores are ostensibly similar in appearance to ferrite cores, typically taking a donut-shaped form, they are made from thin ribbon-like strips of nanocrystalline material. Although they are still made from iron, the grain size is much smaller, typically 10nm in size — hence the name, nanocrystalline.

This type of core is annealed during its manufacture, where a heat treatment

process is used to achieve a uniform atomic structure and significantly improve the magnetic permeability of the material, usually by a factor of 10–20. However, design engineers should take care with this material because the annealing process can leave the core brittle, so insulators should be used to reinforce the core's structural strength.

AMORPHOUS CORE

Recent advances in metallurgy have made once exotic core materials more accessible for use in components such as inductors. Also referred to as metallic glass or glassy metal an amorphous core is made by heating and rapidly cooling the ferromagnetic material to produce a thin foil with a non-crystalline structure.

In an amorphous core, the atoms are arranged in a non-uniform manner. For design engineers, amorphous metals offer the best of both worlds, offering very low losses at very high frequencies of 300kHz while retaining a high permeability.

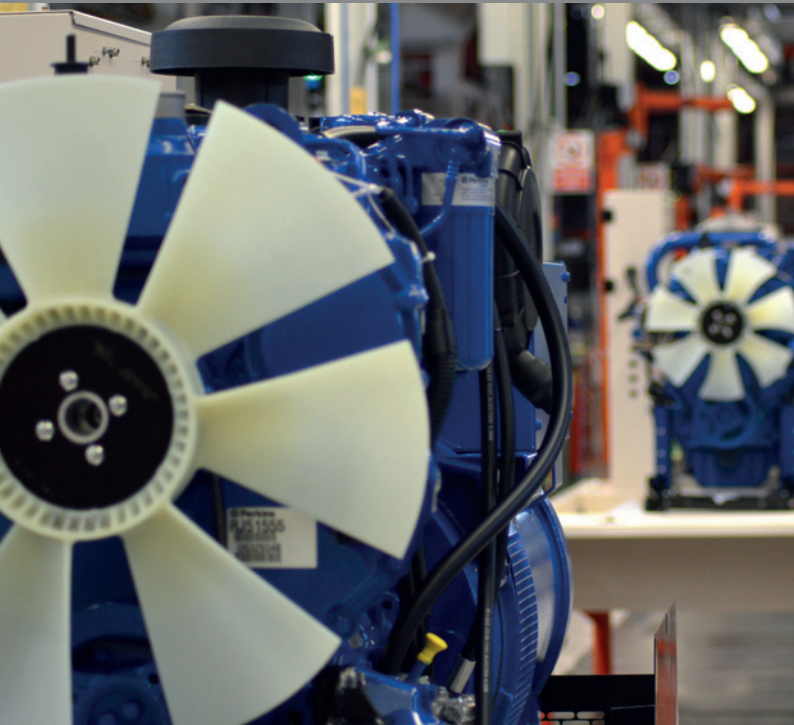
REO UK has made strides in developing usable inductors and chokes made from both nanocrystalline and amorphous core materials. We've made it easier for design engineers by constructing the components to avoid damage to the core or altering its physical structure and achieve superior inductance performance with very low stray values.

With a background specialising in wound components, REO UK also offers the flexibility of building components with an ingress protection rating of IP66 and water-cooling where required.

As clean energy applications begin to take the market by storm, semiconductor materials will continue to get smaller, and operate at higher frequencies. In this environment, it's important that design engineers continue to keep pace with market requirements by specifying the right material for the job. **ER**

Keeping your business online all the time

“The costs of losing electric power are almost unthinkable for many businesses now,” says Ann Brown, managing director of FG Wilson



FG Wilson has been around long enough, more than 50 years, to see a transformation in how customers use electric power today. “There’s always been a need for reliable power for critical applications,” says Brown, “but now there’s an even greater edge to it and much of this is driven by increasing reliance on digital technology. Fifteen or twenty years ago, businesses which lost electric power probably had a back-up plan to work with pen and paper. But today, when power is lost, everything else stops with it. Particularly for businesses which operate data centres either for themselves or for others, the costs of going offline due to power outages are colossal.”

That means for many businesses, the tried and tested generator set has a place. Ann says, “There are many ways to store or produce energy but when it comes to guaranteeing standby or emergency electrical power, in terms of cost,

“No better option than a generator set”

flexibility and responsiveness, there’s really no better option than a generator set.”

Now among a handful of global generator set brands, just over 50 years ago, FG Wilson was a small engineering company in Northern Ireland, owned and managed by its founder Fred Wilson. Then came the energy crisis of the early 1970s.

Turbulence in the Middle East led to restrictions in the supply of oil and higher prices which created huge transport and power infrastructure problems in many Western economies. With electricity rationed in the UK, Fred saw an opportunity. He chartered planes and flew in electricity generator sets from the US, auctioning them from a warehouse near Heathrow Airport. A booming global export business followed and FG Wilson quickly found itself on a steep growth curve as Wilson began manufacturing himself.

Today, FG Wilson manufactures generator sets powered by diesel or gas engines with power ratings from 6.8 – 2,500 kVA for small to very large businesses. Some customers can walk into a dealership and drive away with a ready-to-run generator set, while for others it’s a major project. That means working with consultants on load requirements, finding the right

generator set, designing the complete layout of the generator set including exhaust and fuel systems, installation and commissioning. Brown sees this as a key strength of FG Wilson: "With larger projects, it's about managing complexity and risk, so for a customer the choice of supplier is important. It's about trust and we achieve that through the stringent testing and validation of our products, the competency of our engineering teams at our factory and dealers, and with the onsite support from our dealers."

Customers with critical power needs have always been a key part of FG Wilson's business and the brand today has many customers in the healthcare, data centre, telecoms and banking sectors. For each, that means a full turnkey power system.

That ability to design bespoke power projects has been a core element of FG Wilson from day one. In the early 1970s, FG Wilson built its name designing, building and commissioning mini power stations in the Middle East, often in very inhospitable operating environments. The tradition continues today: in many European and Middle Eastern cities, it's possible to look across the skyline and pick out large landmark buildings which rely on FG Wilson generator sets for standby power. This custom-engineering business for large generator sets is important to Brown: "We know this is something which FG Wilson does well. We've a long track record of experience, within our organisation and within the dealer network, world class facilities."

The FG Wilson approach is simple. Brown says, "You could sum us up in 3 words: products, dealers and support."

Across the entire product range, FG Wilson takes the same approach to product design and launch, whether the generator set is large or small. Nothing is released for sale until it has been rigorously tested, validated and a full suite of parts is ready for customers. All of this goes on at an Engineering Centre in the UK, a \$26 million investment which is also home to Europe's largest Anechoic Chamber for noise testing. "This is how we operate," says Ann. "When we bring products to market, we know exactly how they will function for our customers in real conditions and we know we can support them fully. That's very important to us and we won't compromise on it. Just as an example, recently many of our generator sets in the Caribbean were battered by two major hurricanes, and then went on to operate for four months all day until mains power was restored. It's gladdened our hearts to get feedback and photos from customers who have relied on us and our products. When someone asks us why we do what we do, there's the answer."

Supporting those products is a network of dealers, painstakingly built up over decades. Ann says, "People starting in our industry often under-estimate how difficult it is to establish a strong distribution network. Yes, you can support customers locally yourself within a small radius of where you are, but once you go further, you need good local distribution partners."

Dealer support is backed up by a parts operation stocking more than 11,500 parts products and delivering up to 3 million parts a year. There is a large population of products to support: since 1990, which is as far back as their IT systems can report, over 600,000 FG Wilson generator sets have been installed worldwide. If you lined up every one of them, you could power an entire country the size of the UK.

So, what about the future? Ann says, "Demand for power is going to grow, everyone sees that. People will expect more stable power, zero tolerance of power outages. And I see a place for generator sets in that for the foreseeable future: technology has made engines much more efficient and that will continue to happen for as long as we use them. On customer sites, generator sets will co-exist more with other renewable power generation technology as part of a balanced solution. We're already seeing that: maybe the generator set is for critical power needs onsite while some electrical energy, perhaps derived from renewable sources, is stored for other applications."

Ann is optimistic for the future: "Today our designs have moved on while the philosophy of our founders remains as strong as ever: self-contained generator sets which are easy to install and operate, designed for a long and productive working life, supported by a wide and professional dealer network and which represent great value for money."

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Regional storage helps balance the National Grid

Noriker Power needed a reliable energy storage system to maintain the power stability of the grid. A solution for the West Midlands was designed by Vertiv to produce a 20 MW of Fast Frequency Response Dynamic power supply directly to the grid at 33 kV 50 Hz. Consistent power supply is of critical importance to the National Grid, especially during peak demand times. During low demand periods, energy is stored in batteries.

The past few years have seen the power generation industry shift significantly from using fossil fuels as primary power sources to renewable sources, such as wind, water and solar. This shift has triggered a reduction in the use of rotating machines which has led to lower electrical grid inertia and irregular power effects due to the unpredictable nature of wind and sun.

A key metric used by the National Grid to monitor inertia is grid frequency, which must be maintained within very tight tolerances. The National Grid invites forward thinking companies which can provide energy storage solutions to join the frequency response services (FRS); this includes fast frequency response dynamic (FFR-D), which helps maintain the stability of the grid. Noriker Power, which had been supplying conventional power to the UK electrical grid, recognised that joining the FRS required a

different technology. Vertiv was approached by Noriker Power to supply the advanced technology and technical speed of response needed, a solution only Vertiv could deliver.

ENERGY TRANSITION

Delivering the future energy needs of UK citizens efficiently in a low carbon economy is a complex mission. Over the last few years, the National Grid has maintained its focus on transitioning towards renewable energy for heat and transport and examined how the capability and versatility of the gas network can be used to meet customer demands. "The transition of our industry from fossil fuels to renewable sources is challenging as the task of predicting wind, sun and tidal energy is very complex," said Dr Marc Thomas, of Noriker Power.

In addition, the interest from UK Government and the public



Picture Credit: Hazel Capital



in the future direction of the energy industry has continued to rise. Energy supply in the future will need to be secure, sustainable and affordable. It has to operate safely and reliably for 365 days of the year, and it must facilitate decarbonisation of the energy industry. The challenge of achieving all of this is known as the 'energy trilemma'.

Dr Thomas added: "The transition in the UK to using renewable energy is having a major impact on the National Grid and requires very fast acting and reliable techniques to assist frequency control. We needed to find a robust and trustworthy solution which could store and deliver energy in real time to meet the requirements of dynamic frequency response and control." For Noriker Power, facilitating this transition to renewable energy in a cost-effective manner was a difficult task, especially when natural resources for power generation are unpredictable or unavailable.

DESIGN EXPERTISE

After assessing a variety of options, Noriker Power deployed both valve regulated lead acid (VRLA) and lithium-ion batteries connected to the Vertiv grid support inverters. These batteries are used to store power on standby in readiness for additional energy to be injected into the grid to meet demand in milliseconds. They are also able to correct grid power factor and harmonics. In addition, generators were also incorporated into the design as the site's power supply was 'non-symmetrical', as the grid connection available had different export and input kilowatt. Generators were also provided to take the strain from the batteries after a certain period, leading to a lower cost battery

INSTALLATION

The lithium-ion and VRLA batteries are connected to a series of Liebert 80-eXL GS inverters. The systems are monitored by Vertiv LIFE Services, a remote diagnostics system that is manned 24/7/365 by Vertiv service experts. This provides real-time insights and information needed to maximise uptime of the systems and give the customer peace of mind that the Liebert 80-eXL GS units are under surveillance by Vertiv service experts around the clock.

Dr Thomas added: "We looked at a broad range of options and decided that a combination of VRLA and lithium-ion batteries was the most effective way forward. To manage the flow and storage of our energy to these batteries, we needed to find a company that could work seamlessly with both battery types, as well as being able to work with the bespoke control system required to operate the site. The site's wide control system was designed in partnership with Vertiv's technical team, to enable the inverters to react to remote signals, in order to meet the National Grid requirements for this service."

Vertiv offers a range of inverters enabled for all types of



battery storage technology including lithium-ion and VRLA energy sources. These systems range from 100 kW to multiple MW solutions and are also able to supply large amounts of reactive power and fault currents to networks if required. Vertiv offers full turnkey packaged solutions, or supply only packages, which gives flexibility to prospecting solar and generator contractors around the world.

“ We are proud to have been involved in this innovative project using our inverter technology to support the UK National Grid ”

Mike O’Keeffe, vice president of Services for Vertiv in Europe, Middle East & Africa

MANAGING GRID FREQUENCY

The Liebert 80-eXL GS inverter technology allows Noriker Power to provide consistent power to the National Grid throughout peak frequency response demand times, as well as store energy generated during low demands periods. Vertiv's expertise in design resulted in the combination of VRLA and lithium-ion batteries, which deliver 20 MW of fast frequency response dynamic power directly to the UK power grid at 33 kV 50 Hz.

Mike O’Keeffe, vice president of services for Vertiv in Europe, Middle East & Africa, explained: "We are seeing companies responsible for power generation increasingly moving towards renewable sources, and the challenge is how to manage the frequency on the grid when these sources are not predictable or available in a cost-effective manner. We are proud to have been involved in this innovative project using our inverter technology to support the UK National Grid."

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At Olson Electronics we take great pride in our manufacturing process paying attention to the finest details. Here we discuss the industry and where we think it will lead into the near future.

WHAT HAVE BEEN THE MOST SIGNIFICANT CHANGES TO THE INDUSTRY OVER THE PAST FIVE YEARS?

In the past 5 years the industry has changed dramatically in terms of computer and security networks, I notice more and more people are coming off the typical cat5e, 6, 6a and moving more towards Fibre and trying to futureproof the network wherever possible. This makes perfect sense as it then eliminates any time wasting on continuous upgrades on a daily or weekly basis as we move forward. There is no way people can stay in the dark ages anymore after all technology is only ever evolving and will continue to do so.

WHAT HAVE BEEN/ARE THE MAIN CHALLENGES FOR YOUR SECTOR?

Our challenges mainly are to do with the type of PDU's now available, we are talking low budget, unlike the robust steel construction with high quality components we are used to. Power is the most critical part of a network, why would you cut corners on the quality of the source you need most? These are our questions and time and time again we will get customers coming back to us after buying a lower cost PDU reporting that it has failed and how quickly can we turn it around to ship a brand-new Olson PDU out to them. This can be somewhat a challenge it just depends what the customer knows about how we manufacture products. I would also say that another challenge for the data centre's is the cost of energy.

WHERE DO YOU SEE THE DATA CENTRE INDUSTRY HEADING IN THE FUTURE?

In terms of PDU's and changes there, I am noticing the demand for intelligence more and more. I think that there will



be a lot more intelligent plug and play solutions in the data centres than there currently is because it is so much easier and quicker to install. Various copper and fibre trunks in this style are often used saving lots of time but with this time saving technology it also comes at quite a price. Technology and solutions for data cabling infrastructure will just keep getting more expensive as we move along and networks are upgraded. A PDU is only one small part of the network infrastructure but as the industry as a

whole is ever growing, so is the PDU market alongside this.

WHAT WILL BE THE MARKET DRIVERS FOR THE FUTURE?

I think one of the biggest market drivers will be versatility with regards to products, as opposed to having so many different products (PDU's), perhaps the way forward would be one product that is entirely interchangeable with different add ons/modules. This is not only cost effective for manufacturers like ourselves but also cost effective for the customer, meaning perhaps they have one product that can have eight different configurations rather than just eight separate products that all do something different, this would be a smart solution to offer and a real value adder for Olson's portfolio

HOW IS OLSON KEEPING ABREAST OF CURRENT AND FUTURE INDUSTRY DEVELOPMENTS, AND WHAT LIES AHEAD FOR THE COMPANY?

We get a lot of enquiries for intelligent PDU's which is something we did not have in the past. Whilst we offer hundreds of different variations of PDU the intelligence is something missing and a critical part for a lot of our customers, especially in the data centre. The intelligent PDU range from Olson will launch later in the year, bringing a lot more offering for data centre customers.

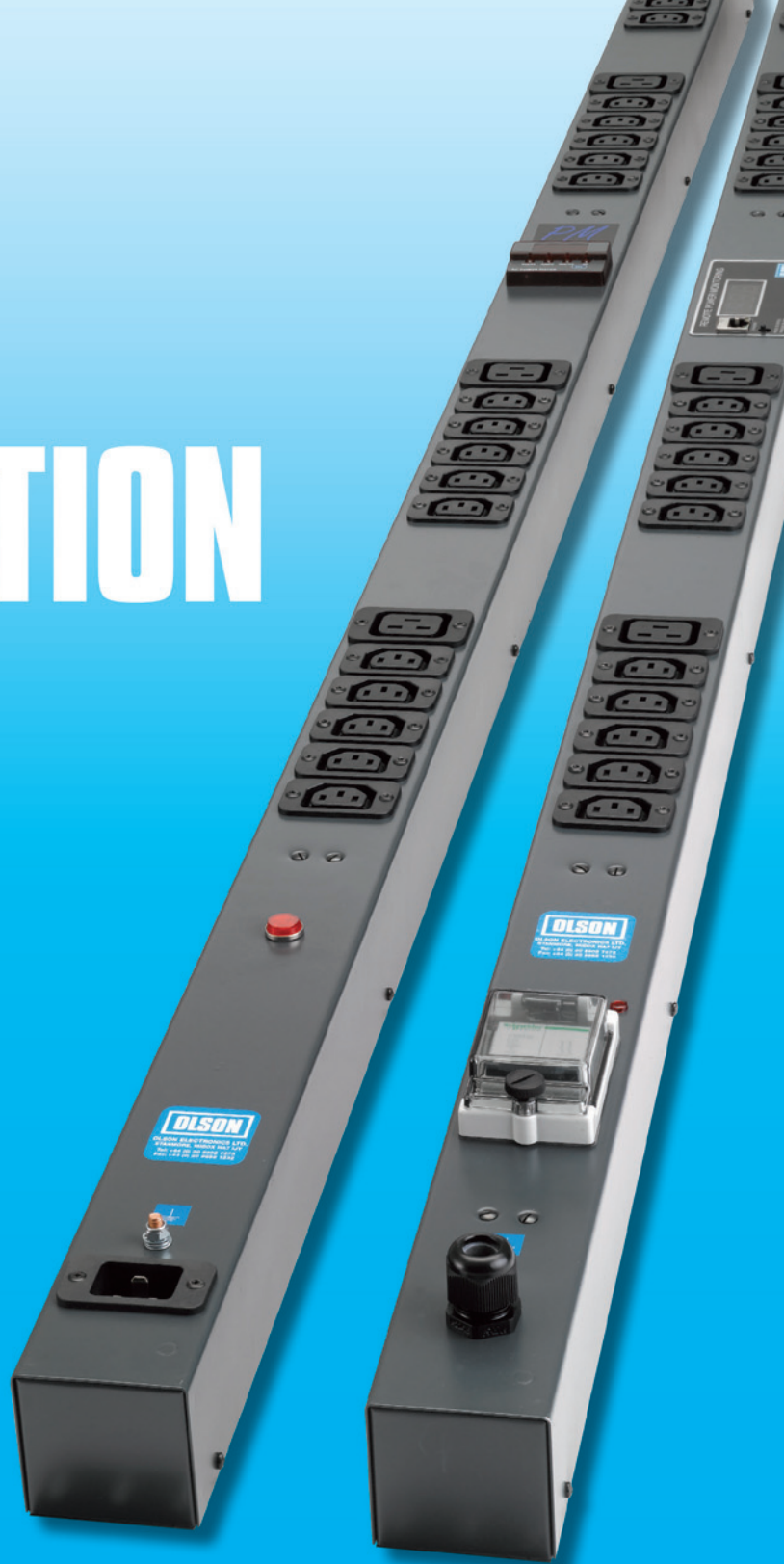
We are very proud to be a British manufacturer and we are only ever evolving ourselves, expanding the business and our portfolio. Olson customer service is second to none and has been for the past 50 plus years and that is one thing about Olson that will never, ever change. The fact that our lead times are so short and we can often manufacture within a few hours allowing for next day delivery is a huge strength of Olson.

Our can-do attitude and speed combined with our attentive nature and expertise is what keeps our customers returning again and again and we wouldn't have it any other way.



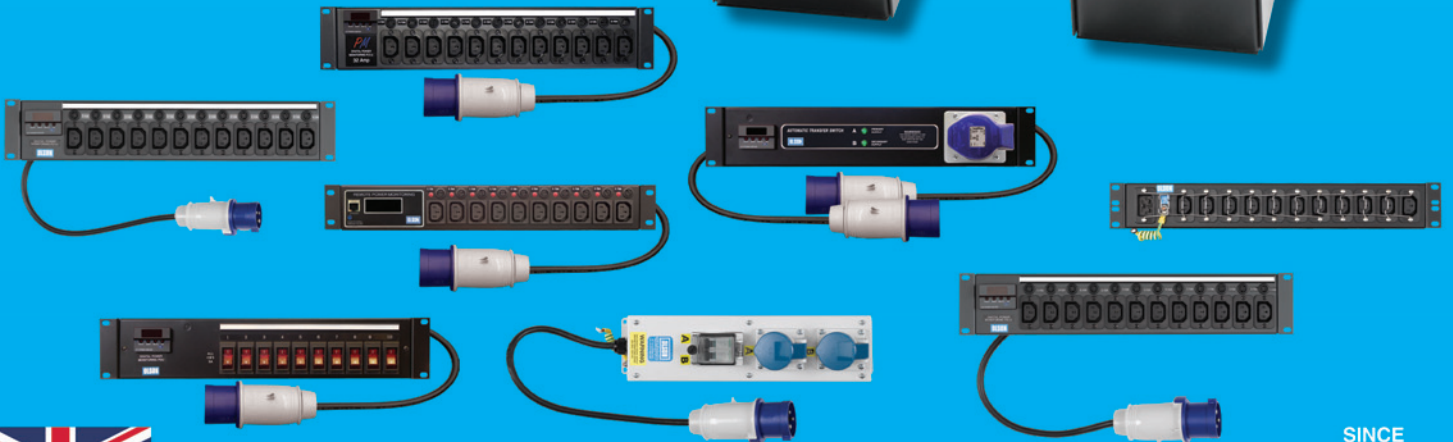
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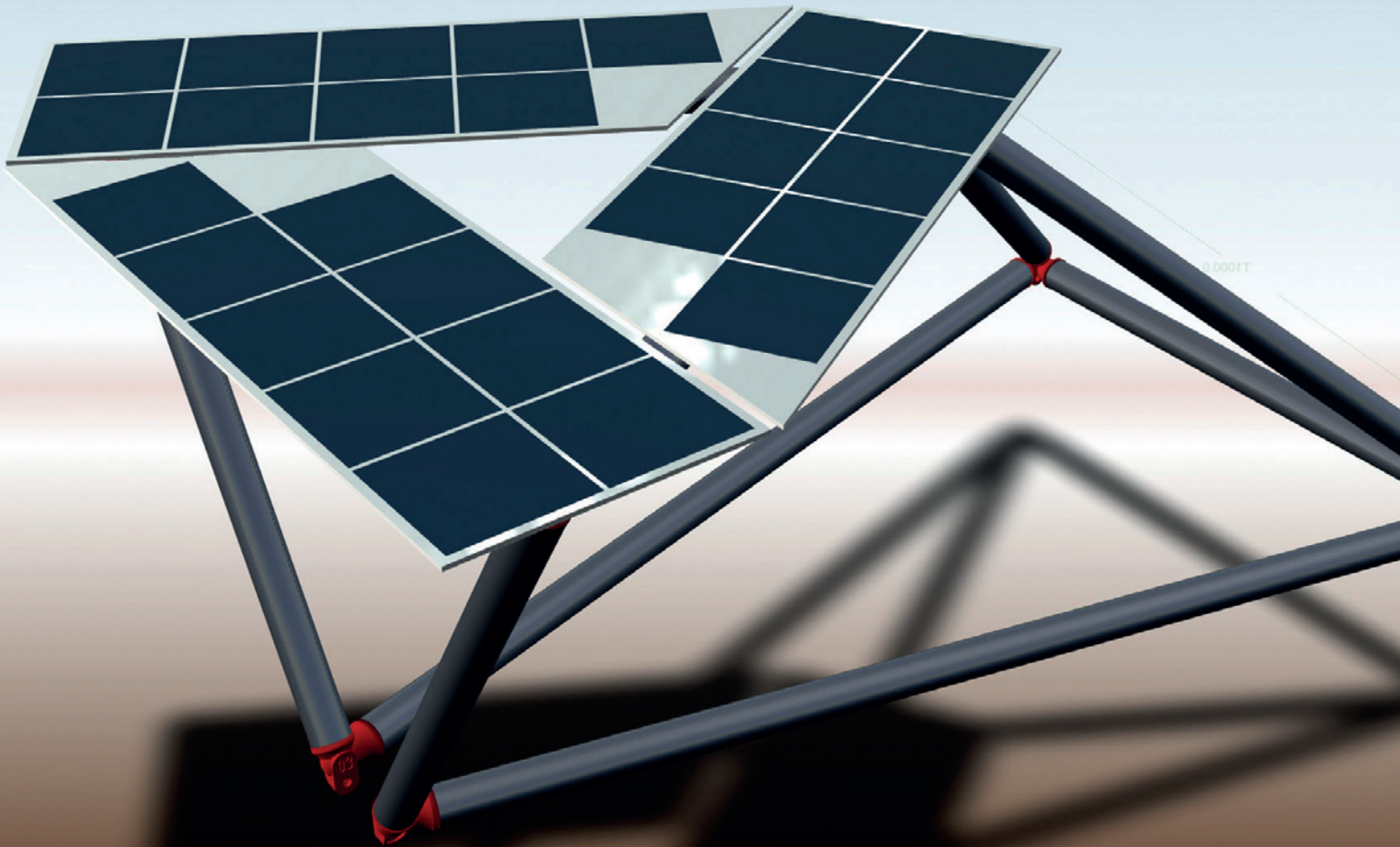
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New ultra-light solar module

OPES Solutions, a supplier of off-grid solar modules for grid independent power supply, has developed an ultra-light solar module together with the Fraunhofer Center for Silicon Photovoltaics CSP



While conventional crystalline solar modules weigh around 60 grams per watt, O-Lite Plus modules weigh only about 20 grams per watt. This corresponds to a weight reduction of two thirds.

The costs of the new frameless module in series production are on a par with those of conventional modules.

Pictures of the O-Lite module on an experimental mounting system for download (picture: watt-r): <https://goo.gl/HrgQ9B>

The module backside made of polyethylene terephthalate (PET) on which mono or polycrystalline solar cells are laminated is largely responsible for the weight reduction. The tried-and-tested material is also used for rotor blades in the wind industry as well as in shipbuilding and automotive engineering and is particularly cost-effective due to its high production volumes.

"The material know-how and the many years of experience of our partner Gaugler & Lutz will benefit us here," says Robert

Händel, founder and CEO of OPES Solutions. Compared to alternative lightweight substrates such as fiberglass or PCB, the PET material used by OPES Solutions is even lighter. Since it is easy to process and has similar coefficients of heat and expansion as solar cells, O-LitePlus modules are also particularly durable.

FLEXIBLE OFF-GRID USE AND INTEGRATED CONNECTORS
Due to the possibility of producing curved modules and their low weight, O-Lite Plus modules are particularly suitable for weight-sensitive areas of application such as vehicles, boats and small devices, which also place high demands on durability. Due to new and optionally usable variants of junction boxes and connectors, the modules can be plugged together in a modular manner.

The module concept was developed together with the Fraunhofer CSP in Halle. The institute also provided advice on material selection and is responsible for product and durability testing. ►

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COMBINATION OF OFF-GRID KNOW-HOW AND RESEARCH COMPETENCE IS DECISIVE

“For the development of O-LitePlus, we have combined the R&D competence of the Fraunhofer CSP with our off-grid and production experience. It was only through this cooperation that we were able to develop the new ultra-light, durable and attractively priced generation of modules, which is now in demand among other things from

●● Focused on the assessment of the reliability of solar cells ●●


vehicle manufacturers and bike sharing providers. As far as we know, the O-LitePlus is the lightest module in the world,” continues Robert Händel.

The Fraunhofer CSP conducts applied research into silicon crystallisation, wafer production, solar cell characterisation and module technology, developing in the process new technologies,

production processes and product concepts along the entire photovoltaic value chain.

The Centre’s work is focused on the assessment of the reliability of solar cells and modules under laboratory and operating conditions as well as electrical, optical, mechanical and micro-structural material and component characterisation. Focusing its activities in this way enables the Centre to develop measurement methods, devices and production processes for components and materials based on an understanding of failure mechanisms and offers increased levels of reliability.

The portfolio of research activities in the field of photovoltaics is complemented by research into renewable hydrogen production and the storage and utilisation of this gas, in particular the development, characterisation and testing of new materials for fuel cells and electrolyzers, as well as the simulations and economic feasibility studies of decentralised photovoltaic electrolysis systems.

The Fraunhofer CSP is a joint initiative of the Fraunhofer Institute for Microstructure of Materials and Systems IMWS and the Fraunhofer Institute for Solar Energy Systems ISE. 



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Crisis threatens to derail rollout

With tens of millions of homes yet to have smart meters installed, utilities and energy skills specialist Develop Training Ltd (DTL) has ramped up its programme to tackle the skills crisis that threatens to derail the rollout



As DTL reported in its smart metering whitepaper, the government originally required suppliers to install smart meters in the homes of all domestic customers and small businesses by the end of 2020. Even though the government has back-pedalled on that requirement, DTL still expects to see a spike in demand for trained installers through 2018 and beyond.

In response, the training company has created a new smart meter team, and is now delivering specialist courses at its Swindon centre as well as at its headquarters in Derby and bases in Northern Ireland, Scotland and Yorkshire.

The new team comprises qualified lecturers with hands-on experience of smart meter installation, led by Gavin Davies, DTL's delivery manager for Energy. Gavin had ten years' experience in the domestic gas industry prior to moving into education. He is supported by Nicola Smith, Lee Morgan and David Hudson.

Prior to joining DTL, Smith spent several years as a smart meter engineer for British Gas after completing a smart meter apprenticeship with the same company in 2013. Lee Morgan, a former military instructor on engineering, health and safety, fire safety and security, brings 30 years' experience of working with gas (both commercial and domestic), and electricity (telecommunications), to DTL's Swindon training centre. Morgan has been working in smart metering since 2011 and has previously worked for British Gas, SSE, nPower and the MOD.

Completing the DTL smart metering team is David Hudson who, prior to joining DTL, spent two years delivering smart metering apprenticeships for British Gas, having previously worked for two years as a smart meter installer.

Smart meter installers are responsible for the installation, exchange, commission, maintenance and eventual decommissioning of smart meter systems. Many more installers are required nationwide. In most cases, even experienced engineers require upskilling to carry out smart meter installations.

DTL has recognised the UK's need to bring on more talented engineers to support the smart metering initiative.

DTL offers a variety of smart meter training courses and supporting resources to aid employers in developing a competent, qualified and accredited workforce for the future.

These include:

- Smart meter upskilling to MOCOPA (for existing gas installers)
- Upskilling to gas via Guild of Gas Fitting Operatives (GGFO) Foundation
- Upskilling for all installer levels
- Trailblazer apprenticeship (for new entrants to the industry)
- Mentoring & coaching for smart meter supervisors
- City & Guilds Level 2 Diploma in Smart Metering (for those with some relevant knowledge & skills)*

Companies including Morrison Data Services, Siemens and Energy Assets already use DTL's training services in this area.

"DTL has been at the forefront of smart meter training for several years and boasts a highly qualified delivery team," said Chris Wall, sales and marketing director, "We are pleased to now offer smart meter training capabilities at our Swindon facility in addition to the state-of-the-art facilities in Linlithgow and Derby, giving DTL coverage UK-wide." **ER**

LIGHTING THE WAY IN VALENCIA

Contour from Luceco has been installed at the Valencia-Cabañal Railway Station located in the Cabañal-Cañamelar neighbourhood in the Spanish city of Valencia. Contour is the ideal linear fluorescent luminaire replacement where continuous runs of illumination are required in many commercial and service environments.

The LED lighting system consists of connectable modules offered in 600mm, 1200mm, 1500mm and 1800mm lengths that can be surface mounted, suspended or recessed. Seamless lines of cost effective LED lighting can be created with interconnecting power and module connectors including corners, T junction and cross pieces. Other options include direct and indirect lighting distribution as well as DALI and emergency Self-Test variants.



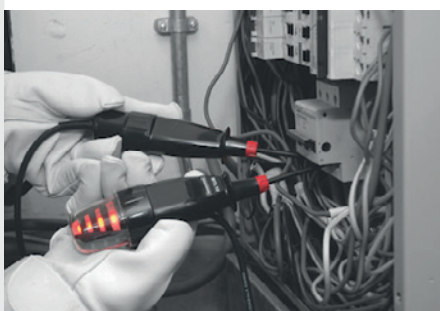
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SHINE A LIGHT ON SAFE ISOLATION

Proving dead is an essential part of all safe isolation processes. The latest Drummond test lamps from Martindale Electric make this safer and easy to achieve in all environments. Even where access is difficult the interchangeable straight and right angle probes make for safe and simple voltage measurements.

Probably the most significant development has been the move to high intensity LEDs, enabling the display of discrete voltages over a 360° viewing angle, even in bright sunlight for the most difficult of applications. The visibility from all angles is unique when compared to conventional two pole testers.

The new generation retain all the existing benefits of the original test lamp with none of the drawbacks.



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www.martindale-electric.co.uk

LEADING-EDGE UPS AT DATA CENTRE WORLD

Centiel, the UK subsidiary of Swiss-based UPS manufacturer, Centiel SA, will exhibit its UPS solutions at Data Centre World to be held at Excel in London, 21-22 March on stand: D1035. Centiel will, for the first time in the UK, demonstrate: CumulusPowerM its three-phase, modular UPS system which offers class leading "9 nines" system availability and very low total cost of ownership plus: PremiumTowerTM, a three phase standalone UPS for critical loads of between 10kW and 60kW.

Michael Brooks, managing director of Centiel confirms: "Availability continues to be the major concern for data center managers and those working in other environments requiring clean, continuous power. Unlike traditional multi-module systems, the CumulusPowerTM technology combines a unique Intelligent Module Technology (IMT), with a fault-tolerant parallel Distributed Active Redundant Architecture (DARA), to offer industry leading availability of 99.999999%.



Centiel • 01420 82031
www.centiel.co.uk

UK SERVICE AND TRAINING CENTRE

OMICRON – a global company which serves the electrical power industry with innovative products and services for the testing and monitoring of assets – has purpose-built a new Service and Training centre in the Midlands which provides state-of-the-art facilities and test objects. Expert trainers provide a range of professional courses for technical staff from electrical utilities, industrial plants, equipment manufacturers and service companies.

OMICRON Academy training courses are built around real testing situations, through which delegates gain knowledge of assets and applications, fully utilise OMICRON test equipment and apply efficient test procedures to interpret test and measurement results.



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REDUCED INSTALLATION COSTS

Wieland Electric is expanding its range of industrial network solutions with the introduction of the wienet UMS 8-4PoE-W Ethernet switch. The switch has eight Fast Ethernet ports, four of which are PoE capable with an injector function. wienet UMS 8-4PoE-W switches are ideally suited for use with network devices that require little power, for example IP cameras. The joint transfer of energy and data on an Ethernet cable simplifies installation and reduces the cost of the network.

wienet UMS 8-4PoE-W is equipped with broadcast-storm and Ethernet ESD, in addition to power line EFT protection, thus preventing network disturbances and outages. Up to 15.4 W power at 48 V DC can be fed per PoE port according to IEEE 802.3af.



Wieland Electric • 01483 531213
www.wieland.co.uk

UK DEBUT AT DATA CENTRE WORLD

Yuasa will put on a powerful display at this year's Data Centre World by displaying a state-of-the-art dual chemical battery system. The exhibition at Excel, London on 21/22 March will be the first time the system, which utilises both Lithium-ion and Valve Regulated Lead Acid (VRLA) battery technology, has been on show in the UK.

The system has been developed to offer the low cost and recyclability of VRLA together with the higher efficiency and operational flexibility of li-ion. It allows lower capital cost UPS systems to be installed with lower operating costs and reduced electricity consumption.



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